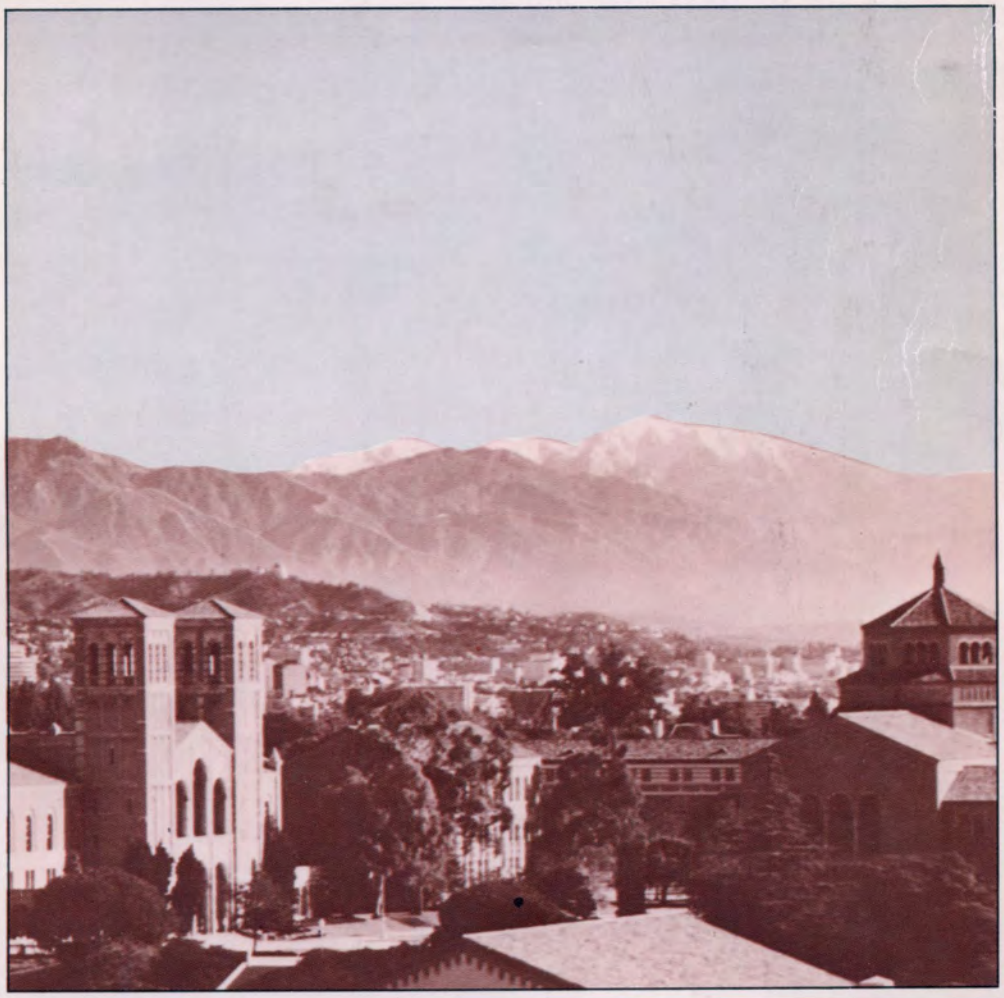
UCLA

GENERAL CATALOG
1979–1980



UNIVERSITY OF CALIFORNIA, LOS ANGELES MAY 1979

GENERAL CATALOG 1979–1980

UNIVERSITY OF CALIFORNIA LOS ANGELES MAY 1979

$1.50

A WORD FROM THE CHANCELLOR...

As we mark the Golden Year on the Westwood campus, are we celebrating UCLA's age or its youthfulness? Probably both.

Fifty years is a long period in a human life, but it is short in the history of universities, some of which date back to the Middle Ages.

Both youth and age are worth celebrating. In the words of Longfellow, "Age is opportunity no less than youth itself, though in a different dress."

UCLA, though still youthful, is not the same institution that opened its doors at Westwood in 1929; in those fifty years the university has grown rapidly in academic stature and developed into a major force in American education. Further development lies ahead. The university must keep its options open in dealing with changing conditions in society and in the world.

One thing has not changed—the opportunity for a quality education. The major change has been in the increasing richness and diversity of courses and curricula represented by this catalog.

We wish you well as you make your choices among these offerings. May they serve you well in UCLA's Golden Year.

Charles E. Young

"The University seeks to promote and sustain an environment conducive to sharing, extending and critically examining knowledge and values, and to furthering the search for wisdom."

...from the preface, UCLA Faculty Code

UCLA (USPS 646-680)

• Volume 19, Number 10 • May 30, 1979

A series of administrative publications of the University of California, 405 Hilgard Avenue, Los Angeles, California 90024. Second-class postage paid at Los Angeles, California. Sixteen a year—one issue in October, June and July; two issues in September, November, February, April and September; three issues in May.

The registered cable address of the University of California Los Angeles, is UCLA.

About the General Catalog...

Although efforts have been made to assure the accuracy of this catalog, all courses, course descriptions, instructor designations, and curricular and degree requirements contained herein are subject to change or deletion without notice. For current information and special rules and requirements, consult the appropriate department, school, or college, or the Graduate Division.

Other Information...

Other information about UCLA may be found in the announcements of the schools of Architecture and Urban Planning, Dentistry, Education, Engineering and Applied Science, Law, Library and Information Science, Management, Medicine, Nursing, Public Health, and Social Welfare; and in the announcements of the College of Fine Arts and The Graduate Division.

Contents

CALENDAR iv
MAP vii
ACADEMICS: UNDERGRADUATE EDUCATION AT UCLA 1
ACADEMICS: GRADUATE EDUCATION AT UCLA 21
ACADEMICS: RESOURCES TO HELP YOU 45
MONEY AT UCLA 51
HOUSING AT UCLA 57
TRANSPORTATION AT UCLA 58
STUDENT SERVICES AT UCLA 59
RECREATION AND PARTICIPATION AT UCLA 66
ADMISSION, REGISTRATION, ENROLLMENT AND STUDENT CONDUCT 67
COURSES OF INSTRUCTION 74
- Aerospace Studies 75
- African Area Studies 75
- Anatomy 77
  - Medical History 78
- Anesthesiology 79
- Anthropology 80
- Applied Linguistics 87
- Archaeology 88
- Architecture and Urban Planning 90
- Art 96
- Asian American Studies 101
- Astronomy 102
- Atmospheric Sciences 103
- Biochemistry 106
- Biological Chemistry 106
- Biology 107
- Biomathematics 114
- Chemistry 115
- Classics 120
- Communication Studies 123
- Comparative Literature 124
- Computer Sciences 127
- Council on Educational Development 127
- Dance 127
- Dentistry (Oral Biology) 129
- Earth and Space Sciences 130
- Economics 137
  - Business Economics Education 141
- Education 141
- Engineering and Applied Science 148
- English 167
  - English as a Second Language 173
- Environmental Science and Engineering 174
- Ethnic Arts 175
- Folklore and Mythology 176
- Foreign Literature in Translation 179
- French 179
- Genetics 183
- Geochemistry 183
- Geography 183
- Geology (See Earth and Space Sciences) 189
- Geophysics and Planetary Physics 189
- Geophysics and Space Physics (See Earth and Space Sciences) 190
- Germanic Languages 190
  - Scandinavian Languages 193
- History 195
- Humanities 204
- Immunology 205
- Indo-European Studies 205
- Interdisciplinary Colloquia 207
- Islamic Studies 207
- Italian 209
- Journalism 212
- Kinesiology 212
- Latin American Studies 215
- Law 218
- Library and Information Science 219
- Linguistics 221
- Management 227
- Mathematics 236
- Medical History (See Anatomy) 242
- Meterology (See Atmospheric Sciences) 242
- Microbiology 242
- Microbiology 244
- Microbiology and Immunology 244
- Military Science 246
- Molecular Biology 247
- Music 248
- Naval Science 254
- Near Eastern Languages and Cultures 254
- Neuroscience 260
- Nursing 261
- Oriental Languages 264
- Pathology 267
- Pharmacology 268
- Philosophy 269
- Physics 273
- Physiology 276
- Planetary and Space Science (See Geophysics and Space Physics) 278
- Plant Science (See Department of Biology) 278
- Political Science 278
- Psychiatry and Biobehavioral Sciences 284
- Psychology 292
- Public Health 299
- Radiological Sciences 307
- Romance Linguistics and Literature 309
- Slavic Languages and Literatures 310
- Social Welfare 313
- Sociology 314
- Spanish and Portuguese 319
- Speech 323
- Statistics 324
- Subject A Requirement 324
- Theater Arts 324
- Zoology (See Department of Biology) 332

ADMINISTRATIVE OFFICERS 332
INDEX 335

Acknowledgements

The 1979—1980 edition of the UCLA General Catalog caps a year-long writing and editing effort which involved the active participation of many people on campus.

Special thanks to the members of the General Catalog Editorial Review Committee: Diane Brandt, Graduate Division; Associate Dean Paul Farrington, College of Letters and Science; Ray Goldstone, Dean of Students Office; Leann Hennig, Office of Undergraduate Affairs; David Palmer, Psychological and Counseling Serivces; Karen Porche, Office of Academic Services; Dean Charles Speroni, College of Fine Arts; and Richard Stern, Assistant Dean of Undergraduate Students, School of Engineering and Applied Science. Thanks, too, to the Student Relations Committee of the UCLA Alumni Association.

This book was produced by UCLA Publication Services Department. Contents co-ordinated by Jo Ann Trento. Edited by David Lees. Cover and title page design by Serena Sharp.

Please note

Every effort has been made to insure the accuracy of the information presented in the General Catalog. However, all courses, course descriptions, instructor designations and curricular and degree requirements described herein are subject to change or deletion without notice. You may consult the appropriate department, school, college, or division mentioned in the Catalog for further information.

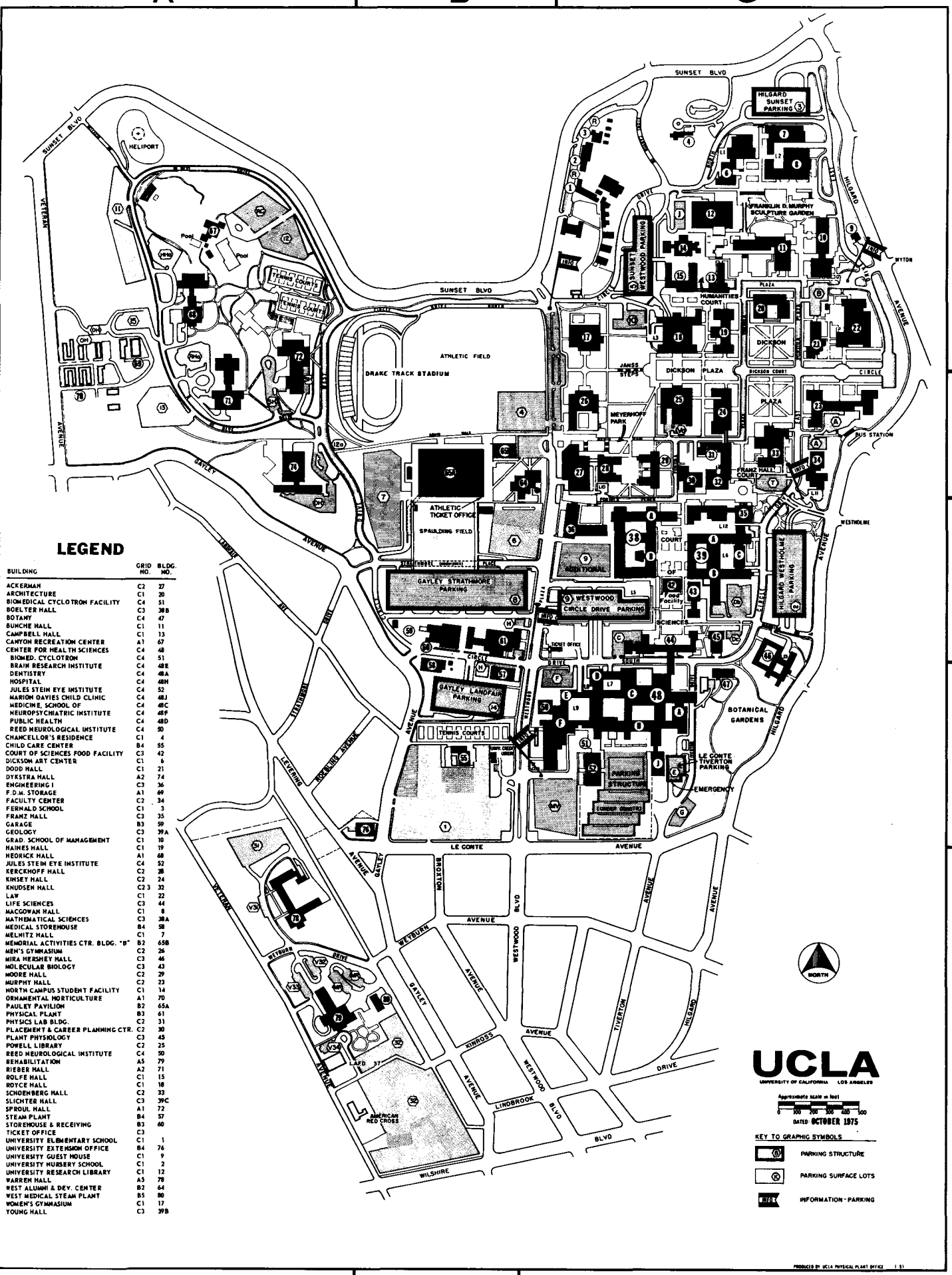
CALENDAR

	Fall '79	Winter '80	Spring '80
First day to file undergraduate application for Fall '80 with admissions officer, 1147 Murphy Hall, (last day will depend on number of applications received).	November 1, 1979	July 1, 1979 (open to intercampus transfers only)	October 3, 1979
Last day to file application for graduate admission or readmission or renewal of application (previously applied but did not register for a regular quarter) with complete credentials and the application fee, with Graduate Admissions, 1247 Murphy Hall.	February 15 In Education for teaching credential March 15 In Management, MBA program	October 1	December 30 In Archaeology Art Art History Biostatistics French Hispanic Lang & Lit Linguistics Luso-Brazilian Lang & Lit Management, MA & PhD programs Political Science Psychology Public Health Sociology Spanish Theater Arts
Last day to file graduate petitions for change of major with Graduate Division, 1225 Murphy Hall.	February 15, 1979	October 1, 1979	December 30, 1979
First day to obtain petition for campus parking permit at Campus Parking Service.	May 8	not appl	not appl
Schedule of Classes goes on sale at Main Cashier, 1125 Murphy Hall and Students' Store, Ackerman Union.	June 6	November 12	February 11
*Distribution of registration materials for continuing students.	June 8	November 15	February 14
Eligibility date for New and Re-entrant student registration/ entrollment by mail— Statement of Legal Residence and Statement of Intention to Register returned.	July 2	November 1	January 15
Academic counseling for new students is available by appointment.	July 5	November 5	January 15
*First mailing date for continuing student registration/ enrollment by mail.	July 20	November 16	February 15
Last day to file undergraduate application for readmission with Registrar, Window "A", Murphy Hall.	August 1	November 15	February 15
New and Re-entrant students eligible to register/enroll by mail should receive registration packet at permanent address.	August 10	November 30	February 27
*First mailing date for New and Re-entrant student registration/enrollment by mail.	August 15	December 3	February 29
*Last mailing date for ALL students to register/enroll by mail.	August 24	December 7	March 5
First day for UCLA Student Insurance enrollment.	September 4	December 3	March 3
*Registrar mails:	September 7	December 20	March 14
1. Validated Registration cards of Students who paid fees by mail.			
2. Tentative Study List datamailer with results of pre-enrollment processing and undergraduate enrollment in person appointment.			

	Fall '79	Winter '80	Spring '80
Entrance Examination in English as a Second Language.	September 11	January 2	March 25
Subject A English Placement Test.	September 12	January 2	March 26
Chemistry/Mathematics Preliminary Examination.	September 17	January 2	March 26
QUARTER BEGINS	September 18	January 2	March 26
Registration in person, 8:00 am to 3:30 pm.	September 18-21	January 2-4	March 26-28
Financial Aid check distribution to registered students begins.	September 18	January 2	March 26
Undergraduate enrollment in person by appointment.	September 18-21	January 2-4	March 26-28
Spanish and Portuguese Placement Examination.	**March 30, '79 or September 21, '79	**September 21, '79 or January 4, '80	**January 5, '80 or March 28, '80
French Placement Examination.	September 19	January 4	March 28
Proficiency Examinations for English 3.	September 21	January 4	March 28
Instruction begins.	September 24	January 7	March 31
Late registration in person with $25 late fee, 10:00 am to 4:00 pm.	September 24-October 5	January 7-18	March 31-April 11
Changes in study list without fee, 8:30 am to 4:30 pm.	September 24-October 5	January 7-18	March 31-April 11
Graduate Study List Card should be filed with major department by 4:00 pm; approved cards due to Enrollment Office by 5:15 pm.	September 26	January 9	April 2
Last day to file advancement to candidacy petitions for master's degree with Graduate Division, 1225 Murphy Hall.	October 5	January 18	April 11
Last day to:	October 5	January 18	April 11
1. File Study List Card without fee.			
2. Change Study List (add, drop) without fee.			
3. Register in person with $25 late fee.			
4. File Graduate Leave of Absence with Graduate Division (prorated refund).			
Registrar mails official Study List to all registered students; if not received in ten days, inquire at 1134 Murphy Hall.	October 8	January 21	April 14
Last day to (WITH APPROVAL OF ACADEMIC DEAN):	October 19	February 1	April 25
1. File Study List Card with $10 fee.			
2. Add courses to official study list, change grading basis and/or unit credit with $3 petition fee.			
3. Drop courses from undergraduate study list with $3 petition fee.			
Last day to file (without fee) bachelor's Degree Candidate Card with Registrar, Window "A", Murphy Hall.	October 19	February 1	April 25
Last day for UCLA Student Insurance enrollment.	October 26	February 8	April 25
Last day to submit final drafts of dissertations to doctoral committees for degrees to be conferred in current quarter.	November 2	February 15	May 9

	Fall 79	Winter '80	Spring '80
Last day to file removal of incomplete petition ($5 fee) with Registrar, Window "A", Murphy Hall.	November 2	February 15	May 9
Last day for graduates (WITH APPROVAL OF ACADEMIC DEAN) to drop courses from study list with $3 petition fee.	November 2	February 15	May 9
Last day to file (with $3 fee) bachelor's Degree Candidate Card with Registrar, Window "A," Murphy Hall.	November 9	February 22	May 16
Last day to submit final drafts of theses to master's committees for degrees to be conferred in current quarter.	November 16	February 29	May 23
Last day to file completed copies of theses for the master's degree and dissertations for the doctor's degree to be conferred in current quarter with Graduate Division, 1225 Murphy Hall.	November 26	March 10	May 30
Instruction ends.	December 1	March 15	June 7
Final examinations.	December 3-7	March 17-21	June 9-13
Quarter ends.	December 7	March 21	June 13
Filing of applications for graduate fellowships, teaching and research assistantships tenable at Los Angeles for 1980-1981.	February 15, 1979	consult department	consult department
Last day for continuing students to file applications for undergraduate scholarships for 1980-1981.		January 12	
Unofficial copy of quarterly grades available at Registrar's Window "A", Murphy Hall.	February 1	May 1	August 1
Academic and Administrative Holidays:	July 4 September 3 November 22-23 December 24-25 December 31 January 1	February 18 March 24	May 26
Commencement.			June 15

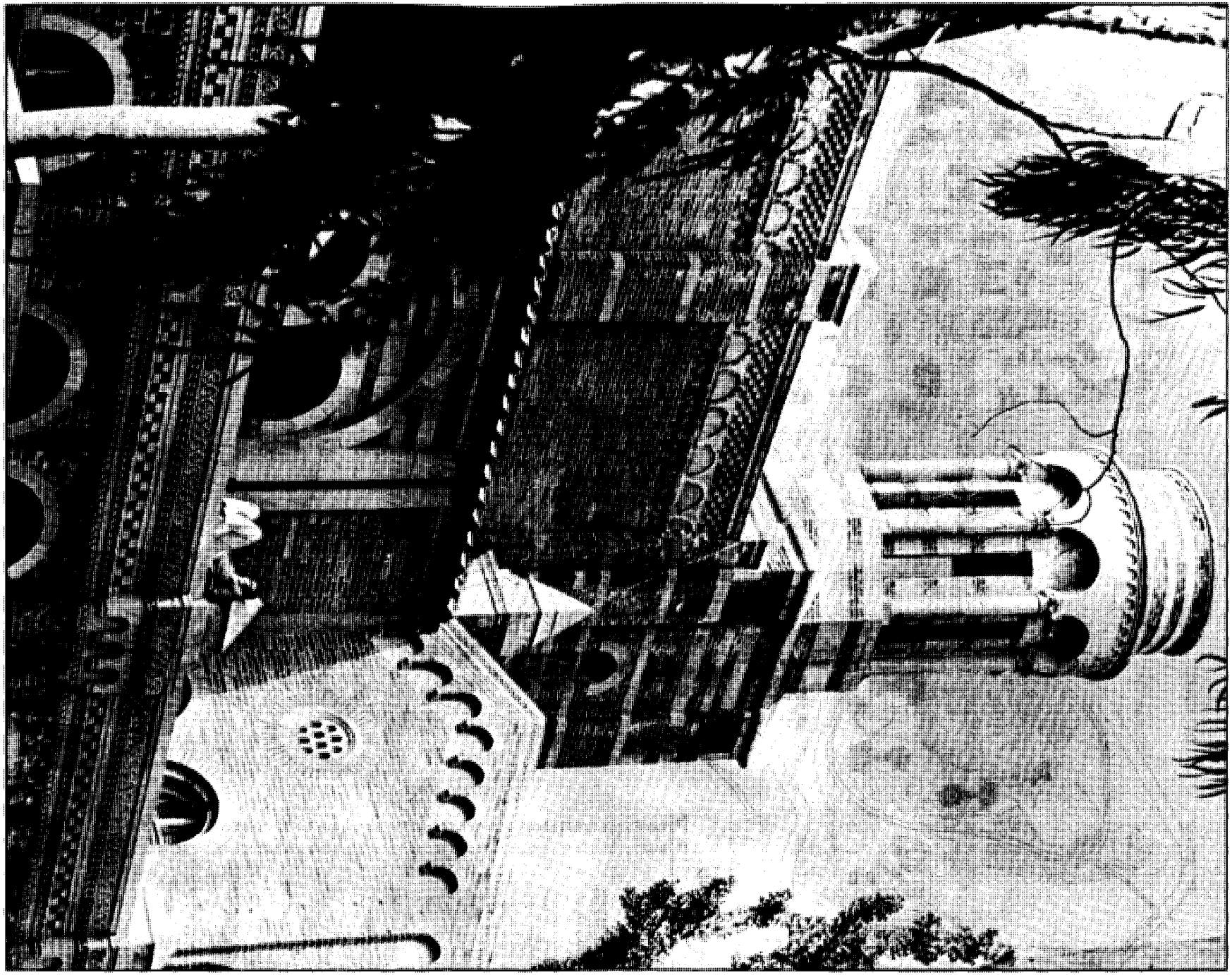
*Tentative dates—consult quarterly Schedule of Classes
**The first date listed for the Placement Test is offered as an option to those students who wish to pre-enroll and who, therefore, need to know in advance where they place.
Note: Anything submitted or requested as an exception to a published deadline will be subject to an additional penalty fee of $10.00.



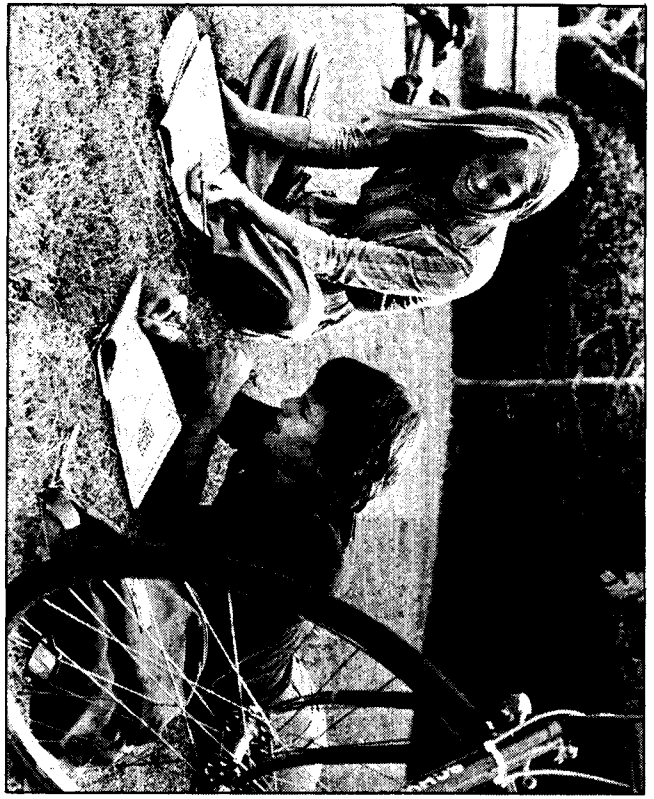
LEGEND

BUILDING	GRID NO.	BLDG. NO.
ACKERMAN	C2	27
ARCHITECTURE	C1	20
BIOMEDICAL CYCLOTRON FACILITY	C4	51
BOELTER HALL	C3	38B
BOTANY	C4	47
BUNCHE HALL	C1	11
CAMPBELL HALL	C1	13
CANYON RECREATION CENTER	A1	67
CENTER FOR HEALTH SCIENCES	C4	48
BIOMED. CYCLOTRON	C4	51
BRAIN RESEARCH INSTITUTE	C4	48E
DENTISTRY	C4	48A
HOSPITAL	C4	48H
JULES STEIN EYE INSTITUTE	C4	52
MARION DAVIES CHILD CLINIC	C4	48J
MEDICINE, SCHOOL OF	C4	48C
NEUROPSYCHIATRIC INSTITUTE	C4	48F
PUBLIC HEALTH	C4	48D
REED NEUROLOGICAL INSTITUTE	C4	50
CHANCELLOR'S RESIDENCE	C1	4
CHILD CARE CENTER	B4	55
COURT OF SCIENCES FOOD FACILITY	C3	42
DICKSON ART CENTER	C1	6
DODD HALL	C1	21
DYKSTRA HALL	A2	74
ENGINEERING I	C3	36
F.D.M. STORAGE	A1	69
FACULTY CENTER	C2	34
FERNALD SCHOOL	C1	3
FRANZ HALL	C3	35
GARAGE	B3	59
GEOLOGY	C3	39A
GRAD. SCHOOL OF MANAGEMENT	C1	10
HAINES HALL	C1	19
HEDRICK HALL	A1	68
JULES STEIN EYE INSTITUTE	C4	52
KERCKHOFF HALL	C2	28
KINSEY HALL	C2	24
KNUDSEN HALL	C2 3	32
LAW	C1	22
LIFE SCIENCES	C3	44
MACGOWAN HALL	C1	8
MATHEMATICAL SCIENCES	C3	38A
MEDICAL STOREHOUSE	B4	58
MELNITZ HALL	C1	7
MEMORIAL ACTIVITIES CTR. BLDG. "B"	B2	65B
MEN'S GYMNASIUM	C2	26
MIRA HERSHEY HALL	C3	46
MOLECULAR BIOLOGY	C3	43
MOORE HALL	C2	29
MURPHY HALL	C2	23
NORTH CAMPUS STUDENT FACILITY	C1	14
ORNAMENTAL HORTICULTURE	A1	70
PAULEY PAVILION	B2	65A
PHYSICAL PLANT	B3	61
PHYSICS LAB BLDG.	C2	31
PLACEMENT & CAREER PLANNING CTR.	C2	30
PLANT PHYSIOLOGY	C3	45
POWELL LIBRARY	C2	25
REED NEUROLOGICAL INSTITUTE	C4	50
REHABILITATION	A5	79
RIEBER HALL	A2	71
ROLFE HALL	C1	15
ROYCE HALL	C1	18
SCHOENBERG HALL	C2	33
SLICHTER HALL	C3	39C
SPROUL HALL	A1	72
STEAM PLANT	B4	57
STOREHOUSE & RECEIVING	B3	60
TICKET OFFICE	C3	
UNIVERSITY ELEMENTARY SCHOOL	C1	1
UNIVERSITY EXTENSION OFFICE	B4	76
UNIVERSITY GUEST HOUSE	C1	9
UNIVERSITY NURSERY SCHOOL	C1	2
UNIVERSITY RESEARCH LIBRARY	C1	12
WARREN HALL	A5	78
WEST ALUMNI & DEV. CENTER	B2	64
WEST MEDICAL STEAM PLANT	B5	80
WOMEN'S GYMNASIUM	C1	17
YOUNG HALL	C3	39B

BRUCE NEAL, ASUCLA DAILY BRUIN



DON HALE

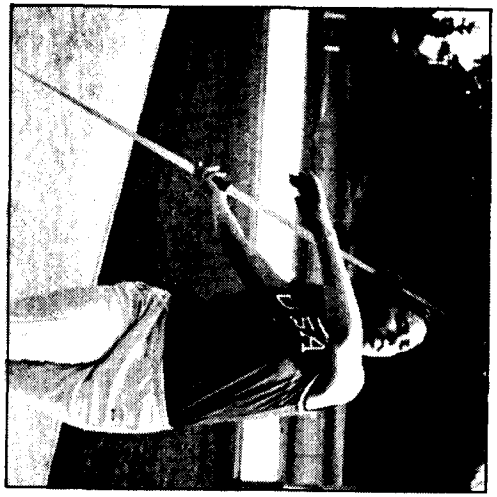


BRUCE NEAL, ASUCLA DAILY BRUIN

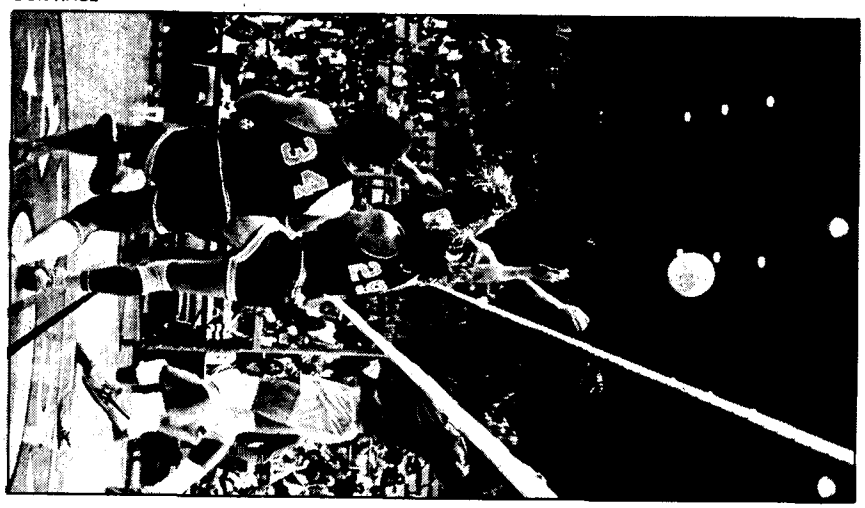
DON HALE

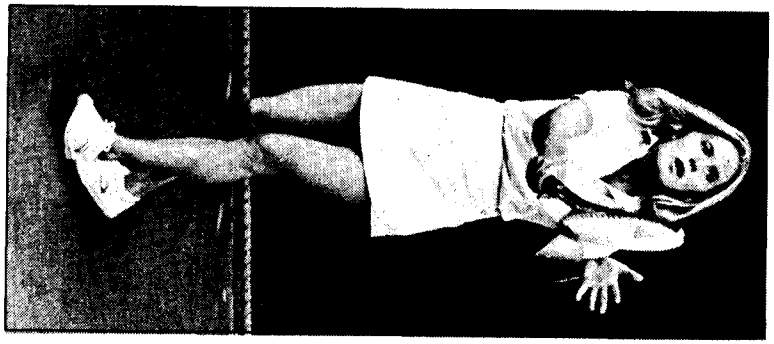
NORM SCHINDLER, ASUCLA PHOTOGRAPHY

JUDY GRAEME



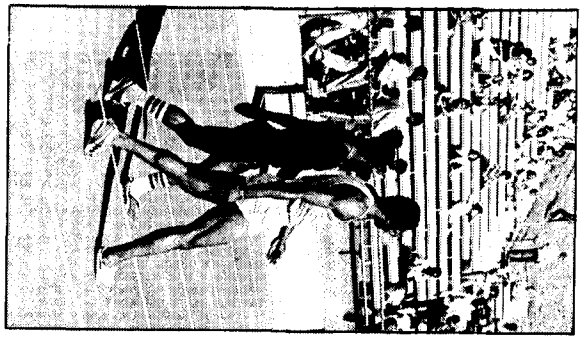
DON HALE



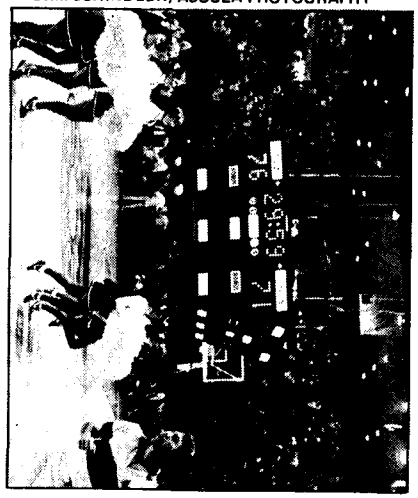


DON HALE

DAVID GLASSMAN, ASUCLA DAILY BRUIN



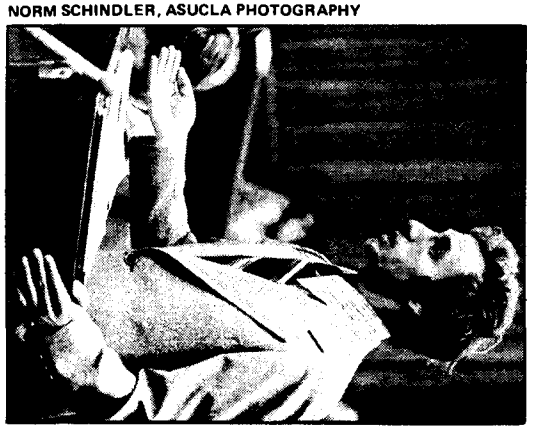
NORM SCHINDLER, ASUCLA PHOTOGRAPHY



JUDY GRAEME

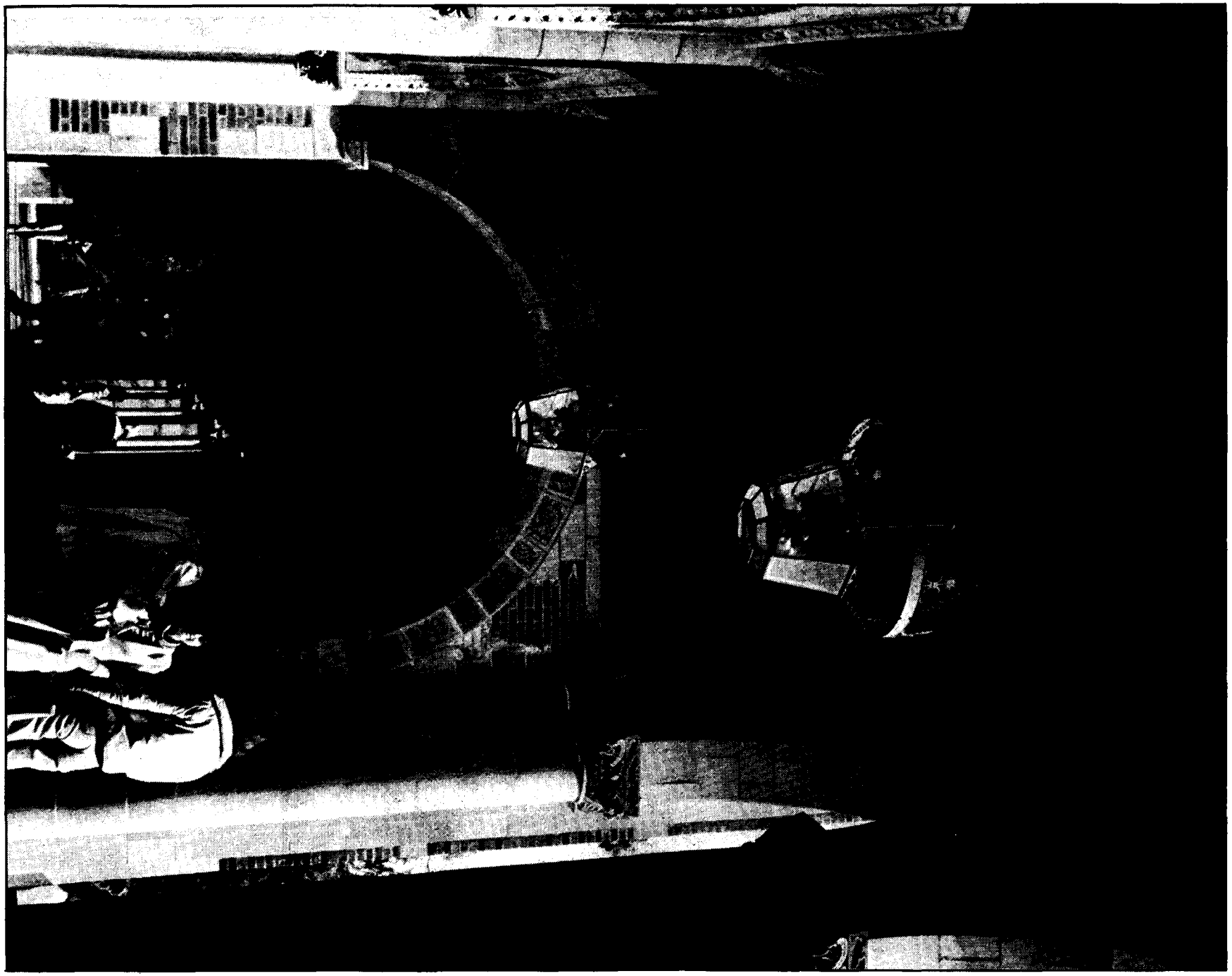
ANSEL ADAMS

NORM SCHINDLER, ASUCLA PHOTOGRAPHY



VIRGINIA EUBANKS

VIRGINIA EUBANKS



UCLA

A Mutual Obligation

The UCLA General Catalog has one basic job to do: communicate.

Like any communication, it works in two directions. *These pages describe—they catalog—the* policies and procedures which make up the workings of a UCLA education and your responsibilities towards the rules, regulations and requirements which are relevant to your individual situation. But this edition of the UCLA General Catalog also describes the responsibilities which UCLA has toward you.

It's a matter of mutual obligation.

About the General Catalog

The UCLA General Catalog is a guidebook to the details of that mutual obligation. Like any other guidebook, it is designed to be referred to often and, like any other guidebook, its worth to you depends directly on how often you use it. (It seems a good idea, especially if you are an undergraduate, to use it fairly often. Counselors in the College of Letters and Science report that nearly half of the people who ask them for help have never read the General Catalog).

How To Use This Book

As you can see, the UCLA General Catalog is divided into sections. Each section is flagged with a generalized description of the field of information it contains; for example, "money" or "graduate education." Headlines within each section narrow down just what aspect of the section is being discussed; topic headlines ("How To Use This Book" above) identify detailed information. You will also find a table of contents at the beginning of the Catalog which highlights information in each section; there is an index at the back of the book.

In addition, the information in the General Catalog has been cross-referenced in two ways wherever possible. You are directed to other sections of the Catalog at the conclusion of some informational sections. In others, the heading "Need to Know More?" lists publications, departments—or people—to contact for more information.

Finally, the sections dealing with "recreation and participation" as well as "resources" are designed to reflect another way in which the General Catalog is a guidebook—a guidebook to working with all of the available resources at UCLA to get the most *from the experiences life at UCLA offers to you.*

About UCLA

UCLA has come a long way since it moved from its first home on Vermont Avenue to a campus in the middle of what was then some beanfields out in Westwood.

Back in 1919, when UCLA had its beginnings at the State Normal School on Vermont Avenue downtown, they called it "The Southern Branch" of the University of California at Berkeley. Then came the 1929 move to Westwood. UCLA started growing, on a site that began at 383 acres and then grew to its present 411-acre parcel.

UCLA hasn't stopped growing since. Just a look at the numbers can be staggering: 13 schools and colleges, 170 departments of instruction, 24 research *institutes and centers, 18 libraries, 20,000 undergraduates,* 11,000 graduate students.

Another Kind of Growth

But, there is another kind of growth that is part of the UCLA tradition. Growth that transforms those numbers into the fabric and feel of UCLA.

A Growth in Excellence

Excellence not only in facilities, but in people. UCLA is consistently rated among the top 10 universities in the country. UCLA professors have won Nobel Prizes, National Academy of Science memberships, Oscars, and Emmys, while its teams have won a collection of NCAA championships. UCLA has done more than face up to the complex challenge of offering excellence in education. As a public University—a public trust—UCLA also *meets a daily committment to service. The spectrum* of contributions UCLA has made in research and scholarship, science and the arts, touches the lives of people every day.

Part of a Plan

UCLA is part of the nine-campus University of California statewide system, a network of resources for knowledge that literally spans the state with *field stations, extension centers and other facilities* in more than 80 locations throughout California.

The system as a whole is governed by the Board of Regents, who in turn appoint the President of the University, its chief executive officer. Currently the President of the University is David S. Saxon, a former faculty member at UCLA, who also held the post of Executive Vice-Chancellor here. In addition to mapping out budgetary policy and setting the yearly agenda of objectives for the University of California system, the Board of Regents also appoints (with the advice of Dr. Saxon) Chancellors, Directors and Deans for each campus. The Academic Senate, made up of the faculty and designated administrative officers, sets the conditions for admission and makes rules for the granting of degrees and certificates.

A City Within a City

Another factor that contributes to the climate of excellence at UCLA is diversity.

The location of UCLA offers a collection of contrasts. Set in an urban environment, the University is ten minutes away by car from either the Santa Monica Mountains or the Pacific Ocean. On campus, concrete co-exists with open green areas.

Our faculty and student body represent a diversity of backgrounds and personal experience, a blend which helps to support an institutional attitude of personal exploration and individual growth.

UCLA and You

You will find that the combination of size and diversity at UCLA present a final set of mutual obligations. UCLA offers unmatched opportunities, but the responsibility to seek out those opportunities *rests with you.*

academics: undergraduate education at UCLA

Before You Begin

Nothing at UCLA will have a more direct effect on your daily life than your academic program. Together its components make up the content—and the quality—of your education here.

So, decisions about your academic program must be made carefully.

This section describes the three undergraduate colleges and schools at UCLA: Letters and Science, The School of Engineering and Applied Sciences and the College of Fine Arts. Regardless of the field of study you decide to follow, your academic life will be governed by one of the colleges or schools.

And, at UCLA you can also choose how much help—or how little—you want in planning your program. The section of this book titled "academics: resources to help you" offers a description of offices and people who can help you with your academic program; the last page of this section provides a list of publications that do the same.

What is a Major?

Basically, a major is the label you put on your central area of academic interest. The factors that go into selecting a major are determined by the person who is doing the selecting—you. You should consider your current interests, your future plans, and your curiosity about a particular aspect of knowledge.

Additionally, carefully consider and evaluate general college or school requirements, the description of the set of courses offered in the major (you can find descriptions in the "courses" section of this Catalog), and the requirements each department has for completing the program of study.

Lastly, all of these factors should be evaluated against the background of other time commitments —job, personal responsibilities—if you are to make an intelligent decision.

Exploring Majors

It isn't necessary to declare your major in your freshman year —unless you are in the College of Fine Arts.

Many UCLA students prefer to explore the diversity of subjects and study areas here, *many* of which you may never have had a chance to investigate.

But, keep in mind that certain majors, especially in the sciences, require early declaration. Some have quotas and will allow application by new majors only during a specified quarter.

Don't lose sight of the fact, either, that each UCLA undergraduate student is limited to a total of 208 units —unless you are in The School of Engineering *and Applied Sciences— to complete the academic* program. So, if you wait to declare a major, don't wait too long.

Introductory Courses

In most departments, these are the classes with the course number designations less than 100. They are a general introduction to the field of study; they give an idea of the vocabulary of the major, and the *kind of questions studied in the field.*

If You've Already Chosen

Naturally, if you have already decided on a major, you will begin taking the courses that are required to complete that major.

A Final First Word

Again, the specific major requirements are discussed in two sections in this book: under each college or school later in this chapter of the Catalog, and in the description of each major in the "courses" section. The college or school make the rules governing your major; these rules vary with each school or college.

Degree Requirements

You can find specific college/school regulations in the following pages of this section. Departmental rules can be found under departmental headings in the course description section of this book. General regulations follow.

Grades and Scholarship Requirements

Grades in courses (graduate or undergraduate) are defined as follows: "A", excellent; "B", good; "C", fair; "D", poor "F", failure; "IP", in progress; and "I", undetermined (work of passing quality but incomplete). The grade DR (deferred report) is entered on the student's record: a) when to the faculty member's knowledge, the student's work in the course is complete, but the faculty member is not able to assign a grade; or b) when disciplinary proceedings are in progress. The designations "P", passed, and "NP", not passed, are used in reporting grades for undergraduate students taking courses on a passed/not passed basis.

Grades "A", "B", "C", "D" (including plus or minus notations where authorized), "F", "P", "NP" are final when filed by an instructor in his end-of-quarter course report, except for the correction of a clerical or procedural error. No term grade except incomplete may be revised by reexamination.

UCLA Grading Regulations

A-306 General

a. The Schools of Dentistry, Medicine, and Law shall develop their own grading codes for their respective professional programs and these programs are therefore excepted from the provisions of his grading code.

b. The instructor in charge of a course shall be responsible for determining the grade of each student in the course. The standards for evaluating student performance shall be based upon the course description as approved by the appropriate course committee.

c. The final grade in the course shall be based upon the instructor's evaluation of the student's achievement in the course. When on an examination or other work submitted by a student, the student is suspected of having engaged in plagiarism or otherwise having cheated, the suspected infraction is to be reported to the appropriate administrative office of the University for consideration of disciplinary proceedings against the student. Until such proceedings, if any, have been completed, the grade DR (deferred report) shall be assigned for that course. (See Senate Divisional Regulation A-315.) If in such disciplinary proceedings, it is determined that the student did engage in plagiarism or otherwise cheat, the administrative officer, in addition to imposing any discipline, shall report back to the instructor of the course involved, the nature of the plagiarism or cheating. In light of that report, the instructor may replace the grade DR with a final grade that reflects an evaluation of that which may fairly be designated as the student's own achievement in the course as distinguished from any achievement that resulted from plagiarism or cheating.

d. If an instructor in charge of a course has been determined by the Committee on Privilege and Tenure to have assigned a grade on any basis other than academic grounds, the Committee on Privilege and Tenure shall communicate that information to the Division Chairman. Within a period of two weeks after notification, guided by the Committee on Committees, the Division Chairman shall establish an ad hoc committee to determine whether the grade shall be changed. The ad hoc committee shall consist of at least three members, with at least one member a representative of the department involved. The ad hoc committee will obtain whatever records are available and use these records to make a final decision concerning the grade. If the records are not adequate, then the committee may assign a grade of Pass, or allow the student to repeat the course without penalty. The ad hoc committee will report to the Division Chairman, who shall report the change of grade to the Registrar. To protect the student, the grade shall be changed, if warranted, within four weeks following information of the ad hoc committee.

A-307 Grading of Undergraduate Students

a. The level of achievement of all undergraduate students shall be designated in the following terms: A (superior), B (good), C (fair), D (poor), F (fail), I (incomplete), IP (in progress), P (passed), NP (not passed), DR (deferred report). The passing grade A may be modified by a minus (−) suffix. The passing grades B, C and D may be modified by plus (+) or minus (−) suffixes.

b. Grade points per unit shall be assigned by the Registrar as follows: A-4, B-3, C-2, D-1, F-zero. "Plus" grades carry three-tenths grade point more per unit and "minus" grades carry three-tenths grade point less per unit than unsuffixed grades. Subject to the provisions of Senate Regulation 634, courses in which a student receives a P grade shall be counted in satisfaction of degree requirements, but courses in which either a P, NP, DR, I or IP has been awarded shall be disregarded in determining a student's grade point average.

c. The grades A, B, C, and P denote satisfactory progress toward a degree. The D grade denotes progress toward a degree but as stipulated in Divisional Senate Regulation A-304 such a grade must be offset by higher grades

A-308 Grading of Graduate Students

a. The work of all graduate students shall be reported in terms of the following grades: A (superior achievement), B (satisfactorily demonstrated potentially for professional achievement in the field of study), C (passed the course but did not do work indicative of potentially for professional achievement in the field of study), F (fail), I (incomplete), IP (in progress), DR (deferred report), S (satisfactory), U (unsatisfactory). The passing grades A, B, and C may be modified by plus (+) or minus (−) suffixes.

b. Grade points per unit shall be assigned by the Registrar as follows: A-4, B-3, C-2, F-zero. "Plus" grades (except A+) carry three-tenths grade point more per unit and "minus" grades carry three-tenths grade point less per unit than unsuffixed grades. The grade A+ carries 4.0 points per unit, the same as for an unsuffixed A; but when A+ is reported it represents extraordinary achievement. Courses in which a student receives an S grade may be counted in satisfaction of degree requirements, but courses in which either an S, U, DR, I or IP has been awarded shall be disregarded in determining a student's grade point average.

c. The grades A, B and S denote satisfactory progress toward a degree. A graduate student is subject to dismissal if his cumulative grade point average falls below 3.000.

A-309 The I Grade

a. The grade I may be assigned when a student's work is of passing quality, but is incomplete. The grade I shall only be assigned when the student establishes to the instructor's satisfaction that his work is incomplete for a good cause. For the grade I to be eligible to be replaced by a passing grade, the student must submit, and the instructor must complete, a "Petition for the Granting of the Grade I" which will contain both the reason for granting I and the conditions to be met before the grade I can be replaced by a passing grade.

b. The student is entitled to have the grade I replaced by a passing grade and to receive unit credit and grade points provided he satisfactorily completes the work of the course by the end of the next full term that he is in residence in regular session following the term in which the I was received. The dean of the appropriate school or college has authority to extend the deadline for completion in the event of unusual circumstances that would clearly impose an unfair hardship on the student if the original deadline were maintained.

c. If the work is not completed according to the provisions of Senate Divisional Regulation 309 (B), the grade I shall automatically be replaced with F, NP or U as appropriate.

A-310 The P and NP Grades for Undergraduate Students

a. Subject to the limitations in (C) and (D) below, an undergraduate student in good standing may enroll in one course each term on a P/NP basis.

b. A grade of P shall be awarded only for work which would otherwise receive a grade of C or better.

c. A student who has received two NP grades shall be excluded from enrolling in a course on a P/NP basis for the next term in residence.

d. A department or school may designate any course or courses as courses not to be taken by its major on a P/NP basis, and may at its option require a student, who has received a P in such a course before entering a major, to repeat the course for a letter grade.

e. A student who has not elected the P/NP option in a preceding term may take two courses P/NP.

f. The Council on Educational Development and the Committee on Undergraduate Courses and Curricula may authorize exceptions to (A) and (E) above when they would be inconsistent with the purpose or design of experimental courses or programs which these committees may approve.

A-312 The IP Grade for Undergraduate Students

a. For courses authorized to extend over more than one quarter and where evaluation of the student's performance is deferred until the end of the final term, a provisional grade of IP (in progress) shall be assigned in the intervening term(s). The provisional grade shall be replaced by the final grade if the student completes the full sequence. The Faculty of each school or college and the Graduate Council are authorized to regulate the award of credit in cases where the full sequence is not completed.

b. Authorization for use of IP grades in undergraduate courses shall be by the Committee on Undergraduate Courses and Curricula.

A-313 Correction of Grades

All grades, except DR, I and IP are final when filed by an instructor in the end-of-term course report. However, the Registrar is authorized to change a final grade:

a. Upon written request of an instructor, provided that a clerical or procedural error is the reason for the change; or

b. Upon written request of the Chairman of the Division in cases where it has been determined by

the Committee on Privilege and Tenure that an instructor has assigned a grade on any basis other than academic grounds. No change of grade may be made on the basis of reexamination or, with the exception of the I and IP grades, the completion of additional work. Any grade change request made more than one year after the original filing must be validated for authenticity of the instructor's signature by the department chairman. Any grade change request made by an instructor who has left the University must be countersigned by the department chairman.

A-314 Repetition of Courses

Repetition of courses other than those authorized by the Committee on Undergraduate Courses and Curricula or the Graduate Council to be taken more than once for credit, is subject to the following conditions:

a. A student may repeat only those courses in which he received a grade of D, F, NP or U. Courses in which a grade of D or F has been received may not be repeated on a P/NP or S/U basis.

b. Repetition of a course more than once requires approval by the appropriate dean in all instances.

c. Degree credit for a course will be given only once, but the grade assigned at each enrollment shall be permanently recorded.

d. In computing the grade point average of an undergraduate who repeats courses in which he received a D or F, only the most recently earned grades and grade points shall be used for 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-315 The DR Grade

The grade DR (Deferred Report) shall be entered on the student's record:

a. When to the faculty member's knowledge, the student's work in the course is complete, but the faculty member is not able to assign a grade; or

b. When disciplinary proceedings are in process according to the provisions of Divisional Regulation A-306 (C).

The DR shall not itself be calculated in any way in the student's grade point average. The DR shall be changed to a grade, or perhaps to an Incomplete, only when the Registrar receives a written request from the instructor which indicates that the student has clarified the situation.

The report of the grade DR must be accompanied by a letter from the instructor to the dean of the school or college and to the student stating the basis for the action. For students enrolled in a course approved by the Graduate Council, the Dean of the Graduate Division is the dean of Record. For students in a course approved by any undergraduate course committee, the dean of record is the dean of the College or School in which the course is offered. The dean shall establish a date or a specific circumstance terminating the period of the Deferral of Report and inform the Registrar, the instructor and the student. Unless changed by the instructor as specified in the preceding paragraph, the DR shall then automatically become F.

Courses

A-320 Special Studies Courses

a. All special individual studies courses for undergraduate students are numbered 199. These courses are structured by the instructor and the student at the time they are initiated. The structure of the course, including both the specific proposed course of study and the requirements that must be met before a grade can be assigned, are then summarized on the standard form "Petition for Enrollment in a Special Studies Course (199)."

b. To register for a special studies course, the "Petition for Enrollment in a Special Studies Course (199)" must be approved both by the instructor in charge and the Chairman of the department (or the head of the relevant interdisciplinary program).

c. Limitations

1) Enrollment requires the consent of the instructor who is to supervise the study. The applicant shall show that his background is adequate for the proposed study.

2) Credit for supervised individual studies in a single term is limited to a maximum of 8 units. Subject to the provisions of Divisional Regulation A310, the student may take a 199 course on a *Passed/Not Passed* or a letter grade basis, but the total number of units allowed in individual study courses for a letter grade is 16.

3) At the close of the term, some tangible evidence of work accomplished, signed by the student and the supervising faculty member, shall be filed by the department for an appropriate period of time. The department shall designate the form of the evidence acceptable for this purpose.

4) At the outset of a special studies course (199) the student must complete, and the instructor must sign, a "Petition for Enrollment in a Special Studies Course (199)," which will include the specific proposed course of study and the requirements to be met before a grade can be assigned. The form must have been completed and submitted before a grade can be assigned in the course.

5) To register for 199 and/or 199H, a student must have advanced Junior standing and at least a 3.0 GPA in his/her major field, or he/she must have Senior standing.

6) A student who has an outstanding incomplete in 199 or 199H may not register for another 199 or 199H until the grade of incomplete has been removed.

7) On the advice of the instructor(s) and chairman concerned, the dean of a student's college or school may authorize exceptions to the limitations listed.

8) Departments may impose additional limitations on the individual study courses.

Final Examinations

A-330

No student shall be excused from assigned final examinations except as provided Divisional Senate Regulation in A-332 below.

A-332

a. The instructor in charge of an undergraduate course shall be responsible for assigning the final grade in the course. The final grade shall reflect the student's achievement in the course and shall be based upon adequate evaluation of that achievement. The instructor's methods of evaluation must be announced at the beginning of the course. The methods may include a final written examination, a term paper, a final oral examination, a take-home examination, or other evaluation device. Evaluation methods must be of reasonable duration and diffculty, and must be in accord with applicable departmental policies. Final written examinations shall not exceed three hours' duration and shall be given only at the time and places established by the departmental chairman and the Registrar.

b. At the end of the term in which a student is expected to be graduated, his major department may examine him in the field of the major, may excuse him from final examinations in courses offered by the department during that termrm, and with the approval of he Committee on Courses, assign a credit value to such general examination [Variance 15 June 71].

c. An instructor shall, if he/she wishes, release to individual students their original final examinations (or copies). Otherwise, the instructor shall retain final examination materials, or a copy thereof, for a period of not less than 13 months after the date of the examination, during which period, students shall have access to their examination.

Repeating Courses

Repetition of courses is subject to the policies of the departments offering the courses and the following conditions: (1) You may repeat only those courses in which you received a grade of "D+", "D", "D−", "F", "NP", however, the appropriate dean may authorize repetition of courses graded "Incomplete". (2) Repetition of a course more than once requires approval by the appropriate dean in all instances. (3) Degree credit for a course will be given only once, but the grade assigned at each enrollment shall be permanently recorded. Courses in which a grade of "D+", "D", "D−", or "F" has has been earned may not be repeated on a "passed/not passed" basis.

"Incomplete" Grades

The grade "Incomplete" may be assigned when your work is of passing quality but is incomplete and you have filed with the instructor a Request for Granting of Incomplete Grade. You must also file a "Petition for Removal of Incomplete Grade" to complete the work in a way authorized by the instructor (fee: $5). Appropriate grade points and units will be assigned upon completion. If the "Incomplete" grade was assigned Fall Quarter 1972 or thereafter and the work is not completed by the end of the next quarter you are in academic residence, the grade "I" will automatically be lapsed to a grade of "F".

It is your responsibility to present a petition to be given an "I" grade to your instructor detailing the reasons why you should be assigned an "I" grade. If the instructor is willing to grant the "I" grade, a contract for the makeup of the "I" is written on the petition form which is signed by you and the instructor. If you neglect to do this, you may receive a non-passing grade in the course. Once the terms of your contract have been met, you must file a Petition for Removal of Incomplete Grade to have the "I" grade changed to the earned letter grade. Under extraordinary circumstances, the dean of your college may grant an extension of time on removal of the "I" grade.

Courses Taken "Passed/Not Passed"

An undergraduate student enrolled in at least a minimal program may take courses on a passed/not passed basis subject to the following regulations:

(A) Except as provided in (C), (D), and (E) below, a student in good standing may enroll in one course each quarter on a passed/not passed basis. Courses thus passed shall be counted in satisfaction of degree requirements.

(B) A grade of "passed" shall be awarded only for work which would otherwise receive a grade of "C" or better.

(C) A student who has received two "not passed" grades shall be excluded from enrolling in a course on a passed/not passed basis for the next term in residence.

(D) A department or school may designate any course or courses as ineligible for election by its majors on a passed/not passed basis, and may at its option require a student who has received a "passed" in such a course before changing his major to repeat the course for a letter grade.

(E) A student who has not elected the passed/not passed option in a preceding quarter may take two courses passed/not passed.

(F) With the permission of the dean of your college or school, you may change your enrollment in a particular course from the passed/not passed basis to the regular letter grade basis at any time up to the final date for dropping the course.

Grade Points

For purposes of computing scholarship standing, a full course is counted as equivalent to 4 quarter units. Partial or multiple courses are counted proportionally.

Grade points per unit are assigned as follows: "A"—4, "B"—3, "C"—2, "D"—1, "F"—none and, prior to Fall Quarter 1972, "I"—none. The plus (+) notation adds 0.3 grade points per unit; the minus (−) notation subtracts 0.3 grade points per unit. Beginning Fall Quarter 1972, units attempted and grade points for work graded "I" (Incomplete) are excluded from grade-point computations for the quarter in which the "I" is assigned. Upon removal of grade "I", units and grade points are included in subsequent accumulated grade-point summaries. An "I" assigned Fall Quarter 1972 or thereafter, but not removed by the end of the next quarter you are in residence, will be lapsed to "F" or "NP" and so included in subsequent unit and grade-point summaries.

You can determine your grade-point average by dividing the number of grade points earned by the number of units attempted. A 2.0 ("C") grade-point average on all work undertaken at the University—all campuses—is required for satisfactory standing as an undergraduate; a 3.0 ("B") average for a graduate.

Courses taken on a passed/not passed or satisfactory/unsatisfactory basis are disregarded in determining grade-point average. In computing the grade-point average of an undergraduate who repeats courses in which grades of "D+", "D", "D−", or "F" were assigned, only the most recently earned grade 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. Courses in which a grade of "D+", "D", "D−", or "F" has been earned may not be repeated on a passed/not passed basis.

Students should be aware that external agencies which evaluate student records for the purpose of admission to graduate and professional school programs may not calculate grade point averages in the same manner as the University, and students are advised to contact such agencies about their policies concerning the calculation of grade point averages.

Minimum Scholarship Requirements

Students in all undergraduate colleges and schools are expected to maintain a grade-point average of 2.0 ("C" average) on all work undertaken at the University—all campuses. Failure to maintain this level normally results in probation. The following provisions apply to all undergraduate students at Los Angeles.

Academic Probation

You will be placed on probation if, while in good standing, you fail to maintain at least a grade "C" average for all courses included in the grade-point average in a quarter.

Probationary status can be ended only at the close of a regular quarter and then only if a "C" average has been attained both on the term's work and on all work taken at the University of California—all campuses.

Academic Dismissal

You will be subject to dismissal from the University (a) if your grade-point average falls below 1.5 for any quarter, or (b) if after two quarters on probation you have not achieved a grade-point average of 2.0 ("C" average) for all courses undertaken at the University, or (c) if while on probation your grade-point average for work undertaken during any quarter falls below 2.0 (a "C" average).

Grade-point averages shall be computed on the basis of all courses undertaken in the University (all campuses), including courses grade "I" (Incomplete) prior to Fall Quarter 1972, but not including noncredit courses, courses taken in University Extension, or courses taken on a passed/not passed basis.

If you fail to meet the minimum scholarship requirements you are subject to such supervision as the faculty of your college or school may determine. The faculty or its designated representative may dismiss a student subject to dismissal; may suspend dismissal, continue probation; or may readmit on probation a dismissed student.

Minimum Progress

Undergraduate students in the College of Fine Arts and the College of Letters and Science are expected to complete satisfactorily at least 36 units during three consecutive quarters in residence. You will be placed on probation if you fail to pass at least 36 units over three consecutive regular quarters in residence. You will be subject to dismissal if you fail to pass at least 32 units in three consecutive regular quarters in residence.

Final Examinations

If a final examination is one of the regular requirements in a course, there can be no individual exemptions. Final writen examinations shall not exceed three hours duration and shall be given only at the times and places established by departmental chairmen and the Registrar.

Re-examinations are permitted only for the purpose of removing the grade "I".

Undergraduate Degree Requirements

In working toward a degree, you should keep in mind the various levels on which you must satisfy requirements. College or school and department requirements are discussed fully in this section and in the "courses" section of this catalog. The following are general University requirements for the bachelor's degree.

Course Credit

The grades "A", "A−", "B+", "B", "B−", "C+", "C" and "P" in acceptable courses denote satisfactory progress toward a bachelor's degree. The grades "C−", "D+", "D" and "D−" give unit credit toward the degree, but must be offset by grades of "C+" or better in other courses.

Scholarship

In order to qualify for a bachelor's degree you must earn at least a "C" (2.0) average in all courses undertaken at the University of California—all campuses.

Candidates for teaching credentials must also maintain a "C" average in supervised teaching.

Subject A: English Composition

Every undergraduate entrant must demonstrate an acceptable ability in English composition. This requirement may be met by

1. Achieving a grade of 5, 4, or 3 in the College Entrance Examination Board (CEEB) Advanced Placement Examination in English, *or*

2. Achieving a satisfactory score (600 or better) in the CEEB Achievement Test in English Composition, *or*

3. Being exempted from the requirement by the Office of Admissions because of completion at another institution of an acceptable college-level course in English composition, *or*

4. Passing a Subject A Placement Test offered only to freshmen who have scored less than 600 in the CEEB Achievement Test in English Composition and to transfer students entering the University with 12 or more quarter units of college credit.

Any student who does not meet the requirement in one of the ways described above must, during the first quarter of residence at the University, enroll in either English A or English 1. Assignment to one of these courses is determined by performance on the Subject A Placement Test. Should you fail in either course you will be required to repeat the course in the next succeeding quarter of your residence at the University.

Students from other countries whose native language is not English will be instructed by the Office of Admissions to take the Entrance Examination in English as a Second Language. Those who have been authorized to take this special examination may meet the English as a Second Language requirement by passing the examination or by satisfactorily completing the advanced course (English 33C) in English as a Second Language. Students who are directed by the Office of Admissions into the English as a Second Language program are not required to meet the regular Subject A requirement.

American History and Institutions

Candidates for a bachelor's degree must satisfy the "Requirement in American History and Institutions" by demonstrating a knowledge of American History and of the principles of American institutions under the federal and state constitutions. This requirement may be met by one of the following methods:

1. By the completion of any of the following courses with a grade of "C" or better or a grade of "pass". Economics 10, 183; English 80, 85, 104, 115, 170, 171, 172, 173, 174; Geography 136; History 6A, 6B, 6C, 7A, 7B, 145A, 145B, 146A, 146B, 147A, 147B, 148A, 148B, 148C, 149A, 149B, 150A, 150B, 150C, 151A, 151B, 152A, 152B, 153, 154A, 154B, 154C, 154D, 155A, 155B, 156A, 156B, 156C, 156D, 156E, 157A, 157B, 157C, 158A, 158B, 158C, 158D, 158E, 159A, 159B, 160, 161, 162, 163; Political Science 1, 114A, 114B, 143, 144, 145, 171, 172A, 172B, 180, 186.

Equivalent courses completed in University Extension may be used to fulfill the requirement. Equivalent courses taken at other collegiate institutions and accepted by the Board of Admissions may also be used to fulfill the requirement.

2. By presentation of a certificate of satisfaction of the present California requirement as administered in another collegiate institution within the State.

3. Satisfactory completion with an average grade of "B" or better, of a year's course in high school of American history or American government or a one-year combination of the two effective with the student entering UCLA Spring 1972 or later.

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

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

You can get more information regarding the requirement from the Undergraduate History Counselor, 6248 Bunche Hall.

Senior Residence

Of the last 45 units you complete for a bachelor's degree 35 must be earned in residence in the college or school of the University of California in which the degree is to be taken. When translated to the course structure at UCLA this normally implies that nine of the last 11 courses a student offers for a bachelor's degree must be earned in the college or school in which the degree is to be taken. Not more

than 18 of the 35 units may be completed in Summer Session on the campus of residence.

Candidacy for Degree

You should notify the Registrar at least three quarters before you expect to receive the bachelor's degree by completing and filing the Degree Candidate (DC) Card in the quarterly "registration packet". The completed DC card must be filed (even though one or more DC cards were filed at earlier registrations) no later than the tenth day of classes in the quarter in which you expect to complete work for the degree.

DC Cards accepted after the twentieth day of classes are subject to a late fee.

Change of College or Major

A change of college (or major) by an undergraduate student requires the approval of the college (or department) to which admission is sought. Applications are made by petition, which may be obtained from the college or school office. No student is permitted to change majors after the opening of the last quarter of the senior year.

College of Letters and Science

The College of Letters and Science is the largest college at UCLA. It ranges over more than 60 majors in the humanities, social sciences, life sciences and physical sciences. Its curricula lead to a degree of Bachelor of Arts or Bachelor of Science, normally awarded at the end of the twelfth quarter.

The degree programs are designed to expose students to a variety of intellectual possibilities by combining a reasonably wide distribution of courses and the opportunity to specialize in one particular field. To this end, students are required to select courses in the lower division that deal with general fundamentals of human knowledge. In the more diverse offerings of the upper division students are relatively free to concentrate attention upon one field of interest: their major.

Each student is expected to choose a major as soon as possible. This may be a program of related upper division courses within a single department (departmental major); or a group of coordinated courses involving a number of departments (interdepartmental major); or, under certain circumstances, an organized group of courses chosen to meet a student's special need (individual major). The pursuit of such definite courses of study often requires knowledge of courses known as "prerequisites." With the assistance of a departmental adviser, students are expected to select lower division courses related to the advanced studies they propose to follow.

The office of the Dean of the College of Letters and Science is located in Murphy Hall, Room 1312. Members of the Dean's staff are readily available to assist students with questions pertaining to academic regulations and procedures, selection of courses, etc. Many questions can be answered at the College Information Window or by phoning the Information Desk, 825-1826 or 825-1965. Students in the College who would like to confer with a Counselor (regarding overall degree requirements, academic difficulty, program planning, or assistance in selecting a major) can arrange an appointment by phoning 825-3382.

College Honors

The program leading to College Honors recognizes the needs of highly qualified and motivated students for an exceptionally challenging education. Its flexible provisions for superior students are designed to stimulate critical, imaginative, and self-reliant thinking. The program of College Honors under the direction of the Dean, Division of Honors, provides the exceptional UCLA undergraduate the organization and environment within which to pursue individual excellence.

College Honors will be awarded by the Dean of the College of Letters and Science to graduating seniors who have completed approximately 48 hours in honors-designated courses as approved by the Dean, Division of Honors. Such courses will include, among others, Units in the Lower Division Program, courses designated by the Departments as honors courses, honors-contract courses, Freshmen-Sophomore Seminars, Senior Seminars, Graduate Colloquia and Seminars, and research and thesis preparation courses. Students admitted to the program are encouraged at the lower division level to pursue the breadth of interdisciplinary approaches to learning and at the upper division level to engage in the depth of research in a specific discipline.

Students in the College Honors program pursue individualized curricula which permit the waiver of College requirements for the BA, except for the total number of hours. They have access to graduate courses and seminars. They enjoy the same library privileges as graduate students, preferential preenrollment, eligibility for honors research awards, and special counseling within the Division of Honors. Admission to the program facilitates taking exceptionally heavy course loads if the student so desires, receiving credit for courses pursued by independent study ("Credit by Examination"), and applying for concurrent work for both undergraduate and graduate degrees in the Departmental Scholar Program. The Dean will maintain a progress file of each student which can be used to support applications for graduate study, professional schools, jobs, etc., and will write appropriate letters of recommendation outlining the student's achievement in College Honors. Further, College Honors will be recorded on the student's transcript and a Certificate of Honors awarded upon graduation. Honors with the B.A. will be awarded also as appropriate.

Entering freshmen with both an exceptional grade point average and SAT scores are invited by the Dean, Division of Honors, to participate in the College Honors program. Other students with at least one quarter of study at UCLA and a 3.5 grade point are encouraged to apply. Interested students with a lower grade point average, who feel they could benefit from and contribute to the program, are invited to discuss admission with the Dean, Division of Honors.

Honors Status

A student in the College of Letters and Science who has demonstrated superior academic achievement is eligible to apply for Admission to Honors Status, which is recorded on the student's transcript. Admission may be granted by the Dean, Division of Honors after completion of 16 or more graded units at UCLA with a cumulative grade-point average of not less than 3.5. Continued superior academic achievement is requisite for remaining in Honors Status.

Application for admission may be made at the Division of Honors Office, 1331 Murphy Hall, Window 10.

Honors Status students are under the immediate jurisdiction of the Division of Honors Office, receiving their counseling and other student services there. Admission facilitates taking exceptionally heavy course loads (see Study-List Limits), and receiving credit for courses pursued by independent study (see "Credit by Examination").

Students with Honors Status are usually eligible for admission to the honors programs offered by a number of the departments in the College, including honors sections of regular courses, honors courses of a seminar type, honors thesis programs, and supplementary and advanced directed study. The departments are responsible for admitting students to their separate honors programs. For details of these programs, consult the Dean of Division of Honors or the department of your major. (For the possibility of concurrently working for both undergraduate and graduate degrees see Departmental Scholar Program.)

Honors with the Bachelor's Degree

1. Departmental honors and Departmental Highest Honors may be awarded at graduation upon the recommendation of your major department. The recommendation will be based on successful completion of a departmental honors program. For the requirements of the various departments, consult the department concerned.

2. Honors with the Bachelor's Degree will be awarded according to your over-all grade-point average at the beginning of the last quarter of academic work, or, if not then eligible, at graduation. To be eligible for Honors with the Bachelor's Degree, a student must have completed at least 20 graded courses (80 units) in the University of California. Course work taken on the Education Abroad Program will not count towards Honors with the Bachelor's Degree, effective Fall 1979. The College Committee on Honors is responsible for awarding Honors. The degrees of honors and the requirements for each degree are: *Cum laude*, an over-all average of 3.4; *Magna cum laude*, 3.6; *Summa cum laude*, 3.8. Marginal cases will be decided by the Committee on Honors. Students should be aware that the Committee grants petitions for waiver of these requirements only in extraordinary cases.

3. A list of students who have graduated with Honors with the Bachelor's Degree, Departmental Honors, or both, shall be published yearly. Each honors student will be awarded a certificate of honors at graduation indicating both the Departmental Honors and the Honors with the Bachelor's Degree.

Division of Honors Office (Letters and Science)

The Division of Honors Office provides academic conseling and services for approximately one-fourth of the undergraduates in the College of Letters and Science. Under its jurisdiction are Regents, National Merit Scholars, Alumni Scholars, and students on the High School Special Program, the Education Abroad Program, the Departmental Scholar Program, and those students who have qualified for Honors Status and College Honors by demonstrating superior academic achievement at UCLA. Services offered include academic counseling, informal degree checks, petitions, and letters of recommendation to graduate and professional schools. In addition, admission to Honors Status and College Honors facilitates taking exceptionally heavy course loads and receiving credit for courses pursued by independent study.

Organized Majors in the College of Letters and Science

The College of Letters and Science offers the following departmental majors, which lead to the area of Bachelor of Arts; those followed by an asterisk (*) lead to a degree of Bachelor of Science.

African Languages

Ancient Near Eastern Civilizations

Anthropology

Arabic

Astronomy

Atmospheric Sciences

Biochemistry*

Biology

Business-Economics

Chemistry*

Chinese

Classics

Economics

Economics-System Science*

English

English-Greek

English-Latin
French
French and Linguistics
General Chemistry*
General Physics
Geography
Geography-Ecosystems
Geology*
Geology (Engineering Geology)*
Geology (Geochemistry)*
Geology (Paleobiology)*
Geology (Non-renewable Natural Resources)*
Geophysics (Applied Geophysics)*
Geophysics (Geophysics and Space Physics)*
German
Greek
Hebrew
History
Italian
Italian and Special Fields
Japanese
Jewish Studies
Kinesiology*
Latin
Linguistics
Linguistics and Computer Science
Linguistics and English
Linguistics and French
Linguistics and Italian
Linguistics and Oriental Languages
Linguistics and Philosophy
Linguistics and Psychology
Linguistics and Spanish
Mathematics
Mathematics-Applied Science
Microbiology
Philosophy
Physics*
Political Science
Portuguese
Psychobiology*
Psychology, General
Quantitative Psychology
Scandinavian Languages
Slavic Languages
Sociology
Spanish
Spanish and Linguistics

You can find a detailed description of each of these majors under their headings in the "Courses" section of this book.

Interdepartmental Majors

In addition, the College offers some 13 majors which cross departmental boundaries in their field of inquiry. Each of the interdepartmental majors listed below leads to the degree of Bachelor of Arts; those marked with an asterisk (*) lead to the degree of Bachelor of Science.

Afro-American Studies
Chicano Studies
Communication Studies
Cybernetics*
East Asian Studies
Economics-System Science
Ethnic Arts (Intercollege)
Indo-European Studies
Latin American Studies
Mathematics-Computer Science*
Mathematics-System Science
Near Eastern Studies
Study of Religion

Special Program in African Studies

This program is designed primarily for (1) students who plan to live and work in Africa or who are interested in government and public serivce careers involving African affairs, and (2) students who plan to pursue graduate work in one of the social sciences or Near Eastern and African languages with primary concentration on the African field.

The philosophy of the program in African Studies is that people with a firm grounding in one of the established disciplines can make the best contribution to an understanding of Africa and its problems. Thus, the special program in African Studies can be taken only jointly with work toward a bachelor's degree in one of the following fields: anthropology, economics, geography, history, Near Eastern and African languages, political science, or sociology. The student completing this special program will receive a degree with a major in a chosen discipline and specialization in African Studies. The Chairperson of the Committee in Charge will certify completion of the Special Program in African Studies.

Preparation. The introductory courses listed here in three of the following departments: Anthropology 5A and 5C; Economics 1 and 2, or 100; Geography 1 and 3; History 10A-10B; Linguistics 5; Sociology 1 or 101. Training in Arabic, French, Portuguese or an African language is highly recommended.

Upper Division. The student is required to take a departmental major in the social sciences, or by special arrangement with the Committee Chairman, in the humanities or arts. In addition, he is required to take a course related to Africa in each of four departments, one of which must be African Languages 190. African Languages 190 and one of the other three required upper division courses related to Africa may, however, by replaced by a three-quarter sequence of any African language.

For more information, you are invited to contact: Patricia Eaton, African Studies Center, 10244 Bunche Hall, 825-2944, or Professor Christopher Ehret, History Department, 6265 Bunche Hall, 825-4093.

Special Program in Asian American Studies

The program in Asian American Studies is intended to promote the study of Asian and Pacific peoples in the United States from several disciplines. It provides a general introduction to Asian American Studies for those who anticipate advanced work at the graduate level or careers in research and community work related to the Asian American.

Students may participate in the program by undertaking a course of study which focuses on the special roles and experiences of Asian and Pacific peoples in the United States through a department major or the interdepartmental major in East Asian Studies.

Preparation. Asian American Studies 100AB, Introduction to Asian American Studies.

Upper Division. Since Asian American Studies is not a degree-granting program, students participating in it must complete an organized major.

For more information, you are invited to contact Mr. Ronald Hirano, 3232 Campbell Hall, 825-2974.

Certificate Program in Diversified Liberal Arts

In order to earn a credential to teach in California elementary Schools, a student must complete the Teacher Credential Program in the Graduate School of Education and either earn a satisfactory score on the Commons Section of the National Teachers Examination, or complete the Diversified Liberal Arts Program (DLAP) in the College of Letters and Science.

To earn the Certificate in Diversified Liberal Arts, the student must complete all the requirements for the Bachelor's degree in the College of Letters and Science. In addition, the student must complete required and elective courses in four areas: (1) English, (2) Mathematics, and the Physical or Life Sciences, (3) Social Sciences, (4) Humanities, Fine Arts and Foreign Language.

Most of the requirements for one of the areas will be satisfied by the student's major; the student must complete seven courses (28 units) in each of two other areas, and eight courses (32 units) in the fourth area. The student decides in which area to complete the eighth course. A minimum C (2.0) grade point average is required in each of the four areas. Courses in preparation for or on the student's major and in satisfaction of the D requirement may not be taken P/NP.

Courses in Divisions outside the major, which are required as preparation for or as part of the major, may be applied toward the area course requirements. However, no course may be applied in more than one area. Completion of the Program will satisfy the breadth requirements of the College of Letters and Science. The Dean of the College will certify completion of the Program.

Area 1. English

Composition and Grammar: Required: Two courses: English 120A plus one course in satisfaction of the D requirement. If the student wishes to complete the Area 1 requirements with additional composition and grammar, the courses must be chosen from the following: English 130, Linguistics 1, 2, 100.

Literature: Required: One course from English 10A, 10B, 10C, 112, 113, Humanities 1A, 1B, and all upper division courses in English literature for which the student has the prerequisites. The student may complete more than one course from this list to satisfy the Area 1 course requirement.

Speech: Required: One course from Communication Studies 10, 100, Speech 1, 2, 107, 109. The student may complete more than one course from this list to fulfill the Area 1 course requirement.

Area 2. Mathematics and the Physical or Life Sciences

Mathematics: Required: Mathematics 38A-38B and 104. Other courses in Mathematics may be substituted for one or more of these with the written approval of the Department of Mathematics and the Dean of the College of Letters and Science.

Physical or Life Sciences: Required: A minimum of 12 units in Physical Sciences and/or Life Sciences, apart from Mathematics. To fulfill the Area 2 requirement, the student may elect courses that satisfy the Physical Sciences or Life Sciences breadth requirements.

Area 3. Social Sciences

History: Required: One course from History 7A, 7B, 151A, or 151B. Other courses that the student may elect to fulfill the total area course requirement are those listed as fulfilling the Social Science breadth requirements.

Area 4. Humanities, Fine Arts, and Foreign Language

Although there are no specific course requirements, courses used in this area must be selected from

those courses listed as fulfilling the Humanities breadth requirements and, in addition, any courses in foreign language and Dance 10A, 10B, 10C; Music 1, 113A, 113B; Theater Arts 118A, 118B, 119.

Students who plan to pursue the Diversified Liberal Arts Program should begin to take courses in their freshman year that will fulfill these requirements. Transfer students may petition to have suitable courses completed at other institutions applied to the requirements of this Program.

For further information about the Diversified Liberal Arts Program, you are invited to contact a counselor in the College of Letters and Science, Window #4, 1312 Murphy Hall, 825-3382. For information regarding the Teacher Credential Program in the Graduate School of Education, students *must* see a counselor in Room 201 Moore Hall, 825-8326.

Special Program in International Relations

This program can only be taken jointly with a major in political science, and all requirements for the political science major must be met, by or in addition to meeting the requirements for this special program. The student completing this special program will receive a degree with a major in political science and specialization in international relations. The program is designed to serve the needs of: (1) students desiring a general education focused on international affairs; and (2) students preparing for graduate work in international affairs, whether in a social science, in area study, or in a school of foreign service.

The program also partially serves the needs of: (1) students planning careers (in business, law, journalism, or library service) with an international emphasis; and (2) students preparing to teach social science in the secondary schools. These students should govern their programs primarily by the preparation requirements of the professional school or teaching credential of their choice.

Courses in management and administration, and in verbal and written communications, will ordinarily increase the career options of students in this program.

Preparation. Political Science 1, 2, and 3. History 1A-1B-1C, or any three courses selected from History 8A-8B, 9A-9D, 10A-10B. Economics 1 and 2, or 100. Sociology 1 or 101. Anthropology 22, 100 or 102. Geography 3 or 5.

Upper Division. The political science major should be completed as follows: Political Science 110; any *four* upper division courses in Field II, International Relations; Political Science 168L, and three additional upper division courses in Field IV, Comparative Government; one additional course from Field I or two additional courses both in Field III, Field V or Field VI.

Other social sciences courses required: Geography 140; Sociology 140; two courses from Economics 110, 111, 112, 180, 190; three courses from History 127A-127C, 168, 152A-152B.

Language requirement: completion of the sixth quarter course (or its equivalent, as prescribed by the language department), with a grade of C or better, of any modern foreign language. French 6, German 6, Spanish 25, Russian 6, are most frequently offered in fulfillment of this requirement, but see also the offerings listed under Portuguese, Italian, Germanic Languages, Near Eastern and African Languages, and Oriental Languages. Arabic, Chinese, French, German, Japanese, Russian and Spanish, are the languages of widest career utility in international affairs.

Area Focus. Students are advised but not required to concentrate their political science, geography, history and language courses so as to achieve broad familiarity with one area such as Latin America, Africa, the Atlantic area, the Soviet sphere, East Asia, Southeast Asia, South Asia, or the Middle East.

For further information, you are invited to contact: Ms. Vicki Waldman, 4250 Bunche Hall, 825-3862.

Special Program in Urban Studies or Organizational Studies

Students may elect to combine one of these programs with a departmental major and may petition to have the area of specialization recognized with the bachelor's degree.

The option of completing an individual major in Urban Studies or Organizational Studies is also open to qualified students.

Students with departmental majors should seek advising in the appropriate department. Students interested in the individual major should consult a counselor in the College of Letters and Science.

The requirements for the specializations to be taken in conjunction with the major in the Division of Social Sciences are:

Preparation: At least five of the following courses appropriate to the courses to be taken in the specialization: Economics 1 and 2, Sociology 18 and 109, or the equivalent. Political Science 1, Psychology 10, Sociology 1 or 101, Geography 4.

Urban Studies Specialization: (1) At least three courses outside the major department chosen from: Political Science 182A, Sociology 125, Economics 120, Geography 150, Anthropology 160, Psychology 168. (2) One of the following suites of courses, outside the major department: Political Science 180, 182B, 188B; Economics 121, 130, 131, 133, Sociology 124, 154, 155; Geography 145, 146, 152, 156; History 154A-D; Psychology 127, 135, 137A. (3) Internship experience in an urban governmental or community service organization.

Organizational Studies Specialization. (1) At least three courses outside the major department chosen from: Political Science 181, 190, Sociology 121, 141, Management 190, Psychology 149. (2) One of the following suites of three courses, outside the major department: Political Science 146, 147, 180; Economics 170, 171, Sociology 124, 140, 152; Geography 148, 163, Psychology 135, 148, 189. (3) Internship experience in a governmental or service organization.

For further information you are invited to contact Professor Robert Fried, 4289 Bunche Hall, 825-4331.

Special Program in Women's Studies

Students completing a bachelor's degree may petition to receive a Women's Studies Specialization in addition to a major in their chosen discipline.

This program is designed to promote the integration of the study of women into traditional academic disciplines. It is oriented toward the student who wishes to undertake studies in an established discipline with a special emphasis on the roles, contributions, and cultural images of women. At the same time, the program is also designed to provide a view of women in society from the perspective of several different disciplines. With these purposes in mind, two Women's Studies courses have been instituted in order to provide a multidisciplinary over-view of research on women and sex roles and to present new research and theory in this area.

Preparation. Women's Studies 100, Indroduction to Women's Studies.

Upper Division. The student participating in this program is required to complete a departmental major in one of the following departments: Anthropology, Biology, English, History, Political Science, Psychology, or Sociology. Students may petition to have other departments accepted. The requirement of a departmental major is included to provide the student with a strong background in the subject matter and analytic tools of a discipline. These are a necessary preparation for a multidisciplinary program and will enable students who desire further training to embark on related graduate study.

Students are required to complete at least eight classes (none of which may be pass/not pass) from the Women's Studies list. These eight must include Women's Studies 100, Introduction to Women's Studies; Women's Studies 197, Senior Seminar in Women's Studies, and at least one course from each of two areas outside the student's major department. Each quarter the Women's Studies Committee will prepare a list of departmental courses with Women's Studies content. The core courses of the Women's Studies Program are offered on a regular basis by individual departments (Anthropology 151, 163, Education M148/Women's Studies M148, English M107/Women's Studies M107, French 158; History 156C-D-E; Philosophy 192, Psychology M165/Women's Studies M165, Sociology 160. Courses offered through the Council on Educational Development (CED) that are on the Women's Studies list as well as departmental special topic courses and seminars also may be applied to the specialization.

Students are encouraged to declare their specializations in Women's Studies as early as possible and to discuss with the Director their proposed course of study.

For further information you are invited to contact The Women's Studies Program, 255 Kinsey, 824-6172.

Afro-American Studies Major

The major in Afro-American Studies is designed to provide UCLA students with a program of courses leading to a Bachelor of Arts degree in Afro-American Studies. The major offers an opportunity to study in a systematic way the origins, experiences and conditions of people of African descent in the United States and elsewhere in the New World.

The curriculum has two fundamental goals. First, it aims to provide a comprehensive introduction to the crucial life experiences of Afro-Americans. Secondly, it seeks to assist students in the development of academic and professional skills which will enable them to assume useful roles in society.

Accomplishing these objectives requires that students in this program assume a significant measure of responsibility for the actual design of their course work, in conjunction with the faculty adviser for the Afro-American Studies program whom candidates for the program should seek out at the earliest date. Upon entering the major and after consulting with the program faculty adviser, students will choose an area of concentration from one of the departments listed below. Four lower division and six upper division courses must be taken within the chosen department. Two additional upper division courses from the approved list must be taken in departments outside of the student's field of concentration. Finally, Afro-American Studies majors are required to complete two seminars, a junior seminar and a senior colloquium, to be offered by the program.

Preparation for the Major. History 10A; four lower division courses in one concentration: *Anthropology:* Anthropology 1A, 1B, 5A, 5C; *Economics:* Economics 1, 2, 4, Mathematiics 3A; *English:* English 3, 4, Linguistics 1, 2; *History:* History 6A, 6B, 6C, 10B; *Philosophy:* Philosophy 4, 5B, 6, 22; *Political Science:* Political Science 1, 6, Sociology 1, Economics 1; *Psychology:* Psychology 10, Anthropology 11, Biology 2, and one quantitative course from the list below: *Sociology:* Sociology 1, Linguistics 1, 2, and one quantitative course from Mathematics 50A, Psychology 41, Economics 40, Public Health 160A, or Sociology 18. Students concentrating in Psychology or Sociology are strongly urged to complete the required lower division quantitative course at the earliest possible moment.

The Major. (1) Anthropology 164, History 158BC. (2) six upper division electives within the department of concentration from the approved list of courses. (3) two upper division electives outside the department of concentration selected from the approved list. (4) two seminars offered by the Afro-American Studies Program.

Honors Option. An Honors Option is also available. Students participating in this option are required to complete an independent research paper or project. Normally, this paper or project would receive three quarters of credit and would be undertaken with the guidance of a faculty member.

For more information, you are invited to contact Dr. Armstead L. Robinson, 5274 Bunche Hall, 825-1985.

Major in Chicano Studies

This multidisciplinary program leading to the Bachelor of Arts degree in Chicano Studies is designed to provide systematic instruction for liberal arts and pre-professional majors who wish concentrated study of the Chicano experience. Viewed as developmental, the program subjects to critical investigation and analysis the Chicano reality: social, economic, educational, historical, political and psychological.

This major is recommended for students who plan to prepare themselves for graduate study as well as students preparing for public service careers. Students are encouraged to spend up to one year in either a) a service agency in the Chicano community or, b) in a professional research project on the Chicano experience.

For further information, you are invited to contact: Dr. Carlos Haro, 3121 Campbell Hall, 825-2363.

Major in Communication Studies

The major in Communication Studies seeks to provide the student with a comprehensive knowledge of the nature of human communication, the symbol systems by which it functions, the environments in which it occurs, its media, and its effects. The major draws its resources from the social sciences, humanities, and fine arts. The specialization in Mass Communication centers upon formal and institutional communication systems and the social contexts in which they function. The specialization in Interpersonal Communication centers upon face-to-face communicative interaction in the small group environment. Students selecting the major must complete the required lower division prerequisites and a minimum of 16 upper division courses as set forth below.

Enrollment in the major is limited. Admission to the major will be by application to the Committee in charge.

For purposes of Breadth Requirements the major in Communication Studies is designed as a major in the Division of Social Sciences.

Preparation for the Major. Communication Studies 10, Linguistics 1, Psychology 10, Sociology 1. Linguistics 2 is required for students who elect to specialize in Interpersonal Communications.

The Major. Required core courses: Communication Studies 100 and 101 and one course from Anthropology 146, Communication Studies 102 or Linguistics 100.

Specializations. A. Studies in Mass Communication. (1) Theory and Method. Required Courses: Communication Studies 140, Communication Studies 152 and either Communication Studies 147 or Sociology 122, and one course from Political Science 141, Psychology 137B or Sociology 150. (2) Modes of Mass Communication. Two courses chosen from Communication Studies 160, 165, 170. (3) Media and Media History. Two courses chosen from Journalism 192. Theatre Arts 106A, 108, 110A and either Theatre Arts 116 or Communication Studies 175. (4) Electives (Five Courses.) Two courses chosen from Communication Studies 120, Communication Studies 130, Psychology 135 or Sociology 154, Psychology 137A or Sociology 152, Sociology 155. Three courses chosen from one of the following three groups: (a) Language Theory. Communication Studies 142, 150, Linguistics 100, 170, Philosophy 172, Psychology 123. (b) American Studies. English 101B, 101C, 115, History 148A,B,C, History 150A, 150B, 156A, 156B, Political Science 114A, 114B. (c) Social Systematics. Anthropology 141, 144, 145A, 145B, 149A, 149B, Sociology 144A, 144B, and either Sociology 151 or Anthropology 148.

Studies in Interpersonal Communication. (1) Theory. Psychology 135 or Sociology 154, Psychology 137A or Sociology 152. (2) Methods. Three courses required: Communication Studies 120, Management 182, Psychology 174. (3) Heterogeneous Groups Communication. Three courses chosen from Anthropology 139, Communication Studies 130, Sociology 124, 155. (4) Electives (Five courses). Two courses chosen from Communication Studies 140, Communication Studies 147 or Sociology 122, Communication Studies 152, 160, 165, 170. Three courses chosen from one of the following groups: (a) Language Theory. Communication Studies 142, 150, Linguistics 100, 170, Philosophy 172, Psychology 123. (b) Media and Media History. Journalism 192, Theatre Arts 106A, 108, 110A and either Communication Studies 175 or Theatre Arts 116. (c) Social Systematics. Anthropology 141, 144, 145A, 145B, 149A, 149B, Sociology 144A, 144B or either Anthropology 148 or Sociology 151.

For an application and further information, you are invited to contact: Ms. Marde Gregory, Royce Hall 232, 825-3303.

Major in Cybernetics

This major provides an introduction to general theoretical foundations for information processing, communication, control, and system analysis accompanied by complementary studies of models and phenomena, with particular attention to those arising in the life sciences. The major is appropriate preparation for technical employment in cybernetics, and in its roles in biological and health sciences, or for graduate or professional studies emphasizing interdisciplinary research in these fields. Courses in technical cybernetics for the major are offered by the Department of System Science (School of Engineering and Applied Science), and accompanying course-work is taken in Psychology, Biology, Linguistics, Mathematics, the School of Medicine, and related disciplines. Options are arranged within the major as follows: (1) cybernetics and linguistics; (2) mathematical cybernetics; (3) cybernetics and psychology, emphasizing physiological psychology, perception and learning; (4) cybernetics and biology, emphasizing physiology, cell biology, and the nervous system; (5) cybernetics and premedical studies.

Preparation for the Major. Biology 5 and 7; Chemistry 11A-11B-11BL-11C-11CL or 13A-13B; Engineering 10C, or 10F, or 10S, or comparable experience with rudiments of computer programming; Mathematics 31A-31B-31C or 3A-3B-3C and 31C; Physics 8A or 6A; Physics 8C or 6B. Four additional courses selected from: Biology 6-6L, 8-8L, Chemistry 21, 23, 25, Mathematics 32A, 32B, 32C, 60, Physics 6C, 8B, 8D, 8E, Psychology 10, 41. The major adviser will suggest selections appropriate to the various options; in general, Cybernetics students are encouraged to complete as much as possible of the series Biology 6-6L-8-8L, Chemistry 21-23-25, Mathematics 32, and Physics 8 or 6 at some time during their four-year programs.

The Major. One course in group (a) below (Biology 111 is recommended), and eleven additional courses selected from groups (a) through (f), including four courses in group (e) and five courses in not more than two of groups (a), (b), (c), (d). The groups are: (a) upper-division courses in Microbiology and Biology recommended: Biology 111, M132, (Not open to students with credit for Biology 8-8L), 138, 144, 158, 166, 171; (b) Linguistics 100, 103, 104, 120A, 120B, 145, Psychology 122, 123; (c) Psychology 110 through 124, 150, 151; (d) courses in Mathematics numbered 110 and above; (e) courses in System Science numbered Engineering 120 through 129 (some recommended selections: 121C, 122A, 127B, 128D, 128L, 129L); (f) other upper-division courses for which the student is eligible in Chemistry, Physics, Computer Science, Electrical Sciences and Engineering (Engineering 100 and 110 through 119), Biocybernetics (Engineering 196B), Biological Chemistry, Biomathematics, Physiology, Public Health.

For further information you are invited to contact Professor J. W. Carlyle, Department of System Science, 4532 Boelter Hall, 825-6830.

Major in East Asian Studies

This major is designed to meet the needs of students who (1) are seeking a general education on East Asia; (2) are planning careers which will necessitate knowledge of, and/or residence in, East Asia; and (3) desire a background in East Asian Studies as a basis for research and/or community work related to the Asian American.

Preparation for the Major. History 9B-9C; Oriental Languages 1A-1B-1C or Oriental Languages 9A-9B-9C or a parallel Cantonese sequence; Oriental Languages 11A-11B-11C or Oriental Languages 19A-19B-19C. Students planning to pursue classical Chinese in the Major will need Oriental Languages 13A-13B-13C in addition to the above courses.

The Major. This consists of three parts:

1. Four courses selected from the following: Anthropology 103C, Asian American Studies 100A, 100B, Geography 186, History 182A-C, 183, 184, 161, 187A-C, Political Science 135, 136, 159, 160, Sociology 134.

2. Five courses selected from the following: any courses in the social sciences listed above under "1" not being used to satisfy that requirement; any upper division courses in the Department of Oriental Languages not being used to satisfy other parts of the Major Requirements; any new upper division courses relevant to East Asian or Asian American studies (including no more than three CED courses) which may be approved by the Executive Committee of the College on the recommendation of the Advisory Committee; Art 114B, 114C, 115B, 115C; Dance 140B, 145; Music 140B, 141, 145, 146A-146B-146C, 147A-147B*.

3. The prescribed courses in one of the following areas (courses offered to satisfy this requirement will not also satisfy other parts of the Major requirements): (a) *Language:* Oriental Languages 121A-121B and two other upper-division courses in Chinese; or Oriental Languages 119A-119B and two other upper-division courses in Japanese. (b) *Archaeology:* Any four of the following: Oriental Languages 170A-170B; Anthropology 109*, 175A*-175B*); (c) *Geography:* Geography 132 or 133, 186; and two additional upper-division Geography courses. (d) *History:* Four upper-division or graduate courses in East Asian or Southeast Asian history (History 182A-C, 183, 184, 187A-C, 190A-B, 197 when in the East Asian field, 214). (e) *Political Science 7:* Political Science 115*, and three courses selected from the following: Political Science 135, 136, 159, 160, 161, 197 when in the East Asian field. (f) *Sociology:* Sociology 124* and three courses selected from the following: Sociology 113*, 126*, 134*, 151*, 154.

*Courses so marked have prerequisites which are not included among the courses mentioned here.

Major in Economics-System Science

This major is an alternative to the regular departmental major in Economics, and combines work in the Department of System Science (School of Engineering and Applied Science) with preparation in economic theory and in those aspects of mathematics and statistics that are necessary for the study of quantitative-aspects of economics and systems theory. The major is appropriate for students who plan graduate study with emphasis on such areas as economic theory, mathematical economics, econometrics, feedback and control systems, optimization, computing techniques, and the modeling and analysis of various socio-economic systems.

Preparation for the Major. Economics 1 and 2; Engineering 10C or 10S; Mathematics 31A-31B-31C, 32A-32B-32C, 60.

The Major. Fourteen upper division courses are required consisting of six courses in Economics, six courses in System Science, and two courses in Mathematics. Selections must include: Economics 101A, 101B, 102; and one from Economics 144, 145, 146, 147; Engineering 128A, 129A, and one from Engineering 121C, 122A, 127B, 128A; Engineering 120A or Mathematics 150A or 152A; at least one from Engineering 120B, Engineering M120C/Mathematics M151, Mathematics 150B, 152B. System Science selections are made from courses numbered Engineering 120A, 120B, 120C, 121C, 122A, 122B, 124A, 127B, 128A, 128D, 128L, 129A, 129L.

For purposes of the College breadth requirements, this major is considered to be in the division of Physical Sciences. Economics-System Science majors may not offer courses in Economics as breadth courses in the Social Sciences.

For further information,you are invited to contact Professor M. Aoki, 4531 Boelter Hall, 825-2360, or Professor J. Carlyle, 4532 Boelter Hall, 825-6830.

Intercollege Major in Ethnic Arts: Interdisciplinary Studies

This is an interdepartmental major open to students in both the College of Fine Arts and the College of Letters and Science.

The student remains in the college of his choice and fulfills the breadth requirements of that college. The student will normally elect his area of concentration when accepted into the major.

Counseling is available in the department of concentration, in the College of Letters and Science, and in the College of Fine Arts.

Admission to the major will be by special application to the Committee in Charge. For details of the major, see Ethnic Arts.

For further information, you are invited to contact Ms. Wendy Urfrig, 205 Women's Gym, 825-3951.

Major in Latin American Studies

For details of the curriculum leading to the degree of Bachelor of Arts, see Latin American Studies. Students should see an adviser in the Latin American Center, 10343 Bunche Hall.

Major in Mathematics-Computer Science

This major, an alternate to the regular departmental major in Mathematics, consists of an integrated program of courses offered by the Department of Mathematics and the Computer Science Department (School of Engineering and Applied Science). In addition to the appropriate studies in Mathematics, the interdepartmental major permits study in the principal disciplines of Computer Science, including theoretical foundations of computer science, methodology of computing, computer system design, programming languages and systems, and computer applications. The Mathematics Department can arrange advising appointments and can provide current information on changes in requirements. The major leads to the Bachelor of Science degree.

Preparation for the Major. Mathematics 31A, 31B, 31C, 32A, 32B, 32C, Physics 8A, 8C or Physics 6A, 6B. Engineering 10C. Computer Science 20, and 30. Students who take Physics 8A, 8C are urged to take Physics 8B.

The Major. Fourteen courses, as follows. (1) Mathematics 110A, 115, 150B or 152A. (Normal order: 115, 110A, 152A or 150B.) (2) Four additional courses in Mathematics chosen from courses numbered 110 or above. (Suggested: 113, 114, 140A, 140B, 142, 144, 152B or 150A, 153). (3) Computer Science M123B (Engineering M123B), 131, 141, 151A and 152A, 151B and 152B. (Recommended order for Hardware: 151A with 152A, 151B with 152B; recommended order for Software: 131, 141, M123B. 152A and 152B are laboratories counting ½ course each.) (4) One additional course chosen from Engineering 121C, 127B. Computer Science 111A, M124A (Engineering M124A), 132, 171. Credit will not be allowed toward the major for both Mathematics 140B and Computer Science M124A. Management 210A may be subsitiuted for Mathematics 144.

Students with 90 units or more as of September 1973 are exempt from Computer Science 30.

Minimum Standards. Each course taken in preparation for the Mathematics-Computer Science major and in the major itself must be completed with a grade of C- or higher. (Students who do receive a D or F the first time they take a course must repeat the course. If a D or F is received the second time, they may not remain in the major unless they petition to do so and the petition is approved.) Furthermore, each student in the major must maintain an average of 2.0 or better in upper division Mathematics courses in the major and a 2.0 or better in the upper division Computer Science and Engineering courses in the major.

Students with 60 or more quarter units of college credit will not be admitted to the major unless they have completed one year of calculus and one computer programming course and meet the same mimimum standards listed above for all college-level mathematics and computer science courses completed. This requirement applies both to transfer students and to continuing UCLA students not already in the major.

Transfer students admitted to the Mathematics-Computer Science major should consult an advisor for the major at the earliest opportunity.

Students with substantial knowledge of programming in the PL/1 language may be exempted from Engineering 10C by passing a special placement examination. This examination is given during registration week each quarter by the Computer Science Department. Students seeking exemption from other courses should consult a mathematics-computer science adviser.

Department Honors in Mathematics-Computer Science will be awarded at graduation to those students who (a) have been admitted to the Mathematics-Computer Science Honors Program, (b) have completed a suitable special project or participating seminar as part of the program, and (c) at graduation, have a GPA of at least 3.6 in upper-division Mathematics courses in the major and 3.6 in upper-division Computer Science and Engineering courses in the major. Students may apply for admission to the program after having completed at least two upper-division courses in Mathematics and eight upper-division units in Computer Science and Engineering courses in the major. Application forms and further information can be obtained at the Mathematics Undergraduate Office, Mathematical Sciences 6356.

The Departmental Scholar Program is available to interested and qualified students who wish to work towards a Master's Degree in either Mathematics or Computer Science. See Departmental Scholar Program.

For further information, you are invited to contact Sally Yamashita, Mathematical Sciences Building 6356, 825-4701.

Major in Mathematics-System Science

This major is an alternate to the regular departmental major in Mathematics, and combines work in the Department of System Science (School of Engineering and Applied Science) with thorough preparation in mathematics, including those aspects significant in the theory of systems, information, and control. The major is appropriate for students who plan graduate study in mathematics, applied mathematics, or engineering, with emphasis on mathematically based research relevant to such fields as: communication, computation, control, operations research, optimization, stochastic processes, system analysis.

Preparation for the Major. Mathematics 31A-31B-31C, 32A-32B-32C, 60, Engineering 10C, Physics 8A or 6A, 8C or 6B. Upper division or transfer students who have not had the opportunity to enroll in Mathematics 60 may substitute Engineering 127B by petition in which case, Engineering 127B may not be applied on the major.

The Major. Thirteen upper division courses as follows: (1) Mathematics 115 and 5 additional mathematics courses number between 110 and 199; (2) Five courses in System Science selected from Engineering 120 through 129 and 199G; (3) One course, either in System Science selected from the list in (2), or in Computer Science; (4) One additional upper division course in Biology, Chemistry, Economics (numbered 101 or above), Mathematics (numbered between 110 and 199), Physics, or Psychology. Due to the similarity of Mathematics 144 and Engineering 125L (formerly 172A) credit will not be allowed towards the major for both courses. One of the thirteen courses must be either Mathematics 150A or Engineering 120A. (Credit will not be allowed towards the major for both.)

Some Recommended Selections. General, and preparation for graduate study: Mathematics 110A-110B, 131A-131B, 132; Engineering 120A or Mathematics 150A-150B; Engineering 121C, 128A, 128D, 129A. Automata, computability, and discrete systems: Engineering M123B, 128D, Mathematics 112B, 113, 114. Control, optimization, and computing methods: Engineering 121C, 122A, 128A, 129A; Mathematics 135A-135B. Communications and random processes; Engineering 120B; Engineering M120C or Mathematics M151; Mathematics 150B-150C.

For further information, you are invited to contact Ms. Sally Yamashita, Mathematical Sciences Building 6356, 825-4701.

Major in Near Eastern Studies

This major is designed primarily for the following students: (1) those seeking a general education and desiring a special emphasis in this particular area; (2) those who plan to live and work in the Near East whose careers will be aided by a knowledge of its peoples, languages, and institutions, and (3) students preparing for academic study in the various disciplines pertaining to the Near East. Selection of courses should be decided partly by the student's own special objectives except that the same Near Eastern Language must be maintained in both lower and upper division.

Preparation for the Major. The first year course in Arabic Armenian, Hebrew, Persian or Turkish; candidates must also obtain a reading proficiency in French, German, Italian, Russian or Spanish as demonstrated by the completion of six quarter courses or their equivalent in the language of their choice. Candidates may substitute for the European

language requirement Engineering 10S and one of Mathematics 50A, Psychology 41, Sociology 18, Political Science 6, Economics 40, plus one of Psychology 142, Sociology 116, Political Science 102, Economics 141, Geography 171. Also required are History 9D and four courses chosen from History 1A-1B-1C; Anthropology 5A, 5C; Economics 1, 2; Geography 3; Political Science 2, 3; Sociology 1.

The Major. Required: sixteen courses as follows: (1) Completion of the advanced level or its equivalent in Arabic, Armenian, Hebrew, Persian or Turkish; (2) History 106A-106B, 108A-108B, and two additional courses in the history of the Near East which are related to the major language; (3) four courses (two of which must be in the same discipline) from: Anthropology 110, 123; Art 101D, 104B-104C-104D; Economics 110, 111, 112, 190; Geography 187, 188; Political Science 132A-132B, 164, 165; Sociology 132, 133. This program may be modified in exceptional cases with the permission of the adviser.

For further information, you are invited to contact: The Von Grunebaum Center for Near Eastern Studies, 10286 Bunche Hall, 825-1181.

Major in Study of Religion

The UCLA major in the Study of Religion has a twofold purpose. In the first place it is designed to give students a broad humanistic perspective. It introduces students to several religious traditions of mankind and thus to an appreciation of the very nucleus of civilization in various periods of history and various parts of the world as well as to an understanding of fundamental human orientations. In the second place, the program asks the student to select one particular religious tradition for study at greater depth. Cohesion and integrity in the program are furthered by some courses dealing with philosophical problems in religion and with general anthropological reflections.

The program requires one year of language study which should be related to the major tradition of the student's concern. This mimimum requirement will allow every student to develop some idea of the basic problems in understanding religious texts. Students contemplating graduate study will generally do more than fulfill the minimum requirement.

It is hoped that in the future a group of courses will be added to the nine groups of the present program to allow for a concentration of sociological and philosophical problems of religion.

Preparation for the Major. Anthropology 22; Philosophy 2; History 4; two courses chosen from History 1A-1B-1C, 10A-10B, 9A-9B-9C-9D.

The Major. The major requires a minimum of 13 upper division courses and three related courses in foreign language. These must include: History 193A or 193E; Anthropology 140 or 144; two of the following: Philosophy 175, 191, 193, 195.

In addition a student is to select one of the following groups as his main area of study and is to take 3 courses in that main area, and 3 related courses in foreign language as indicated below. (The language courses may be either upper or lower division. If any requirements have been satisfied prior to admission to the program, they will be honored upon the recommendation of the appropriate instructor in the program. Another language pertinent to the student's main area may be substituted with the consent of the committee in charge of the program. Among these languages are Hittite, Ugaritic, Syriac, Coptic, Persian, Armenian, French, German, Irish, Welsh.)

Group 1: Ancient Near East and Eastern Europe. Three courses selected from the following: History 193D; Ancient Near East 130, 150A, 150B, 150C, 170; Indo-European Studies 131, 132; Iranian 170. Three courses in one of the following languages: Ancient Egyptian or Akkadian.

Group 2: Indo-European Traditions. Three courses selected from the following: English M111D, M111E; History 193B; Classics 140; Scandinavian Literature 141; Iranian 170; Slavic M179. Three courses in one of the following languages: Sanskrit, Latin, Greek.

Group 3: Greece and Rome. Three courses selected from the following: Classics 161, 162, 166A, 166B; History 197 (Roman History: Christianity and Imperial Rome). Three courses in one of the following languages: Latin or Greek.

Group 4: Israel and Judaism. Three courses selected from the following: English 108A; History 191A-191B, 192A-192B; Hebrew 120, 130, 135, Hebrew 220 (Studies in Hebrew Biblical Literature); Jewish Studies 110, 150A-150B, 151A-151B, 199; Ancient Near East 170, 171. Three courses in Hebrew.

Group 5: Christianity. Three courses selected from the following: Philosophy 105, 106; English 108B; History 112A-112B, 119, 120, 121A- 121B, 125B, 150A-C; Ancient Near East 170, 172; Classics M170A. Three courses in one of the following languages: Latin or Greek.

Group 6: Islam. Three courses selected from the following: Philosophy 104; History 106A, 107A-107B; Arabic 150A-150B; Iranian 150A-150B. Three courses in Arabic.

Group 7: South Asia. Three courses selected from the following: History 124B, 124E, 124F, 124G, 188A, 196A, 193B-193C, 197 (South Asian Religions); Oriental Languages 167; Iranian 170. Three courses in Sanskrit.

Group 8: Far East. Three courses selected from the following. History 193C; Oriental Lanaguages 172A-172B, 173, 174. Three courses in one of the following languages: Sanskrit, Chinese, Japanese.

Group 9: Traditional and Non-Literate Cultures. (Choose A or B)

A. Three courses selected from the following: Anthropology 107A-107B; Linguistics 150A-150B. Three courses in a language chosen in consultation with an instructor in this area.

B. Three courses selected from the following: Anthropology 105A, 108, 207, M257; Folklore and Mythology M111, M123A, M125, M129, 130. Three courses in a language chosen in consultation with an instructor in this area.

The student will select six courses in traditions chosen from at least two Groups outside his main area of study, excluding foreign language courses.

Honors Major. Honors in the interdepartmental major, Study of Religion, provides exceptional students with an opportunity to do independent research under the tutorial guidance of a faculty member associated with the interdepartmental program in the Study of Religion. A student admitted to Honors by the Committee in Charge of the Major should take three 199 courses under the guidance of the sponsoring professor. These courses will be taken in the student's senior year and will count as part of the regular requirement of sixteen upper division courses. Honors culminates in an Honors Thesis which the candidate should be capable of defending before his or her sponsoring professor and at least two members of the Committee in Charge of the Major.

In order to qualify for admission students should have a minimum grade point average of 3.4. They should consult the sponsoring professor of their choice and with his or her approval make their desire known to the Committee in Charge of the Major. They should do so preferably before the end of their junior year, and no later than the beginning of their senior year. The 199 courses designed for the program and the thesis topic should be approved by the Committee.

For further information, you are invited to contact the Department of Philosophy, 321 Dodd Hall, 825-4641.

About A Major in the College of Letters and Science

Choosing an area of academic specialization from the long list of majors described in the previous ("An Introduction") section is one of the most important decisions you will make at UCLA.

Any student with 90 or more units towards a degree must declare a major. If you have already declared your major—or are about to declare it—you can skip this section, picking up again at "Regulations".

Entering Students

If you are a freshman, you may be a bit uncertain about your specific academic goals. Many entering students do not specify a major, preferring instead the "undeclared major" route.

Students who have not declared a major often take introductory courses in the natural sciences, social sciences and the humanities as a way to search for the area that most excites their interest.

Then, once you change to a major you will probably find that some of the courses you have sampled will count toward fulfilling breadth requirements.

Continuing Students

If you are heading for the 90-unit limit, and have still not declared a major, you should file a "petition for declaration of major" with the College Office after receiving a favorable recommendation from either the department or committee which governs the major.

Help

You can get a variety of help with academic planning—setting goals and getting to them—from the College of Letters and Science office in 1312 Murphy Hall (telephone 825-1965 or 825-1761) the Psychological and Counseling Services Center in 3334 Murphy Hall (telephone 825-4071) and the Placement and Career Planning Center located just south of Powell Library (telephone 825-2981).

Also, most departments have faculty members and counselors who are available to discuss in detail the offerings in their specialization(s).

Printed resources to help you are listed at the end of this section; you will also find sources of academic assistance in the "academics: resources to help you" section of this Catalog.

Regulations Governing the Major

A major shall consist of not less than nine (36 units), nor more than 15 (60 units) upper division courses, except that a departmental major may be increased by three more upper division courses (12 units) in other departments, with the approval of the Executive Committee of the College.

There are three categories of majors in the College of Letters and Science: **departmental, interdepartmental** or **individual.**

Departmental and Interdepartmental

A departmental major consists of a group of coordinated upper division courses, of which at least six courses are in one department, set up and supervised by a department.

An interdepartmental major consists of at least 13 coordinated upper division courses, of which not more than eight are in one department, set up and supervised by a committee appointed by the Executive Committee of the College. *A student who has been away from the University for several terms should consult with his major department or curriculum adviser concerning the major requirements under which he will graduate.*

Individual Major

A student who has some unusual but definite academic interest for which no suitable major is offered in the University of California and who has completed at least three quarters of work (a minimum of nine courses) in the University with a

grade-point average of 3.4 or higher may, with the consent of the Dean of the College and with the assistance of a faculty advisor appointed by the Dean, plan an individual major.

The ***individual major*** must be submitted to and approved by the Dean of the College no later than the first week of classes of the third quarter before intended graduation. Your request should be accompanied by a statement defining the purposes of the major and its relation to your goals, and explaining the reasons why the program cannot be accommodated within some existing major. There must be an accompanying statement from a faculty advisor indicating that there has been significant faculty consultation in devising the program. The faculty adviser should be a regular member of the faculty of the College of Letters and Science, with a professorial title in a department that offers a major in the College.

Each request for an individual major should list the course numbers and titles in the preparation for the major and in the major itself, including an indication of the relevance of each course or group of courses to the program. The major should consist of at least twelve and not more than fifteen upper-division courses, a majority of which are in departments offering a major in the College.

The major may not include any courses taken on a P/NP basis. CED and other experimental courses may not be used as part of a major.

A senior thesis is required of each student with an individual major. An outline of the thesis, worked out with the help of the faculty adviser, should be submitted to the Division of Honors Office no later than the first week of the second quarter before graduation. The faculty adviser will pass final judgment on the quality of the thesis: a copy of the thesis must be filed in the Division of Honors Office. The Dean must certify that you have completed the requirements of your major, including completion of the thesis, before the degree is granted. The title of the major will not appear on the diploma, but will be entered in the memoranda column on your official transcript. The major will be indicated on the diploma as Individual Field of Concentration. Further information about the individual major may be obtained at the Division of Honors Information Window or from one of the Division of Honors counselors.

Double Majors

Students in good standing are sometimes permitted to have a *double major*, consisting of two departmental majors in this College, provided they can be completed within the maximum limit of 208 units.

Double majors in the same department with very few exceptions are unacceptable. If the majors are not in the same division, the student will designate one of the two majors as the principal one, in order to identify the division for the purpose of satisfying the breadth requirements. Courses used to satisfy the requirements for the principal major may also be used to satisfy the requirements for the secondary one, but *not more than five courses may be common to both majors.*

For *double majors*, courses outside the department of the principal major which are required in preparation for that major may be used to satisfy the breadth requirements. Courses required for the secondary major (including preparation for the major) may be used to satisfy any set of breadth requirements.

If you have been away from the University for several terms consult with your major department concerning the major requirements under which you will graduate.

Changing Your Major

Change of Major. A student in good standing who wishes to change a major may petition the department or committee in charge of the proposed new major, provided that the proposed new field of study can be completed *without exceeding the 208-unit limit.* Final action on the petition will be taken by the Dean of the College. Certain majors may be unavailable. A change of major may be denied if all preparatory courses have not been satisfactorily completed. Some Departments have established specific grade requirements on courses taken in preparation for the major. A student on probation may not normally change his major. No change of major will be permitted after the opening of the student's last quarter. Each student who has declared a major shall be advised by a representative of the department or committee before enrolling in classes.

Students who fail to attain a grade-point average of at least C (2.00) in work taken in the prerequisites for the major, or in courses in the major, may, at the option of the department or committee in charge, be denied the privilege of entering or of continuing in that major. You must attain an average grade of C (2.00) in all courses undertaken in your major.

Requirements for the Bachelor's Degree.

The degree of Bachelor of Arts or Bachelor of Science will be granted upon the following conditions:

1. The candidate shall have completed for credit 45 courses (180 units), of which at least thirteen courses (52 units) shall be upper division courses (numbered 100-199).

The following *Credit Limitations* apply for all students enrolled in the college.

a) After completing 26 and ¼ courses (105 units) toward the degree (in all institutions attended) the student will be allowed no further unit credit for courses completed at a community college.

b) Not more than one course (4 units) in Kinesiology 1, 2, and S3, and not more than two courses (8 units) in 300 and 400 courses may be counted toward the bachelor's degree. (Transfer students with credit for more than 4 units of Kinesiology 1 should be aware of the 4-unit limit on this credit.)

c) Credit is not granted for X300 and X400 courses taken in University Extension unless the approval of the Dean has been obtained by petition prior to enrollment. Such petitions are rarely granted.

d) Not more than 12 units of Dance 70, 71, 170, and 171 and Music 80 and 81 taken at UCLA may be counted toward the bachelor's degree. *Letters and Science students electing to take these courses must enroll in these courses Pass/Not Pass.*The Music courses are limited to one per student per quarter. These courses will not be counted in the limits on Pass/Not Pass enrollment. (N.B. such courses are excluded from the Letters and Science List). For further information on these limits, see Courses Taken Passed/Not Passed.

e) Credit earned through the College Level Examination Program (CLEP) after June 30, 1974, will not be counted toward the bachelor's degree in the College.

f) Advanced Placement Test Credit (AP) earned after June 30, 1974, will not apply toward a degree in the College, except for students at the freshman level with not more than 36 units of credit already earned toward the bachelor's degree at the time of the examination.

g) Not more than 24 units of credit in Aerospace Studies, Military Science, or Naval Science may be applied to the 180 unit minimum required for the Bachelor's degree.

h) Senate regulations limit the undergraduate student to two courses (8 units) of credit per quarter in special independent study courses. The total number of units allowed in such courses for a letter grade is 16. Also, see specific restrictions under each departmental listing.

i) For students entering Fall 1978 and thereafter and effective with Chemistry 2 taken Fall Quarter 1978 or thereafter (at UCLA or another institution), no credit will be granted toward the bachelor's degree for Chemistry 2 after one year of high school chemistry completed with grade C or better. Students enrolled in UCLA prior to Fall 1978 may take Chemistry 2 with full unit and grade point credit, without petition.

j) For students entering Fall 1978 and thereafter and effective with foreign language courses taken Fall Quarter 1978 or thereafter (at UCLA or another institution), no credit will be granted toward the bachelor's degree for college foreign language courses equivalent to quarter level 1 and/or 2 if the equivalent of course level 2 years of the same language was completed with satisfactory grades in high school. The maximum deduction will be eight units.

Students enrolled in UCLA prior to Fall 1978 may repeat high school language with full unit and grade point credit, without petition.

k) A student in Letters and Science who is enrolled in fewer than 12 units may *not*elect the pass/not pass option for that term.

l) No credit will be allowed for more than one lower division course in statistics or for more than one sequence of such courses. (Exception: Mathematics 50A followed by Economics 40.)

m) A student participating in the Education Abroad Program may receive toward the Bachelor's Degree a maximum of 48 units of credit plus the 8 units allowable for the Intensive Language Program.

1. The candidate shall have attained at least a "C" (2.00) grade-point average in all courses undertaken in this University. **A student is required to satisfactorily complete a minimum of 180 units for the bachelor's degree. A maximum of 208 units is allowed. After having credit for 208 units, he will not be permitted to continue, except in rare cases approved by the Dean.**

2. The candidate shall have completed the general University and College requirements.

3. The candidate shall have met the University requirement in American History and Institutions.

4. The candidate shall have satisfied the requirements of a major (including preparation for the major) in the College of Letters and Science. Before the degree is granted, the department or committee in charge of the student's major must certify that the student has completed the requirements for the major.

5. **Of the last 48 units completed for the bachelor's degree, 36 must be earned in residence in the College of Letters and Science on this campus. Not more than 16 of the 36 units may be completed in summer session on the Los Angeles campus*. While registered in this College you must complete at least six upper division courses (24 units), including four courses (16 units) in the major. In departmental majors, the department will specify how many of these four required courses shall be taken in the department. This residence regulation applies to all students, including those entering this University from other institutions or from University Extension and those transferring from other colleges of this University. Students transferring from a College of Letters and Science on another campus of the University may petition for an exception to this rule.**

Concurrent enrollment in courses offered by University Extension (including correspondence courses) or at other institutions is not permitted except in extraordinary circumstances, and no credit will be given for such courses unless the approval of the Dean has been obtained by petition prior to enrollment.

The degree of Bachelor of Arts shall be granted to all candidates who qualify for the bachelor's degree, except that the degree of Bachelor of Science shall instead be granted to candidates who have completed such majors as the Executive Committee of the College may designate as leading to that degree.

*Subject to final approval of the Statewide Assembly on 6/6/79.

Minimum Progress

Effective Fall 1974, an undergraduate student in the College of Letters and Science who does not pass at least 36 units during any three consecutive terms shall be placed on probation, and an undergraduate student who does not pass at least 32 units during any three consecutive terms shall be subject to disqualification from further registration at the University. Courses bearing solely a letter designation may be used to meet this requirement only during the first three quarters of residence. Petitions for exception to these requirements must be approved by the Dean and may be granted only on account of poor health or of regular outside occupation requiring half-time or more.

Letters and Science Course List Requirement

Beginning Fall 1978, at least 160 units, including 52 units in upper division courses offered for the Bachelor's degree, must be selected from the Letters and Science List of courses. Any course not included on this list, but required or accepted as part of a major shall, for students offering that major at graduation, be treated as if it were on the list. This regulation applies to all students who have successfully completed less than 36 quarter units prior to Fall Quarter, 1978.

Courses are applicable only if taken during a year in which they appear on the list. Courses offered for "no credit" and those numbered above 199 are automatically excluded.

All undergraduate courses in the College of Letters & Science may be applied **EXCEPT:**

English 136A-B-C

English as a Second Language 33A-33B, 103K, 106K, 107K, 109K, 111K, 122K

Journalism 101A-B.

Mathematics 1A, 38A-B, 104

The following courses in departments outside the College of Letters & Science are applicable:

Architecture and Urban Planning 190, 191, 192

Art 50 through 56, 101A through 122

CED courses that are formally cross-listed with Letters and Science Departments.

Dance 111A-B-C, 140A-B-C, 151A-B

Education 100, 102, 112, 125, 147

Engineering 11, 12, 102, 107A, 120A-B-C, 121C, 122A-B, 123A-123B, 124A, 125A-B, 127B, 128A, 128D, 129A, 130A, 137A, 155, 171A, 171C, 172A, 180A-180B, 191A, 192A-192B-192C, 193A

Freshman and Sophomore Professional School seminars—consult the College of Letters and Science concerning applicability.

Management 100, 101, 108, 111, 115, 116A-B, 150

Music 2A-B-C, 130 through 143A-B, M144, 146A through 149, 152, M154A-154B, 157, 158, 159, M180, M181, M183, 187, 188A-Z, 189

Public Health—All courses except 102A-B, 119A-B, 130A-B, 131, 135

Theatre Arts—Theatre 5A-B-C, 101 (2 units), 102A through 105; M.P.T.V. 106A-106B-106C-106D-106E.

General University and College Requirements

Unless your chosen major demands unusually heavy work in lower division courses, it will be to your advantage to complete these requirements as soon as possible—normally within your first 24 courses (96 units).

"Subject A"

All students are required to demonstrate proficiency in the fundamentals of English composition (Subject A). Students from other countries whose native language is not English will be instructed by the Office of Admissions to take the Entrance Examination in English as a Second Language and therefore are not required to meet the regular Subject A requirement. For further regulations concerning Subject A, see "degree requirements" later in this section.

American History and Institutions

You can find details about this requirement under "degree requirements" earlier in this section of the Catalog.

Foreign Language

The College of Letters and Science does not have a college-wide requirement for foreign language. Students should consult this catalog and departments or committees administering curricula concerning the requirement of specific majors. Credit will not be allowed for completion of a more advanced course in grammar and/or composition.

For students entering Fall 1978 and thereafter and effective with foreign language courses taken Fall Quarter 1978 or thereafter (at UCLA or another institution), no credit will be granted toward the bachelor's degree for college foreign language courses equivalent to quarter level 1 and/or 2 if the equivalent of course level 2 years of the same language was completed with satisfactory grades in high school. The maximum deduction will be eight units. Students enrolled in UCLA prior to Fall 1978 may repeat high school language with full unit and grade point credit, without petition.

College credit for the mother tongue of a foreign student and for its literature is allowed only for courses taken in native institutions of college grade, or for upper division and graduate courses actually taken at the University of California or at another English-speaking institution of approved standing.

English Composition

You may satisfy this requirement with one course from English 3, 4, Humanities 2A, 2B, or CED 3. (Students may not receive credit for both English 3 and CED 3). A grade of "C" or better is required; grade of "C−" is not acceptable. A course in English Composition taken for a "Pass" grade does not satisfy this requirement. Courses in the above group may be applied on the Humanities breadth requirement if they are not used to satisfy the English Composition requirement.

The composition requirement may also be satisfied with a score of 4 or 5 on the CEEB Advanced Placement Test in English, or by passing a proficiency examination in English Composition set and administered by the Department of English. To be eligible for this proficiency examination an entering student must have a score of 660 on the CEEB English Achievement Test. *Each student should satisfy the composition requirement before having completed 90 quarter units. Students who fail to do so must have their study lists approved by the Dean.*

Special Regulations for Transfer Students

If you have completed an English Composition course graded "Pass" you may take the English Proficiency Examination upon presentation of a letter of authorization to the English Department. The letter may be obtained from the College of Letters and Science.

Transfer students who have completed with grade "C" or better a college composition course that has not satisfied the College of Letters and Science requirement in English composition may be eligible for the proficiency examination after an interview by the English department. Eligible students must register for the examination in the English Department office prior to the first day of enrollment in each quarter.

If you have credit for 90 or more units and have not completed a course that satisfies the College of Letters and Science requirement in English composition, but are exempt from the Subject A requirement you must include an acceptable composition course in the study-list of your first quarter of residence in the College. If you are required to take the course in Subject A you should, upon completion of that requirement, include an acceptable composition course in the study-list of your second quarter of residence in the College.

A bona fide student from abroad, who has learned English as a foreign language and in whose secondary education English was not the medium of instruction, may satisfy this requirement by completing English 33"C" with a grade of "C" or better when that course is required. If English 33C is not required, the student from abroad may take either English 3 or 106J to satisfy the composition requirement.

Units evaluated by the Office of Admissions as English Composition but not sufficiently advanced to satisfy the College of Letters and Science requirement, can be applied on the Letters and Science breadth requirements as Humanities only if specifically approved by the Dean. Advanced Placement English with Grade 3 has such approval and requires no petition by the student. ESL 33A-33B-33C and advanced standing English for Foreign Student courses may *not* be applied on the Humanities Division.

Breadth Requirements

Breadth requirements are designed to acquaint you with areas of inquiry outside your own major. They provide a unique educational opportunity to bring perspectives from many fields together in a unified approach to learning.

Effective Fall 1978, students with less than 36 quarter units completed must meet the following Breadth Requirements. Those who have completed 36 or more units may choose to meet either these new requirements or the old requirements (described later in this section).

You will satisfactorily complete nine courses (36 quarter units) distributed among the three divisions ouside the division of your major with at least two courses in each division. Acceptability of courses for these requirements are subject to the following general conditions:

(a) All language courses level 4 or above may be applied as Humanities courses. Level 1, 2, and 3 courses may be used, provided that you have completed the level 4 course in the same language. Conversational courses may not be used to satisfy the Humanities requirement. Breadth Requirements credit for courses in languages which do not offer level 4 courses is contingent on completion of the highest level offered.

(b) The course used to satisfy the English Composition Requirement may not also apply on the Breadth Requirements.

(c) Courses required to satisfy the Major or other courses taken in major department may not be used to satisfy Breadth Requirements. However, courses outside the division of the major which are required as preparation for a major may be used to satisfy these requirements.

(d) Courses in other colleges and schools at UCLA may be used to satisfy the Breadth Requirements, if so designated by the Executive Committee of the College.

(e) Freshman and Sophomore seminars taught in departments in the College of Letters and Science apply. Seminars taught in other Colleges and professional schools may apply only by petition.

Transfer students should consult the College of Letters and Science concerning application of advanced standing courses on the breadth requirements.

Consult individual course descriptions to avoid possible duplication of courses.

Courses numbered in the 300 and 400 series may not be applied on the breadth requirements. Courses numbered 199 and in the 200 series may be applied on breadth requirements only by petition approved by the Dean of the College of Letters and Science.

You can determine which—and how—UCLA courses apply to your breadth requirements by studying the list of courses (E through H) below.

For the purposes of these requirements, departmental and interdepartmental majors are classified in the following divisions.

Humanities

African Languages
Ancient Near Eastern Civilizations
Arabic
Chinese
Classics
English
English-Greek
English-Latin
Ethnic Arts
French
French and Linguistics
German
Greek
Hebrew
Italian
Italian and Special Fields
Japanese
Jewish Studies
Latin
Linguistics
Linguistics and Computer Science
Linguistics and English
Linguistics and French
Linguistics and Italian
Linguistics and Oriental Languages
Linguistics and Philosophy
Linguistics and Spanish
Near Eastern Studies
Philosophy
Portuguese
Scandinavian Languages
Slavic Languages
Spanish
Spanish and Linguistics
Study of Religion

Physical Sciences

Astronomy
Atmospheric Sciences
Biochemistry
Chemistry
Cybernetics
Economics-System Science
General Chemistry
General Physics
Geology
Geology (Engineering Geology)
Geology (Geochemistry)
Geology (Paleobiology)
Geology (Non-renewable Natural Resources)
Geophysics (Applied Geophysics)
Geophysics (Geophysics and Space Physics)
Mathematics
Mathematics-Applied Science
Mathematics-Computer Science
Mathematics-System Science
Physics

Social Sciences

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

Life Sciences

Biology
Kinesiology
Microbiology
Psychobiology
Psychology
Quantitative Psychology

Note: The following courses in the College of Letters and Science will *not* apply on breadth requirements: Anthropology 173A-173B; Biology 30; Economics 40; English 136A-136B-136C; English as a Second Language 33A-33B-33C; 103J, 103K, 106K, 107K, 109K, 111K,, 122K; Journalism 101A-101B, 180, 182A-182B; Kinesiology Activities courses; Mathematics 1A, 38A-38B, 104; Psychology 41, 142; Sociology 18.'

E. Physical Sciences

Any courses for which you are eligible in Astronomy, Atmospheric Sciences, Chemistry, Earth and Space Sciences (except Earth and Space Sciences 20 if used on Life Science, 115, 116, M117, and M118), Mathematics (except Mathematics 1A, 38AB, 104), and Physics. Also, Computer Science 20; Engineering 11; Geography 1, M102, 104, 105, 106; Economics 141, 144, 145, 146, 147; Linguistics 145; Philosophy 125, 128A-B, 134, and 135. (Also applicable: either History 3A *or* History 3B if not applied on the Social Science Division. NOTE: No more than one of History 3A, 3B, or Physics 10 may count towards the breadth requirement in the physical sciences.)

F. Life Sciences

Any courses for which you are eligible in Bacteriology, Biology (except Biology 30), and Kinesiology (except Kinesiology Activities courses, 106, 109, 170A-170B and 175). Also applicable, Anthropology 1A, 1B, 11, M12 (same as Public Health M12), 130A-130B, 132; Earth and Space Sciences 20 if not applied as Physical Science, 115, 116, M117, and M118; Geography 2, 5, 108, 109, 110, 112; Psychology 15, 110, 111, 115, 116, 117, 118A-118B-118C, 120 and 121. (Also applicable History 3C. Course may also apply on the Social Science Division,, but not on both).

G. Social Sciences

Any courses for which you are eligible in Anthropology (except Anthropology 1A, 1B, 11, M12 (same as Public Health M12), 130A-130B, 132, 173A-173B), Asian American Studies, Communication Studies (except Communication Studies 142 and 175), Economics (except Economics 40, 141, 144, 145, 146, 147), Geography (except Geography 1, 2, 5, M102, 104, 105, 106, 108, 109, 110, 112, 171), History, (History 3A or 3B may apply as Social Science or Physical Science, but not on both; History 3C may apply as a Social Science *or* Life Science, but not on both). Indo-European Studies M131, M132, Political Science, Psychology (except Psychology 15, 41, 110, 111, 115, 116, 117, 118A-118B-118C, 120, 121, 131A-131B, and 142), and Sociology (except Sociology 18). Also applicable: Journalism (UCLA courses only) (except Journalism 101A-101B, 180, 182A-182B); Kinesiology 106, 109, 170A-170B, 175; Linguistics 100, 103, 170; Women's Studies 100, M148.

H. Humanities

Any courses for which you are eligible in Classics, Communication Studies 142 and 175, (except English 136A-136B-136C); English as a Second Language (except English as a Second Lanuage 33A-33B-33C, 103J, 103K, 106K, 107K, 109K, 111K, 122K); Folklore, French, Germanic Languages, Humanities, Indo-European Studies 140, M150, Italian, Linguistics (except 100, 103, 145, and 170), Near Eastern Languages, Oriental Languages, Philosophy (except 125, 128A-128B, 134, and 135), Slavic Languages, Spanish and Portuguese, and Speech.

Acceptable courses in the College of Fine Arts are:

Art 50, 51, 52, 53, 54, 55, 56, 101A-101D, 103A-103D, 104B-104D, 105A-105E, 106A-106C, 108A-108B, 109A-109D, 110A-110D, 112A-112B, 114A-114D, 115A-115C, 118A-118D, 119A-119C, 120A-120B, 121A-121B, 122.

Dance 140A-140C, 151A-151B.

Integrated Arts 1A-1C.

Music 2A-2C, 130, 131A-131B, 132A-132B, 133, 134, 135A-135C, 137A-137B, 138, 139, 140A-140C, 141, 142A-142B, 143A-143B, M144, 145, 147A-147B, 152, M154A-154B, 157, 188A-188Z, 189.

Theater Arts 5A-5C, 102A-102B-102D-102E, 103A-103B, 104A-104B, 105, 106A-106E, 108, 110A, 113, 114, 130A-130B.

Old Requirements

Students who have completed 36 or more quarter units prior to the beginning of Fall Quarter 1978 may choose to complete the new requirements or Plan A or Plan B as described below.

Courses taken prior to the Fall Quarter 1978 may be applied according to the list in the Catalog of the year in which the course was taken.

Students reentering the College after an extended absence may petition the Dean of the College to graduate under the breadth requirements of Catalogs published prior to Fall 1979.

Plan A

Option 1: You ordinarily take three courses in each of the three divisions outside the division of your own major. Courses sponsored by the Council on Educational Development and cross-listed with a department may apply in the division of that department.

Option 2: You take three courses, excluding elementary and intermediate foreign language, in each of two divisions outside the division of your own major, and in addition complete course 5 in one foreign language.

Successful completion of a proficiency examination that is administered by a foreign language department (at UCLA) certifying proficiency at the level of course 5 is acceptable on this option. Courses authorized by the Academic Senate Council on Educational Development and cross-listed with a department may apply in the Division of that department.

For the purposes of both options, courses in your major division may not be used to satisfy any of these requirements. In no case may courses in your

major department or courses required for the major be used to satisfy these requirements. Courses in other divisions required in preparation for the major may be used to satisfy these requirements. Courses used exclusively to satisfy College breadth requirements may be taken on a "Pass/not pass" basis. Acceptable courses in the College of Fine Arts applicable as humanities are listed above under "H".

Plan B

You take seven courses in any division outside the division of your own major, and either one course in each of the two remaining divisions or two courses in one of the remaining divisions. The divisional requirements may be satisfied according to **"E-H"** above. Acceptable courses in the College of Fine Arts applicable as humanities courses are listed under **"H"**.

No courses in foreign language will apply on Plan B unless you have passed course 5 in one foreign language at the college level. If you have completed course 5 in one foreign language, then all elementary and intermediate foreign language courses taken at the college level are acceptable for satisfaction of this requirement under the division of humanities.

Courses required for the major or in preparation for the major may not also be used to satisfy this requirement. In no case may courses in your major department be used to satisfy this requirement. Courses used to satisfy College breadth requirements may be taken on a pass/not pass basis.

Only CED courses that are formally cross-listed with Letters and Science Departments may be applied to the Breadth Requirements.

Credit for Advanced Placement Tests

You may fulfill a part of the College requirements with credit allowed at the time of admission for College Entrance Examination Board Advanced Placement Tests with scores of 5, 4, or 3. Advanced Placement Test credit will fulfill requirements in the College of Letters and Science as follows:

TEST	CREDIT ALLOWED ON COLLEGE REQUIREMENTS
Biology	Biology 2—4 units; unassigned, 6 units (Life Science)
Chemistry	Chemistry General: 10 units (Physical Science)
English	(Score 3) Composition and Literature: 10 units (Subject A and 10 units Humanities)
	(Score 4 or 5) English 3: 4 units; English 4: 6 units
Foreign Language	Course 5: 10 units (Humanities)
Foreign Literature	Literature: 10 unit
History—American	History 7A-B: 10 units (Social Science and American History and Institutions)
History—European	History 1C: 4 units; European History, 6 units (Social Science)
Mathematics (AB test)	Mathematics 31A: 5 units (Physical Science)[1]
Mathematics (BC test)	Mathematics 31AB: 10 units (Physical Science)[1]
Physics (B test)	Physics General: 10 units (Physical Science)[2]
Physics (C test)	Physics General: 5 or 10 Units (Physical Science)[2]

Some portions of Advanced Placement Test credit are evaluated by corresponding UCLA course number. If a student takes the equivalent UCLA course, a deduction of UCLA unit credit will be made prior to graduation.

[1]Students who pass the Mathematics AB examination with a score of 3, 4, or 5 receive 5 units of credit for Mathematics 31A. Students who score 3, 4, or 5 on the Mathematics BC examination will receive 10 units of credit for Mathematics 31AB. Students who take both examinations will receive a maximum of 10 units of credit.

[2]Students who pass the Physics B examination with a score of 3, 4, or 5 will receive 10 units of credit for General Physics. Students who score, 3, 4, or 5 on the Physics C, part I examination will receive 5 units of credit for General Physics. Students who take Physics C, parts I and II will receive 10 units of credit for General Physics. Students who take both the Physics B and C examinations will receive a maximum of 10 units of credit.

Any student who has completed 36 quarter units at the time of the examination will receive no Advanced Placement test credit.

Credit by Examination

Within the College of Letters and Science, eligibility for credit by examination is for the most part limited to students who have established their superiority by being approved as Departmental Scholars, or by their participation in a departmental honors program, or by their admission to the College Honors Program. A student not eligible by any of these criteria may nevertheless petition to the Dean on the basis of superiority at least in the area of the course in question and in related work. Petitions for credit by examination are available only through an appointment with a College counselor. A $5 fee will be charged for each petition.

Preparing for a Professional School

The programs that follow are *not* degree programs in the College of Letters and Science. The purpose of each grouping of courses is to assist you if you plan to apply to a professional school at the end of your sophomore (90 units) or junior (135 units) year.

If you are not accepted by a professional school, you must declare a major in the College of Letters and Science and be able to complete the requirements for a degree without exceeding 208 units.

New students entering in these curricula will be listed as Undeclared Majors and will be advised in the College unless an adviser is named below in the presentation of the curriculum.

Information and counseling on preparing for health care professional school together with assistance in putting together an application at the time of applying is available at the Pre Health Care Advising Office, College of Letters and Science, 1332 Murphy Hall, Window 9. Open counseling sessions are held weekly for premeds, predents, biweekly for prenurses (time and place are announced in the "campus events" section of the *Daily Bruin* and posted by outside of 1332 Murphy Hall or call 825-1817). For counseling on preparing for other health care professional schools, pay them a visit.

ASK counselors are on duty each week day in the Court of Sciences by Young Hall. ASK counselors can answer basic questions and give referrals.

In addition, specific advisors in "pre-health" are listed in the "academics: resources to help you" section of this catalog.

Predental Curriculum: Three Years

The College of Letters and Science offers a predental curriculum designed to fulfill the basic educational requirements for admission to several dental schools and the general educational requirements of the College of Letters and Science. It is advised that you determine and satisfy the specific requirements of the dental schools to which you expect to apply.*

*School of Dentistry, see Pre-Dental Requirements.

You will be more adequately prepared for the predental curriculum if the following subjects are taken in high school: English, history, mathematics (algebra, geometry and trigonometry), chemistry, physics, and foreign language.

The 135 quarter units of work required for admission to the School of Dentistry include the following:

General University Requirements: (1) Subject A; (2) American History and Institutions.

Specific UCLA School of Dentistry Requirements:** (1) English 3 or 4; (2) Sciences: Chemistry 11A, 11B, 11BL, 11C, 11CL, or Chemistry 13A-13B; 21, 23, 25; Physics 3A, 3B, 3C; Biology 5, 7, 8, 8L, 138 and Psychology 10.

**Other dental schools may have different requirements.

Social sciences and humanities should also be included in the 135 quarter units for which you may consider such courses as anthropology, history, economics, psychology, political science, appreciation of art and/or music, and philosophy.

For further information, consult "Admissions Requirements of U.S. and Canadian Dental Schools" AADS, 1625 Massachusetts Avenue, N.W. Washington, D.C. 20036.

Predental Hygiene Curriculum: Two Years†

†The School of Dentistry reserves the right to limit enrollment if applications exceed available facilities, and to require interviews and aptitude tests if they are necessary in the selection of the class. For further information see the Announcement of the School of Dentistry, San Francisco.

The University offers a four-year program in dental hygiene leading to the degree of Bachelor of Science. The first two years may be taken at Los Angeles; the last two years must be taken in the School of Dentistry in San Francisco. Admission to UCSF is by competitive application.

The 90 quarter units of work required for admission to the School of Dentistry include general University requirements and additional specific requirements, as follows (the numbers in parentheses refer to courses at the University of California, Los Angeles, which fulfill the requirements):

Curriculum Requirements. (1) Subject A; (2) American History and Institutions. (The examination in American History and Institutions may be taken in the School of Dentistry, but it is preferable to satisfy the requirements in the predental program); (3) English 3 or 4; (4) Chemistry 11A, 11B, 11BL, 11C, 11CL or 13A-13B; 21, 23, 25; (5) Biology 5, 7, 8 and 8L; (6) Physics 3A-3B-3C or 6A-6B-6C; (7) Psychology 10, and one additional psychology course; (8) 20 units in Social Sciences and Humanities (including foreign language).

Premedical Studies: Four Years

Students who intend to apply for admission to a medical school and who wish to complete the requirements for a bachelor's degree before such admission should select a major within the College. *Medical schools have no preference as to major. You should choose the major in which you are most interested and can do best.* In addition to fulfilling the requirements of the chosen major, you are advised to ascertain and satisfy the specific requirements for medical schools to which you expect to apply.

High school preparation for premedical studies at the University should include: English, three units; United States history, one unit; mathematics, three and one-half units; chemistry, one unit; physics, one unit; biology, one unit; foreign language (preferably French or German), two units. It is desirable that a course in freehand drawing be taken in high school.

Usually the following courses are required for admission to the UCLA medical school: English, 12 quarter units including at least one course in English Composition; Chemistry 11A, 11B, 11BL, 11C, 11CL or 13A-13B; 21, 23, 25; Physics 3A-3B-3C or Physics 6A-6B-6C or 8A-B-C; Biology: Two years of college biology to include the study of cellular, molecular, developmental, and genetic biology, including at least one year of upper division

courses. Required lower division courses are 5, 7, 8, 8L. Suggested upper division courses selected from the following: 110, M132 (not open to students with credit for 8-8L), 134, 138, 144, 166. Courses in physical chemistry and calculus are strongly recommended. Course requirements for admission to other University of California medical schools vary slightly (e.g. UCLA and UCSD require genetics). Requirements for admission to medical schools outside the University of California also vary somewhat so that students should consult the publication, "Medical School Admission Requirements, USA and Canada", Association of American Medical Colleges, 1 Dupont Circle, N.W., Washington, D.C. 20036. Also consult "The Education of Osteopathic Physicians", AACOM, 4720 Montgomery Lane, Suite 609, Washington, D.C. 20014. In addition, look at "The New MCAT Student Manual" also an AAMC publication at the above AAMC address.

Prenursing Curriculum: Two Year

The University offers a four-year course leading to the Bachelor of Science degree in nursing. The prenuring curiculum in the College of Letters and Science is designed to prepare students for the program in the School of Nursing. You should apply to the School of Nursing when you have completed or have in progress 84 quarter credits of liberal arts courses with a grade-point average of at least 2.8. Since you must apply during the Fall of the year prior to the year in which you wish to be enrolled, you must present your proposed curriculum for the remaining quarters.

The curriculum as set forth below includes the specific requirements for application to the School of Nursing. Enrollment in the School is limited.

Since students who have completed the two year prenursing curriculum cannot be assured of admission to UCLA's School of Nursing, all prenursing students should become familiar with the admission requirements of other nursing programs. These requirements vary from school to school so *it is imperative that prenursing students obtain this information as early in their college careers as possible.* Contact schools of nursing directly and attend open counseling sessions in UCLA's School of Nursing (times posted in the Office of Student Affairs, 12-139 Center for the Health Sciences) and those given by the Pre Health Advising Office (posted by 1332 Murphy Hall) or call 825-1817). Students who are not accepted by the School of Nursing must declare a major in the College of Letters and Science to be admitted to the College.

New students admitted to the College in this curriculum will be counseled in the College as Undeclared Majors, but may seek additional advisement during posted Open Counseling sessions. Students in the College who do not transfer to the School of Nursing must declare a major and be able to complete all degree requirements within 208 units.

Prenursing Requirements: (1) English 3 or 4; (2) Chemistry 11-15-15L for UCLA (11A-11B-11BL for UCSF) (3) Biology 5 and 7; (4) Anthropology 5A; (5) Sociology 1 or 101; (6) Psychology 10; (7) Psychology 15; (8) Bacteriology 10; (9) Physics 10 or one year of high school physics with laboratory; (10) Public Health 111 or 115 or 193; (11) Kinesiology 13. Recommended electives in the social and biological sciences.

Preoptometry Curriculum: Two Years

A two-year program designed to prepare students for admission to optometric schools may be completed in the College of Letters and Science. Students planning to transfer to the School of Optometry at Berkeley are advised to contact the Dean of the School of Optometry, University of California, Berkeley, California 94720 as early in their preprofessional studies as possible.

You will be adequately prepared for preoptometric studies if you have taken the following subjects in high school: English, history, mathematics (algebra, geometry and trigonometry), chemistry, physics and foreign language.

The 90 quarter units of work required for admission to the School of Optometry, Berkeley, include the following:

General University Requirements—(1) Subject A, (2) American History and Institutions.

Specific UCB School of Optometry Requirements—(1) English 3 and 4; (2) Chemistry 11A, 11B, 11BL, 11C, 11CL or 13A, 13B; 21; (3) Physics 3A-3B-3C; (4) Biology 5, 7, 8, 8L; Psychology 10; (5) Mathematics 3A-3B-3C or Mathematics 31A-31B-31C and 50A or Psychology 41.

The balance of the 90 quarter units required for admission may be selected from the social sciences, foreign languages and the humanities.

Prepharmacy Curriculum: Two Years

The School of Pharmacy on the San Francisco campus of the University offers a four-year curriculum leading to the degree of Doctor of Pharmacy. To be admitted to this curriculum you must have met all requirements for admission to the University and have completed, with an average grade of C (2.00) or better in the University of California or in another institution of approved standing, at least 90 quarter units of the program set forth below. Students taking the prepharmacy work at the University of California normally will be enrolled in the College of Letters and Science. If taken elsewhere, the courses selected must be equivalent to those offered at the University of California. In order to complete prepharmacy studies in the minimum time, you should complete elementary chemistry, trigonometry, and a full year of intermediate algebra in high school.*

*Students who have completed the two-year prepharmacy curriculum at Los Angeles cannot be assured of admission to the School of Pharmacy of the San Francisco campus. When the number of qualified applicants for the Doctor of Pharmacy curriculum exceeds the available facilities, selection will be made on the basis of scholarship as determined from the College record. A personal interview may be required. Applications for admission to the School of Pharmacy, San Francisco campus, must be filed at the latest by 1 November preceding the September of proposed admission. Send to the Office of Student Affairs, School of Pharmacy. Blanks may be obtained from the office of the Director of Admissions, University of California Medical Center, San Francisco 94122. For further information see the *Announcement of the School of Pharmacy, San Francisco,* which may be obtained from the Dean, School of Pharmacy, University of California Medical Center, San Francisco 94122.

Curriculum Requirements: First Year. (1) Subject A; (2) English 3 and 4; (3) Chemistry 11A, 11B, 11BL, 11C, 11CL or 13A-13B; (4) Trigonometry and intermediate algebra (if not completed in high school); (5) Electives: six or seven elective courses should be selected from courses in foreign language, social sciences, and humanities offered in satisfaction of the lower division requirements of the College.

Curriculum Requirements: Second Year. (1) Biology 5, 7, 8, 8L; (2) Physics 3A, 3B, 3C; (3) Mathematics 3A-3B-3C or 31A-31B-31C; (4) American History and Institutions; (5) Electives, two-three.

Prephysical Therapy Curriculum: Three or Four Years

Students who intend to apply for admission to a Physical Therapy School should select a major (Kinesiology and Psychology are commonly selected) and complete the following prerequisite courses: one course in Human Anatomy and one course in Physiology (Kinesiology 12, 14), two courses in Biology (Biology 5 and 7), two courses in Chemistry (11A and 15, 15L), Physics 10 or 3A, 3B, Psychology 10, 115, 127, 130. Recommended, Public Health 44 or 100, and one course in statistics. The prerequisite course should be taken for a grade and not on a P/NP basis. GPA's for these courses should not be lower than 3.0, with no grade lower than a "C".

Certificate programs in Physical Therapy are available for the Baccalaureate degree at the following California schools: 1) University of California, the Medical Center, San Francisco, 2) University of Southern California, 3) Children's Hospital, Los Angeles. Students are urged to write each school early in the sophomore year to obtain details concerning specific admission requirements and application deadlines. Information concerning out-of-state programs can be obtained from the American Physical Therapy Association, 1156 N.W. 15th St., Washington, D.C. 20005.

Prepublic Health Curriculum: Two Years

See the Announcement of the UCLA School of Public Health, the section of this Catalog under Public Health, and request further information from the Office of Student Affairs, 21-236B Public Health, UCLA, Los Angeles, California 90024.

Prelaw Studies

Law schools have no preference in regard to specific majors or particular courses. Admission to law school is based on the quality of an applicant's academic work, LSAT scores, and other qualities as reflected in letters of recommendation, in the written application, and in interviews. The College of Letters and Science offers advising on preparing for and applying to law schools through biweekly drop-in sessions. *Individual appointments cannot be made.* For the time and place of the drop-in sessions, see "Campus Events" section of the *Daily Bruin or call 825-3160.* The Learning Skills Center, 95 Dodd Hall, offers preparation seminars on the "Law School Admission Test" approximately one month prior to each administration of the LSAT. For additional information, see "Law School Admission Bulletin and LSAT Study Guide" (obtainable from Admissions Office, UCLA Law School) and *The Prelaw Handbook* (obtainable from local book stores).

Need to know more?

Take a look at the "academic resources to help you" section of this book. You will find some signposts to getting you the guidance you need.

There are also several publications to help you. These include: *"Finders Keepers"*—a general handbook to UCLA, with sections on academic planning. Reference copies are available through all department, college, school and ASK counselors at the College Library and University Research Library reference desks and at a number of other counseling locations (AAP, Admissions, Dean of Students Office, Honors Programs Office, Placement and Career Planning Center and Psychological and Counseling Services).

Schedule of Classes is a quarterly publication by the Registrar which contains information on class meeting places, instructors and the number of units provided for each course. It also includes a calendar for add/drop dates, registration and final examination schedules. It is available for 35 cents at the Students' Store, the Cashier's Office, 1125 Murphy Hall, North Campus Center Store and Health Sciences Student Store. To obtain a copy by mail, send $1 to ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, CA 90024, ATTN: Mail Out.

Daily Bruin —UCLA's daily newspaper advertises new classes and innovative programs being offered for the quarter. Issues are available in the *Daily Bruin* boxes located all over the campus. *Be sure to* look at the Official Notices section on Mondays and Thursdays for information and deadline dates on procedures, and announcements from the administration (i.e., financial aids, the colleges, etc.).

Lower Division Course Abstracts are offered each quarter. This is a collection of expanded course descriptions written by faculty members teaching introductory courses. It also contains prerequisites, expenses, testing and research requirements, and tentative reading lists. Your Orientation Counselor, Undergraduate Advisor/Counselor or ASK Counselor has a copy for your use. These abstracts may be helpful in choosing classes and alternates.

Update is a yearly publication that lists student evaluations of courses offered during the previous academic year and biographies of professors. By reviewing *Update* you can see what students thought about a particular course and professor. This may or may not influence your selection of classes. *Update is* available at the Students' Store, Ackerman Union.

If you need more information the College of Letters and Science provides informal counseling of students by students through an "ASK" program at sites across campus. Call 825-3470 for details.

Additionally, the Psychological and Counseling Services Center in 4223 Mathematical Sciences Building and the Placement and Career Planning Center—located just south of Powell Library—can both provide face to face, informal advice.

Lastly, if you are planning to apply to a professional school, it is a good idea to get a copy of its Announcement; in most cases, these publications give a much more detailed picture of educational philosophy, admissions procedures and offer more information than is possible here.

Descriptions of the professional schools can also be found in the "graduate education" section later in this Catalog.

The School of Engineering and Applied Science

The undergraduate curriculum at the UCLA School of Engineering and Applied Science leads to a single degree, the Bachelor of Science in Engineering. The program provides a deep and broad education in the various fundamental branches of science and engineering while offering specializations in one of the major fields of engineering. The Bachelor of Science is intended to be a terminal, professional degree and/or to provide a basis for entering into graduate studies, not only in engineering but also in other professional schools such as medicine, law, dentistry, and business management.

Fields of Instruction

Instruction is offered in: acoustical engineering, aerospace engineering, bioengineering, ceramic engineering, chemical engineering, civil engineering, computer engineering, control systems engineering, earthquake engineering, electrical and electronics engineering, general engineering, environmental engineering, fluid mechanics, geotechnical engineering, information and communications theory, materials science, mechanical engineering, metallurgy, nuclear engineering, plasma engineering, soil mechanics, solid mechanics, structural engineering, systems science, and water resources.

Admission

Applicants for admission to the School of Engineering and Applied Science must satisfy the general admission requirements of the University as outlined in the section entitled "Admission" later in this Catalog. In the future, entrance to the School may be based on the results of a further examination of student grades and test scores.

Applicants are encouraged to apply either at the freshman or junior level. Students who begin their college work at a California community college are expected to remain at the community college to complete the lower division requirements in chemistry, mathematics, physics, and the recommended engineering courses before transferring to the University. Experience indicates that transfer students who have completed the recommended lower division program in engineering at California community colleges are able to complete the remaining requirements for the B.S. degree in six quarters (two academic years) of normal full-time study.

Admission as a Freshman

While many students will take their first two years in engineering at a community college, an applicant may qualify for admission to the School of Engineering and Applied Science in freshman standing. It is anticipated that admission to the School will require that the following subjects be taken when satisfying the University admission requirements:

Algebra	2 years
Plane geometry	1 year
Trigonometry	½ year
Chemistry and physics with laboratory	2 years

It is also highly recommended that the student take a course in technical drafting while in high school.

Admission as a Junior

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

1. Two and one-fourth courses in chemistry, equivalent to UCLA's Chemistry 11A-11B-11BL; 2. six courses in mathematics, equivalent to UCLA's Mathematics 31A-31B-31C and 32A-32B-32C; 3. four courses in physics, equivalent to UCLA's Physics 8A-8B-8C-8D.

Students transferring to the School from institutions which offer instruction in engineering subjects in the first two years, in particular, California community colleges, will be given credit for certain of the degree requirements. (See the upper division segment.)

Students who have been admitted to senior standing in the School on the basis of credit from another institution, from University Extension or from another college or school of the University must complete, subsequent to such admission, eight upper division courses which shall be used to satisfy part of their approved Major Field elective sequence.

Requirements for the Degree Bachelor of Science

The School of Engineering and Applied Science at UCLA awards the Bachelor of Science degree to students who have satisfactorily completed a program of four years of engineering studies.

The curricular requirements for the Bachelor of Science degree consist of the lower division and upper division segments (46¼ courses, 185 units), and the University requirements in scholarship, Subject A (English composition), American History and Institutions, and senior residence. You can find these requirements discussed in detail in "degree requirements" earlier in this section. At least a 2.0 grade point average must be achieved in all University courses of upper division level offered in satisfaction of the subject requirements and required electives of the curriculum. The lower division and upper division requirements are described below:

Study lists require approval of the Dean of the School or a designated representative. It is the responsibility of the student to present study lists which reflect satisfactory progress towards the Bachelor of Science in Engineering degree according to standards set by the Faculty. Study lists or programs of study taken by students which do not comply with these standards render the student liable to enforced withdrawal from he University or other disciplinary action.

After 213 quarter units, enrollment may not normally be continued in the School. The Dean may be petitioned for special permission to continue work required to complete the degree. This regulation does not apply to Departmental Scholars.

Credit earned through the College Level Examination Program (CLEP) will not be counted toward the Bachelor's degree.

No credit will be allowed toward the Bachelor's degree for Chemistry 2 after one year of high school chemistry has been completed with grade of C or better.

No credit will be granted toward the Bachelor's degree for college foreign language courses equivalent to quarter level 1 and 2 if the equivalent of course level 2 of the same language was completed with satisfactory grades in high school.

The Curriculum

The Engineering Curriculum is accredited by the Engineers' Council for Professional Development, the nationally recognized accrediting body for engineering programs.

Lower Division

Freshman Year	Units First Quarter	Units Second Quarter	Units Third Quarter
Chemistry 11A-11B-11BL	4	5	—
Mathematics 31A-31B-31C	4	4	4
Physics 8A-8B	—	4	4
English 3	4	—	—
Engineering 10*			4
Electives**	—	4	4
	12	17	16

*The Computer Science Department offers a placement examination each quarter during registration week to permit students to demonstrate proficiency in the subject area of Engineering 10 based on outside work experience and/or courses completed elsewhere. Satisfactory performance on the placement examination will exempt students from the Engineering 10 subject requirement and will allow them to select another technical or major field elective course of their choice to satisfy the unit requirement.
**The lower division electives shall include the following: one course in the life sciences, three courses in the humanities-social sciences-fine arts area, and one free elective.

Sophomore Year	Units First Quarter	Units Second Quarter	Units Third Quarter
Mathematics 32A-32B-32C†	4	4	4
Physics 8C-8D	4	4	—
SEAS Core*	4	4	8
Electives**	4	4	4
	16	16	16

†Mathematics 32C may be taken before Mathematics 32A and 32B.
*The SEAS core requirement consists of 8 courses (32 units) to be chosen from 5 subject areas. The core is described immediately following the Upper Division segment of the Curriculum. For courses to be taken in the sophomore year, students should consult their major field advisers.
**The lower division electives shall include the following: one course in the life sciences, three courses in the humanities-social sciences-fine arts area, all chosen from an approved list and one free elective.

Upper Division

Prerequisite for junior status: Satisfactory completion of the minimum subject requirements specified under admission to the School at the Junior level.

Junior Year	Units First Quarter	Units Second Quarter	Units Third Quarter
SEAS Core*	8	4	4
Mathematics Elective**	4	—	—
Electives†	—	12	12
	12	16	16
Senior Year			
Electives†	16	16	16

*The SEAS core requirement consists of 8 courses (32 units) selected from five subject areas subject to the unit restrictions indicated in the table below.
**To be chosen from a School approved list
†The upper division elective courses shall include the following:
1. Four courses in the humanities-social sciences-fine arts area; 2. Two free electives; 3. Twelve major field electives. For specific requirements within the humanistic and major field areas please refer to the section entitled "Elective Courses."

SEAS Core

The student is to select 8 core courses (32 units) from the 5 subject areas listed below. The minimum and maximum number of units allowed in each of the 5 subject areas is also given.

Subject (5)	Courses(12)	Unit Range Min.	Max.
Electrical Sciences	Engineering 100 Electrical and Electronic Circuits (4)	4	8
	Engineering 100B Engineering Electromagnetics.(4)		
Thermal and Materials Sciences	Engineering 14*.	8	12
	Science of Engineering Materials (4)		
	Engineering 105A. Introduction to Engineering Thermodynamics. (4)		
	Engineering 105D. Transport Phenomena. (4)		
Mechanics	Engineering 102. Mechanics of Particles and Rigid Bodies. (4)	8	12
	Engineering 103A. Elementary Fluid Mechanics. (4)		
	Engineering 108. Introduction to Mechanics of Deformable Solids. (4)		
Systems	Engineering 106B. Introduction to Design and Systems Methodology. (4)	4	8
	Engineering 121C. Systems and Signals. (4)		
	Engineering 127B. Elements of Probability and Information. (4)		
Computer Processes	Engineering 124A. Applied Numerical Computing. (4)	0	4

*Not open for credit to students who have had Engineering 107B.

Credit for Transfer Students

A course in digital computer programming, using a higher-level language such as Fortran IV or PL/1, will satisfy the requirement, Engineering 10.

Certain lower division technical courses such as surveying, engineering drawing, engineering measurements, and descriptive geometry will be given credit as free electives. (A maximum of three courses may be free electives.)

See "Electives," below.

Many sophomore courses in circuit analysis, strength of materials, and properties of materials may satisfy Engineering 100, Engineering 108, and Engineering 14 respectively.

Check with the Undergraduate Office, 6426 Boelter Hall.

Electives

The Engineering and Applied Science Curriculum for the Bachelor's degree includes provision for 24 elective courses to be chosen within the following categories:

1. Free electives, 3 courses, 12 units.

Any course yielding credit acceptable to the University of California may be selected. It is, however, strongly recommended that you select additional technical courses for some of these units.

2. Humanities, Social Sciences, and/or Fine Arts, 7 courses, 28 units. To be chosen from an approved list.

Of the seven courses, at least three (12 units) must be upper division courses. Students from California community colleges (only) may reduce this to two upper division courses (8 units) *provided* they are in the same field; however, *all* students, including California community college transfers must have a minimum total of 7 humanities courses.

To provide some depth, at least three courses (12 units) must be in the same academic department or must otherwise reflect coherence in respect to subject matter. This group must contain at least two upper division courses.

With few exceptions, courses intended primarily to develop specific skills should be avoided (e.g. dexterity in performance on a musical instrument, ability to manipulate people, grammatical and composition skills, etc.). An exception is effective when the particular "skill" course is prerequisite to another upper division course which is strictly in the humanities or social science (e.g. foreign language and literature courses taught in the language, etc.).

A list of courses which are normally acceptable individually as humanities-social sciences-fine arts electives is available in the Undergraduate Office, 6426 Boelter Hall.

3. Engineering and Science in Society, 1 course, 4 units.

One of the seven humanities-social sciences-and/or fine arts courses or one of the free electives shall be a course (4 units) dealing primarily with engineering and science in society in the 100, 200, or 596 series. To be chosen from an approved list.

4. Life Science, 1 course, 4 units. To be chosen from an approved list.

5. Mathematics, 1 course, 4 units (upper division). To be chosen from an approved list and appropriate for the student's major field of study.

6. Major Field, 48 units (upper division).

The major field elective program shall be chosen so as to reflect coherence with respect to subject matter and to prepare the student for an area of specialization (including unified engineering). The twelve courses shall include (a) at least 8 units of laboratory experience to be satisfied by designated laboratory courses or a 4-unit laboratory course and two courses each including 2 units of laboratory experience and (b) one upper division course (4 units) in economics chosen from an SEAS approved list.

7. The engineering design content of the student's program (major field electives, core courses, technical electives, free electives, etc.) must total at least 23 units.

Lists of courses approved to satisfy the elective categories specified above are posted on the bulletin board in the Undergraduate Office, 6426 Boelter Hall.

Advising and Program Planning

It is mandatory for all students entering the undergraduate program to have their courses of study approved by an Engineering adviser. After the first quarter, curricular and career advising will be accomplished on a formal basis.

Students will be assigned to faculty advisers matching their major fields of interest whenever possible. A specific adviser or an adviser in a particular Engineering Department may be requested by submission of a Request for Change of Undergraduate Adviser form available in the Undergraduate Office. A list of faculty members and their specialties is posted on the Undergraduate Office bulletin board located in 6426 Boelter Hall. Your regular faculty adviser is available to assist you in planning your electives and for discussions regarding your objectives.

Choose the curriculum under which you wish to graduate. You will use the curriculum in effect when you begin full-time continuous study in Engineering at UCLA. However, any student has the option of selecting the curriculum in the General Catalog in effect at graduation. Community college transfers have the additional option of choosing the curriculum in the General Catalog in effect at the time they began their community college work in an *engineering* program providing attendance has been continuous since that time.

Attend the Junior Conference conducted by the School of Engineering and Applied Science for the purpose of helping you to plan your curriculum. The Conference usually is held during the fourth week of each quarter. For time and place consult the Undergraduate Office, 6426 Boelter Hall.

Plan your electives. The Elective Selection form approved by the major field advisor must be submitted for approval by the Assistant Dean, Undergraduate Studies, Undergraduate Office, 6426 Boelter Hall, during the first quarter of the junior year. The deadline for juniors to submit their elective selections is announced each term in the Undergraduate Enrollment Instructions brochure, School of Engineering and Applied Science.

Members of the Undergraduate Office Staff are available to assist you with University procedures and to answer any questions which you may have in regard to general requirements. Pay them a visit.

"Passed-Not Passed"

Engineering undergraduate students may take one course per quarter on a Passed/Not Passed basis if the following conditions are met:

1. You are in good academic standing, i.e., not on academic probation or subject to academic dismissal.

2. You are enrolled in at least 3 1/2 courses (14 units) for the quarter including the course taken on a passed/not passed basis.

3. Only humanities-social sciences-and/or fine arts and free electives may be taken on a passed/not passed basis.

4. If you have not elected the passed/not passed option in the preceding quarter you may take two courses passed/not passed. You must submit a petition to the Dean for approval to take two courses on a passed/not passed basis in one term.

5. If you have not received two not passed grades. A student who has received two "not passed" grades shall be excluded from electing passed/not passed for the next term in residence.

A grade of "passed" shall be awarded only for work which would otherwise receive a grade of "C" or better.

Honors

Departmental Scholars

If you are an exceptionally promising junior or senior, you may be nominated as a Departmental Scholar to pursue bachelor's and master's degree programs simultaneously.

Minimum qualifications include the completion of 24 courses (96 quarter units) at UCLA, or the equivalent at a similar institution, and the requirements in preparation for the major. To obtain both the bachelor's and master's degrees the Departmental Scholar will fulfill the requirements for each program and maintain a minimum average of "B". The student may not use any course to fulfill requirements for both degrees.

Interested students should consult the Assistant Dean, Undergraduate Studies, 6412 Boelter Hall,

well in advance of application dates for admission to graduate standing.

Dean's Honor List

Students following the Engineering curriculum are eligible to be named to the Dean's Honor list each term. They must have carried a minimum load of 16 units, 12 units minimum of letter grade, with a grade point average better than 3.70.

Honors with the Degree

Students who have achieved scholastic distinction in upper division studies may be awarded the Bachelor's degree with the appropriate honors designation: *Cum Laude, Magna Cum Laude, or Summa Cum Laude.* Based on grades achieved in upper division courses, a student should have a 3.4 upper division grade point average to qualify for *Cum Laude*, a 3.6 for *Magna Cum Laude*, and a 3.8 for *Summa Cum Laude.* For all designations of honors, students must have a minimum 3.25 grade point average in their major field elective courses to qualify. To be eligible for an award a student should have completed at least 80 units of upper division studies at the University of California.

Tau Beta Pi

The UCLA chapter of *Tau Beta Pi*, the national engineering honor society, encourages high scholarship, provides volunteer tutors, and offers many services and programs "to foster a spirit of liberal culture in engineering colleges."

Student Activities

You will find an abundance and variety of extracurricular activities at UCLA, which provide many opportunities for valuable experiences in leadership, service, recreation, and personal satisfaction. The Faculty of the School strongly encourages students to participate in such activities, especially those of most relevance to engineering. Among the latter are the student engineering societies such as the Engineering Society, University of California and the Engineering Graduate Student Association; the student publications, and the student-oriented programs of the many technical and professional engineering societies in the Los Angeles area.

The student body takes an active part in shaping policies of the School through elected student representatives, two for each of the faculty's three major policy committees.

Women in Engineering

Women make up 13.8 percent of the undergraduate and 8.5 percent of the graduate enrollment in the School of Engineering and Applied Science. Today's opportunities for women in engineering are excellent, as both employers and educators try to change the image of engineering as a "males only" field. Women engineers are in great demand in all fields of engineering.

The Society of Women Engineers (SWE), recognizing that women in engineering are still a minority, has established a UCLA student chapter to provide for their interests. This student section of SWE sponsors field trips and engineering-related speakers (often professional women) to provide an introduction to the various options available to engineers. The UCLA chapter of SWE, in conjunction with other Los Angeles schools, also publishes an annual resume book to aid women students in finding jobs.

Continuing Education

The Department of Continuing Education in Engineering and Mathematics, UCLA Extension, maintains an Evening Information Center in 6266 Boelter Hall which is open from 5 to 7 p.m. Monday through Thursday throughout the year except for the month of August and during Christmas and New Year's weeks.

Need to know more?

The Announcement of the School of Engineering and Applied Science, available by writing to the Undergraduate Office, School of Engineering and Applied Science, University of California, Los Angeles, California, 90024 gives an expanded version of the program described in this section.

The College of Fine Arts

The UCLA College of Fine Arts is a young, dynamic center for higher education in the arts. Founded only 20 years ago and located in Los Angeles—a focal point for the Arts—the College of Fine Arts is a recognized leader in teaching not only the history, but also the practice of the visual and performing arts.

The College of Fine Arts consists of four departments: Art, Dance, Music and Theater Arts. Together with the College of Letters and Science, the College of Fine Arts is the foundation in the liberal arts upon which the balance of the University's academic and professional structure rests.

The College has the following major responsibilities:

1. To provide the University community with an educational program designed to communicate an understanding of the genius of man's artistic creativity to fine arts majors and non-majors alike.

2. To provide the fine arts major with a liberal education as well as a serious, disciplined, professional training.

3. To provide both the creative and performing artist on the one hand, and the historian and critic on the other, with programs of the highest quality.

4. To develop programs of research, study and performance which recognize the unique role that the arts play in exploring and comprehending alien cultures.

5. To support, as appropriate, the important and growing extracurricular programs in the full range of the Fine Arts for the benefit not only of the University community, but for the public as well. Examples of efforts to meet this responsibility are to be found in the program of art gallery and museum exhibits, plays, concerts, dance recitals, and the like, all of which are increasingly enriching the campus cultural program. In this connection, it should be added, the College has close ties with the Committee on Fine Arts Productions, with the Student's Committee of the Arts—whose main interest lies in organizing programs for campus students and in involving more and more students in Fine Arts events—and such support groups as the UCLA Art Council, the Friends of the Graphic Arts, and the Council for the Performing Arts.

Majors Offered

Majors leading to the degree of Bachelor of Arts are offered in the following areas:

History of Art, Design, Painting/Sculpture/Graphic Arts.

Dance.

Music, with specialization in Composition and Theory, Ethnomusicology, History and Literature, Music Education, Applied Music, Systematic Musicology.

Theater, Motion Pictures/Television.

Ethnic Arts: Interdisciplinary studies.

Students interested in obtaining teaching credentials for California elementary and secondary schools should consult the Graduate School of Education.

Students in the College of Fine Arts also have the opportunity to plan an individual major as described in the "Requirements for the Major" section of this description of the college.

Admission

Some departments require auditions, portfolios, or evidence of creativity, but these should not be sent with the application, since detailed information regarding this requirement will be mailed to the student upon receipt of his application. Deadline date for applications is November 30, 1979 for admission in the Fall Quarter of 1980.

Requirements for the Bachelor's Degree

Each student must meet the University, College and Major requirements, and the unit, scholarship, and residence requirements, as follows:

University Requirements:

For subject A and American History and Institutions, please consult the index.

College Requirements

All students must complete the specific subject requirements established by the University, the College of Fine Arts, and the student's major department.

The general requirements of the College of Fine Arts, which must be completed with a grade point average of 2.0 or better, provide for breadth in your education, and are planned to insure a degree of basic skill in communication—both in English and in one foreign language—to offer you an introduction to each of the broad fields of human learning: science/mathematics, social science, and the humanities.

Students attending a California community college should consult their counselors to determine which community college courses are appropriate and are accepted in satisfaction of the general college requirements by the College of Fine Arts.

No "198", "199", "special topics" or "selected topics", or CED courses and no seminars, pro-seminars or freshman seminars may be applied on the general requirements of the College. Courses which are multiple-listed (numbers preceded by "M") may not be applied on these requirements.

English (Grammar and Rhetoric). [4 units] English 3 with a grade of "C" (2.0) or better. Must be completed by the end of the freshman year. This course may *not* be taken on a "pass/not pass" basis.

English (Composition and Literature). [4 units] English 4, with a grade of "C" (2.0) or better; must be completed by the end of the sophomore year. This course may *not* be taken on a "pass/not pass" basis.

Foreign Language. [12 units] Three **college** courses in one foreign language, through the third level, other than the foreign language taken in high school or the native tongue of foreign students. A student whose entire secondary education has been taken in a language other than English, may upon petition be exempt from the foreign language requirement.

This requirement must be completed by the end of the sophomore year. If level 3 is completed with at least 4 quarter units of work, without taking levels 1 and 2, an additional 2 courses (8 units) must be completed from the approved lists of courses that comprise the general requirements. Some majors may require the completion of the language prior to entry into the major. Proficiency examinations may *not* be used to complete this requirement.

Science/Mathematics. [8 units] One course in physical or biological science and one course in another natural science or in mathematics.

Physical and Biological Science Courses. Selected courses from:

Anatomy

Astronomy

Atmospheric Sciences

Bacteriology

Biology

Botany

Chemistry

Entomology

Geology

Meteorology

Microbiology

Mineralogy

Oceanography

Paleontology

Physics

Physiology

Zoology

Other Natural Science and Mathematics Courses

Anthropology (physical or biological only)

Ecology (physical or biological, not crossed with social science or humanities)

Environmental Science (physical or biological, not crossed with social science or humanities)

Geography (physical only)

Mathematics (no remedial or history)

Psychology (physical or biological only)

Social Science. (12 units) One course in the history of any period prior to 1600, one course in the history of any period after 1600, and one other social science course.

Other Social Science Courses

Anthropology (except physical or biological or courses dealing with language study)

Economics (principles, history and theory only)

Geography (except physical)

History (except medical or geology)

Political Science

Psychology (except physical)

Sociology and Social Science

Note: Survey courses in history which cover "antiquity to present" will be applied only on History after 1600 or "other social science."

Humanities. [12 units] One course in The Arts, one course in Literature, one course in Philosophy and/or Religion. Performance, studio or movie/film courses do not meet this requirement. Courses in your major department may *not* apply on this requirement.

The Arts Courses

Art, Dance, Music and Theater Arts (history, appreciation and criticism only)

Classics 151ABC

Architecture (history or survey only)

Literature Courses

English, ethnic, American or foreign literature, including work in translation

Humanities (not crossed with social science or science)

Classics (except 151ABC)

Folklore/Mythology

Philosophy/Religion Courses

Philosophy

Religion

Any course applied on one of the specific subject areas may not also be applied on another requirement. No course used to satisfy any general University requirement may also be applied to the general College requirements.

A few course areas that DO NOT APPLY on the general college requirements are: Business, Communications, Criminology, Education, Engineering, Family Life, Marriage and Child Care, Field Studies, Home Economics, Independent Studies, Interdisciplinary Studies, Journalism, Law, Mass Media, Public Health, Speech, and Writing.

Additional Non-Major Department Requirements For The Degree: 3 Upper Division courses (12 units) completed outside your major department. These courses may not apply on the General College requirements. Studio, performance, activity, and 199 (Independent Studies) courses *may not apply on this requirement.*

Optional General College Requirements

Students graduating by June, 1980 have the option of satisfying the former general requirements of the College of Fine Arts *in lieu of the foregoing General College Requirements.* (In all cases, the general University requirements and the major requirements will be those currently in effect at the time of graduation.)

Under the Optional Plan you must take at least 96 units of work outside the major department (8 of which must be upper division units), including the 56 units needed to complete these optional breadth requirements.

The optional requirements, *which must be met in full* without exceeding the 208 unit limit, are as follows:

English Composition

One course in English composition (English 3) with a grade of "C" (2.0) or better, taken at UCLA or transferred from another institution, is required of all students. This course may *not* be taken on a "pass/not pass" basis, and must be completed by the end of the sophomore year (90 units of work).

A foreign student whose entire secondary school work was completed in his native tongue, excluding English, may satisfy this requirement with English 33C if completed with a grade of "C" (2.0) or better.

Foreign Language; Life, Physical and Biological Sciences; Social Sciences; and Humanities

Thirteen courses (52 units) chosen from these four areas, including at least three courses (12 units) in one foreign language, and at least three courses (12 units) in each of two other areas. *Any course applied on one of these four general requirements may not also be applied on another of these requirements.*

Foreign Language

At least three courses in one foreign language are required of all students. **This requirement must be met no later than the end of the junior year.** All courses in foreign language, except foreign literature in English translation, may be applied to this requirement.

Without reducing the total number of units required for the bachelor's degree, high school foreign language work with grades of "C" or better and not duplicated by college work will count as follows: the first two years together equal two college courses and the third and fourth years each equal one college course. No more than the equivalent of three college foreign language courses taken at the high school level will count toward the required thirteen courses.

A foreign student whose entire secondary school work was completed in his native tongue, excluding English, may *upon petition* be considered as having fulfilled the foreign language requirement.

Life, Physical and Biological Sciences

Courses from any of the life, physical and biological sciences will meet this requirement.

Social Sciences

You may select courses to meet this requirement from the following: most courses in anthropology, economics, geography, history, political science, psychology, and sociology. Any economics, history or political science course taken to satisfy the University requirement in American History and Institutions may also be applied on this requirement.

Humanities

Courses to meet this requirement may be selected from the following areas:

The Arts: courses in art, dance, music, and theater arts, except that courses in your major department may not apply on this requirement. Also courses in Classics or Folklore and Mythology.

Note: Performance or studio courses do not meet this requirement.

Literature: all courses in English, American or foreign literature (classical to contemporary), including work in translation. In addition to literature courses offered by language departments, *literature* courses given by the Department of Classics and the Department of Humanities are also acceptable.

Philosophy: all courses in philosophy; also courses in religion offered by other departments.

Credit earned through the CEEB Advanced Placement Examinations may be applied on the General College requirements as follows: credit for English 1 and 2 (with scores of 4 or 5 only) will apply on the English Composition requirement; all foreign language credit will apply on the foreign language requirement; all credit in science and mathematics will apply on the science/mathematics requirement; and all credit in history will apply on the social sciences requirement.

It is important to note that portions of Advanced Placement Test credit may be evaluated by corresponding UCLA course numbers, e.g., History 1C. If you take the equivalent UCLA course, *deduction of unit credit for such duplication will be made prior to graduation.*

Major Requirements

A *major* is composed of not less than 14 courses (56 units), including at least nine upper division courses (36 units). The major includes both lower and upper division courses, arranged and supervised by the department and approved by the Executive Committee of the College.

Each candidate for the bachelor's degree is required to complete a major in the College of Fine Arts with a scholarship average of at least two grade points per unit (C average) in all courses, and must be recommended by the chairman of his major department.

Your attention is directed to the courses listed as *preparation for the major* in the "courses" section of this Catalog. In general, it is essential that these courses be completed before upper division major work is undertaken. In any event, they are essential requirements for the completion of the major.

Any student failing to attain a scholarship average of at least two grade points per unit in a major department may, at the option of the department, be denied the privilege of a major in that department.

A department may submit to the Dean of the College the name of any student who, in the opinion of the department, cannot profitably continue in the major, together with a statement of the basis for this opinion and the probable cause of the lack of success. The Dean may permit a change of major, or may, with the approval of the President, require the student to withdraw from the College.

Any department offering a major in the College of Fine Arts may require from candidates for the degree a general final examination in the department.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the departmental adviser, and petitions for adjustment submitted to the Dean of the College when necessary.

Majors:

Majors leading to the degree of Bachelor of Arts are offered in the following areas:

History of Art, Design, Painting/Sculpture/Graphic Arts.

Dance.

Music with specialization in Composition and Theory, Ethnomusicology, History and Literature, Music Education, Applied Music, Systematic Musicology.

Theater, Motion Pictures/Television.

Ethnic Arts: Interdisciplinary studies.

Students interested in obtaining teaching credentials for California elementary and secondary schools should consult the Graduate School of Education.

Ethnic Arts: Interdisciplinary Studies

An intercollege, interdepartmental major is offered in Ethnic Arts. It is open to students in both the College of Fine Arts and the College of Letters and Science. You remain in the college of your choice and fulfill the breadth requirements of that college. Counseling is available in the department of your concentration.

The degree is not viewed necessarily as a foundation for graduate study, but may become so with proper course selection if that is your aim.

The major includes a core of seven courses from the departments of Anthropology, Art, Dance, Folklore and Mythology, Music, and Theater Arts; a concentration in one of the six disciplines; at least three courses in one foreign language; a senior colloquium; and electives selected by the student.

Admission to the major will be by special application to the Committee in Charge.

For further details, see "Ethnic Arts" in the "Courses of Instruction" section of this catalog.

Individual Majors

A student who is already regularly enrolled and attending classes at UCLA, who has some unusual but definite academic interest for which no suitable major is offered, and has completed at least three quarters of work (a minimum of 9 courses) at the college level with a grade-point average of 3.0 or higher, or the equivalent in creative work and performance, may, with the assistance of a faculty advisor in consultation with the chairman of the faculty advisor's department, and with the consent of the Dean, plan his own major. A majority of the courses in the major must be in departments in the College of Fine Arts with no more than three performance or studio courses. The individual major is subject to the 208 unit limit and must comply with all University and College requirements.

The major should be submitted and approved by the first quarter of the junior year, but no later than the first week of classes of the third quarter before the student's intended graduation.

If you are interested in an individual major, consult the Student Information section of the Dean's Office located in A333 Murphy Hall, for information and forms necessary to implement such a major.

The individual major must be approved by the Executive Committee of the College before it may be accepted in lieu of a departmental or interdepartmental major. The faculty advisor (who must be a regular member of the faculty of the College of Fine Arts) shall supervise your work in lieu of a department or committee, and your study list must be approved by him and the Dean before it will be accepted by the Registrar. A senior paper or project is required of each student with an individual major.

The Dean must certify that the student has completed the requirements of the major before the degree is granted.

Unit Requirements

The candidate for the Bachelor of Arts degree shall have completed for credit no less than 45 courses (180 units) or no more than 52 courses (208 units) of which at least sixteen courses (64 units) shall be upper division courses (numbered 100-199).

No more than one course (4 units) of Physical Education 1 and 2 and/or Kinesiology 1 and 2A-2Z may be counted toward the degree. No more than four CED courses (16 units) and no more than two courses (8 units) of Freshman Seminars will be counted toward the degree.

Credit for 199 courses is limited to four courses (16 units), two courses (8 units) of which may be applied to the major. All 199 courses must be taken for a letter grade.

Only work of passing quality will apply toward degree requirements.

University Extension courses with the prefix "X" on those numbered in the 200, 300, 400 or 800 series do not apply toward the degree.

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

The Study List

Each quarter the student study list must include from twelve to seventeen units. Petitions for more than seventeen units must be filed and approved by the Dean of the College prior to the deadline dates listed in the annual *Announcement of the College of Fine Arts.*

If you have not filed your study list by the end of the second week of classes, you must secure the permission of the Dean of the College to continue for that quarter.

Graduate Courses

Undergraduate students who wish to take courses numbered in the 200 series must petition for advance approval of the department chairman and the Dean of the College, prior to enrollment and must meet the specific qualifications for such courses. Courses numbered in the 400 and 500 series are not available to undergraduate students in the College of Fine Arts.

Scholarship Requirements

A "C" average (2.0) is required in all work attempted in the University of California, exclusive of courses in University Extension and courses attempted on a pass/not pass basis. A "C" average (2.0) is also required in all upper division courses at the major attempted in the University as well as in all courses applying to the General College requirements and the General University requirements.

The Minimum Progress requirements discussed under "Grades and Scholarship Requirements" in the introductory section of "undergraduate Education at UCLA" also apply to all students enrolled in the College of Fine Arts.

Residence Requirements

Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the College of Fine Arts. (A student is "in residence" only while enrolled and attending classes at UCLA as a *major* in one of the departments of the College of Fine Arts.) Not more than 18 of these 35 units may be completed in summer sessions at UCLA.

University Extension. Courses in University of California Extension (either class or correspondence) may not be offered as part of the residence requirement.

Concurrent Enrollment. Concurrent enrollment in courses at another institution or in University Extension (including correspondence courses) is permitted only in extraordinary circumstances, and no credit is given for such courses unless the approval of the Dean has been obtained by petition *prior to enrollment.*

Counseling

The College of Fine Arts has established an academic counseling program designed to orient you to the University's offerings and facilities, and to assist you in crystalizing your educational objectives and in planning your course of studies. The program includes meetings at the departmental level, and individual interviews with departmental counselors and faculty advisers.

Prior to registration and enrollment in classes, each new student is assigned to a departmental advisor in a major department, and it is expected that the student will return to the advisor for program planning each quarter. It is the advisor's function to help you make wise decisions concerning educational goals, but not to dictate what you should do. It is *your* responsibility to become familiar with University and College requirements and to make your own decisions.

The College of Fine Arts publishes an announcement which provides additional information you may find helpful. To obtain a free copy, stop by the Dean's Office, A333 Murphy Hall, or request one by mail from The College of Fine Arts, UCLA, 405 Hilgard Avenue, Los Angeles, California, 90024.

In addition, the College offers counseling and information on academic difficulties and related matters at the Student Services window of the Dean's Office, located in A333 Murphy Hall; telephone 825-1554.

Program planning questions, or inquiries about degree requirements should be directed to the departmental counselor.

In addition to the counseling available in the College, the Psychological and Counseling Services in 4223 Math Sciences and the Placement and Career Planning Center located just south of Powell Library can provide informed guidance.

Honors

Dean's Honors will be awarded at the end of the Spring Quarter to students completing the previous year's program with distinction according to criteria established by the Dean of the College.

Honors with the Bachelor's Degree

College Honors are awarded at graduation to students with a superior overall grade-point average. The honor designations and the requirements for each are *Cum laude,* an overall average of 3.4; *Magna cum laude,* 3.6; *Summa cum laude,* 3.8. To be eligible for College Honors, you must have completed at least 20 *graded* courses (80 units) in the University of California.

A list of students graduating with College honors will be published in the Commencement Program, and honors earned will be recorded on each student's diploma.

In addition, the following publications offer you added information about UCLA in general:

"Finders Keepers"—a handbook to UCLA, with sections on general academic planning. Reference copies are available through all department, college, school and ASK counselors, at the College Library and University Research Library reference desks, and at a number of other counseling locations (AAP, Admissions, Dean of Students Office, Honors Programs Office, Placement and Career Planning Center and Psychological and Counseling Services).

academics: graduate education at UCLA

Admission

If you are interested in applying for admission to the Graduate Division at UCLA, please refer to the "admissions" section of this book.

You will find a description of the policies and procedures concerned with admission, as well as a discussion of the rules governing duplication of degrees.

The Program

An applicant for any advanced degree must possess a bachelor's degree from an institution of acceptable standing and must have completed the prerequisites for graduate study in his field at UCLA. You should consult the department in which you wish to study concerning special departmental requirements or other aspects of graduate study in addition to those common to all UCLA graduate programs.

Professional school programs are described later in this section.

Graduate Students

Graduate students (except Teaching and Research Assistants) are considered in full-time enrollment if they take at least two full courses of graduate and/or upper division work per quarter, or the equivalent of eight quarter units. Whenever possible, students are encouraged to expedite progress toward their degrees by taking three courses per quarter.

Teaching and Research Assistants

Teaching and Research Assistants and other apprentice personnel (Teaching Associates, researchers, readers) are required to take at least one course per quarter, or the equivalent of four quarter units, throughout their appointments, and are considered in full-time enrollment with this minimum. During the first quarter of their appointment they may not take more than two courses or the equivalent of eight quarter units. You are required to be registered throughout your appointment. If a Teaching or Research Assistant finds it necessary to request a leave of absence or to withdraw, the appointment is terminated.

Students with Fellowships

Graduate students holding fellowships administered by the University are required to take at least two courses per quarter or the equivalent of eight quarter units, both before and after advancement to candidacy. These courses may be in the 500 series of individual study or research.

Certificate of Resident Study for Foreign Students

In addition to a formal transcript, a Certificate of Resident Study may be issued to a registered foreign student as evidence of resident study. A candidate for this Certificate must have completed a minimum program of 9 courses, with a grade average of no less than C, or have satisfactorily completed a research project over a period of nine months or more. The award of this Certificate is recommended by the chairperson of the student's major department. Request for the Certificate should be made to the Registrar at least a week prior to the opening of the final examination period.

The Master's Degree at UCLA

The Master of Arts degree is offered at UCLA in a wide range of fields. These are:

*African Area Studies
Anthropology
*Archaeology
Architecture and Urban Planning
Art
Art History
Asian American Studies
Astronomy
†Astronomy (M.A.T.)
Biology
Classics
*Comparative Literature
Dance
Economics
Education
English
*Folklore and Mythology
French
Geography
German
Greek
History
*Islamic Studies
Italian
Latin
*Latin American Studies
Linguistics
Luso-Brazilian Language and Literatures
Mathematics
†Mathematics (M.A.T.)
Microbiology
Music
Near Eastern Languages and Cultures
Oriental Languages
Philosophy
†Physics (M.A.T.)
Political Science
Psychology
*Romance Linguistics and Literature
Scandinavian
Slavic Languages and Literatures
Sociology
Spanish
Teaching of English as a Second Language
Theater Arts

*Interdepartmental Programs
†Master of Arts in Teaching

The Master of Science Degree

The degree of Master is Science is offered at UCLA in the following disciplines:

Anatomy
Atmospheric Sciences
Biochemistry
Biological Chemistry
Biomathematics
Biostatistics
Chemistry
Computer Science
Engineering
Experimental Pathology
Geochemistry
Geology
Geophysics and Space Physics
Kinesiology
Management
Medical Physics
Microbiology and Immunology
Nurse Anesthesia
Oral Biology
Pharmacology
Physics
Physiology
Preventive Medicine and Public Health
Public Health

*Interdepartmental Programs

Other Master's Degrees

In addition to the 69 departmental or interdepartmental degrees on the list above, UCLA also provides an education leading to the Master's degree in the following fields:

Architecture (M.Arch.)
Art (M.F.A.)
Education (M.Ed.)
Engineering (M.Engr.)
Library and Information Science (M.L.S.)
Management (M.B.A.)
Music (Performance Practices) (M.F.A.)
Nursing (M.N.)
Public Health (M.P.H.)
Social Welfare (M.S.W.)
Theater Arts (M.F.A.)

Requirements for the Master's Degree

As a candidate for a Master's degree at UCLA, you are expected to meet the required standards described in this section.

Courses

The program of courses consists of at least nine graduate and upper division courses completed in graduate status, including at least five graduate courses. For the Master of Arts, Master of Science, and Master of Arts in Teaching, the five graduate courses may be in the 200 series (graduate courses and seminars) and in limited number, the 500 series (directed individual study or research for graduate students). For the other master's degrees, they may be in the 400 series (graduate professional courses) as well as in the 200 and 500 series. The application of 500-series courses to master's degrees is subject to limitations approved by the Graduate Council. Courses numbered in the 300 series are professional courses or preprofessional experience and are not applicable to University minimum requirements for graduate degrees.

Under the Quarter System at UCLA, the term "course" refers to a full course (4 quarter units). With this as a standard, departments may offer a half course (2 quarter units), a course and a half (6 quarter units) or a double course (8 quarter units). The requisite nine-course minimum for a master's degree may be fulfilled through combination of such courses.

Scholarship Standards

You are required to maintain at least a B (3.0) average in all courses taken in graduate status on any campus of the University of California and in all courses for the master's degree.

Foreign Language

If your degree program includes a foreign language requirement, you should make every effort to fulfill it *before* the beginning of graduate study—or as early as possible. In that way, the language skill you have developed will be of the most use to you. You will normally meet these requirements by completing one or more examinations. You may take French, German, Russian and Spanish examinations which the Educational Testing Service (ETS) offers at UCLA and at other locations throughout the United States several times a year. In other languages, examinations are administered by foreign language departments at UCLA. When language requirements are to be fulfilled by ETS examinations, prospective graduate students are normally encouraged to take these examinations, while still juniors and seniors if possible, and their scores, if sufficiently high, may be used to satisfy foreign language requirements for their graduate degrees. UCLA requires a minimum ETS score of 500 for passing.

You should direct your questions on foreign language requirements to departments; questions about the examinations should be directed to the Language Examination Coordinator, Student and Academic Affairs Section, Graduate Division, or to the Educational Testing Service, Box 955, Princeton, New Jersey 08540. See also the *Announcement of the Graduate Division* for a chart summarizing departmental foreign language requirements.

Academic Residence

You must complete at least three quarters of academic residence in graduate status at the University of California, including at least two quarters at UCLA. You are in academic residence if you complete at least one course (4 units) in graduate or upper-division work during a quarter.†

†Enrollment in two six-week Summer Sessions (must be *consecutive* for doctoral candidates) counts as one quarter of residence provided you are enrolled in each session for the equivalent of at least two units of upper division and/or graduate work as given in a regular quarter. Enrollment in an eight-week Summer Session counts as one quarter of residence provided you are enrolled for the equivalent of at least four units of upper division and/or graduate work as given in a regular quarter. Academic residence that is earned through enrollment in Summer Sessions is limited to one-third of the degree requirements.

Withdrawal

A student withdrawing from the University within the course of quarter must file an acceptable "Notice of Withdrawal" and return the photo I.D. card and current Registration card. The withdrawal form containing complete instructions is issued at the Student and Academic Affairs Section of the Graduate Division, 1225 Murphy Hall or Registrar's Information Window "A", Murphy Hall. Failure to attend classes, neglect of courses, or stopping payment on checks tendered for registration do not constitute notice of withdrawal.

With approval of the Dean of the Graduate Division, a student who is eligible for further registration in the University and who is not under disciplinary disqualification is entitled to a statement of honorable withdrawal. However, the Dean may attach comments to this statement.

A registered student who withdraws from the University before the end of the quarter without authorization duly certified by the Registrar shall receive a grade of "F" or, where appropriate, "Unsatisfactory" in each course in which he/she is enrolled.

A percentage of the registration fees paid is refunded according to the calendar date on which the official notice of withdrawal is submitted to the Registrar. See current *Schedule of Classes* for refund schedule.

Cancellation of Registration

Prior to the first day of instruction, a student may cancel his/her registration upon written notice and return of the photo I.D. card and current Registration card to the Registration Office, 1134 Murphy Hall. A service charge of $10 is deducted from the amount of fees paid.

Transfer of Credit

Units and grade points for courses completed in graduate status on other University of California campuses, may, upon petition, apply to master's programs at UCLA. If approved, such courses may fulfill up to one-half the total course requirement, one-half the graduate course requirement, and one-third the academic residence requirement.

Also by petition, with the approval of the student's major department and the Dean of the Graduate Division, courses completed with a minimum grade of B in graduate status at institutions of acceptable standing other than the University of California may apply to UCLA master's programs. A maximum of two such courses (the equivalent of eight quarter units or five semester units) may apply, but these courses may not be used to fulfill either the five-graduate-course requirements or the academic residence requirement.

Courses taken for any degree awarded at another institution may not be used to apply toward a degree at UCLA.

Courses in University Extension (100 series) taken *before* July 1, 1969 (identified with an asterisk in the University Extension bulletin of the appropriate year), may apply on approval by the department and the Dean of the Graduate Division. No more than two such courses (8 units) may apply, and they must have been completed after you received your bachelor's degree. University Extension courses taken *after* July 1, 1969 may not apply to the University minimum of 9 courses required for master's degrees, with the following exception: By petition to the Dean of the Graduate Division and with the recommendation of the major department, a maximum of two concurrent** courses (100, 200 or 400 series) completed through the University (with a grade of B or better, after you have received your bachelor's degree) may be counted toward the nine-course University minimum requirement and toward the five-graduate-course requirement for the master's degree. However, the program for the master's degree shall include at least two graduate courses in the 200 or 400 series completed after admission to regular graduate status. Any progrom which requires more than nine courses for the master's degree may accept concurrent courses completed through Extension (with a grade of B or better, after you have received your bachelor's degree) to meet one-half the course requirements over and above the University minimum of nine. Grades earned in University Extension are not included in computing grade averages for graduate students nor for the removal of graduate scholarship deficiencies. Correspondence courses are not applicable to graduate degrees.

**Concurrent courses are courses which are offered by the University for regularly registered students in degree programs, and in which Extension students also enroll.

Thesis or Comprehensive Examination Plan

At the option of your major department, you follow either the Thesis Plan or the Comprehensive Examination Plan. The University minimum standards are the same under either plan. A department, however, may require a higher scholarship average and additional courses and/or examinations beyond the minimum requirements of the Graduate Division.

Under the Thesis Plan, the student's thesis is a report of the result of original investigation. Before beginning work on the thesis, you must obtain approval of the subject and general plan from the faculty members concerned and from your Thesis Committee. This Committee, consisting of three faculty members appointed by the Dean of the Graduate Division, is responsible for final approval of the thesis. The Manuscript Advisor for Theses and Dissertations, located in the Office of the University Archivist, Powell Library, and the Graduate Division publication, *Standards and Procedures for Advanced Degree Manuscript Preparation,* provide guidance in the final preparation of the manuscript.

Under the Comprehensive Examination Plan, the examination is administered by a committee, consisting of at least three faculty members, appointed by the department. In some departments this examination may also serve as a screening or qualifying examination for a doctoral program.

Other Master's Degrees

For master's degrees other than the M.A. and M.S. there may be specific University minimum requirements in addition to the foregoing. You can get information on these from your departmental graduate advisor.

Advancement to Candidacy

Advancement to candidacy takes place after formal approval of your program, which may include work in progress. You file for advancement to candidacy no later than the second week of the quarter in which you expect to receive the degree. However, advancement to candidacy may not occur until all requirements, including the foreign language requirement, have been satisfied. Upon completion of course requirements and formal advancement to candidacy, you may have up to one additional year in which to complete all requirements for the degree.

The Candidate in Philosophy Degree

In those departments for which the Graduate Council has approved formal proposals for itw award, the intermediate degree Candidate in Philosophy (C.Phil.) may be awarded qualified students upon advancement to candidacy in existing Ph.D. programs.

Departments Offering the Degree

The Candidate in Philosophy degree is offered at UCLA in these departments:

Anatomy
Applied Linguistics
Atmospheric Sciences
Biochemistry
Biology
Chemistry
Classics
*Comparative Literature
Economics
English
French
Geochemistry
Geography
Geology
Germanic Languages
Hispanic Languages and Literatures
History
*Indo-European Studies
*Islamic Studies
Italian
Linguistics
Management
Mathematics
Music
Near Eastern Languages and Cultures
Oriental Languages
Philosophy
Political Science

Psychology
*Romance Linguistics and Literature
Slavic Languages and Literatures
Sociology
Theater Arts

*Interdepartmental Programs

General Requirements for the C.Phil. Degree

Requirements for the C.Phil. are identical with those for advancement to candidacy for the Ph.D. (see the following heading) with the exception that the student must have completed four quarters of academic residence, including three quarters (ordinarily the last three) in continuous residence at UCLA. You may obtain further information from the department in which you wish to study.

The Doctoral (Ph.D.) Degree at UCLA

The doctorate is awarded to students who have displayed understanding in depth of the subject matter of their discipline as well as ability to make original contributions to knowledge in their field. The degree is an affidavit of critical aptitude in scholarship, imaginative enterprise in research, and proficiency and style in communication.

The Doctor of Philosophy Degree

The Ph.D. degree at UCLA is offered in the following departments:

Anatomy
Anthropology
*Applied Linguistics
*Archaeology
Art History
Astronomy
Atmospheric Sciences
Biochemistry
Biological Chemistry
Biology
Biomathematics
Biostatistics
Chemistry
Classics
*Comparative Literature
Computer Science
Economics
Education
Engineering
English
Experimental Pathology
French
Geochemistry
Geography
Geology
Geophysics and Space Physics
Germanic Languages
Hispanic Languages and Literatures
History
*Indo-European Studies
*Islamic Studies
Italian
Kinesiology
Library and Information Science
Linguistics
Management
Mathematics
Medical Physics
Microbiology
Microbiology and Immunology
*Molecular Biology
Music
Near Eastern Languages and Cultures
*Neuroscience
Oriental Languages
Pharmacology
Philosophy
Physics
Physiology
Political Science
Psychology
Public Health
*Romance Linguistics and Literature
Slavic Languages and Literatures
Sociology
†Special Education
Theater Arts
Urban Planning

*Interdepartmental Programs.
†Joint program with California State University at Los Angeles.

Other Doctoral Programs

Additional doctoral programs other than the Ph.D. at UCLA include:

Education (Ed.D.); Environmental Science and Engineering (D.Env.); Public Health (Dr.P.H.); Social Welfare (D.S.W.).

Requirements for Doctoral Degrees Other than the Ph.D.

For doctoral degrees other than the Ph.D. there may be specific University minimum requirements in addition to those described above. Requirements for these degrees are described in the sections of this Catalog devoted to the appropriate schools, and further information may be obtained from the announcements of these schools and from the graduate advisors.

Individual Ph.D. Program

The Individual Ph.D. Program has been established to allow superior students to pursue well-defined, scholarly, coherent programs that cannot be carried out within any existing doctoral program on any campus of the University of California. To be approved for an Individual Ph.D. Program, a student submits a proposal to the Graduate Council after having been a full-time graduate student at UCLA for at least one year, having proved qualified to pursue a departmental Ph.D. program, and having gained the support of at least three sponsoring members of the faculty as the result of the special efficacy of the dissertation proposal. University minimum standards with regard to courses, standards of scholarship, residence, and the dissertation apply.

You should be aware of the fact that individual doctoral degrees may be of less value in the marketplace than standard departmental degrees. As a rule, departments in universities and colleges prefer to appoint individuals whose training is in a traditional field. It is likely that the same preference holds in relation to other opportunities for employment.

Further information regarding this program and the requirements for approval are available from the Graduate Division, 1225 Murphy Hall, University of California, Los Angeles, California 90024.

Requirements for the Ph.D. Degree

As a candidate for a Ph.D. degree at UCLA, you are expected to meet the following required standards:

Courses

You take whatever formal courses your department may require or recommend for knowledge in your field and preparation for qualifying examinations. The University has no formal course requirements for doctoral degrees other than the academic residence requirement. The 500 series of directed individual study or research courses is designed for graduate research, preparation for examinations, and preparation of the thesis or dissertation.

Scholarship Standards

You are required to maintain at least a B (3.0) average in all courses taken on any campus of the University of California for the entire time you have been in graduate status.

Foreign Language

You should make every effort to complete foreign language requirements before the beginning of graduate study or as early as possible so that the language skill you have developed will be of the most benefit to you. In any case, students in doctoral programs requiring one or more languages must complete at least one language before the oral qualifying examination. You normally meet these requirements by completing one or more examinations. You may take French, German, Russian and Spanish examinations which the Educational Testing Service (ETS) offers at UCLA and at other locations throughout the United States several times a year. In other languages, examinations are administered by foreign language departments at UCLA. When language requirements are to be fulfilled by ETS examinations, prospective graduate students are normally encouraged to take these examinations while still juniors and seniors if possible, and their scores, if sufficiently high, will satisfy foreign language requirements for their graduate degrees. UCLA requires a minimum ETS score of 500 for passing.

You should direct your questions on foreign language requirements to departments; questions about the examinations should be directed to the Language Examination Coordinator, Student and Academic Affairs Section, Graduate Division, or to the Educational Testing Service, Box 955, Princeton, New Jersey 08540. See also the *Announcement of the Graduate Division* for a chart summarizing departmental foreign language requirements.

Academic Residence

You complete at least two years of academic residence in graduate status at the University of California, including one year, ordinarily the second, in continuous residence at UCLA. In most cases a longer period of academic residence is necessary, however, and from three to five years is generally considered best. You are in academic residence if you complete at least one course (4 units) in graduate or upper-division work during a quarter.†

†Enrollment in two six-week Summer Sessions (must be *consecutive* for doctoral candidates) counts as one quarter of residence provided you are enrolled in each session for the equivalent of at least two units of upper division and/or graduate work as given in a regular quarter. Enrollment in an eight-week Summer Session counts as one quarter of residence provided you are enrolled for the equivalent of at least four units of upper division and/or graduate work as given in a regular quarter. Academic residence that is earned through enrollment in Summer Sessions is limited to one-third of the degree requirements.

Qualifying Examinations

At an appropriate time in the doctoral program, written qualifying examinations are administered by a departmental guidance committee. After successful completion of these examinations and of

part or all of the foreign language requirement, a doctoral committee is formally appointed by the Dean of the Graduate Division to conduct the oral qualifying examination and supervise the research and writing of the dissertation.

Advancement to Candidacy

After you have successfully completed the oral qualifying examination, you are eligible for advancement to candidacy.

Dissertation

The candidate demonstrates ability for independent investigation by completing a dissertation in the principal field of study. Your choice of subject must be approved by your doctoral committee, which also reviews and approves the dissertation prospectus and guides you in the research and writing. The Manuscript Advisor for Theses and Dissertations, located in the Office of the University Archivist, Powell Library, and the UCLA publication, *Standards and Procedures for Advanced Degree Manuscript Preparation*, provide guidance in the final preparation of the manuscript. Members of the Doctoral Committee and the Dean of the Graduate Division approve the completed dissertation.

Final Oral Examination

A final oral examination may be required at the option of the members of the doctoral committee who are to approve the dissertation, and in some departments it may be required of all candidates. You should consult your doctoral committee chairman or departmental graduate advisor for further information.

In-Candidacy Fee Offset Grant Program

An In-Candidacy Fee Offset Grant Program has been established to provide an incentive for early advancement to candidacy and for completion of degree requirements within a normative time set by the department and subject to the approval of the Graduate Council. The grant covers the Educational Fee (presently $120 per quarter). For a complete description of this program, see section on Financial Aid (graduate aid available).

Change of Major

A continuing graduate student may petition for a change of major after discussing his/her plans with his/her "new" department. Forms for this purpose are available in the Graduate Division, Student and Academic Affairs Section, 1225 Murphy Hall, and should be returned to that office.

Deadlines for this petition generally are the same as those for the graduate admissions procedure but students should also consult with and be guided by the departments before filing an application.

The student must be coded in the department in which he/she is to receive his/her degree at the time the degree is awarded. Also, enrollment is processed by college/major codes on the registration materials unless a copy of the approved major change is filed with the Study List Card.

Grades

The work of all graduate students is reported in terms of the following grades: "A" (superior achievement), "B" (satisfactorily demonstrated potentiality for professional achievement in the field of study), "C" (passed the course but did not do work indicative of potentiality for professional achievement in the field of study), "F" (fail), "I" (Incomplete), "IP" (in progress), "DR" (deferred report) discussed in the "student conduct" section of this catalog. "S" (satisfactory), "U" (unsatisfactory). The passing grades "A", "B" and "C" may be modified by plus (+) or minus (−) suffixes. Grade points per units are assigned by the Registrar as follows: "A"−4, "B"−3, "C"−2, "F"−0. "Plus" grades (except "A"+) carry three-tenths grade points more per unit and "minus" grades carry three-tenths grade point less per unit then unsuffixed grades. The grade "A+" carries 4.0 grade points per unit, the same as for an unsuffixed "A", but when "A+" is reported it represents extraordinary achievement. Courses in which a student receives an S grade may be counted in satisfaction of degree requirements, but courses in which either an S, U, DR, I, or IP has been awarded are disregarded in determining a student's grade point average.

The grades "A", "B", and "S" denote satisfactory progress toward a degree. A graduate student is subject to dismissal if the student's cumulative grade point average falls below 3.0.

"S" and "U" Grades

With the approval of the Graduate Council, and the consent of the departments involved, individual study or other work undertaken for credit toward a degree by a graduate student may be evaluated by means of the grades "S" and "U". A graduate student in good standing may enroll each quarter in one 100, 200 or 400 series course graded on an "S/U" basis. This course shall be outside the major field in addition to those individual study and research courses (500 series) graded "S/U" in the student's major field. To meet problems which may arise in certain departments, the Graduate Council, upon petition from a department, may waive the one course limitation. A grade of "S" is awarded only for work which would otherwise receive a grade of "B" or better.

"IP" Grades

For courses authorized to extend over more than one quarter and where evaluation of the student's performance is deferred until the end of the final term, a provisional grade of (In Progress) is assigned in the intervening term(s). The provisional grade is replaced by the final grade(s) if the student completes the full sequence. The Graduate Council is authorized to regulate the award of credit in cases where the full sequence is not completed. Authorization for the use of IP grades in graduate courses shall be by the Graduate Council.

Correction of Grades

All grades, except DR, I, and IP are final when filed by an instructor in the end-of-term course report. However, the Registrar is authorized to change a final grade a) upon written request of an instructor, provided that a clerical or procedural error is the reason for the change; or b) upon written request of the Chairperson of the Division in cases where it has been determined by the Committee on Privilege and Tenure that an instructor has assigned a grade on any basis other than academic grounds. No change of grade may be made on the basis of reexamination, or with the exception of the I and IP grades, the completion of additional work. Any grade change request made more than one year after the original filing must be validated for authenticity of the instructor's signature by the department chairperson. Any grade change request made by an instructor who has left the University must be countersigned by the department chairperson.

Repetition of Courses

Repetition of courses other than those authorized by the Committee on Undergraduate Courses and Curricula or the Graduate Council to be taken more than once for credit, is subject to the following conditions:

A student may repeat only those courses in which a grade of "D", "F", "NP", or "U" has been received. Courses in which a grade of "D" or "F" has been received may not be repeated on a "P/NP" or "S/U" basis.

Repetition of a course more than once requires approval by the Dean of the Graduate Division in all instances.

Degree credit for a course is given only once, but the grade assigned at each enrollment is permanently recorded.

All courses attempted and graded on the "A", "B", "C", "F", basis, including repeated courses, are used in computing the grade point average.

The DR Grade

The grade DR (deferred report) is entered on the student's record: a) when to the faculty member's knowledge, the student's work in the course is complete, but the faculty member is not able to assign a grade; or b) when disciplinary proceedings are in progress. The DR is not calculated in any way in the student grade point average. The DR is changed to a grade, or perhaps to an Incomplete, only when the Registrar receives a written request from the instructor which indicates that the student has clarified the situation.

The report of the grade DR must be accompanied by a letter from the instructor to the Dean of the school or college, and to the student stating the basis of the action. For students enrolled in a course approved by the Graduate Council, the Dean of the Graduate Division is the dean of record. The Dean establishes a date or a specific circumstance terminating the period of the Deferral of Report and informs the Registrar, the instructor and the student. Unless changed by the instructor as specified in the preceding paragraph, the DR automatically becomes an F grade.

The "I" Grade

The grade "I" may be assigned when a student's work is of passing quality, but is incomplete. The grade "I" is only assigned when the student establishes to the instructor's satisfaction that his/her work is incomplete for good cause. In order for the grade "I" to be eligible to be replaced by a passing grade, the student must submit and the instructor must complete a "Petition for the Granting of the Grade "I" which will contain both the reason for granting the grade "I" and the conditions to be met before the grade "I" can be replaced by a passing grade. The student is entitled to have the grade "I" replaced by a passing grade and to receive unit credit and grade points provided he/she satisfactorily completes the work of the course by the end of the next full quarter that he/she is in residence in regular session following the quarter in which the "I" was received. The Dean of the Graduate Division has authority to extend the deadline for completion in the event of unusual circumstances that would clearly impose an unfair hardship on the student if the original deadline were maintained. If the work is not completed, the grade "I" is automatically replaced with F, NP or U as appropriate.

The Graduate Council may establish rules under which the authority to approve limited extensions of time for graduate students is delegated to departmental advisors.

See the academic calendar at the beginning of this Catalog.

Concurrent Degree Programs

Concurrent degree programs have been established in the disciplines listed below. Concurrent programs have the advantage of allowing the student to acquire the two degrees in less time than normally required if the courses of instruction are taken in sequence. The aim of these programs is to provide an integrated curriculum of greater breadth between the two disciplines. Inquiries should be directed to the departments or schools involved.

Economics, M.A.—Law, J.D.

Latin American Studies, Interdepartmental M.A.—Management, M.B.A.

Law, J.D.—Architecture and Urban Planning, M.A.

Management, M.B.A.—Law, J.D.

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

Interdepartmental Degree Programs

In addition to graduate degree programs offered in schools and departments, interdisciplinary graduate programs, involving two or more participating departments, are also offered. These programs are administered by interdepartmental faculty committees appointed by the Dean of the Graduate Division, acting for the Graduate Council.

African Area Studies (M.A.)

Applied Linguistics (Ph.D.)

Archaeology (M.A., Ph.D.)

Asian American Studies (M.A.)

Comparative Literature (M.A. Ph.D.)

Environmental Science and Engineering (D.Env.)

Folklore and Mythology (M.A.)

Indo-European Studies (Ph.D.)

Islamic Studies (M.A., Ph.D.)

Latin American Studies (M.A.)

Molecular Biology (Ph.D.)

Neuroscience (Ph.D.)

Romance Linguistics and Literature (M.A., Ph.D.)

If you would like further information, please refer to the Announcement of the Graduate Division which lists the Chairperson or Graduate Advisor for the interdepartmental degree program.

Special Programs

The UCLA Graduate Division provides a variety of special programs to students, faculty and visiting scholars.

Certificate Programs

UCLA offers graduate programs leading to the following certificates: Certificate of Specialization in Engineering and Applied Science (School of Engineering and Applied Science), Certificate in the Teaching of English as a Second Language (Department of English), Certificate of Specialization in Library and Information Science (School of Library and Information Science), Certificate of Postgraduate Medical Study, for interns and residents (School of Medicine), postgraduate certificate programs in Dentistry (School of Dentistry). Further information can be obtained from the dean of the appropriate school or the departmental graduate advisor.

Foreign Language Training

Research and field work overseas may be facilitated by oral proficiency training in any of thirty-four languages taught at the U.S. Defense Language Institute at the Presidio of Monterey. This unique program is available on a space available basis, to University of California graduate students who have completed one quarter of graduate work, and faculty. Regulations and procedures for applicants, and application forms, may be obtained from the Fellowship and Assistantship Section, Graduate Division. For further information, write to the Secretary, University of California Language Training Advisory Committee, Room 103, Classroom Unit 1, University of California, Santa Cruz, California 95064, or call UC Santa Cruz extension 2054 (message center 2900).

Each year thirty persons certified by the University of California Language Training Advisory Committee may be admitted.

Complete information is available by writing to the Secretary at the above address.

Departmental Scholar Program

Departments may nominate exceptionally promising undergraduate students (juniors and seniors) as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously.

Qualifications include the completion of 24 courses (96 quarter units) at UCLA, or the equivalent at a similar institution, and the requirements in preparation for the major. To obtain both the bachelor's and master's degrees the Departmental Scholar must be provisionally admitted to the Graduate Division. Requirements for each program must be fulfilled and a minimum average of "B" maintained. No course may be used to fulfill requirements for both degrees.

The department chairperson submits nominations to the dean of the undergraduate program for recommendation to the Dean of the Graduate Division, on or before the application dates for admission to graduate standing. Interested students should consult their departments well in advance of these dates for admission to graduate standing.

Under provisional admission to the Graduate Division, Departmental Scholars are accorded the usual privileges of graduate students with the exception of leaves of absence and participation in the Intercampus Exchange Program.

Education Abroad Program

Graduate students may, with the approval of the departmental graduate advisor and the Dean of the Graduate Division, participate in the Education Abroad Program at the University's study centers overseas. This program is discussed fully in the "academics: resources to help you" section of this Catalog. Such students remain under the academic direction of their home campus graduate advisor but may seek assistance from the Director of the Study Center when appropriate. Participation in the Education Abroad Program may prove especially valuable to doctoral candidates who have been advanced to candidacy and are engaged in independent study and research directed toward their dissertations. By approval of the Graduate Council, courses (units) to be applied toward an advanced degree shall be accepted only under all of the following conditions: a) students, after returning, must present a transcript (or equivalent) showing work done abroad under the Education Abroad Program; b) the major department indicates its approval of those courses which it recommends for credit toward an advanced degree; c) the recommendations of the department are then submitted to the Dean of the Graduate Division for approval. For further information, graduate students should consult the Education Abroad Office, 2221-B Bunche Hall, where applications may be obtained. A graduate student is eligible to participate after completion of one full academic year of study at a UC campus. After approval by the department and the Graduate Division, applications should be filed with that office well in advance of the planned period of study.

The Graduate Cross-Enrollment Program

As an integral part of a Regentally-approved program in Academic Resource Sharing, which links UCLA with USC, the Graduate Cross-Enrollment Program makes possible graduate student exchanges in many departments. The program is limited to specialized course offerings which would not otherwise be available to UCLA students.

With the approval of the instructor and department chairperson on the host campus, the UCLA student signs up for a 501 course with a UCLA advisor and completes the College and University Regional Student Exchange Petition for Enrollment and Certification of Grade. The completed form must be filed with the Graduate Dean's Office on the host campus by the third week of the UCLA quarter in which 501 credit is requested. Upon completion of the period of study at the host institution, you will be evaluated by the instructor on that campus, who will forward the grade (S or U) to the UCLA graduate advisor, to be recorded against the 501 course and submitted to the UCLA Registrar. There is a credit limit of 8 units of such courses applicable toward the requirements for the master's degree. These 8 units cannot be used to satisfy the 5-graduate course requirements.

The UCLA student must have completed at least a year of graduate study here, must make petition for study at the host campus in the manner detailed above, and must have registered and paid his/her other fees *to UCLA* before permission to cross-enroll will be granted. Library privileges will be extended at the host institution, but other privileges or services cannot be proffered. Limited programs in specialized language courses and in special education with the State University and College System are also available through the College of Letters and Science or the Graduate School of Education.

The Graduate Advancement Program

The Graduate Advancement Program was established to increase the graduate enrollment of students from those groups which, as a result of economic or societal inequities, have been only minimally represented in the University.

Financial support is available for students from groups with historically low participation in graduate work such as American Indians, Asian Americans, Blacks and Chicanos, in graduate study leading to the master's or doctoral degree in the sciences, humanities, social sciences, and the arts, including the Schools of Architecture and Urban Planning, Library and Information Science and Education.

Out-of-state applications in the applied and pure sciences are particularly encouraged, as well as those fields in which manpower availability pools for ethnic minorities must be increased.

Applicants must be U.S. citizens or permanent California residents and admitted to graduate status, in order to be eligible for these awards. In certain instances, an additional departmental application for admission is required. Students should contact the major department for full details on admission requirements. Students interested in the professional fields listed below should address their inquiries to the professional school of their choice.

Management

Dentistry

Engineering

Computer Science

Law

Medicine

Nursing

Public Health

Social Welfare

Applications for all other areas of study may be obtained by contacting the Graduate Advancement Program, Room 1248 Murphy Hall.

Awards are made on the basis of academic record and promise and are need limited. A financial aid application must be submitted. A limited number of awards are in the form of fellowship grants. Others are a combination of grant, work study and loan to cover fees and to provide a modest living allowance.

Counseling and Academic Assistance: Retention and degree attainment are primary goals of the program. Counseling and academic assistance on a one-to-one basis are provided to students enrolled in graduate study through the Graduate Advancement Program.

Intercampus Exchange Program

The Intercampus Exchange Program makes resources on all campuses of the University of California available to graduate students in good standing who have completed at least one quarter of graduate study in the University. It is reserved for use by those students whose graduate study may be enhanced by work with distinguished faculty or use of facilities and resources accessible only on another campus. Applications must be

approved by the graduate department chairperson in your home department and by the department chairperson in the department (or departments) in which you expect to work at the host campus, as well as by the Deans of the Graduate Divisions on both campuses. You will register, pay fees, earn credit toward academic requirements, and be considered in residence on your home campus but the host campus will provide library, student health service, and other privileges. Course grades will be transferred to the home campus.

Application forms for the Intercampus Exchange Program are obtained from the Graduate Division at the student's home campus and should be filed at least four weeks before the beginning of the quarter in which the student expects to enter this program. UCLA graduate students may obtain application forms from the Student and Academic Affairs Section of the Graduate Division, in 1225 Murphy Hall; telephone 825-4226.

It is your responsibility to make sure that you are registered at both your home and host campuses. Information regarding UCLA registration may be obtained from the Registration Clerk, Murphy Hall, 825-1092.

Postdoctoral Scholars

Opportunities and facilities of the University may be made available for a period of one to three years to qualified scholars holding doctoral degrees, or their foreign equivalents, who wish to engage in further supervised advanced study and research under faculty guidance, but not leading to any degree. Postdoctoral Scholar Status is limited to a maximum of three years. The date the individual's doctorate is awarded determines the maximum length of enrollment. Scholars have to enroll within three years of the receipt of their qualifying degrees in order to be eligible for the three-year maximum. Individuals may enroll for lesser periods, provided their degrees were awarded before a six-year time period has elapsed from the receipt of their degrees. The qualifying doctorate is a Ph.D. or its foreign equivalent, or in the case of a professional degree, after completion of postdoctoral clinical residency training. All Postdoctoral Scholars must be formally accepted by a department or other academic research unit and enroll with the Graduate Division for the primary purpose of research and training, approved by the chairperson of the department or other academic unit head and by the Dean of the Graduate Division. There is no enrollment fee, and Postdoctoral Scholars are entitled to use of libraries, auditing privileges, purchase of student health services, and a faculty athletic privilege card. Upon satisfactory completion of the program of research and training, a Certificate of Postdoctoral Study is awarded.

Teaching and Other Advanced Credentials for Public School Service

Graduate students in credential programs for teaching and other public school service, who are not also candidates for advanced degrees, are referred to the Graduate Advisor, Office of Student Services, Graduate School of Education.

Visiting Scholars

Facilities of the University are made available whenever possible to senior scholars and distinguished visitors with doctoral degrees from U.S. institutions or their foreign equivalents, who wish to become associated with UCLA to pursue independent research or advanced study for a limited period of time, normally not to exceed one calendar year. Such persons are "Visiting Scholars." Ordinarily, they are self-supported or provided with adequate support funds from other sources outside the University. Thus, they should be clearly distinguishable from Postdoctoral Scholars who "enroll" with the Graduate Division for an approved postdoctoral research or training objective under faculty supervision, and from academic appointees who are primarily employees.

Prospective Visiting Scholars should communicate in advance with the Chairperson of the Department, or head of the academic unit, with which they wish to become associated. On recommendation of the Chairperson of the Department, indicating that the necessary faculty sponsorship and facilities are available, formal invitations are issued by the Dean of the Graduate Division. General information on Visiting Scholar status and privileges may be obtained from the Fellowship and Assistantship Section of the Graduate Division.

Need to Know More?

This introduction to the processes and procedures for graduate study at UCLA has been organized into a separate section for ease of reference only.

Graduate students at UCLA play an important role in campus and departmental decision-making—and, they are both eligible and encouraged to take advantage of the varied opportunities which life as a UCLA student offers.

Some of these involvement avenues are described in the "recreation and participation" section of this book.

Financial Aid information can be found under the "money" section; additionally, "Passing the Bucks" a publication of the Financial Aid Office, is available from the Financial Aid Office A129 Murphy Hall, University of California, 405 Hilgard Avenue, Los Angeles, California 90024.

Admission information may be located under the section bearing that title.

Prospective graduate students should get a copy of the Announcement of the Graduate Division for a full explanation of the topics discussed in this section. It is available in the Graduate Admissions Section of the Graduate Division. Registered graduate students should obtain a copy of Standards and Procedures for Graduate Study at UCLA (I) from the Student and Academic Affairs Section, 1225 Murphy Hall, Graduate Division.

Finally, close personal contact between students and their academic departments is the centerpiece of graduate study here. Departmental advisors and counselors can offer guidance on a more personal level. The Psychological and Counseling Services in 4223 Math Sciences and the Placement and Career Planning Center, located just south of Powell Library also provide informed guidance. Foreign students are encouraged to get in touch with the Office of International Students and Scholars, 297 Dodd Hall.

The School of Architecture and Urban Planning

If you are interested in the academic and professional preparation offered by the School of Architecture and Urban Planning, you are urged to request a copy of the Announcement of the School by writing or telephoning the Graduate Advisor, Architecture/Urban Design Programs (825-7857) or Urban Planning Program (825-8957), School of Architecture and Urban Planning, UCLA, 405 Hilgard Avenue, Los Angeles, CA. 90024. You can find detailed course descriptions in the "courses" section of this Catalog.

General Description

The School of Architecture and Urban Planning at UCLA offers programs of study leading to the degrees of Master of Architecture (M.Arch.); M.A. in Architecture and Urban Planning, and Ph.D. in Urban Planning. Currently, the School offers educational opportunities for a broad spectrum of careers, including a number that are not yet common in practice, but which reflect emerging social needs. The programs of the School of Architecture and Urban Planning at UCLA reflect the University's concern with the escalating problems of the changing urban environment and its largely untapped potentials.

In order to relate closely to public affairs and practitioners in the field, the School has established the Urban Innovations Group. The Urban Innovations Group (UIG) undertakes "real-world" projects to provide graduate students with opportunities to gain practical experience. It also affords faculty opportunities for professional service. Reflecting the nature of the problems and the opportunities associated with the creation and maintenance of environments of the future, the projects are ongoing and programmatic. They range from pure research, applied research, development and prototype testing to full scale implementation. UIG provides a bridge between pure academic pursuits and professional practice.

Architecture and Urban Design

In an increasingly urban civilization, the unprecented rate of growth of the world's population places increasing demands on the architecture profession to provide for the individual's needs to live and work in close proximity with other people. A new technology of city building is being evolved to keep pace with the accelerated rate of urban growth. Advances in methods of construction, building economics and organization, together with insights gained in the social and behavioral sciences, place at our disposal new resources with which to respond to the urban challenge. This enormous undertaking demands a group of professionals who can direct diverse forces toward the realization of better environments. The field of architecture, like so many of our professions and institutions today, is undergoing radical change. The old pattern of architectural practice as something that transpires between an individual architect and the client is no longer valid. The new pattern of the large architectural office serving a corporate client's needs may also soon fade. A more radical view of the architect is emerging. Increasingly, the architect offers professional services as a member of an interdisciplinary team of problem-solving specialists. In fulfilling this role the architect will have to become a specialist; thus, the term "architect" in the future will have many specialized meanings.

Therefore, the program in Architecture and Urban Design is organized around areas of study which represent major current directions within the fields of architecture and urban design.

Projects in Architecture and Urban Design

Students will approach problem analysis and design method to environmental problems combined with environmental concerns. The ability to analyze and conceptualize specific designs will be acquired as you participate, individually or in teams, in projects which vary in scale and complexity from the design of individual components to urban systems.

Courses: 401. Projects in Architecture; 402. Projects in Urban Design; 403. Project Studio with a Specific Topic; 403A. Projects in Systems Building; 403B. Projects in Energy Conserving Design; 403C. Projects in Man-Environment Relations; 403D. Projects in Educational Facilities; 403E. Projects in Health Facilities; 403F. Projects in History; 403G. Projects in Design Methods; 411. Introductory Design Studio; 412. Building Design and Programming Studio; 413. Building Design and Landscape Studio; 414. Major Building I; 415. Major Building II; 416. Comprehensive Design Studio; 421. Architectural Drawing; 422. Advanced Architectural Drawing.

Methodology and Computer-Aided Design

Courses in methodology, modeling, and computer-aided design are intended to introduce the role of

systematic, logical methods in architectural and urban design, and to provide a background in the necessary mathematical and computational skills necessary for application of these methods in practice. The advanced courses usually deal with research topics.

Courses: 224. Methodology: Design Theory; 225A. Information Systems; 226A. Computer Applications in Architecture and Urban Planning (intro); 226B. Computer Applications in Architecture and Urban Planning (advanced); 227A. Computer Graphics; 227B. Computer-Aided Design; 228A. Mathematical Models in Arch/Urban Design; 228B. Research in Design Methods.

Environmental Technology

Students will explore the technological elements of the built environment and architectural scale, with particular emphasis on the comprehensive view to design problem-solving. Subjects include climatology, construction, environmental controls, energy, life safety, materials, services, structures, etc.

Courses: 431. Structures I; 432. Structures II;433. Structures III; 434. Structures IV; 436. Construction Documents; 437. Building Construction; 438. Systems Building; 439. Methods in Building Systems Development; 441. Environmental Control Systems; 442. Building Climatology; 443. Heat and the Thermal Environment; 444. Light and the Visual Environment; 445. Sound and the Auditory Environment; 446. Introduction to Energy Conserving Design.

Socio-Physical Research and Design

The purpose of this portion of the curriculum is to expand awareness in the area of overlap between psychology and architecture, and to increase technical proficiency in these areas. These areas could be called overt behavior or form/behavior relation, cognitive processes in design, and social/ethical issues.

Courses: 180. Visual Thinking; M192. Housing Patterns; 258. Research in Man Environment Relations; 278. Research Methods in Man Environment Relations; 292. Social Building Theory; 293. Experiencing the Environment; 294. Environment Psychology; 295. Cognitive Processes of Design; 296. Social Analysis of Building; 297. Group Processes in Design; 298. Social Meaning of Space; 299. Application of Behavioral Research to the Design Process.

Architectural and Urban Analysis

Courses in this area will examine properties and relations of the elements of architecture and the urban environment. The needs and behavior of individuals and groups will be studied with respect to their mutual inter-relation in order to understand the environmental consequences. Emphasis is on exact methods of analysis.

Courses: 210. Health Care Facilities; 218AB. Urban Structure: Analysis and Modeling; 238. Research in Urban Analysis; 244. Projects in Urban Building Systems; M255. Urban Morphology; 271. Elements of Urban Design; 274. Introduction to Urban Design; 275. Urban Form; 279A. Housing for Developing Countries; 290. Design Seminar in Educational Systems and Facilities.

Environmental Management

Subject matter will include the development of management procedures for forecasting, planning and designing the systems of the physical environment. On the assumption that architects and urban designers will become agents of change who will act upon the future physical environment, the forms of organization to fulfill this role are examined. Introduction and management of innovation in the architecture and urban design professions, both in theory (teaching and research) and practice (Urban Innovations Group Workshop) are also stressed.

Courses: 203A-203B. Decision-Making in Planning and Design; 204. Imaging the Future; 291. Architectural Programming and Theory; 460. Architectural Management; 461. Professional Organization and Practice; 490. Urban Innovations Group Workshop.

Theory, History and Criticism

Theory, history, and criticism support the field of architecture and urban design as both an activator of the professional discipline as well as the repository of its accumulated knowledge, values, and philosophies. Work in this area develops conceptual frames of reference by which the project and its context are defined. It also examines the criteria for analysis and evaluation, probes the methodological issues underlying the design process, and stimulates an awareness of the evolution of society and culture as the context within which architectural and urban form are manifested.

Courses: 189. Pre and Post Modern Architecture; 190. Man and His Environment; Urban Form and Urban Life; 191. Modern Architecture, 201A. Architectural Theory; 282A. Image and Cultural Symbolization; 285. Architectural Case Study; 286. History of Specific Building Types; 287. Ancient and Islamic Architecture in the Mediterranean Area; 288. Architectural History; The Medieval Period.

Special Studies

Courses: 289. Special Topics in Architecture/Urban Design; 496. Special Projects in Architec ure; 297. Special Projects in Urban Design; 596. Directed Individual Research and Study; 598. Preparation for Thesis.

The Degree of Master of Architecture

The School of Architecture and Urban Planning offers two degree programs leading toward a degree of Master of Architecture (M. Arch.)

The First Professional Degree Program (M. Arch. I.)

Description

The objective of this program is to provide the basic professional education necessary for the practice of architecture and urban design, as they are evolving today and in the future. The competence and sensitivity demanded of an environmental designer in turn require intensive exploration of a number of subject areas, and the ability to organize and purposefully integrate widely varied forms of information relevant to a given project. In this curriculum, a structured sequence of lectures, seminars and design projects is complemented with individual and group extracurricular work intended to exemplify both usual and unusual forms of professional activity. The M. Arch. I Program is officially accredited by the National Architectural Accrediting Board (NAAB).

Requirements

As a student enrolled in the program leading to the M. Arch. I degree, you will be required to meet the standards described below.

Required Courses

The following courses must be taken, in the sequence indicated. Students with previous background in the topic covered by any of the required courses may petition the M. Arch. I Curriculum Committee to waive specific required courses and replace them with electives. However this will not reduce the minimum number of 27 courses required in the M. Arch. I program or the three-year residency requirement. All students must maintain a 3.0 B grade-point average in all courses.

First Year		
Fall	411	Introductory Design Studio
	421	Basic Design I
	191	Modern Architecture
Winter	412	Building Design Studio
	437	Building Construction
	431	Structures I
Spring	413	Building Design With Landscape Studio
	442	Building Climatology
	432	Structures II
Second Year		
Fall	414	Major Building Design Studio 1
	433	Structures III
		Elective
	291	Architectural Programming
Winter	415	Major Building Design Studio II
	441	Environmental Control Systems
		Elective
Spring	401	Elective Studios and Projects
		Elective
		Elective
Third Year		
Fall	401	Elective Studios and Projects
		Elective
		Elective
Winter	416	Comprehensive Design Studio
	461	Professional Practice and Ethics
		Elective
Spring	598A	Thesis Preparation
		Elective

Elective Courses

Elective course offerings are designed both to allow students to explore specific subject areas in depth and to gain a breadth of exposure to different topics. You are required to take at least seven elective courses. At least four of these must be taken within the School of Architecture and Urban Planning.

It is intended that elective studios and projects courses taken in the Spring of the second year and the Fall of the third year will be prepared for, by taking appropriate lecture and seminar courses. Many of the elective lecture/seminar courses are organized into sequences leading up to specific studio or project courses. At least two of the electives taken in the second year must be in preparation for undertaking a specific studio or project course in the Spring of the second year or Fall of the third year. (See course descriptions for details.)

Thesis

Students are required to prepare and complete a thesis during the year immediately prior to graduation. The thesis may take the form either of an independent design project or an independent piece of research. Each year, a single committee will be formed to supervise the work of all students choosing to undertake design theses. Each student who chooses to undertake a research thesis may nominate a three-person committee to supervise this work. Two members of this committee, including the chairperson, must be from the Architecture/Urban Design faculty.

Admissions

For admission to this program, all applicants must first meet the entrance requirements of the Graduate Division of the University, including a

bachelor's degree from the University of California or its equivalent and a grade average of "B" or better. In addition, the School of Architecture and Urban Planning requires that you submit the material outlined in the Departmental Application Form. Particular emphasis is placed on the Statement of Purpose, letters of recommendation, and evidence of creative or analytic ability in either graphic, written, or mathematical form.

Good command of spoken and written English is absolutely essential and no foreign student will be allowed to attend classes until the Graduate Division's English fluency exam is passed and any required remedial courses are completed. The M. Arch. I program is a full-time program and does not accept part-time students. All new students must enter in the fall quarter.

You may obtain information by writing directly to the Graduate Advisor of the Architecture and Urban Design Program School of Architecture and Urban Planning, 405 Hilgard, UCLA, Los Angeles, California 90024.

The Second Professional Degree Program (M. Arch. II)

Advanced graduate studies in Architecture and Urban Design at UCLA, with an emphasis on professional studies, gives students the opportunity to explore in depth certain areas of professional and academic specialization. An innovative attitude toward the future of the architectural profession is emphasized and is explored in seminars, projects and field experience.

Areas of specialization are offered in Theory and Methods and in Professional Applications. In certain primary areas of specialization a Letter of Certification is conferred at graduation.

Requirements

You are expected to be in residence at UCLA for at least two years and undertake at least six quarters of work.

A thesis is required. Three faculty members (at least two from SAUP) will serve as members of the Thesis Committee. When all three have signed the thesis proposal, you may sign up for Preparation for Thesis course (598) and begin work on the thesis itself. This course should be taken at some point during the last year of study.

Students working towards a professional degree, M. Arch. II *(Master of Architecture)*, are required to complete a minimum of eighteen courses with a total of at least 72 units distributed in the following way:

1. One core sequence should be chosen from the area of Theory and Methods (3 courses).

Areas currently being offered are: (1) Design Methods, (2) Systems Building, (3) Energy-Conserving Design, (4) Social Building, (5) Computer Aided Design, (6) Open (course sequences to be arranged in response to individual student's needs).

2. One core sequence should be chosen from the area of Professional Application (3 courses).

Areas currently being offered are: (1) Urban Design, (2) Housing, (3) Health Care Facilities, (4) Open (course sequences to be arranged in response to individual student's needs).

3. One of the above cores should be taken as a primary area of specialization and the other one as a secondary area. In the primary area of specialization students are advised to take all the recommended courses. The secondary area may be taken as a sequence of core courses only.

Additional Requirements

1. Eleven courses are to be electives. Among these are the recommended courses in the area of primary specialization. Three electives may be taken at large from upper division or graduate courses offered campuswide. For students requiring greater interdisciplinary study permission may be granted by the Curriculum Committee to increase this number.

2. At least five of the above courses must be numbered in the 400 professional series. Three of these must be courses 401, 402, or 403.

3. Thesis Preparation course (598) must be taken at least once.

Each of the above areas consists of an organized sequence of three core courses including a minimum of one project course and a number of related highly recommended courses. Certain core sequences are offered only every other year. Core sequences may be introduced, deleted or changed from year to year, contingent upon faculty availability and student need.

In addition to the currently offered core sequences, an "open option" in each category is available to students who enter with their own specific and well defined program of study. Proposals for this open option require prior approval by the Curriculum Committee.

You are urged to state areas in which you propose to specialize, and you are required to commit yourself in your application for admission to these approved areas by the beginning of the second quarter. Work on the thesis is to be in the chosen areas of specialization, and may not be commenced until the required courses have been completed.

Admission

For admission to this program, all applicants must first meet the entrance requirements of the Graduate Division of the University, including the grade average of "B" or better. In addition, the School of Architecure and Urban Planning requires that the applicant hold the degree Bachelor of Architecture (B. Arch) from an accredited school, and submit the material outlined in the Departmental Application Form. Particular emphasis is placed on the Statement of Purpose, letters of recommendation, evidence of professional quality, creative or analytic ability in either graphic, written, or mathematical form.

Good command of spoken and written English is absolutely essential and no foreign student will be allowed to attend classes until the Graduate Division's English fluency exam is passed and any required remedial courses are completed.

You may obtain additional information about the program by writing directly to the Graduate Advisor of the Architecture and Urban Design Program, School of Architecture and Urban Planning, UCLA, 405 Hilgard Avenue, Los Angeles, California, 90024.

The Master of Arts Degree in Architecture and Urban Planning (Architecture and Urban Design Program)

The Master of Arts in Architecture and Urban Planning in the Architecture and Urban Design Program is available to students holding a Bachelors degree in Architecture (5 years), a Bachelor of Arts in Architecture (4 years), or a Bachelor or Master's degree in related fields, including anthropology, geography, planning economics, human factors, psychology, and sociology, who wish to pursue a more academic orientation. This path of study will prepare students for one or more specialized research and teaching functions related to the profession of architecture and urban design.

The advanced graduate studies in Architecture and an Design at UCLA with an emphasis on research and teaching, give students an opportunity to explore in depth certain areas of specialization. An innovative attitude toward the future of the architectural profession is emphasized and is explored in seminars, projects and field experience.

Requirements

As a student enrolled in the program leading to the Master of Arts in Architecture and Urban Planning (Architecture and Urban Design Program), you will be required to meet the standards described below:

1. Students are expected to be in residence at UCLA for at least two years and undertake at least six quarters of work.

2. A thesis is required. Three faculty members (at least two from SAUP) will serve as members of the Thesis Committee. When all three have signed the thesis proposal, the student may sign up for Preparation for Thesis (course 598) and begin work on the thesis itself. The 598 course should be taken at some time during the last year.

3. Students working toward an M.A. are required to complete a minimum of 16 courses (with a total of at least 64 units) of graduate or upper division work.

4. The M.A. student is required to choose one area of specialization, either in Theory and Methods or Professional Application, as listed below:

Core Sequences in Theory and Methods

Areas currently being offered are: (1) Design Methods, (2) Systems Building, (3) Energy-Conserving Design, (4) Social Building, (5) Computer-Aided Design, (6) Open (course sequences to be arranged in response to individual student's needs).

Core Sequences in Professional Application

Areas currently being offered are: (1) Urban Design, (2) Housing, (3) Health Care Facilities, (4) open (course sequences to be arranged in response to individual student's needs).

Each of these area consists of an orgainzed sequence of three core courses including a minimum of one project course and a number of related highly recommended courses. Certain core sequences are offered only every other year. Core sequences may be introduced, deleted or changed from year to year, contingent upon faculty availability and student need. In certain primary areas of specialization a Letter of Certification is conferred at graduation.

5. Seven courses may be taken from upper division or graduate courses offered campuswide.

6. The University of California minimum requirements for the Master of Arts degree must be completed.

Additional Requirements

In addition to the currently offered core sequences, an "open option" in each category is available to students who enter with their own specific and well defined program of study. Proposals for this open option require prior approval by the Curriculum Committee.

You are urged to state in your application for admission the areas in which you propose to specialize, and you are required to commit yourself to these approved areas by the beginning of the second quarter. Work on the thesis is to be in the chosen areas of specialization, and may not be commenced until the required courses have been completed.

Admission

For admission to this program, all applicants must first meet the entrance requirements of the Graduate Division of the University, including the grade average of "B" or better. In addition, the School of Architecture and Urban Planning requires that you submit the material outlined in the Departmental Application Form. Particular emphasis is placed on the Statement of Purpose, letters of recommendation, evidence of professional quality, creative or

analytic ability in either graphic, written, or mathematical form.

Good command of spoken and written English is absolutely essential and no foreign student will be allowed to attend classes until the Graduate Division's English fluency exam has been passed and any required remedial courses are completed.

Additional information about the program may be obtained by writing directly to the Graduate Advisor of the Architecture and Urban Design Program School of Architecture and Urban Planning, UCLA, 405 Hilgard Avenue, Los Angeles, California 90024.

The Urban Planning Program

The Urban Planning Program in the School of Architecture and Urban Planning offers a curriculum leading both to the Master of Arts and the Ph.D. degrees. The normal route of study requires two years of course work for the Master's. The Ph.D. program generally requires at least two years of study beyond the M.A. and prior to beginning dissertation research. This allows a student to pursue the area of planning studies in greater depth and to acquire a higher degree of competence in the relevant skills than is possible in the two years at the Master's level.

The curriculum is organized so that a student may obtain at the Master's level not only a theoretical and practical understanding of urban and planning processes, but also acquire a working knowledge of advanced analytical techniques for planning, capabilities for carrying out evaluations of complex urban phenomena, and critical interactive and learning skills.

An important aspect of education in the Urban Planning Program is the opportunity for organized field work and internships as well as for applied research. Opportunities for applied research vary from year to year. Current work includes, but is not limited to, research on social indicators for monitoring changes in metropolitan areas, comparative studies in urbanization and planning environmental impact analysis, environmental evaluation, transportatioon for the elderly, and transfer of knowledge to Third World countries.

The Master of Arts Degree in Architecture and Urban Planning (Urban Planning Program)

Areas of Policy Concentration

As a student working toward the Master of Arts degree in the Urban Planning Program, you may choose one of five existing Areas of Policy Concentration (APC). The first, *Urban-Regional Development Policy*, concerns planning for broad social and economic objectives of subnational development. This APC provides a framework for policies planning in housing, urban renewal, urban-regional economic growth, and urbanization in industrializing countries, among others.

The second, *Public Service Systems*, is concerned with knowledge about the general system embracing services that are supplied publicly or semi-publicly, the specific sectors or services comprising this system, and analytical techniques for planning and evaluating the delivery of public services such as transportation, education, housing, health and recreation.

The third, *Environmental Planning and Management*, deals with the quality of the physical environment in rural and urban areas. The major areas of concern here are land use planning, environmental impact studies, and residuals management.

The fourth area, *Social Development Policy*, is concerned with policy aspects of human development, community-neighborhood development, community organization and collective action, and the analysis of the social implications of planning and policy.

The fifth area, *Urban Design*, is concerned with the unique contribution that the theories, methods, and techniques evolving within urban planning can make to the field of urban design and with the history of the build environment. In general, it is concerned with the interplay between urban planning and architecture.

In addition to the preceding structured APC's, students may devise their own "Sixth APC" in consultation with appropriate faculty members.

Core Curriculum

Complementing their work in an Area of Policy Concentration, students elect courses from the core curriculum. Core courses are distinguished from those in the Area of Policy Concentration in that their subject matter cuts across different specializations. Work is offered in five areas of core specialization: Professional Development, Planning Theory, Quantitative Planning Methods, Methods of Evaluation and Public Choice, and Methods of Implementation.

Unit Requirements

Specifically, the student must take 18 courses (72 units) of graduate and upper division work, of which at least 13 courses (52 units) will be graduate courses. Students may petition, however, to transfer up to 24 units of course work completed while on graduate status from another University of California campus, provided that these units were not formerly applied to another degree, and up to 8 units from other schools.

Qualification for a Degree

To fulfill the requirements of both the Graduate Division and the Urban Planning Program for the Master's Degree, students may submit either a thesis (Plan I) or take a comprehensive examination (Plan II).

The thesis is intended to provide students with the opportunity for independent scholarly research. Students choosing Plan I are expected to submit a research paper of publishable quality not to exceed in length the usual article for professional-scientific journals (up to 10,000 words).

The comprehensive examination (Plan II) may take the form of a long-term project (Plan A) or a two-week examination (Plan B). Plan A is a client-oriented project recommended for students who are more interested in practical applications of what they have learned in their coursework than in scholarly research. The time-span and magnitude of the final project should approximate that of a thesis. Students choosing the two-week examination (Plan B) will work individually in the solution of a planning problem designed by a faculty committee. This examination is offered for all Areas of Policy Concentration during the break between Winter and Spring quarters each year.

Students are expected to devote full time to their studies. It is recommended that students not plan to work more than 20 hours per week on outside jobs.

Admission

The minimum requirement for admission is a baccalaureate degree from an accredited institution; a concentration in one of the social sciences, engineering, or economics is desirable, but not essential. Before enrolling in the Program, students are required to have at least one college level course, taken for a letter grade, in the area of microeconomics. Students not fulfilling this requirement prior to enrollment at SAUP, should take Economics 1, 100, 101A, or the equivalent, at UCLA *without* credit toward the M.A. degree. In addition, it is strongly recommended that students have additional course work in statistics, algebra, and calculus before enrollment in the Program. There is no foreign language requirement for the Master of Arts.

The Ph.D. Degree in Urban Planning

The Ph.D. in Urban Planning requires at least two additional years beyond the Master's level prior to beginning dissertation research. The minimum requirement for admission is a Master's degree in planning or a closely related field, and a 3.5 grade point average in all graduate work completed. Students applying to the doctoral program without a Master's degree will automatically be considered for the Master's program. Subsequent admission to the Ph.D. program depends on formal application and successful review of the students work during the second year. Ph.D. students are required to pass a written qualifying examination in the core area of Planning Theory. In addition, they must also pass a written and oral exam in their major field (APC) and complete requirements in the areas of quantitative methods and a minor field. After they have successfully completed these requirements, they sit for an oral candidacy examination covering the prospectus of their dissertation. After passing this examination, which is administered by the student's Doctoral Committee, they are eligible for advancement to candidacy and may being work on their dissertations.

The Concurrent JD/MA Degree Program

The concurrent program was established to enable interested students to receive a JD degree from the School of Law and an MA degree in planning at the completion of four years. Students interested in this program must apply and be admitted to both schools. The student's first year is spent full-time in Law School. The second and third years of study are a mixture of planning and law courses; the fourth year is spent full-time in the Planning Program.

If you are interested in more detailed information regarding any of the above planning programs, please contact the Graduate Counselor, Urban Planning Program, School of Architecture and Urban Planning, UCLA, 405 Hilgard Avenue, Los Angeles, California 90024. Telephone: (213) 825-7331.

The School of Dentistry

If you are interested in enrolling in a program of study at the UCLA School of Dentistry, you are urged to get a copy of the Announcement of the School by writing to:

Office of Student Affairs and Admissions
UCLA School of Dentistry
Los Angeles, California 90024

General Description

The UCLA School of Dentistry occupies facilities in the Center for the Health Sciences. It enrolls classes of 106 students each year in a four-year course of study leading to the degree of Doctor of Dental Surgery. Students undertake a comprehensive program in the biological and technological sciences to foster the highest standards of clinical competence in the practice of dentistry. Opportunities exist for outstanding students to graduate early or to complete their requirements for graduation in less than four years.

Admission

Modern dentistry provides exciting opportunities for blending art and science, technology and biology. As a predental student, you will wish to test your ability in handling both biological and physical sciences. In addition, there are many other aspects in the broadening scope of dentistry which contribute to preparation for a career in private practice, in academic dentistry, and in the Armed Forces and Public Health Service.

It is desirable, however, for predental students to prepare themselves for broad professional activities. You should take advantage of the opportunity at the college level to extend your cultural background, your knowledge of languages and your familiarity with the behavioral sciences.

Basic Requirements

The basic educational requirement for admission to the School of Dentistry is a minimum of three years of college work (90-semester or 135-quarter units, including the courses listed under "Predental Curriculum" in the "College of Letters and Science" section in this Catalog. A maximum of 70-semester or 105-quarter units of junioer college work is applied in calculating this total). It is significant to note that the majority of applicants admitted to the UCLA School of Dentistry have had more than three years of college experience, and that most possess a bachelor's degree. Since UCLA is a state-supported institution, California and WICHE certified applicants are given considerable preference.

Applicants must provide proof of U.S. citizenship or permanent immigrant visa.

Aptitude Test

The School requires satisfactory performance on the American Dental Association Aptitude Test (DAT) given by the Council on Dental Education of the American Dental Association. Information on and application for the DAT can be obtained by writing to:

Division of Educational Measurements
Council on Dental Education
American Dental Association
211 East Chicago Avenue, Chicago 60611

The DAT is given in April and October, and all applicants are required to take this examination no later than October of the calender year prior to the one for which they are applying. In order to avoid delay of application processing, it is advisable that you take this examination during the April testing period.

When taking this test, you should specify the schools where applications are to be filed so that the test results may be mailed directly to the appropriate schools.

Application Procedure

UCLA participates in the American Association of Dental Schools Application Service (AADSAS). Application materials are available April 15-October 15 and may be obtained from:

AADSAS
P.O. Box 1003
Iowa City, Iowa 52240

Completed applications for UCLA are accepted by AADSAS no later than October 15 of the year prior to that in which the student wishes to enroll. At the time of application, a check for $20.00 payable to The Regents of the University of California should be forwarded to the:

Office of Student Affairs and Admissions
UCLA School of Dentistry
Los Angeles, California 90024

Interviews are not generally used in assessing the suitability of an applicant to the UCLA School of Dentistry; however, the Committee on Admissions, in certain circumstances, may request interviews with individual applicants. Letters of recommendation are not required by this school, but will be considered if submitted. Applicants wishing to submit additional information not covered in the application form, which may be helpful, may do so in a letter to the Committee on Admissions in no more than two typewritten (double spaced) pages.

Notice of acceptance, rejection or alternate status will be sent to the applicant following completion of the formal evaluation by the Admissions Committee, beginning December 1 of any given year. Notification of rejection does not necessarily imply similar Committee action on subsequent applications.

An applicant receiving a letter of acceptance to the School of Dentistry must submit a deposit of $50.00 (applicable to registration fees) within 30 days, unless otherwise indicated, in order to reserve a place in the class. This deposit is refundable for a period of six weeks following acceptance upon written notice to the Admissions Committee that you wish to withdraw your application. After this time period, the deposit is refundable only if your acceptance is rescinded by the School of Dentistry.

Individual Programs

Special programs of study for students may be arranged within the framework of the dental school curriculum. Normally these programs are available only after the student has completed the first year and with the approval of the Dean's Office and the chairman of the department responsible for the additional course work.

Graduate Study

Graduate work leading to the M.S. degree is offered in Oral Biology, either separately or in conjunction with the D.D.S. program. See the departmental announcement in the "courses" section of this Catalog for more information.

The Graduate School of Education

If you are interested in following any of the academic programs offered by the Graduate School of Education, you are urged to obtain a copy of the Announcement of the School, by contacting the Office of Student Services, Moore Hall 201.

Detailed descriptions of the courses mentioned in the following discussion of procedures and requirements are presented in the "Courses" section of this Catalog.

General Description

The following graduate degree programs are offered for development of leadership in education: The Master of Education, the Master of Arts, the Doctor of Education, and the Doctor of Philosophy, as well as a joint Doctor of Philosophy degree program in Special Education with California State University at Los Angeles. The School also offers programs leading to several professional credentials.

The Master of Education Degree (M.Ed.)

The Master of Education program is a professional master's degree program providing preparation for midlevel professional positions in schooling or for advanced professional study. Emphases include practice, applied studies, and knowledge related to professional skills. Persons with above-average capabilities, with long-term commitment to the profession, and who are high in initiative and self-direction are sought. The Master of Education Degree is the appropriate degree to provide professional foundation study for students selecting the Doctor of Education program for advanced graduate study.

General Requirements

Qualification for the M.Ed. degree requires fulfillment of a minimum of 36 units from upper-division and graduate courses (in the 200/400 series) completed in graduate status. At least 20 of the required 36 units must be taken in professional (400 series) Education courses.

Final examinations for the Master of Education Degree include a comprehensive written examination and a performance examination; no thesis plan is offered. A maximum of six quarters is permitted for completion of the degree.

Specialization Fields

The specialization fields available to students in the Master of Education degree program are:

1. The specialization in Administrative and Policy Studies in Education is designed to prepare competent, highly trained educational professionals for careers as administrative leaders. Basic professional study is combined with intensive internship experience. In addition to six required Education courses, two specified research methodology courses and one approved elective course must be completed.

2. The specialization in Bilingual/Cross-Cultural Education is directed to the preparation of professionals who will be qualified to design, supervise, administer, and evaluate bilingual education programs. Basic professional study is combined with subspecialization study in an elected field of interest. In addition to six specified and required Education courses, at least three courses from a designated list of electives must be completed.

3. The specialization in Curriculum and the Study of Schooling is designed to develop individuals who will be competent in the generation and/or analysis of goals pertaining to curriculum educational programs, and in the selection and organization of learning opportunities, at all levels of schooling. Such individuals may be prepared as generalists capable of assisting specialists in subject matter areas with respect to the planning and analysis of curriculum programs, or as curriculum specialists in connection with particular subject matter areas. Basic professional preparation is combined with subspecialization study in an elected field of interest. In addition to four specified and required Education courses, five courses selected from designated lists of electives must be completed.

4. The specialization in the Teaching of Reading is directed to the development of requisite skills and abilities as well as to the dissemination of knowledge regarding the latest techniques and materials in the reading field. Basic professional study is combined with subspecialization study in an elected field of interest. In addition to seven specified and required Education courses, at least three courses from a designated list of electives must be completed.

The Master of Arts Degree Program (M.A.)

The Master of Arts program is an academic master's degree program providing preparation for advanced graduate study or for careers in basic research. Emphases include theory, research methodology, basic studies, and in-depth knowledge in a selected major area of education. The Master of Arts Degree is the appropriate Education master's degree for students planning to pursue the Doctor of Philosophy Degree in advanced graduate study; the Master of Arts Degree in conjunction with specified supplementary requirements may serve as prerequisite to study in the Doctor of Education degree program.

In completion of degree requirements, the student selects one of three major areas of education, and further selects a field of study within the major area for some specialized preparation and for possible thesis research.

Specialization Fields

Major areas and specialization fields for the Master of Arts degree are:

Area I: Social and Philosophical Studies in Education

(a) Philosophy of Education

(b) Sociology and Anthropology of Education

Area II: Educational Psychology

(a) Counseling

(b) Early Childhood Development

(c) Learning and Instruction

(d) Research Methods and Evaluation

(e) Special Education

Area III: Organizational and Administrative Studies in Education

(a) Education and Work

(b) Higher Education

Requirements

Qualification for the Master of Arts Degree in Education requires fulfillment of nine upper-division and graduate courses (36 quarter units) completed in graduate status, of which at least six courses (24 quarter units) must be graduate courses in the 200/500 series in Education; no more than two courses (8 quarter units) may be in the 500 series.

To meet the methodology requirement, two courses must be selected from the following Education courses: 200A, 200B, 210A, 210B.

The student may complete requirements for the Master of Arts Degree in Education by submitting a satisfactory thesis or by passing a comprehensive examination. A maximum of six quarters is permitted for completion of the degree.

The Doctor of Education Degree (Ed.D.)

The Doctor of Education program is a professional doctoral degree program preparing students for careers of leadership and applied research in the schools and community educational programs. Emphases include practice, applied studies, and knowledge related to professional skills.

In completion of degree requirements, the student selects one of two major areas of education, and further selects an educational specialization within the major area as a base for professional study and for dissertation research.

Specialization Fields

The major areas and specialization fields for the Doctor of Education degree are:

Area I: Social and Philosophical Studies in Education

(No participating specialization fields.)

Area II: Educational Psychology

(a) Early Childhood Development

(b) Learning and Instruction

(c) Research Methods and Evaluation

(d) Special Education

Area III: Organizational and Administrative Studies in Education

(a) Administrative and Policy Studies in Education

(b) Curriculum and the Study of Schooling

(c) Education and Work

(d) Higher Education

Requirements

Although there is no specific unit requirement, the Doctor of Education student will be expected to complete such course work as the selected specialization may specify in preparation for qualifying examinations. Course work must include a minimum of one approved breadth course, including a final examination, in each of four specified categories, and a minimum of three courses beyond the baccalaureate degree in research methods or formal processes of inquiry; in addition, field experence minimally approximating a one-course requirement must be completed.

Qualifying examinations include written examinations on breadth course and major area study, a professional competency performance examination, and an oral examination employing topics from education related to the student's research proposal.

A dissertation embodying the results of independent investigation is required of every candidate. A maximum of 15 quarters is permitted for completion of the degree.

The Doctor of Philosophy Degree (Ph.D.)

The Doctor of Philosophy program is an academic doctoral degree program preparing students for careers in basic research or college-level instruction. Emphases include theory, research methodology, basic studies, and in-depth knowledge in education and an approved cognate field.

In completion of degree requirements, the student selects one of three major areas of education, and further selects an educational specialization within the major area for some specialized preparation and for dissertation research.

Specialization Fields

The major areas and participating specialization fields for the Doctor of Philosophy degree are:

Area I: Social and Philosophical Studies in Education

(a) Comparative and International Education

(b) Philosophy and History of Education

(c) Sociology and Anthropology of Education

Area II: Educational Psychology

(a) Counseling

(b) Early Childhood Development

(c) Learning and Instruction

(d) Research Methods and Evaluation

(e) Special Education

Area III: Organizational and Administrative Studies in Education

(a) Administrative and Policy Studies in Education

(b) Curriculum and the Study of Schooling

(c) Education and Work

(d) Higher Education

Requirements

Although there is no specific unit requirement, the Doctor of Philosophy student will be expected to complete such course work as the selected specialization may specify in preparation for qualifying examinations. Course work must include a minimum of one approved breadth course, including a final examination, in each of four specified categories, and a minimum of three courses beyond the baccalaureate degree in research methods or formal processes of inquiry; in addition, research internship minimally approximating a one-course requirement and a coherent program of five graduate courses, or the equivalent, in an approved UCLA cognate department, must be completed.

Qualifying examinations include written examinations on breadth course and major area study, and an oral examination employing topics from both education and the cognate discipline which are related to the student's research proposal.

For certain specializations, the student must complete a foreign language requirement. The Office of Student Services, Moore Hall 201, may be contacted for detailed information.

A dissertation embodying the results of independent investigation is required of every candidate. A maximum of 15 quarters is permitted for completion of the degree.

Joint Doctor of Philosophy Degree (Special Education) UCLA and CSULA

Students seeking information regarding emphases and requirements of the joint Ph.D. degree program with California State University at Los Angeles should consult the Joint Doctoral Advisor, Dr. Judith Margolis, at UCLA, 126B Moore Hall, or the Chairman of the Department of Special Education, California State University at Los Angeles.

Admission to Graduate Study

General qualifications for admission to a program of graduate study leading to an advanced degree in Education are:

1. The currently specified University requirements for admission to the Graduate Division.

2. An earned grade-point average of at least 3.0 (based upon upper-division undergraduate and graduate work).

3. A minimum total score of 1000 on the combined quantitative and verbal sections of the Graduate Record Examination. (The Miller Analogies and Doppelt Mathematical Reasoning Test may be substituted for the Graduate Record Examination; minimum scores are 48 and 19 respectively.)

4. Applicants for a doctoral program must have a Master's degree.

Information regarding additional specific admissions requirements applicable to respective degree programs may be obtained from the Office of Student Services, Moore Hall 201. Applicants who do not qualify in accordance with #2 and/or #3 above may be admitted to the School on the basis of other indicators of special promise such as relevant work experience, accomplishments, or public service. Full documentation of the foregoing in the form of recommendations and other types of evidence is essential if these indicators are to be given consideration.

Procedures

Applicants to a program of graduate study in the Graduate School of Education must file formal applications with both the Graduate School of Education and the Graduate Admissions Office indicating specific professional interest. Scores on the Aptitude Test of the Graduate Record Examination and an official transcript of record *in duplicate* from each college and university attended must also be submitted. Requests for application forms may be made directly to the Office of Student Services of the Graduate School of Education, Moore Hall, University of California, Los Angeles. The last day to submit advanced degree program applications for each quarter of the 1979-1980 academic year is indicated in the Calendar section of this Catalog.

The Dean of the Graduate Division may deny admission if the record of scholarship is not sufficiently distinguished, or if the undergraduate program has not been of such character as to furnish an adequate foundation for advanced academic study. Applications for advanced study in education are referred by the Dean of the Graduate Division to the Graduate School of Education for recommendation before admission is approved.

The Aptitude Test of the Graduate Record Examination or the equivalent is required prior to admission to graduate status for all degree and advanced credential candidates.

Arrangements for taking the Graduate Record Examination may be made by contacting the Educational Testing Service at Box 955, Princeton, New Jersey 08540 or 1947 Center Street, Berkeley, California 94704. The results of this examination should be sent to the Office of Student Services, Graduate School of Education, University of California, Los Angeles, California 90024.

Registration and Scholarship Requirements

All graduate students are to register for three quarters every year until completion of all requirements for the degrees for which they are working, unless they are granted a formal leave of absence. Enrollment in either Summer Session does not constitute a substitution for the requirement of continuous registration. Failure to register or to take a leave of absence will constitute presumptive evidence that the student has withdrawn from the University.

At least a "B" average must be maintained in all courses taken in graduate status at any campus of the University of California and in all courses applied toward advanced degrees. This standard applies to all graduate students, including candidates in graduate-level certificate programs.

Certificate (Credential) Programs in the Graduate School of Education

The Graduate School of Education has received approval from the Commission for Teacher Preparation and Licensing for the following credentials:

1. The Teaching Credential with authorization in single subject instruction.

2. The Teaching Credential with authorization in multiple subject instruction.

3. The Teaching Credential with Bilingual Emphasis.

4. The Specialist Credential in Reading.

5. The Services Credential with specialization in pupil personnel services. (Basic authorization)

6. The Services Credential with specialization in pupil personnel services. (School Psychologist authorization)

Information concerning credential program requirements may be obtained from the Office of Student Services, 201 Moore Hall, Graduate School of Education.

Admission

The approved program leading to a teaching credential may be entered in the junior, senior, or graduate year. Course work is sequenced and must be started in the Fall Quarter. Admission is by application only; forms may be secured from the Office of Student Services, Moore Hall 201. The last day to submit applications for the academic year 1980-81 is February 15, 1980. Early application is recommended.

Applications will be reviewed by the Committee on Teacher Admissions. Credentials and Standards; attention will be given to qualifications as a whole including:

1. Grade-point average.

2. Probability of employment, as determined by the applicant's background, experience, or personal qualities.

3. Skill in teaching as determined by the appliant's previous experience.

Letters of recommendation are optional but useful to the Committee on Teacher Admissions, Credentials, and Standards in review of the applicant's qualifications.

Students qualifying for admission for a fifth year of professional preparation in the Graduate School of Education must meet the general admissions requirements of the Graduate Division of the University and must have an earned grade-point average of at least 3.0 (based upon upper division undergraduate and graduate work).

Office of Student Services

The Office of Student Services, Moore Hall 201 telephone (213) 825-8326, helps prospective students in education explore and choose appropriate fields and levels of school service; offers advice concerning courses and procedures to follow in qualifying for graduate degrees, credentials, and certification for public school service, and provides guidance on professional matters.

In addition, the Office serves as a selection agency to determine eligibility for professional programs under the supervision of the Teacher Education Laboratory, handles details of enrollment in classes, refers graduate-program candidates to appropriate faculty advisers; makes recommendations for scholarships and fellowships; conducts research on student and professional problems; and formulates periodic reports on student personnel.

The staff consists of a Graduate Advisor who handles advising of all candidates for graduate degrees and counselors who advise candidates for credentials.

It is important for each applicant to establish contact with the Office of Student Services in order to determine eligibility for program admission, as well as to receive assistance in the selection of courses and in the fulfillment of all admissions requirements. Enrollment for a second quarter is contingent upon satisfactory completion of all necessary steps in the admissions procedure during the first quarter.

Graduate Study in the School of Engineering and Applied Science

If you are interested in available study in the School of Engineering and Applied Science at UCLA, you are urged to request a copy of the Announcement of the School from the Graduate Studies Office, 6730 Boelter Hall, UCLA. You can find detailed descriptions of the courses discussed below in the "courses" section later in this Catalog.

Degrees Offered

The School of Engineering and Applied Science offers graduate study and research in many areas of engineering leading to the following degrees: the M.S. in Engineering; the M.S. in Computer Science; the professional degree, M.Engr. (Master of Engineering); the Engineer Degree; and the research degrees, Ph.D. in Engineering, and Ph.D. in Computer Science. Additionally the school offers a certificate program, on successful completion of which a student will receive a Graduate Certificate of Specialization in one of the fields of Engineering and Applied Science. Graduate students are not required to limit their studies to a particular department. Some of the research activities carried out in the departments are part of the advanced instructional program in the School and offer students the opportunity to obtain professional experience and partial financial support. The School is comprised of the departments described below which serve as centers of activity.

Chemical, Nuclear, and Thermal Engineering

The areas of specialization within the department include:

Chemical Engineering

Wastewater Treatment and Water Quality; Themodynamics of Phase Transformations; Reverse Osmosis; Molecular Beams; Membrane Transport; Electrochemical Engineering; Cryogenics; Corrosion; Combustion; Catalysis; Biochemical Engineering; Air Pollution Control; Aerosol Dynamics.

Nuclear Engineering

Neutron transport; nuclear-reactor kinetics; dynamics; LMFBR, LWR and HTGR safety; fuel element behavior, materials; siting; risk-benefit; fusion reactor technology.

Thermal Engineering

Convection, radiation, conduction, evaporation, condensation, boiling, two-phase flow, chemically reacting and radiating flow, instability and turbulent flow, and reactive flow in porous media.

Computer Science

The School of Engineering and Applied Science, through its Computer Science Department, offers M.S. and Ph.D. degrees in Computer Science as well as major and minor fields for graduate students seeking Engineering degrees. The program includes five basic areas:

Theory

Theoretical models in computer science; automata theory; formal grammars; computability and decidability.

Methodology

Simulation; on-line computation; information storage and retrieval; file management; numerical analysis; optimization; analog and hybrid computers; pattern recognition.

System Architecture

Computer system architecture; digital systems; logic design; memory, arithmetic control, data transmission and input-output systems design; computer graphics.

Programming Languages and Systems

General and special purpose programming languages; compilers; system programming; syntax, semantics and pragmatics of programming languages.

Computer System Modeling and Analysis

Mathematical modeling, analysis and optimization of computer systems; time-sharing systems models; computer scheduling and resource allocation; memory management; data communications; computer-communication networks; performance evaluation (analysis, simulation, measurement).

The Computer Science Department is introducing a new offering in the Master of Science degree program called Computing Systems. It is designed to emphasize management of computer related activities rather than research. The program will include heavy emphasis in group projects and case studies.

Electrical Sciences and Engineering

The courses and research in this department cover five specialty areas:

Applied Plasma Physics

The practical aspects of plasma physics, including plasma production, confinement, and heating; suppression of instabilities; generation, propagation, and interaction of electromagnetic and plasma waves.

Electromagnetics

Study of the interaction of electromagnetic waves with complex media; antennas and microwave components; scattering and diffraction theory; moving media; modern optics; electromagnetic and acoustic wave interaction; magnetic and dielectric properties of matter; fiber optics and integrated optics.

Electric and Electronic Circuits

Analysis and synthesis of active, passive, digital and distributed circuits; computer-aided circuit

design and optimization; theory of nonlinear circuits; investigation of electronic circuits using solid state and quantum electronic devices; study and application of electronic signal processing circuits and systems.

Solid State Electronics

Electric, magnetic, conductive and semiconducting properties of matter and the application of these to the investigation of solid state devices. Semiconductor physics, surface studies, device physics and technology, and integrated circuits.

Quantum Electronics

High-powered lasers, high gain media, optical resonator design, laser dynamics, nonlinear optics, and infrared detection.

Engineering Systems

Course work, independent studies and research are offered in the following areas:

Systems Engineering

System representation; systems modeling and identification; decision analysis and decision theory; sequential decision processes; applied optimization; design optimization approximation concepts; computer-aided design; value and utility theory; sensitivity theory; aggregation and decomposition of stochastic systems; resource allocation; application in engineering and industrial systems.

Applied Dynamic Systems Control

Systems engineering priciples and applied mathematical methods for modeling, analysis and design of continuous and discrete-time dynamic systems. Emphasis on computation solution methods, simulation and modern applications in engineering, biological and other sciences. Systems concepts; feedback and control principles; stability concepts; applied optimal control; stochastic systems; parameter and state estimation; stochastic control; identification and self-adaptive control; differential games; computer process control. The Biocybernetics option includes application to biology, medicine and pharmacology.

Water Systems Engineering

Water resources engineering; surface and groundwater hydrology; optimization of water resource systems; water quality control and management; saline water conversion; economic evaluation of water resources development.

Biotechnology

Life/behavioral science foundations to technology; man-equipment-environment interactions; linear and nonlinear models of living systems in the control loop; quantitative and qualitative methods of biotechnical design and evaluation; applications to transportation and biomedical systems.

Materials

Course work, independent study and research in this department include these areas:

Metallurgy

Fracture of steels and composite materials, joining of materials; heat treatment of steel, fracture of weld metal; high temperature and fatigue fracture; mechanics of extrusion, forging and rolling; materials synthesis, vacuum metallurgy, structure-property relationships; crystal growth, casting and modern foundry practice; thin films, super conducting materials.

Materials Science

Electron microscopy, x-ray and electron diffraction; theoretical metallurgy, phase transformation in solids; solidification science; electronic materials; solar cells; irradiation effects on structural materials, strengthening mechanism in solids; high pressure effects on solids; elasticity of crystals and crystal defects; structure of liquid and amorphous alloys, and plastically deformed metals, structure and properties of polymers.

Ceramics

Oxidation kinetics, mechanical properties of oxides; thermodynamics and strength of ceramic solids, application of ceramics; glass science, and electrical properties of amorphous materials.

Materials Recycling

Recycling glass, waste, and plastics.

Bio-Materials

Development, characterization and properties of new materials for dental and medical prostheses.

Mechanics and Structures

The educational and research programs of the Department are built upon the faculty's interest and expertise in the following technical disciplines:

Dynamics

Dynamics and control of physical systems including space and ground vehicles, industrial machines and manipulators; analytical, experimental and design studies of mechanical and electromechanical systems.

Fluids

Experimental and theoretical studies relating to aerodynamics, hydrodynamics, geophysical and environmental fluid mechanics, thermal convection, turbulence, aerodynamic noise, applied acoustics, and bio-fluid mechanics.

Solids

Experimental, theoretical and numerical studies in mechanics of solids; including fracture mechanics, optical metrology, micromechanics, geomechanics, adhesive fracture mechanics with emphasis on technical applications, stress and strength analyses.

Soil Mechanics

Theoretical, computational, experimental and field studies of soil behavior under static and dynamic loading, including studies of constitutive equations, earth dams, reinforced earth, seismic ground motion, foundations, soil-structure interaction and finite element analyses of geotechnical engineering problems.

Structures

Structural mechanics, static and dynamic analysis of structural systems, structural design and optimization methods, fluid-structure interaction (aeroelasticity), finite element methods and related computational techniques, stability and failure analysis of structures, earthquake effects, soil-structure interaction, biostructural mechanics, field and laboratory experimental techniques.

System Science

The Department offers instructional and research programs in communication systems and networks, control systems, operations research, theoretical computer scienc es, computing techniques in system modeling and optimization, stochastic processes, and system theory with additional applications in such interdisciplinary areas as bioengineering, economics, public systems and urban services.

Specifically established Ph.D. fields include:

Communication Systems

Information theory; coding and decoding techniques; channel characterization; signal detection, estimation and filtering; optimum signal design in communication and radar; digital and analog communication systems; rate distortion theory, source coding, data compression, speech compression; digital data networks; satellite systems; design of fast algorithms for digital signal processing.

Computability and Algorithms

Topics in the theory of computation and in the design and analysis of algorithms for numerical and combinatorial problems. Automata and formal languages; context-free languages, families of languages, decision problems. Program schemes; semantics. Computational complexity; measures and bounds; concrete complexity results for specific problems. Graphs, discrete-state systems models, identification and diagnosis.

Control Systems

Control system methodology and engineering applications: optimal control and computing techniques, identification, estimation and adaptivity, stochastic control and Kalman Filtering, differential games and cooperative games, interactive control and team theory, distributed systems, aerospace systems, process control, control of flight vehicles and controlled thermonuclear reactions.

Operations Research

Optimization theory, including linear programming, nonlinear programming, dynamic programming, large-scale mathematical programming and associated network flow problems. Applications in engineering, economics and management sciences. Stochastic processes, including renewal theory, Markov chains, Markov decision processes. Applications to inventory and queueing problems. Reliability theory and practice.

Queueing Systems and Network Flows

Point processes; queueing systems, single server queues, priority queues; graphs, path problems, maximum flows in networks, single and multicommodity flows; applications to problems in information delay networks, satellite and computer communication networks, buffer systems, control systems, operations research, public systems.

Systems Modeling and Optimization

Numerical techniques for optimization of systems: stochastic, distributed, etc. Modeling, simulation and identification. Pattern recognition and classification. Public system analysis and urban services allocations.

System Theory

Majors and minors in this field have been arranged to meet the needs of students whose interests lie in emerging areas of System Science and in its interfaces with other engineering disciplines and applications. Particular attention is given to general mathematical characterizations of systems and networks, e.g., operator theory of networks, scattering theory of systems and networks. Detailed programs under this heading are arranged individually when judged to be appropriate by the Department.

Admission to Graduate Status in the School of Engineering and Applied Science

Applications for admission from graduates of recognized colleges and universities will be considered. The basis of selection is promise of success in the work proposed, which is judged largely on previous college record. Before admission is approved, an application for Engineering graduate

study will be referred by the Graduate Admissions Section of the Graduate Division, to the School of Engineering and Applied Science for recommendation. Final approval is granted by the Graduate Admissions Section of the Graduate Division.

Requirements

In addition to meeting the requirements of the Graduate Admissions Section of the Graduate Division, the entering student normally will be expected to have completed the requirements for the bachelor's degree with an undergraduate scholarship record equivalent at least to a 3.0 grade-point average (based on 4.0 maximum) in all course work taken in the junior and senior years. An applicant who fails to meet these requirements might be required to complete additional course work before being admitted to graduate status. These additional courses will not be accepted as part of the course requirement for the master's degree or graduate certificate program.

A student entering the Engineer/Ph.D. program normally will be expected to have completed the requirements for the master's degree with a scholarship record equivalent at least to a 3.25 grade-point average (based on 4.0 maximum) and to have demonstrated creative ability. Exceptional students with research experience and strong evidence of creativity may petition to proceed to candidacy for the Ph.D. degree without the M.S. degree.

In addition to filing an application for admission with the Graduate Admissions Section of the Graduate Division, prospective students are required to file a special application for admission with the School of Engineering and Applied Science. These supplements may be secured by writing to the Assistant Dean for Graduate Studies, School of Engineering and Applied Science.

Graduate Record Examination

Applicants for the graduate Engineering programs are required to take the Aptitude Test and Advanced Test of the Graduate Record Examination in the subjects in which they majored for the bachelor's degree, or equivalent. Applicants for the graduate Computer Science program are required to take the Graduate Record Examination Aptitude Test and Advanced Test in Mathematics or Computer Science.

Applications for the Graduate Record Examination may be secured by applying to the Educational Testing Service, Box 955, Princeton, New Jersey 08540; or 1947 Center Street, Berkeley, California 94704. Applicants should write to whichever address is closer to their home.

The Educational Testing Service should be requested to forward the test results to the Assistant Dean for Graduate Studies, School of Engineering and Applied Science.

Time Limitations for Obtaining Graduate Degrees

As a graduate student with advanced degree objectives in the School of Engineering and Applied Science you are normally subject to the following time limitations:

The M.S. student is expected to complete the requirements for the master's degree within three calendar years after being admitted to the M.S. program in the School of Engineering and Applied Science.

The Engr. degree student is expected to complete the field requirements within two calendar years from the time of admission to the Engr. degree program. The student is required to complete all the requirements for the Engr. degree within a period of three calendar years (9 quarters) from the time of admission.

The Ph.D. student who already has a master's degree will be expected to complete the field requirements within two calendar years from the time of admission to the Ph.D. program and to complete the remaining requirements for the Ph.D. degree within an additional period of two calendar years.

In exceptional cases a student without an M.S. degree will be allowed to proceed toward the Ph.D. In such cases the student is expected to complete the field requirements within five calendar years from the time of admission to the Ph.D. program and to complete the remaining requirements for the Ph.D. degree within an additional period of two calendar years.

The Graduate Certificate of Specialization in Engineering and Applied Science

Each graduate certificate program consists of five courses, two of which must be at the graduate level, 200-series. No work completed for any previously awarded degree or credential can be applied to the certificate. Successful completion of a certificate program requires an overall minimum "B" average in all courses applicable to a graduate Certificate of Specialization in Engineering and Applied Science. In addition, graduate certificate candidates are required to maintain a minimum "B" average in 200-series courses used in the certificate program. A minimum of three quarters of academic residence is required. The time limitation for completing the requirements of a certificate program is two calendar years.

Courses completed for a Certificate of Specialization in Engineering and Applied Science may subsequently apply toward master's and/or doctoral degrees.

You can find out more about the certificate programs from the Engineering Graduate Studies Office in 6730 Boelter Hall, telephone 825-8058 or 825-2794.

The Master of Science in Engineering
The Master of Science in Computer Science

The fields of study leading to the M.S. degree are:

Applied Electromagnetics

Applied Plasma Physics

Bio-Materials

Biomechanics

Ceramics and Ceramic Processing

Chemical Engineering and Applied Chemistry

Communication Systems

Computability and Algorithms

Computer Science: Computer System Modeling and Analysis

Computer Science: Methodology

Computer Science: Programming Languages and Systems

Computer Science: System Architecture

Computer Science: Theory

Continuum Mechanics

Control Systems

Design

Dynamics

Dynamic Systems Control

Earthquake Engineering

Electronic Circuits

Environmental Engineering Systems

Fluid Mechanics

Human Information Processing

Hydrology

Man-Machine-Environment Systems

Materials Recycling

Mechanical and Aerospace Engineering Thermal Science

Mechanical Engineering Design

Metallurgy and Metal Processing

Nuclear Science and Engineering

Operations Research

Problem Solving and Decision Making

Product Safety and Reliability

Quantum Electronics

Queueing Systems and Network Flows

Science of Materials

Soil Mechanics

Solid Mechanics

Solid State Electronics

Structural Design

Structural Mechanics

System Modeling and Optimization

Urban Systems

Water Quality Engineering

Water Resources

*Suggested programs of study in these fields are available in the appropriate Department offices. As a student, you may propose to the School any other field of study, with the support of your advisor.

Requirements

Students meet the requirements by satisfactorily completing appropriate courses chosen in accordance with a plan prepared in conference with a graduate engineering advisor and approved by the School. A majority of the total formal course requirements and a majority of the graduate course requirements must consist of courses in engineering (for the M.S. in Engineering) or in computer science (for the M.S. in Computer Science). Additionally, students seeking a graduate degree in Computer Science must demonstrate competence in the Computer Science breadth requirement.

Two options are available in the M.S. program:

Thesis Plan: At least nine courses and a thesis are required. Seven of the nine courses must be formal courses, including at least four 200-series graduate courses and no more than three 100-series upper-division undergraduate courses. The remaining two courses may be individual study (Engr. 598) involving work on the thesis. No 400-series or other 500-series courses are applicable toward the M.S. degree requirements.

Comprehensive Examination Plan: At least nine courses and a comprehensive examination in the major field of study are required. Of the nine courses, at least five must be 200-series graduate courses; the remaining four courses may be either 200-series graduate courses or upper-division undergraduate courses.

The Master of Engineering Degree

The requirements for the Master of Engineering degree are satisfied by completion of the Engineering Executive Program. A limited number of graduate students are selected to enroll in this program at the beginning of each Fall Quarter.

The Engineering Executive Program is a two-year work-study program designed for those engineers who eventually will fill high-level executive positions in industry and government. It consists of sequences of graduate-level professional courses (the 400 series) covering significant aspects and new concepts, in the management of technological enterprises.

Admission

To be considered for the program, you must qualify for regular graduate status in engineering at UCLA. You must have had five years of responsible full-time professional experience in engineering and must have completed some formal study in statistics. Approximately twenty-five applicants will be selected to enter the program. Criteria for selection are: educational background, professional experience and potential for a managerial career.

A new group of students is admitted to the program each Fall. They form a class and remain together for two years, taking the same courses and participating in writing two or more group reports. Classes meet between 3:00 and 9:30 p.m., one day a week, during the Fall, Winter and Spring Quarters. Special individual and group problems are assigned for the Summer Quarters.

Applications for admission to the program, including official transcripts of college records are due in the Graduate Admissions Section of the Graduate Division by March 15. There is a fee of $550 each quarter. You may obtain more information from the Office of the Engineering Executive Program, School of Engineering and Applied Science, UCLA, Los Angeles, California 90024. The office is located in 6288 Boelter Hall. The telephone numbers are (213)825-4628 and 825-4471.

The Doctor of Philosophy Degree in Engineering (Ph.D.)
The Doctor of Philosophy Degree in Computer Sciences (Ph.D.)

The basic program of study toward the Ph.D. degree in Engineering or Computer Science is built around one major field and two minor fields. Each field must be based on a clearly specified written body of knowledge. Certain fields of study have been established formally. These established fields of study are:

Applied Dynamic Systems Control

*Applied Mathematics

Applied Plasma Physics

Bioengineering

Ceramics and Ceramic Processing

Chemical Engineering

Communication Systems

Computability and Algorithms

† Computer Science: Methodology

† Computer Science: Programming Languages and Systems

† Computer Science: System Architecture

† Computer Science: Theory

† Computer Systems Modeling and Analysis

Control Systems

Deformable Solids

Dynamics

Earthquake Engineering

Electric Circuits

Electromagnetics

Electronic Circuits

Fluid Mechanics

Heat and Mass Transfer

Man-Machine-Environment Systems

Metallurgy and Metal Processing

*Nuclear Fuels and Material Behavior

Nuclear Science and Engineering

Operations Research

Quantum Electronics

Queueing Systems and Network Flows

Science of Materials

Soil Mechanics

Solid State Electronics

Structures

System Modeling and Optimization

System Theory

Water Resource Systems Engineering

In both the major and the minor fields emphasis is placed on an understanding of the fundamentals of the areas studied, on the sophisticated interpretation of the bodies of knowledge, and on the ability to correlate and apply this knowledge.

Minor fields should normally be chosen to provide supportive knowledge for the major field research. However, the provinces of knowledge of the major and minor fields must be distinct. Not all minor fields are required to have primary engineering or computer science content, though a relevant relationship should be demonstrable. A Ph.D. program normally should not contain more than one ad hoc (nonestablished) field.

If you have completed the M.S. degree at another institution, you should consult the chairpersons of your Field Committees to determine what portion of this earlier work might be applicable to the requirements of the minor fields. A maximum of two courses completed in graduate status at another recognized institution can be used to satisfy partially a minor field requirement, with the approval of the minor field chairperson and the Assistant Dean for Graduate Studies.

Requirements

The major field normally has a scope corresponding to a body of knowledge contained in a minimum of six courses, at least four of which are 200—series courses, the remainder being either 200—series or 100 series courses, and also the current literature in your area of specialization. If your major field is chosen from the list of established major fields, approval is pro forma. In exceptional cases, an ad hoc major field may be permitted; in such cases, you must demonstrate that your proposed major field consists of a correlated cohesive body of knowledge, of suitable quantity and quality, leading to a research area in which you can find adequate dissertation guidance. Students planning to use an ad hoc major field in their Ph.D. program should consult the Engineering Graduate Studies Office for the procedures governing ad hoc major fields. All major fields must have primary content in the area specified by the degree sought. A written preliminary examination in the major field (normally eight hours long) is required. Students enrolled in a Ph.D. program of study will be expected to have passed the written major field preliminary examinations prior to enrolling for the 7th quarter of full-time graduate study.

Minor Field Requirement

Minor fields should primarily be drawn from the list of established fields, but ad hoc minor fields will be accepted when properly justified. Each minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. You may petition to take an examination in a minor field in lieu of taking the courses.

Oral Preliminary Examination

An oral preliminary examination (approximately two hours long) encompassing the major and minor fields is required and should take place within a reasonable period of time after the completion of the last of the field requirements.

Oral Qualifying Examination

After you have demonstrated competence in the three fields, you will notify the School of your readiness for the oral qualifying examination. The Assistant Dean for Graduate Studies, after consultation with you and your advisor, will nominate the Doctoral Committee for this examination, generally as follows: faculty member directing the research, chairperson; two additional faculty members from the School of Engineering and Applied Science; two additional faculty members from related fields in the University of California, but outside the School of Engineering and Applied Science. The Doctoral Committee is appointed by the Dean of the Graduate Division, based on the nomination proposed by the School. The details of the oral qualifying examination are at the discretion of the committee but ordinarily will include a broad inquiry into your preparation for research. The Doctoral Committee also reviews a prospectus of the dissertation at the oral qualifying examination. All members of the committee shall be present and the candidate is considered to have failed if more than one member votes "not passed."

Dissertation

You are required to prepare a dissertation in accordance with the instructions furnished by the Student and Academic Affairs Section of the Graduate Division. The orientation meetings on the format of theses and dissertations are scheduled for the beginning of each quarter as listed in the calendar in the *Standards and Procedures for Graduate Study at UCLA*. For additional information and assistance in the preparation and submission of the final copies of the manuscript, you can consult the Manuscript Advisor for Theses and Dissertations, Office of the University Archivist, Powell Library.

Final Oral Examination

It is the policy of the School of Engineering and Applied Science to require a final examination of all doctoral candidates. This examination is conducted by the entire Doctoral Committee, and deals primarily with the relation of the dissertation to the general field in which the subject lies.

The Engineer Degree Program

The Engineer (Engr.) degree program has been established to offer a degree which represents considerable advanced training and competence in the Engineering field, but which does not require the research effort and orientation involved in a Ph.D. dissertation.

The basic program of study for the Engineer degree is built around one major field and two minor fields drawn from the list of current fields for the Ph.D. degree in Engineering. In an exceptional case, you may petition to use an ad hoc field when the established fields do not meet your educational objective.

Requirements

A minimum of 15 courses are required for the Engineer degree. Nine of these should be at the 200-series level. A minimum of six courses (4 in the 200-series) are required for the major field and a minimum of three courses (2 in the 200-series) are required for a minor field. Courses in the 500-series and seminar courses are not applicable for meeting the minimum requirements.

Field Requirements

Students are required to pass an eight-hour written major field examination, which shall be the same as the Ph.D. preliminary examination in that field. The level of achievement for meriting a pass in this examination shall be the same as that for the Ph.D. degree. For additional details refer to the paragraph on major field requirements for the Ph.D. degree, discussed above.

The minor field requirement is the same as for the Ph.D. degree.

Oral Preliminary Examination

After passing the major field examination and satisfying the requirements of the two minor fields, the candidate shall schedule a two-hour oral examination, covering all three fields.

Residence

You are required to complete at least five quarters of academic residence in graduate status at the University of California, of which the last two must be spent in continuous residence at UCLA.

Award of Degree

On successful completion of the course and examination requirements, the candidate is eligible for the Engr. degree and must file the necessary forms in the Graduate Studies Office, 6730 Boelter Hall, for the award of the degree by the Graduate Division. You may, if you choose, to continue in the Ph.D. program. However, if you terminate your studies with the Engr. degree, you have the option of applying for return to the Ph.D. program within three years of graduation with the Engr. degree.

The School of Law

If you are interested in further details about the academic program offered by the School of Law at UCLA, you are urged to get a copy of the Announcement of the School by contacting the Admissions Office, School of Law (213) 825-2080.

General Description

The School of Law offers a three-year curriculum leading to the J.D. degree. The School is accredited by the California Committee of Bar Examiners, is a member of the Association of American Law Schools and is on the approved list of the American Bar Association. Graduates of the School are qualified to become applicants for admission to practice in any state of the United States.

The School is designed to produce lawyers who are well prepared for the various private and public roles which are assigned to members of the legal profession. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses dealing with various legal fields. In addition to the courses in the regular Law School curriculum, students may take two courses for credit in other disciplines in the University. Concurrent degree programs are available for qualified law students with the Graduate School of Management, the Department of Economics, and the School of Architecture and Urban Planning and the School of Public Health.

The Law School program also permits students to participate in clinical training. These activities consist of field work in a variety of Federal and State agencies accompanied by seminars in the Law School which seek to analyze and expand upon the agency experience. The School also offers an extern program which gives students the opportunity to work in legal agencies away from the School for as long as six months (including the summer), for which they receive academic credit. Extern programs have been offered in Washington, D.C., Alaska, Hawaii and on Indian reservations.

Admission

Students beginning their professional work are admitted only in the Fall. Applicants must have received the baccalaureate degree from a university or college of approved standing prior to the time at which they begin their work in the Law School. Applicants are also required to take the Law School Admission Test. The admissions committee considers grades and test scores, and, in appropriate cases, such additional factors as racial/ethnic background; ability in languages other than English; work experience or career achievement; previous positions of leadership or other special achievements; prior community or public service; unusual life experiences; physical handicap or other disadvantage overcome; career goals; economic disadvantage; and any other characteristic which may indicate that the applicant will contribute to the educational and other benefits of a diversified student body. Additional information may be obtained in the *Announcement of The School of Law.*

You can get information about "pre-law" advising in the "academics: resources to help you" section later in this Catalog.

The Graduate School of Library and Information Science

If you are interested in pursuing the academic programs offered by the UCLA Graduate School of Library and Information Science, you are urged to get a copy of the Announcement of the School by writing to Dean Robert M. Hayes, Graduate School of Library and Information Science, 120 Powell Library Building, 405 Hilgard Avenue, Los Angeles, California 90024, or calling (213) 825-4351.

General Description

The Graduate School of Library and Information Science offers curricula leading to graduate degrees at the master's and doctoral levels and to Certificates of Specialization. The fields of emphasis in these curricula have been grouped into three major areas: librarianship, bibliography, and information science. The School also offers a few undergraduate courses designed to assist students in the use of information resources in their own studies and research. However, the University does not offer an undergraduate major in librarianship, and admission to the degree programs of the School requires a bachelor's degree in a subject major, based on a broad background in the liberal arts and sciences.

You can find a detailed description of class offerings in the "courses" section of this Catalog.

The Master of Library Science Program

The MLS (Master of Library Science) program of the UCLA Graduate School of Library and Information Science has been accredited by the American Library Association since 1962, and has been reaccredited under the 1972 standards. This professional master's degree is based upon a course of study designed to provide both basic professional competencies and knowledge of a field of specialization. A research paper in the field of specialization and a comprehensive examination are degree requirements. Normally, the program requires six quarters of residence. Although students with applicable prior graduate work may be able to complete the program in less time, doing so requires that a field of specialization must have been identified and the applicability of prior course work must be approved by the faculty.

Programs leading to post-MLS Certificates of Specialization require a minimum of nine courses and three quarters of study. Requirements for the California State Credential for school librarians may be met concurrently with master's degree requirements provided the student already has the qualifications for a standard teaching credential.

The Ph.D. in Library and Information Science

The Ph.D. in Library and Information Science is granted in recognition of distinguished attainment in the theory and practice of library and information science, especially as demonstrated by a significant original research contribution. The School presently offers three areas of research specialization: librarianship, bibliography, and information science. To qualify for advancement to candidacy, the doctoral student is required to pass a set of qualifying examinations. First, the written examinations are designed to test the student's knowledge of the history of library and information science, its present practice, and its essential competencies. Second, the oral examination is intended to test the student's knowledge of the specific area of proposed study and the competence to do research in that area, as a means of assessing the potential ability of the doctoral candidate to complete a successful dissertation and continue subsequent research.

Admission

Admission to the School requires that the applicant meet the University's requirements for admission to graduate studies discussed in the "admission" section of this Catalog. In addition, the School has identified other data needed for evaluation of applicants for the MLS program: a satisfactory score on the General Aptitude Test of the Graduate Record Examination, letters of reference, and an interview. The School has also established requirements with respect to three special competencies: competence in foreign languages (equivalent to two years of college level course work), college level knowledge of statistics, and knowledge of computer programming.

Admission to the MLS program is in Fall Quarter only. Admission to the Ph.D. program may be in any quarter.

A minimum of six quarters of academic residence in graduate status of the University of California is required for the doctoral degree, including one year in continuous residence. Graduate students are in academic residence if they complete at least two courses in graduate or upper division work during a quarter. Normal progress to the degree, including preparation for the qualifying examinations and preparation of the dissertation, is expected to take from three to five years.

The Graduate School of Management

The primary objectives of the Graduate School of Management are:

To provide first-rate professional education for successful management careers in private and public, profit and nonprofit, enterprises.

To prepare highly qualified teachers and research scholars in the field of management and management-related disciplines.

To enlarge through research the body of systematic knowledge about the management process and the environment in which an enterprise functions, and to disseminate this knowledge through publications and improved teaching materials and learning environment.

To provide superior executive education programs for professional managers.

The Graduate School of Management offers curricula leading to graduate degrees at the master's and doctoral levels. The School also offers an Executive Program, research conferences, and seminars for experienced managers; information about these programs may be obtained from the Office of Executive Education, GSM 2381, (213) 825-2001. The School does not offer an undergraduate major in management, although some courses which may be elected by undergraduate students are offered by the Department of Management. Enrollments in these courses are very limited, however, and non-GSM students are forewarned not to count on gaining admission to them in order to meet the requirements of other departments or for any other necessity.

For additional information on the graduate programs outlined below, you are urged to consult the Announcement of the Graduate School of Management, which is available from the Director of Admissions, MBA Programs, 3371 GSM, or from the Assistant Dean, MS/Ph.D. Program, GSM 3379.

Detailed course descriptions can be found in the Courses of Instruction section of this Catalog.

The Master of Business Administration Program

The Master of Business Administration program is a two-year, full-time course of study leading to the MBA degree. It is designed to prepare managers

and management specialists for roles in organizations of various kinds, including not-for-profit corporations and public institutions as well as business enterprises.

The program aims to develop managerial perspectives and styles of thinking while imparting expertise in a student-selected field of professional specialization. Along with subject matter mastery, the MBA program stresses integrating the lessons of various disciplines, translating theory into practice, questioning the past and innovating for the future, and self-guided learning as a continuing basis for effective managerial work.

The four elements of the program are the *nucleus*, the *management core*, the *concentration*, and *electives*. The nucleus develops professional problem-solving and decision-making skills through experiences ranging from laboratory simulations to consulting projects in on-going organizations. Management core subjects require students to learn the fundamentals of disciplines which underlie the practice of management. The concentration, selected by each student from a wide variety of established alternatives or individually tailored to suit special needs, provides specialized knowledge and skills for a particular field of management work. Among the fields offered are Accounting Information Systems, Business Economics, Computers and Information Systems, Finance, Human Systems Studies, Industrial Relations, Integrated Management Policy Studies, International and Comparative Management, Management in the Arts, Management Science, Marketing, Production and Operations Management, Public Interest Management, and Urban Land Economics. The availability of electives permits students to pursue subjects of personal interest, whether or not they are closely related to the mainstream of the program of studies.

Requirements

A 3.0 grade-point average (B) is required for graduation. The MBA must be completed within two calendar years of admission. Acceleration may be possible through the use of summer session or by taking extra-heavy course loads.

Units

At least 96 units of work for the MBA degree must normally be completed in residence in the MBA program at UCLA. In special cases, up to 12 units of *post-bachelor's degree* work may be counted toward the 96-unit total; but, ordinarily, when previous work is accepted in satisfaction of subject matter requirements, additional electives to complete 96 units of work must be selected.

Comprehensive Examination

The comprehensive examination for the completion of the MBA program consists of the student's demonstration of professional management proficiency through the final written report of the Management Field Study, a team project which is part of the nucleus requirement.

MBA for the Fully Employed

A part-time version of the MBA program is available for a limited number of fully-employed persons. Students in this program proceed on an approximately half-time basis, requiring nine to twelve quarters to attain the MBA. Classes are normally scheduled on Tuesdays and Thursdays between the hours of 3:30 and 10 p.m. It may also be necessary to take Monday or Wednesday late afternoon or evening classes.

Dual Degree Programs

At present, dual degree programs in Latin American Studies, Law, and Public Health are offered by the Graduate School of Management in conjunction with other schools and departments of the campus.

Latin American Studies

A three-year, full-time program is offered, leading to both the MBA (with a concentration in International and Comparative Management) and the Master of Arts degree in Latin American Studies. Applicants must be qualified to enter both the MBA program and the MA program in Latin American Studies. For further information, you are invited to contact the Assistant Dean, Director of the MBA Program, Graduate School of Management, and the Graduate Advisor, Latin American Studies.

Law

The School of Law and the Graduate School of Management jointly offer a program which makes it possible to earn the Doctor of Law (JD) and MBA degrees simultaneously in four academic years. The program is designed to prepare students for career areas where there is need for strong professional skills in both law and management. All first-year JD program courses are taken in the first year of the program. In the second year, the first-year MBA core requirements and four concentration courses are taken. Second-year MBA core requirements, four MBA concentration courses, and 61 elective units in the School of Law are completed during the third and fourth years.

Application for admission to the JD-MBA program must be made concurrently to both the School of Law and the Graduate School of Management in accordance with the admission procedures specified by each school. Applicants must be admitted to both schools in order to be admitted to the program. First-year law students may apply for admission to the program prior to March 15 of their first year of law study and must have taken the Graduate Management Admission Test no later than March of the same year. For further information, you are invited to contact the Assistant Dean, Director of the MBA Program, Graduate School of Management, or the Associate Dean, School of Law.

Public Health

The Graduate School of Management and the School of Public Health offer a program which enables students to complete requirements for the MBA degree and the Master of Public Health degree in three academic years of full-time study. The MBA-MPH program is designed for individuals seeking careers in health care and allied fields who also desire a firm foundation in the theory and practice of management. Applicants must qualify to enter both the MBA program and the MPH program to be admitted to the dual degree program. For further information, you are invited to contact the Assistant Dean, Director of the MBA Program, Graduate School of Management, and Dr. Paul Torrens, School of Public Health.

The Master of Science Program in Management

The primary objective of the academic master's program, which leads to the degree Master of Science (MS) in Management, is to offer intense study in a specialized field and to prepare students to conduct substantive research. It is currently offered in only two specializations: Business Economics and Management Science.

Course of Study

The MS program in some cases can constitute the first stage of doctoral work in management. Some students will enter the program with the goal of eventual acceptance into the doctoral program. For others, the MS will be a terminal degree. In either case, the program's emphasis is on advanced specialized training and the development of research capability.

Plan of Study

The academic master's program consists of prerequisites, the specialization, and a thesis. A minimum of nine graduate level courses is required. Eight 200-level courses and one course credit (4 units) of Management 598 satisfy this requirement.

An essential component of success in the program is a close working relationship with one or two members of the Graduate School of Management faculty. Students are urged to establish such relationships early in their studies. Initially, students are advised on their plan of study by the MS adviser assigned in their specialization, but they may change advisers whenever they wish during the course of their progress through the program. All MS students are required to submit a plan of study form by the end of their second quarter. This form lists the courses the student expects to take to fulfill the program requirements.

The Doctoral Program in Management

The doctoral program in Management is a research-oriented degree program which leads to the Doctor of Philosophy (Ph.D.) degree in Management. The program includes intensive training in research methods applicable to problems of organizations in the public and private sectors. It prepares students for careers in university teaching and research or as staff specialists in business firms and other organizations. The program offers each student substantial opportunities to discover his or her own, unique scholarly focus and competence.

Plan of Study

An essential component of successful graduate study in the doctoral program is close work with faculty members of the Graduate School of Management and/or other departments at UCLA. Doctoral students are advised initially by the doctoral adviser of their particular curriculum area, but they may change advisers whenever they wish during the course of their progress through the program. Students are urged to establish a working relationship with one or two faculty members early in their studies and are expected to have a close working relationship with at least one faculty member by the end of their first year in the program.

A diagnostic progress review is conducted by the major field curriculum committee at the end of a student's first year in the program. Students are expected to prepare for this review by taking several research courses and doctoral seminars in the major field. The review is based on indicators of scholarly achievement such as performance in courses and additional evidence of scholarly and professional development deemed appropriate by the committee.

By the end of their first year in the program, students are also required to submit a proposed study form for approval by the Assistant Dean of the Doctoral Program. This form outlines all of the course work that will be taken to satisfy program requirements.

The program is designed to be completed in four years. Doctoral students are expected to be enrolled full-time until they are advanced to candidacy; a full-time student is one who is enrolled in a minimum of eight units per quarter.

Study toward the doctoral degree in management includes specialization in a major field, research and breadth requirements, preparation of a dissertation proposal and presentation of it at a formal seminar, the oral qualifying examination, and a doctoral dissertation.

Fields of Study

The following fields of study are currently offered for the major field requirement within the doctoral program:

Accounting Information Systems

Business Economics

Computers and Information Systems

Finance

Human Systems Studies
Industrial Relations
International and Comparative Management
Management Science
Management Theory
Marketing
Production and Operations Management
Urban Land Economics

Admission to the Graduate School of Management

A candidate for admission to the Graduate School of Management must hold a bachelor's degree from a college or university of fully recognized standing. Although no specific undergraduate major or series of courses is required for entrance, students must complete elementary algebra and differential calculus prior to entering the MBA program. These may be taken on a noncredit, programmed instruction, regular course, or some other equivalent basis.

MBA Admission

For admission to the MBA program, consideration is given to your academic record; score on the Graduate Management Admission Test (GMAT) and, for applicants whose native language is not English and who attended educational institutions where the language of instruction was not English, the Test of English as a Foreign Language (TOEFL); potential for management as evidenced by work experience and community, extracurricular, or other leadership experience; and recommendations.

The admission decision is based on your total application, and, therefore, minimum required undergraduate academic averages and GMAT scores have not been established. Preference is given to applicants who have had full-time work experience related to the field of management since completing their bachelor's degrees. Students admitted directly from baccalaureate programs who choose to work before entering graduate school will have their admission honored for three full years.

MS Admission

The MS program is intended for mature students who have a strong desire to pursue research in Business Economics or Management science, and who can devote full time to academic work. Applicants must hold a bachelor's degree from an accredited institution, with a scholastic average of at least B. Although no specific undergraduate major is required, it is recommended that students entering the academic master's program have prior training in mathematics, statistics, and the social sciences. The Graduate Management Admission Test (GMAT), or the Graduate Record Examination (GRE), and recommendations are required of all candidates. Only a limited number of applicants are admitted to the program each year.

Ph.D. Admission

The doctoral program (Ph.D.) is intended for mature students with demonstrated intellectual capacity who can devote full time to academic work. Applications are welcomed from persons with prior work in the social, behavioral, and technological sciences, or other academic fields, as well as from those who have done their prior work in schools of management. To be considered for admission, an applicant must hold a bachelor's degree from an accredited institution, with a scholastic average of at least B; an average of B+ in any prior graduate work is required. A master's degree is desirable but not necessary for admission. The Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) is required of all candidates to the program. Only a limited number of applicants are admitted to the doctoral program each year. Admission is based on a scholastic record of distinction in both undergraduate and any completed graduate work, score on the GMAT or GRE, recommendations, and expressed interest in conducting individual research.

Application Procedures

Write for information and application forms to the Director of Admissions, MBA Program, or to the Assistant Dean, MS/Ph.D. Program, at the Graduate School of Management, UCLA, Los Angeles, California 90024. To make application to the MBA program, follow the instructions given in the MBA Application form. To make application to the MS or Ph.D program, follow the instructions given in the Application for Admission to the MS/Ph.D. Program.

You are advised to apply early with complete documentation as specified in the MBA Application or in the Application for Admission to the MS/Ph.D. Program. Admission is in the fall quarter only. Completed applications must be filed with UCLA by:

The School of Medicine

If you are interested in the programs of the UCLA School of Medicine, you are invited to get a copy of the Announcement of the School by contacting the Office of Student Affairs Room 12-109 Center for the Health Sciences Los Angeles, California 90024.

"Pre-Health Care" advising, including course information, test applications and weekly open counseling sessions are available in Murphy Hall 1339, or through COPE (Counseling on Pre-Health Education) a peer-group counseling project. COPE lists its activities—times and places—in the *Daily Bruin*.

General Description

The School of Medicine operates on a quarter system with a four-year curriculum. The freshman year consists of three quarters of courses in basic medical sciences, social medicine and behavioral sciences, followed by a summer quarter of vacation. The sophomore year, also three quarters, includes further study in basic medical sciences, clinical fundamentals, and pathophysiology of disease. The junior and senior years are a continuum of education of 94 weeks total; 48 weeks of required clinical clerkships, 30 weeks of electives which stress the scientific basis of diseases of specific organ systems; advanced clinical clerkships and clerkships in primary medicine. Schedule choices are submitted by students and a computer system is employed to arrange programs as equitably as possible.

Individual Programs of Study

Special programs of study for individual students may be arranged within the framework of the medical school curriculum. Normally these programs are available only after the student has completed the first year and with the approval of the Dean's Office and the chairman of the department responsible for the additional course work. Every effort is made to maintain flexibility within the medical school curriculum, although extensive changes in the course of study can be arranged for only a limited number of students.

Graduate Work

Graduate work leading to the M.S. and/or Ph.D. degrees is offered, either separately or in conjunction with the M.D. program, in anatomy, biological chemistry, biomathematics, microbiology and immunology, pathology, pharmacology, physiology, psychiatry, and radiology. Students in graduate divisions who have completed courses in the School of Medicine must apply to the first year class in order to be considered by the Admissions Committee. See the departmental announcements elsewhere in this catalog for further information. For details concerning the medical curriculum, you are invited to consult the *UCLA Announcement of the School of Medicine*.

Admission to the School of Medicine

The School of Medicine on the Los Angeles campus admits 144 freshman students each fall. Application cards and medical school catalogues for the class entering September 1979 are available from the Office of Student Affairs, UCLA School of Medicine, Los Angeles, California 90024, June 1-October 15, 1978. Applications are available from the American Medical College Application Service (AMCAS). The $30 fee charged by AMCAS for application to any five participating medical schools covers UCLA's initial screening of applications. If an applicant is granted an interview, a non-refundable fee of $20 is required.

Requirements

Ordinarily a baccalaureate degree is required for admission; but in certain instances outstanding students who have completed three full academic years at an accredited college or university are accepted. College years should be devoted to obtaining as broad an education as possible. The major objectives should be the following: (1) competence in English, written and spoken; (2) capacity for quantitative thinking represented by mastery of mathematics; (3) such training in physical and biological science as will facilitate comprehension of medical science and the scientific methods; and (4) insight into human behavior, thought and aspiration from study in the social sciences and humanities.

These objectives will ordinarily require completion of the following studies:

Required Courses:	
English	One year of college English to include the study of English composition.
Physics	One year of college Physics (with lab)
Chemistry	Two years of college chemistry to include the study of inorganic chemistry, quantitative analysis and organic chemistry. In addition, the study of Biochemistry is highly recommended.
Biology	Two years of college biology to include the study of cellular, molecular, developmental and genetic biology. This will include at least one year of upper division courses.
Mathematics	One year of college mathematics to include the study of college algebra. In addition, the study of introductory calculus is also highly recommended.

Courses (e.g., human anatomy) which overlap in subject matter with those in the School of Medicine are not advised. However, advanced or specialized courses in biological science (e.g., cellular physiology) are desirable.

Completion of Requirements

The premedical requirements must be completed before beginning the first year of medical studies, although these requirements need not be completed at the time the application for admission is filed.

Physical Examination

Accepted candidates must pass a physical examination before registering.

Basis of Selection

Candidates will be selected on the basis of the following considerations:

1. Undergraduate and, where applicable, graduate academic achievement.

2. Score on the Medical College Admission Test, which is administered for the Association of American Medical Colleges by the Psychological Corporation.

3. Interview by a member or members of the Admissions Committee.

4. Evaluation of the applicant's accomplishments and character in letters of recommendation.

The Committee on Adminissions selects candidates who present the best evidence of broad training and strong achievements in college, a capacity for nature interpersonal relations, and the traits of personality and character conducive to success in medicine. Preference is not given to students who major in natural science, since study in the social sciences and humanities is considered equally valuable.

Advanced Standing

Transfer students are accepted into the junior year only. Transfer applications may be submitted November 1-February 1 to the Office of Student Affairs in room 12-109 of the Center for Health Sciences.

The School of Nursing

If you are interested in the academic program offered by the UCLA School of Nursing—on the graduate or baccalaureate level—you are urged to request a copy of the Announcement of the School by writing to the School of Nursing, Student Affairs Office, University of California, Los Angeles, California 90024.

Description and Philosophy

Schools of nursing differ in their professional focus on education and research. It is therefore pertinent to state the School's view of the profession which serves as a basis for its undergraduate and graduate programs. Basic to the philosophy of the School is the belief that it is the right of all individuals to receive optimal health care. Nursing shares with other health sciences the goal of promoting health for individuals and communities as well as the responsibility for the care, comfort, and dignity of patients in acute, chronic, and terminal illness.

To accomplish this goal, nurses function as independent practitioners, in collaboration with other members of the health team and in a medical supportive role. Based on scientific knowledge and technical skill, the practice of nursing focuses on promotion of health, prevention of illness, and support of the resources of the person who is ill.

Nursing concerns include expansion of knowledge essential to the nursing process, new methods of care, and improvement of health care delivery systems. In implementing the philosophy of nursing, the curriculum concentrates on the behavior of man as he moves through the health-illness continuum.

The programs provide for an understanding of the social and cultural systems in which living and care giving take place and for an understanding of man's psychology and physiology under normal and pathological conditions. Nursing research is stressed throughout the programs as the means for the development of new knowledge.

You can find a detailed description of the School of Nursing studies in the "courses" section of this Catalog.

History and Accreditation

The School of Nursing was authorized by the Regents of the University in 1949 as one of the Professional Schools of the Center for Health Sciences at UCLA. This action paved the way for the development of an undergraduate basic program in nursing and made possible the establishment of a graduate program leading to the Master of Nursing degree. The baccalaureate program has been continuously approved by the California Board of Registered Nursing since 1949. The School of Nursing became an agency member of the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing in 1952. The Accrediting Service of the National League for Nursing has granted full accreditation to both programs since 1954.

Curricula

The Baccalaureate Program

The baccalaureate program leading to the Bachelor of Science degree provides for a close interweaving of general and professional education. The physical, social, and emotional health aspects of nursing are emphasized throughout the curriculum. Clinical nursing experience under the guidance of faculty members if provided in hospitals, outpatient clinics, homes, and community health centers. Students who are licensed nurses will complete the same curriculum as other students in the baccalaureate program. However, registered nurses may challenge upper division nursing courses.

The School of Nursing offers a curriculum sequence which affords students the opportunity to sit for the California Registered Nurse licensing examination at the conclusion of the junior year. Interested students must maintain each quarter a minimum GPA of 3.0 and petition the Dean to enroll beyond the four quarter courses usually permitted. Students are reminded that many states do not reciprocally honor California nursing licenses obtained prior to completion of a baccalaureate degree. Students who plan to follow this sequence should contact the Assistant Dean for Student Affairs before the beginning of the freshman year to receive more complete details.

Requirements for Acceptance

Requirements for acceptance include: (1) Admission to the University; (2) completion of 21 courses of college work, including courses required by the School of Nursing. Eligibility for the study of nursing as determined by demonstrated aptitude, recommendations and scholastic achievement. (See the UCLA Announcement of the School of Nursing.) In addition for registered nurses: graduation from an NLN accredited school of nursing and evidence of the fulfillment of the legal requirements for the practice of nursing.

Requirements for the Degree of Bachelor of Science

The degree of Bachelor of Science will be granted upon fulfillment of the following requirements:

1. The candidate shall have completed the required 45 courses (180 quarter units) of college work and shall have satisfied the general University requirements.

2. The candidate shall have included in the required 45 courses, at least 21 courses in general education.

3. The candidate shall have completed at least 25 quarter courses (100 quarter units) of upper division course work toward the degree.

4. The candidate shall have maintained at least an overall grade point average of C (2.00) in all courses taken while a student in the School of Nursing.

5. The candidate shall have completed all required nursing courses in the School of Nursing and shall have received a grade of C or better in the following clinical nursing courses: 101A, 120A,B,C,D,E,F, 190A,B.

6. The candidate is required to have been enrolled in the School of Nursing during the final three quarters of residence; the last nine courses must be completed while so enrolled.

Honors

The faculty of the School of Nursing, or a duly authorized committee thereof, shall recommend for honors and awards bachelor's degree candidates honors or awards who meet the criteria determined by the faculty of the School of Nursing and the University.

The Graduate Program

Under the jurisdiction of the Graduate Division, the School of Nursing administers a program leading to the Master of Nursing degree. Courses provide the opportunity for advanced study in several areas of nursing and research training for increased professional competence. Students specialize in a clinical field and may elect courses which prepare for functional preparation in teaching and administration. The Thesis Plan or the Comprehensive Examination Plan is followed in the Master of Nursing program. For further information about the graduate program in nursing, please consult the UCLA *Announcement of the Graduate Division* and the UCLA *Announcement of The School of Nursing*.

Requirements for Acceptance

Requirements for acceptance include: (1) graduation from a recognized college or university having an NLN accredited baccalaureate nursing program equivalent to that of the School of Nursing, University of California, Los Angeles and satisfactory to the Graduate Division, Los Angeles. Students who have completed other curricula (e.g., students who have graduated from a foreign institution) may be required to enroll in certain undergraduate nursing courses which generally will not be accepted in fulfillment of the requirements for advanced degrees; (2) Status as a registered nurse. Prior to entry into any clinical practicum, evidence of status as a registered nurse in the State of California is mandatory; (3) An upper-division statistics course or a lower division statistics course with content equivalent to Public Health 100A is a prerequisite and must be completed *prior* to entrance into the School of Nursing; (4) Professional and academic competence in nursing attested through letters of recommendation; (5) A scholarship record satisfactory to the Graduate Division, Los Angeles and to the School of Nursing, University of California.

Academic Requirements

The Master of Nursing degree will be granted upon fulfillment of the following requirements:

1. The candidate shall have met the general requirements of the Graduate Division.

2. The candidate shall have completed in graduate status at least ten courses (40 credits) in upper division and graduate level courses (100, 200, 400, and 500 series); eight courses must be in nursing, with five courses (20 credits) in the 200 and 400 series. The candidate must successfully complete a minimum of one course from each of the following areas: Research in Nursing (N 204); Selected Problems in Nursing Care (N 210, 211, 221, 222, 223, 224, 225); Supervised Practice in Nursing Care (N 402, 421A, 422A, 423A, 424A, 425A); and Clinical Nursing Specialization (N 421B, 422B, 423B, 424B, 425B, 429A). Completion of requirements for certain special program sequences may require more than 40 credits. The additional courses may be distributed among courses in the 100, 200, 400 or 500 series subject to approval of the student's faculty adviser.

3. A comprehensive examination or a thesis is required.

For further information concerning graduate work you are invited to consult *Announcement of the Graduate Division*.

Admission to the School of Nursing

Application for acceptance to the baccalaureate program in the School of Nursing should be filed not later than November 30 for the Fall Quarter. Applications to the graduate program should be filed not later than February 15 for the Fall Quarter, and December 30 for the Spring Quarter. The School of Nursing reserves the right to accept students on the basis of scholarship, recommendations and demonstrated aptitude.

Applications for admission to the University in undergraduate status (accompanied by a $20 application fee) should be filed with the Office of Undergraduate Admission, University of California, Los Angeles, California 90024.

Applications for admission to the graduate program (accompanied by a $20 application fee) should be filed with Graduate Admissions Office, Graduate Division, University of California, Los Angeles, California 90024.

Application for Acceptance to the School of Nursing: A supplemental application is required for both undergraduate and graduate programs. The application may be obtained from the School of Nursing, 12-139 CHS, University of California, Los Angeles, California 90024.

You can find a discussion of a pre-nursing curriculum and "pre-health" advising in the "preparing for a professional school" portion of the "undergraduate education" section of this catalog.

The School of Public Health

If you are interested in the programs offered in the School of Public Health at UCLA—on either the graduate or baccalaureate level—you are urged to get a copy of the Announcement of the School by writing to the Office of Student Affairs, School of Public Health, University of California, Los Angeles, California 90024.

You can find detailed descriptions of course offerings in the "courses" section later in this Catalog.

Description and Purpose

Public Health is a broad, multidisciplinary field of study directed toward the understanding and control of factors affecting the health of populations. The mission of the School of Public Health is to develop and teach the application of the sciences to the solution of community health problems. One feature of the field of public health is a reliance on research methods to identify important health relationships. Another feature is a community or social approach to the problems of health and disease in their preventive or therapeutic aspects. The concerns of public health cut across national boundaries and include the functions of both voluntary and governmental agencies, of research and teaching institutions, and of health care facilities.

There are many areas of emphasis in the field, and five may be singled out as follows: (1) nature, extent and distribution of disease; (2) quantitative methods of description and analysis; (3) environmental hazards, their identification and control—emphasis is on hazards found in technologically advanced regions of the world as well as less advanced regions; (4) the organization and delivery of community health services—emphasis is on the development of strategies for optimal provision of health care of high quality for all members of society; (5) basic biological and psychosocial processes that affect the health and well-being of populations.

The purpose of programs of instruction in the field of public health is to provide opportunity to develop understanding of the theoretical foundations and philosophy of the field, and to permit specialization in fields of professional service or research. This is achieved through required and elective courses that stress broad exposure to basic issues as well as intensive study in selected specialties.

Because of multidisciplinary concerns, programs of study are available to students whose academic preparation has been in one of various physical, biological or social science areas: for example, bacteriology, medicine, nursing, dentistry, veterinary medicine, optometry, pharmacy, engineering, mathematics, statistics, sociology, psychology, economics, political science, etc.

Through organized programs in the School of Public Health, students entering the field may thus prepare themselves for careers in such basic specialties as epidemiology, biostatistics, nutritional science, and environmental health sciences. They may also prepare themselves for the challenges of community well-being such as the operation of hospitals, health maintenance in industry, the health education of the public, organization of medical care, behavioral sciences in public health, and community health administration.

You can find information on "pre-public health" programs in the "undergraduate education" section of this Catalog.

Degrees Offered

The School of Public Health offers the following degrees: Bachelor of Science in Public Health, Master of Public Health, Doctor of Public Health, Master of Science in Public Health, Doctor of Philosophy in Public Health, Master of Science in Biostatistics, and Doctor of Philosophy in Biostatistics. In addition, combined MPH degrees are available with Latin American Articulated Degree Programs, Graduate School of Management, School of Law, School of Medicine, and School of Dentistry.

Undergraduate Program: Bachelor of Science Degree

Admission to the Bachelor of Science Program is limited to undergraduate students in good standing within the University of California who have satisfactorily completed at least 84 quarter units of work in one of the colleges of the University, or who have transfer credits evaluated as equivalent. A student wishing to major in Public Health selects an area of concentration from one of the following: biostatistics, comsumer health information and education, or nutritional science.

Preparation for the Major

Preparation for the major consists of the following:

1. Subject A.
2. American History and Institutions.
3. Foreign Language: two years of one language in high school.
4. Two years of high school mathematics.
5. One course from English 3 or 4, Humanities 2A or 2B.
6. Physical Science: Chemistry 11A, 11B, 11BL, 11C, 11CL (or Chemistry 11A, 15, and an elective course in a physical science for students who plan to specialize in Consumer Health Information and Education); Mathematics 1B or 3A.
7. Life Sciences: Biology 4A-4B and Bacteriology 10 for Consumer Health Information and Education students.
8. Social Sciences: three courses.
9. Humanities: three courses.
10. Additional courses in chemistry, mathematics, natural sciences, or physics as recommended by the student's advisor.

Requirements for the Bachelor's Degree

1. The candidate shall have completed at least 45 courses (180 quarter units) of college work, of which at least the last 9 courses (36 quarter units) must have been completed while enrolled in the School of Public Health. Not more than 18 of the above 36 quarter units may be completed in summer session on the campus of residence.

2. The candidate shall have completed at least 13 courses (52 quarter units) in upper division (numbers 100 through 199). At least 6 courses must have been completed while enrolled in the School of Public Health, 4 of which must have been in the major.

3. The candidate shall have maintained a "C" (2.0) average in all courses taken shall have satisfied all of the course requirements in preparation for the major as well as those required in the major.

4. The candidate is not normally expected to take more than 180 quarter units to obtain the bachelor's degree. Except in rare cases, approved by the Dean, the candidate will not be permitted to continue after completing 208 quarter units.

5. Credit limitations

a) Prior approval by the advisor and the Dean is required before a student may enroll in a course for "passed/not passed" credit; however, courses in the major may not be taken on a Passed/Not Passed basis.

b) Only 4 quarter units of physical education courses may be counted toward degree credit.

c) Public Health 199: Open to seniors who must petition before enrolling; limited to 4 units each quarter; no more than 16 units may be counted toward degree credit.

d) Courses in the 200 or 400 series: Candidate must secure approval from your advisor and the Dean before enrolling in these courses, unless the course is a requirement of the major.

e) Concurrent enrollment: Concurrent enrollment in University Extension or at another institution is permitted only under extraordinary circumstances and with prior approval from the advisor and the Dean.

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

g) Enrollment limitations: The candidate must enroll in no less than 12 or more than 16½ quarter units each quarter. Exception requires approval of the advisor and Dean. A student on probation may be given other limitations.

h) A single course can not be used to satisfy two distinct course requirements.

Major in Public Health

A student majoring in Public Health selects an area of concentration for a major from one of the following: Biostatistics, Consumer Health Information and Education, and Nutritional Science.

General Requirements for the Major

Required are Public Health 100A, Introduction to Biostatistics; Public Health 110, Introduction to Medical Science or Public Health 111, Human Disease and Public Health; Public Health 112, Principles of Epidemiology; Public Health 150, Environmental Health (not required for students whose field of concentration is Nutritional Science); and Public Health 180, Introduction to Public Health. Public Health 153, Public Health Microbiology or with consent of the instructor Bacteriology 101, Introduction to Bacteriology, required for Nutritional Science students.

Requirements for Field of Concentration

Biostatistics

The biostatistics program prepares students in the application of biostatistics to the broad field of Public Health and the evaluation of health programs.

Mathematics 31A-C, 32A-C, 152A-B (or 150A-C); Public Health 101A, 101B, 100C, (or 100A-100D),

102. Every student will be required to take courses and study in depth at upper division level an additional subject area as a basis for application of statistical methods and theories.

Consumer Health Information and Education

This program prepares a student to work as a consumer health advocate and health information and promotion specialist.

A minimum of four courses are to be selected from among: Public Health 130, 160, 170, 182, 183, 184. Another minimum of four are to be selected as a minor from one of the following fields of concentration: Communications, Organizations, Behavior, in consultation with academic advisor.

Nutritional Science

In this program students become acquainted with the basic nutritional factors and components of health.

Mathematics 3B, 3C, Chemistry 21, 23, 25; Physics 3A, 3B, 3C (or 6A, 6B, 6C); Public Health 162, 163, 164, 165, 167. Electives will be chosen in consultation with academic advisor.

Counseling

Open counseling is offered at Orientation to Public Health Meetings each quarter. Further assistance is given by appointment with the Student Counselling Office in the School of Public Health.

Master of Science in Public Health

The Master of Science program provides research orientation within the general field of public health. It is intended to prepare the student in depth with a specialty, culminating in research activity and a thesis or a comprehensive examination.

Admission Requirements

Applicants must meet the University minimum requirements of an accredited bachelor's degree with a B average in upper division and prior graduate study and satisfactory performance on the Graduate Record Examination Aptitude Test. The bachelor's degree must be in a field of study appropriate to Public Health field in which the student desires to major. In addition, it is necessary that the applicant can be accommodated in the Division of the Department of Public Health in which he/she wishes to study.

No screening examination or specified courses are required. However, if the student's undergraduate course work has been deficient in breadth of fundamental training and fails to provide a proper foundation for advanced work in the Department, it will be necessary for the student to take specified undergraduate courses after admission.

Advising

An advisor is appointed for each beginning master's student by the Division Head of the respective Division. Students who need assistance in deciding upon a Division should speak to the Dean of Students who can be reached through the Office of Student Affairs.

The student and the advisor together agree upon a study list for each academic quarter and any alterations must be approved by the student's advisor and the Dean of Students before it is submitted to the Graduate Division. The student is expected to meet with the advisor each quarter.

A departmental Guidance Committee is established when the student has completed approximately half the program for the master's degree. The members of the departmental Guidance Committee are nominated by the Division Head after consultation with the advisor and the student and approved by the Department Chairman.

Normal Progress Toward the Degree

From graduate enrollment to award of the degree (comprehensive examination plan) normal progress is from four to seven quarters. From graduate enrollment to award of the degree (thesis plan) normal progress is seven quarters. Upper time limit for either plan is seven quarters of enrollment. This limitation includes quarters enrolled in previous graduate study at the University of California prior to admission to the master's degree program.

Maximum time allowable from enrollment in the M.S.P.H. program to graduation is five years.

Thesis Plan

A thesis Committee is established after a student has been here three quarters. The Thesis Committee of a minimum of three faculty members is recommended by the Department Chairman after consultation with the student and the student's advisor and appointed by the Dean of the Graduate Division. The Committee approves plans for the thesis prior to the student's filing for Advancement to Candidacy. At least two of the faculty members must be from inside the Department. No member outside of the Department is required.

The thesis must be acceptable to the Thesis Committee. A copy of the thesis is submitted to the Graduate Division for approval.

Comprehensive Examination Plan

If the Comprehensive Examination option is approved for the student, a Comprehensive Examination Committee of a minimum of three faculty members is appointed by the Chairman of the Department on the recommendation of the Division Head. There must be a written comprehensive examination on the student's major area of study. A student who fails may be reexamined no more than once. The preparation of a major written research report is required which must be approved by a two-member Committee which may overlap with the Comprehensive Examination Committee.

Major Fields or Subdisciplines

The areas of specialization offered in the M.S. degree program are as follows: Behavioral Sciences and Health Education; Environmental Health Science; Epidemiology; Health Planning and Health Policy Analysis; and Nutritional Science.

Course Requirements

The students must complete an approved program including a minimum of nine courses at least five of which must be graduate level courses in the 200 or 500 series.

Unless previously taken, mandatory courses for the M.S. degree are (at least 3 courses, 12 units of credit):

1. Introduction to Biostatistics (Public Health 100A)

2. Introduction to Biostatistics (Public Health 100B)

3. Principles of Epidemiology (Public Health 112)

(Prerequisite: PH 110, Introduction to Medical Science or PH 111, Human Disease and Public Health)

The CORE courses can be waived if the student has taken a similar course elsewhere and can pass the waiver examination.

The remaining courses (at least 6 courses, 24 units of credit) are determined by the student's choice of an area of specialization, and include the requirement of two research methodology courses.

Disqualification and Appeal of Disqualification

Students must maintain a 3.0 GPA. If a student's GPA falls below 3.0 it must be raised to 3.0 by the end of the following quarter. Also, a student will be terminated if he fails the comprehensive examination twice or if he fails to complete the required course work in seven quarters of enrollment.

Appeals can be made by the student utilizing the standard blue petition form. The petition must be approved by the advisor, the Division Head, the Dean of students, and the Dean of the Graduate Division.

Master of Science in Biostatistics

Admission Requirements

For admission to the Master of Science in Biostatistics program the student must have completed the bachelor's degree with a major in statistics, mathematics, or in a field of application of biostatistics, and have demonstrated competence by satisfactory performance on the Graduate Record Examination Aptitude Test. Undergraduate preparation for the program should include Mathematics 31C, 32A-C (second-year calculus) or the equivalent.

Advising

Advisors are assigned by the Division Head to new students upon their admission. Thereafter, they meet with the students each quarter and discuss their academic progress.

Normal Progress Toward the Degree

From graduate admission to completion of required courses, the Comprehensive Examination, Master's Report and award of the degree normally takes three to six quarters. The upper time limit for completion of all requirements is seven quarters of enrollment. If a leave of absence is taken, a maximum of 12 elapsed quarters is allowed. This limitation includes quarters enrolled in previous graduate study at the University of California prior to admission to the master's degree program.

Comprehensive Examination

The Comprehensive Examination Committee is appointed by the Head of the Biostatistics Division. The written Comprehensive Examination is on the major field only. It is taken during the Spring Quarter of the Academic year of the student's Public Health 200A-C sequence. A student who fails the examination is allowed to repeat it only once; the time of the re-examination is specified by the Division. A student who does not take the re-examination at the specified time forfeits his right to re-examination.

Course Requirements

The M.S. degree in Biostatistics requires a minimum of nine graduate and upper division courses, of which at least five are graduate courses (200 and 500 series), and a comprehensive examination.

The five required graduate courses must be in biostatistics or mathematical statistics, including at least three courses in biostatistics. Unless previously taken the following courses must be included in the degree program:

1. Public Health 101A, 101B (Basic Biostatistics), 100C (Introduction to Biostatistics)

2. Public Health 200A, 200B, 200C (Biostatistics)

3. Public Health 201E, 201F, 201G, 201J (Special Topics) (Any two courses from this group)

4. Public Health 204E (Seminar in Biostatistics)

5. Mathematics 152A, 152B (Applied Mathematical Statistics) or Mathematics 150A, 150B, 150C (Probability and Statistics)

Other courses in biostatistics or mathematical statistics, or in related areas such as biology, physiology, public health, sampling theory, or mathematics are selected with the advisor's consent.

Disqualification and Appeal of Disqualification

Conditions which lead to termination are any of the following:

(a) Failure to maintain a GPA of 3.0 or better since admission to the M.S. program in two consecutive quarters.

(b) Exceeding the seven quarter time limit described above.

(c) Twice failing the M.S. comprehensive examination.

The student can appeal the decision to his or her graduate advisor and, if necessary, to the Head of the Division of Biostatistics.

Master of Public Health

The M.P.H. is a professional degree for the public health generalist. The student is expected to focus on public health practice and to acquire broad knowledge related to professional skills.

Admission Requirements

Applicants to be admitted for the degree of Master of Public Health must demonstrate competence by satisfactory performance on the Graduate Record Examination Aptitude Test and may be:

1. Holders of a professional doctoral degree in medicine, dentistry, optometry, pharmacy, or veterinary medicine (with or without a prior bachelor's degree) from an accredited school.

2. Holders of a bachelor's degree from an accredited institution, with adequate preparation in sciences basic to public health. Such sciences include various combinations of: (a) life sciences; (b) physical sciences and mathematics; (c) social sciences; (d) behavioral sciences. (Applicants are not expected to be prepared in all four of these fields, but a background in a suitable combination of these sciences is required.)

3. Physicians at UCLA in the General Preventive Medicine Residency.

4. Qualified students in the Latin American Studies articulated degree program, Graduate School of Management, School of Medicine, School of Law, and School of Dentistry. Admission is not automatic.

Applicants must meet the University minimum of an acceptable bachelor's degree with a B average in upper division and prior graduate study.

No field experience is required as a condition of admission to the M.P.H. program, although a background of public health experience may be considered as a factor in evaluation of eligibility for admission. In addition, it is necessary that the applicant can be accommodated in the Division of the Department of Public Health in which he/she wishes to study.

Advising

An advisor is appointed for each beginning master's student by the Division Head of the respective Division. Students who need assistance in deciding upon a Division should speak to the Dean of Students who can be reached through the Office of Student Affairs.

The student and the advisor together agree upon a study list for each academic quarter and any alterations must be approved by the student's advisor and the Dean of Students before submission to the Graduate Division. The student is expected to meet with the advisor each quarter.

A departmental Guidance Committee is established when the student has completed approximately half the program for the master's degree. The members of the departmental Guidance Committee are nominated by the Division Head after consultation with the advisor and the student and are approved by the Department Chairman.

Normal Progress Toward The Degree

From graduate enrollment to award of the degree, normal progress is five to seven quarters. Upper limit for completion of all requirements is seven quarters of enrollment. This limitation includes quarters enrolled in previous graduate study at the University of California prior to admission to the master's degree program.

Maximum time allowable from enrollment in the M.P.H. program to graduation is five years.

Comprehensive Examination

The Comprehensive Examination Committee consists of three faculty members appointed by the Chairman on recommendation of the Division Head. A Comprehensive Examination in the CORE courses and an examination in the student's major field are required. A student who fails may be re-examined no more than once.

Major Fields or Subdisciplines

The School of Public Health offers the Master of Public Health degree in the following areas of concentration: Biostatistics; Environmental Health; Epidemiology; Health Education; Health Services Management; Nutritional Science; and Population, Family and International Health.

Course Requirements

Award of the M.P.H. degree requires a minimum number of acceptable courses as specified by each program. The minimum number of courses required is 11 in an approved program, but frequently the student is required to take more than this minimum depending upon his background and field of study. This minimum may be reduced to ten for students with suitable previous graduate studies in health fields (such as physicians) if appropriate for the field of study. At least five of these courses must be graduate courses (200, 400, and 500 series).

Unless previously taken, mandatory courses for the M.P.H. degree are currently (at least 3 courses, 12 units of credit):

1. Introduction to Biostatistics (Public Health 100A)

2. Principles of Epidemiology (Public Health 112)

(Prerequisite: PH 110, Introduction to Medical Science or PH 111, Human Disease and Public Health)

3. Health Services Organization (Public Health 130)

Under development is a course "Principles of Environmental Health" which will become a mandatory CORE course effective Fall 1980.

The CORE courses can be waived if the student has taken a similar course elsewhere and can pass the waiver examination.

The remaining courses (at least 8 courses, 32 units of credit) are determined by the student's choice of an area of specialization, and include the requirements of one course in the 400 series. Field training in an approved public health program of up to ten weeks is required of candidates who have not had prior relevant field experience.

Disqualification and Appeal of Disqualification

Students must maintain a 3.0 GPA. If a student's GPA falls below 3.0 it must be raised to 3.0 by the end of the following quarter. Also, a student will be terminated if he fails the comprehensive examination twice or if he fails to complete the required course work in seven quarters of enrollment.

Appeals can be made by the student utilizing the standard blue petition form. The petition must be approved by the advisor, the Division Head, the Dean of Students, and the Dean of the Graduate Division.

Doctor of Public Health

The Dr. P.H. is the highest professional degree for the public health generalist. The student is expected to focus on public health practice and to acquire broad knowledge related to professional skills. The minor field can be used to provide some of this breadth. The dissertation is of an applied, practical problem-solving nature and must demonstrate the candidate's ability for independent investigation.

Admission Requirements

In addition to the University minimum requirements, the department requires (1) satisfactory performance on the GRE, (2) completion of the M.P.H. degree in Public Health or an appropriately related field (if the master's degree is in a field other than Public Health, the applicant must have taken the equivalent of the mandatory M.P.H. courses or include them in his course of study after admission), (3) at least a 3.0 Junior-Senior GPA, at least a 3.5 in graduate studies or demonstrated superiority in graduate work, and at least a B in each of the mandatory CORE courses, (4) a positive recommendation by a Division of the Department of Public Health, (5) approval by the Doctoral Admissions Committee, (6) and approval by the Department Chairman.

No screening examinations are required with the exception of the Behavioral Science and Health Education field. Here, if a student does not take a M.P.H. from UCLA he must take the master's qualifying examination within one year of admission and pass with an excellent score.

Advising

An academic advisor is assigned to each new student by the Division Head of the Division he/she enters. The student and the advisor together agree upon a study list for each academic quarter. After the student is enrolled for one quarter a three-member Guidance Committee is established, which includes the advisor in the major field and the advisor in the minor field.

Normal Progress Toward the Degree

Normally students will not be admitted to the doctoral program until after they have completed a master's degree. But if the student has not completed a prior master's degree program, admission to the doctoral program should take place by the 6th quarter in residence and the written and oral qualifying examinations should be completed by the 10th quarter in residence. If the student has completed a master's degree program, the written and oral examinations should be completed by the 6th quarter of residence. From completion of the oral qualifying examination to final oral defense should take three quarters. Maximum time allowable of formal enrollment in the graduate program is 20 quarters. This limitation includes quarters enrolled in previous graduate study at the University of California prior to admission to the doctoral degree program.

Maximum time allowable from enrollment in the graduate program in the School of Public Health and completion of the degree is eight years.

Final Oral Examination

Required of all candidates. Re-examination after failure is determined on an individual basis.

Major Fields or Subdisciplines

The School of Public Health offers the Doctor of Public Health degree in the following areas of concentration: Behavioral Science and Health Education; Biostatistics; Environmental Health Science; Nutritional Science; Epidemiology; Health Services; and Population, Family and International Health.

Required Courses, Written and Oral Qualifying Examinations

The course requirements needed to pass the written examination in the major field depend upon the Division and field which the student enters. Before advancement to candidacy, the student must pass written examinations in the major and minor field and the oral qualifying examination. The written examination in the major field is prepared and administered by the Guidance Committee or by the faculty of the Division. The conduct of the written examination in the minor field is the responsibility of the representative from the minor field or the Guidance Committee. One re-examination after failure is allowable, and more than one would be granted only in unusual circumstances.

When the student is ready to take the oral qualifying examination, a Doctoral Committee is nominated by the Chairman of the Department after consultation with the student and the advisor and appointed by the Dean of the Graduate Division. This normally takes place after the student has made a tentative decision on a dissertation topic. The Doctoral Committee consists of at least five faculty members who hold regular professorial appointments. Three of the five must hold appointments in Public Health, and one must be from the minor field.

The minor field is usually from inside Public Health, but could be from outside the Department. A minimum of four graduate courses in the minor field is recommended.

The Doctoral Committee administers the oral qualifying examination after the student has successfully completed the written examination. The oral examination is usually a defense of the dissertation proposal.

All members of the doctoral committee examine the candidate during the required final oral examination and read, approve, and certify the dissertation. A student will not be considered to have passed the final oral examination with more than one "not passed" vote by the committee.

A copy of the dissertation is submitted to the Graduate Division for approval.

Disqualification and Appeal of Disqualification

Students must maintain a 3.0 GPA. Students must also pass the written qualifying examinations in the major and minor fields on either their first or second attempts. Students must complete all requirements for the degree within eight years.

Appeal of disqualification requires approval of the student's advisor, Division Head, and Department Chairman prior to the oral qualifying examination and requires approval of the Chairman of the Doctoral Admissions Committee, Division Head, and Department Chairman after the oral qualifying examination.

The Doctor of Philosophy Degree (Ph.D.) in Biostatistics

A program of study leading to the degree of Ph.D. in Biostatistics is offered. You are advised to read the *UCLA Announcement of the Graduate Division* for general University requirements. The student's program of study must be approved by the Division of Biostatistics and must include at the graduate course level three areas of knowledge: biostatistics, mathematical statistics, and a biomedical field such as biology, epidemiology, infectious diseases, medicine, microbiology, pharmacology, physiology, psychology, zoology, or public health. Recommendation for the degree is based on the attainments of the candidate rather than on the completion of specified courses.

Requirements

Qualifications for admission to the program of graduate studies in Biostatistics for the Ph.D. degree are the current requirements of the Graduate Division, including satisfactory performance on the Graduate Record Examination Aptitude Test. Normally students receive an M.S. in Biostatistics at UCLA before admission to the Ph.D. program. Students who enter the Ph.D. program from other Master's programs are required to pass a written comprehensive examination within one year of their admission. This examination is comparable to the M.S. comprehensive examination.

Advising

An advisor is appointed for each beginning doctoral student by the Division Head. Thereafter they meet with the student each quarter and discuss his/her academic progress. When the student advances to candidacy the chairman of the dissertation committee becomes the advisor.

Written and Oral Qualifying Examinations

A written examination in Biostatistics, in Mathematical Statistics, and in the student's selected biomedical field, are taken before advancement to candidacy. The Biostatistics examination is written by the faculty in Biostatistics, the mathematical statistics examination by the faculty of the Mathematics Department, and the biomedical field examination by a qualified person in the biomedical field at UCLA.

The qualifying oral examination is taken before advancement to Candidacy; the final oral examination is taken after completion of the dissertation.

Any examination which is failed may be repeated once. The time of re-examination is specified by the Division in the case of the written examinations or by the student's committee in the case of the oral examination. A student who does not take the examination at the normal time forfeits his right to a re-examination.

Normal Progress Toward the Degree

From admission to the doctoral program to the written and oral qualifying examinations and advancement to candidacy usually takes nine quarters or less. From advancement to candidacy to the final oral examination usually requires three quarters. Usually 12 quarters are required from graduate admission to award of the degree.

The student must be advanced to candidacy within nine quarters of passing the comprehensive examination. The Ph.D. degree must be awarded within nine quarters after advancement to candidacy.

Maximum time allowable for the attainment of the degree is 20 quarters of enrollment. This limitation includes quarters enrolled in previous graduate study at the University of California prior to admission to the doctoral degree program.

A copy of the dissertation is submitted to the Graduate Division for approval.

Disqualification and Appeal of Disqualification

Following are conditions which lead to termination:

(a) Failure to maintain 3.0 GPA since admission to the doctoral program in two consecutive quarters.

(b) Failing more than once the written examinations in Biostatistics, Mathematical Statistics, the selected biomedical field, and the qualifying and final oral examination.

(c) Exceeding the time limits listed above.

The student can appeal the decision to the Head of the Division of Biostatistics.

The Doctor of Philosophy Degree (Ph.D.) in Public Health

A program of study leading to the degree of Ph.D. in Public Health is available in behavioral sciences and health education, environmental health science, epidemiology, health services and nutritional sciences. This program provides preparation for careers in teaching and research.

Requirements

In addition to the University minimum requirements, the department requires (1) satisfactory performance on the GRE, (2) completion of the M.S. in Public Health or an appropriately related field (students with an M.P.H. will need to satisfy the requirements of the M.S.P.H. before admission), (3) at least a 3.0 Junior-Senior GPA and at least a 3.5 in graduate studies or demonstrated superiority in graduate work, (4) a positive recommendation by a Division of the Department of Public Health, (5) approval by the Doctoral Admission Committee, and (6) approval by the Department Chairman.

No screening examinations are required with the exception of the Behavioral Science and Health Education field. Here if a student does not take a M.S.P.H. from UCLA he/she must take the master's qualifying examination within one year of admission and pass with an excellent score.

Advising

An academic advisor is assigned to each new student by the Division Head of the Division one enters. The student and the advisor together agree upon a study list for each academic quarter. After the student is enrolled for one quarter a three member Guidance Committee is established which includes an advisor in the major field and an advisor in the minor field.

Course Requirements

The course requirements needed to pass the written examination in the major field depend upon the Division which the student enters. Before admission to candidacy, the student must pass written examinations in the major and minor fields, foreign language examination, and the oral qualifying examination. The written examination in the major field is prepared and administered by the Guidance Committee or by the faculty of the Division. The written examination in the minor field is prepared and administered by the representative from the minor field or the Guidance Committee.

One re-examination after failure is allowable but more than one would be granted only in unusual circumstances.

Foreign Languages

One foreign language relevant to the student's major area is required and approved by the Guidance Committee, using a method acceptable to the Graduate Division (usually ETS examination given on campus with a minimum score of 500). It must be taken before the oral qualifying examination. If the student's native language is not English, English may be used.

Readmission

Applications for candidates who have completed the first-year program in the UCLA School of Social Welfare at some prior time and wish to return for completion of work toward the master's degree in social welfare will be considered on an individual basis. If more than five years have elapsed since completion of the first year's work, candidates may be required to enroll for the full two-year program.

Part Time Study

Because of the continuing high demand for admission to full-time study for the M.S.W. degree program, enrollment on a part-time study basis has been suspended for the present.

academics: resources to help you.

In this section of the General Catalog, you will find a listing and description of the many resources—people as well as publications—available to help you get the most out of your academic education at UCLA.

It is important that you recognize, whether you are an undergraduate or graduate student, that the services discussed below are offered in addition to departmental, division or school/college programs of advice and counsel which were outlined in previous sections of this book.

Different Advisors

And, since different types of advisors have different functions, it might be useful to keep those more or less distinct roles in mind.

College or School Advisors answer general questions about the college or school as well as give out information about various petitions, filing procedures and deadlines.

College or School Counselors, on the other hand, can show you how college/school or university academic regulations apply to your individual situation.

Departmental Counselors provide you with information about the courses within their department; information on departmental and major requirements (and advice on meeting them) are also available.

Additionally, departmental counselors may be aware of study, research and employment opportunities in your area of academic interest.

Faculty Advisors can advise you on questions pertaining to course work and offer guidance on research projects or independent study to supplement your courses.

Remember, too, that *every* UCLA faculty member is an advisor if you are having trouble in a course they are teaching. Professors keep office hours for students to ask questions and try out ideas.

Those hours are one of the most valuable parts of your academic experience. Use them.

Peer Counselors are trained students who can give you an informed "students-eye" view on program planning.

Before You Need Them

Here's some advice about advisors: Don't wait until you are in academic difficulty to seek them out—it may be too late. Advisors work with you to *avoid* problems, so see them "before" you need them.

Seeing Your Advisor

Here are some things to keep in mind when you see your advisor. Write down your questions as completely as possible.

Make sure you understand the questions you're asking—and the answers you get. Then, write down the answer. With both your question and the answer to it, ask for clarification until you are sure you fully understand.

Keep a record of your visits, including any printed materials the advisor gives you. In the same way, you are urged to keep a record of your UCLA transactions in general. Save, and carefully store, copies of petitions, gradecards and so forth.

You have the option to try various counselors, to find the one you can relate to most easily.

The Advisors

Currently, UCLA offers the following opportunities for advice on academic questions.

College Counselors

College of Fine Arts A333 Murphy Hall, 825-1554

College of Letters and Science 1312 Murphy Hall, 825-3382

Division of Honors 1331 Murphy Hall, 825-3786

Pre-Health Care 1332 Murphy Hall, Window 9, 825-1817

Pre-Law 1312 Murphy Hall, 825-3160

Departmental Advisors/ Counselors

Aerospace Studies 825-1742; *Ms. Sally Ann Cohen, 251 Dodd, 825-1743*

African Languages Linguistics, 2113 Campbell Hall, 825-0634; *Ms. Sandra Thompson, 2113 N Campbell, 825-7859.*

Analysis & Conservation of Ecosystems Geography, 1255 Bunche Hall, 825-1071; *Dr. Hartmut Walter, 1177 Bunche Hall, 825-3116*

Anatomy 73-235 C.H.S., 825-7161; *Dr. E. G. Zimmermann, 73-235 C.H.S., 825-7161*

Ancient Near Eastern Civilizations Near Eastern Languages, 302 Royce Hall; 825-4165; *Dr. John Callender, 376 Kinsey Hall, 825-2145*

Anthropology 360 Haines Hall, 825-2055; *Ms. Gloria Mann, 305 Haines Hall, 825-1141*

Arabic Near Eastern Languages, 302 Royce Hall, 825-4165; *Dr. Bonebakker, 302D Royce Hall, 825-1294*

Armenian Near Eastern Languages, 302 Royce Hall, 825-4165; *Dr. A.K. Sanjian, 302 Royce Hall, 825-1307*

Art 1300 Dickson, 825-1770; *Ms. Gayle Pica, 1300 Dickson, 825-3077*

Astronomy 8979 Math Science, 825-3323; *Dr. Michael Jura, 8919 Math Sciences, 825-4302*

Biochemistry Chemistry, 3010 Young Hall, 825-4219; *Dr. Richard Weiss, 5086 Young Hall, 825-3621*

Biology 2203 Life Sciences, 825-1680; *Ms. Roxane Alkaslassy, 2312 Life Sciences, 825-1680*

Chemistry 3010 Young Hall, 825-3958; *Dr. D.E. Atkinson, 5070 Young Hall, 825-1159; Ms. Dorothy Seymour, 4016 Young Hall, 825-1859*

Chicano Studies Interdepartment, 3121 Campbell Hall, 825-2363; *Carlos Haro, 3121 Campbell Hall, 825-2363*

Chinese Oriental Languages, 222 Royce Hall, 825-3340; *Mr. Kuo-Yi Pao, 212C Royce Hall*

Classics 7349 Bunche Hall, 825-4679; *Mrs. Evelyn Mohr, 7337 Bunche Hall, 825-3775*

Communications Studies Speech, 232 Royce Hall, 825-3303; *Ms. Marde Gregory, 232 Royce Hall, 825-2541, 825-3303*

Dance 205 Women's Gym, 825-3951; *Ms. Pauline Adam, 205 Women's Gym, 825-3951*

Design Art, 1300 Dickson Hall, 825-3281; *Ms. Gayle Pica, 1300 Dickson Hall, 825-3077*

East Asian Studies Interdepartmental, 3232 Campbell Hall, 825-2974; *Ron Hirano, 3233 Campbell, 825-2974*

Economics 2263 Bunche Hall, 825-1011; *Ms. Lora Clarke, 2253 Bunche Hall, 825-5118*

Economics—Business Education, 244 Moore Hall, 825-7635; *Mr. L.W. Erickson, 244 Moore Hall, 825-2626*

Engineering and Applied Science Undergraduate Studies Office, 6426 Boelter Hall, 825-2826; *Dr. E. Taylor, Dr. R. Stern, Ms. J. Elliot, 6412 Boelter Hall, 825-2941, 825-2942*

Computer Science

Electrical Sciences and Engineering

Energy and Kinetics

Engineering Systems

Materials

Mechanics and Structures

System Science

Engineering—Geology Earth & Space Science, 3806 Geology Building, 825-1475; *Prof. Paul Merified, 3806 Geology Building, 825-4252*

English 2225 Rolfe Hall, 825-1389; *Ms. Edith Lufkin, 4305 Rolfe Hall, 825-1389*

English—Greek Interdepartmental; *See advisors in English and Classics*

English—Latin Interdepartment; *See advisors in English and Classics*

Ethnic Arts Interdepartmental, 205 Women's Gym, 825-3951; *Ms. Wendy Urfrig, 205 Women's Gym, 825-3951*

French 160 Haines Hall, 825-1146; *Dr. Collette Brichant, 160 Haines Hall, 825-3315*

French—Linguistics Interdepartmental; *See advisors in French and Linguistics*

Geography 1255 Bunche Hall, 825-1071; *Ms. C. Leboy, 825-1071, Dr. A. Orme, 825-1071, Ms. Pearl Segal, 825-4655*

Geography-Ecosystems Geography, 1255 Bunche Hall, 825-1071; *Dr. H. Walter, 1177 Bunche Hall, 825-3116*

Geology Earth & Space Sciences, 3806 Geology Building, 825-1475; *Ms. Spring Kark, 3806 Geology, 825-3197*

Geophysics and Space Physics Earth and Space Science, 3687 Geology Building, 825-3231; *Dr. H. Keffer, 3687 Geology Building, 825-7572*

German Germanic Languages, 310 Royce Hall, 825-3955; *Prof. Lyon (A thru L), Prof. Stephan (M thru Z), 310 Royce, 825-3955*

Greek Classics, 7349 Bunche Hall, 825-4679; *Ms. Evelyn Mohr, 7337 Bunche Hall, 825-3775*

Hebrew Near Eastern Languages, 302 Royce Hall, 825-1139; *Dr. Herbert Davidson, 302D Royce Hall, 825-4165, 825-1294*

History 6265 Bunche Hall, 825-1069; *Ms. Sylvia Dillon, 6248 Bunche Hall, 825-3720*

Humanities Interdepartmental, 825-7650; *Dr. A. Band, 302 Royce Hall, 825-3756*

Iranian Near Eastern Languages, 302 Royce Hall, 825-4165; *Dr. John Callendar, 376 Kinsey, 825-2145*

Islamic Studies Center for Near Eastern Studies, 10286 Bunche Hall, 825-4668; *Dr. Michael Morony, 6265 Bunche, 825-3215*

Italian 340 Royce Hall, 825-3246; *Dr. Franco Masciandaro, 340A Royce Hall, 825-3055*

Italian and Special Fields Interdepartmental—students wishing to major in the Italian and Special Fields major should see the Undergraduate Advisors in each Department. (Either Anthropology, Art History, Classics, English, History, Linguistics, Music, Portuguese, Political Science, Spanish, or Theater Arts, as well as Italian.)

Japanese Oriental Languages, 222 Royce Hall, 825-3340; *Dr. Robert C. Epp, 222 Royce Hall, 825-8165*

Kinesiology 124 Women's Gym, 825-4500; *Ms. Karen Wallace, 124 Women's Gym, 825-4500*

Latin Classics, 7349 Bunche, 825-4679; *Ms. Evelyn Mohr, 7337 Bunche Hall, 825-3773*

Linguistics 2113 Campbell Hall, 825-0634; *Prof. Sandra Thomson, Prof. Pamela Munro, 2113 Campbell, Prof. Russell Schuh, 2113F Campbell, 825-5069*

Linguistics—English, French, Italian, Philosophy, Psychology, Oriental Languages Students wishing to major in any of these six Interdepartmental majors should consult the Undergraduate Advisor in the Linguistics Department, as well as the Undergraduate Advisor in the other Department involved.

Mathematics 6356 Math Sciences, 825-4701; *Ms. Sally Yamashita, 6356 Math Sciences, 825-4701, Dr. Brown, 825-4701.*
Also for:
Math—Applied Science, System Science, Computer Science; *Dr. Kirby Baker, 6617B Math Sciences, 825-1947.*

Meteorology Atmospheric Sciences, 7127 Life Sciences, 825-1954; *Dr. J. Edinger, 7101 Math Sciences, 825-3057.*

Microbiology 5304 Life Sciences, 825-3578; *Dr. W.R. Romig, 5925 Life Sciences, 825-4425.*

Military Science 825-7381; *To be arranged.*

Motion Picture—Television Theater Arts, 2310 MacGowan Hall, 825-5761; *Mr. Jim Birge, 1319 MacGowan Hall, 825-1766.*

Music 2449 Schoenberg Hall, 825-4761; *Ms. Linda Palmer, 2438 Schoenberg Hall, 825-4761.*

Naval Science 123 Men's Gym, 825-9075; *Lt. Jon McComas, USN, 825-9075.*

Near Eastern Languages 302 Royce Hall, 825-4165. *To be arranged.*

Oriental Languages 222 Royce Hall, 825-3440; *See Chinese or Japanese.*

Philosophy 321 Dodd Hall, 825-4641; *Dr. Donald Kalish, 366 Dodd Hall, 825-1476, 825-4641.*

Physics 3-174 Knudsen Hall, 825-3440; *Dr. Robert Satten, 6-130H Knudsen Hall, 825-1522; Dr. Ernest Abers, 3-168 Knudsen Hall, 825-3641; Ms. Julie Sturm, 3-145A Knudsen Hall, 825-2453.*

Political Science 4289 Bunche Hall, 825-4331; *Ms. Vicki Waldman, 4250 Bunche Hall, 825-3862.*

Portuguese Spanish and Portuguese, 5303 Rolfe Hall, 825-1036; *Ms. Isabel Herwig, Eduardo Dias, 5303 Rolfe Hall, 825-1036.*

Pre-Pharmacy *Same as above.*

Pre-Physical Therapy *Same as above.*

Psychology 1283 Franz Hall, 825-2961; *Kristen Marr, 825-2549, 825-2730, 1531 Franz Hall.*
Also for: Psychobiology and Quantitative Psychology.

Public Health School of Public Health, 51-279 C.H.S., 825-5144; *Ms. Oliver Johnson, 51-279 C.H.S., 825-5775.*

Scandinavian Languages 310 Royce Hall, 825-2432; *Dr. Mary-Kay Norseng, 310 Royce Hall, 825-1606.*

Semitics Near Eastern Languages, 825-4165; *To be arranged.*

Slavic Languages 115 Kinsey, 825-2676; *Dr. Michael Heim, 115-L Kinsey, 825-7894.*

Sociology 264 Haines Hall, 825-1313; *Ms. Mary Jo Johnson, 247 Haines Hall, 825-1215.*

Spanish Spanish and Portuguese, 5303 Rolfe Hall, 825-1036; *Dr. Susan Plann, 5334 Rolfe Hall, 825-1036.*

Speech 232 Royce Hall, 825-3303; *Ms. Marde Gregory, 232 Royce Hall, 825-3303, 825-2541.*

Theater Arts 2310 Mac Gowan Hll, 825-5761; *Mr. Jim Birge, 1319 Mac Gowan Hall, 825-1766.*

Turkish Near Eastern Languages, 302 Royce Hall, 825-4165; *Dr. Bodrogligeti, 302 Royce Hall, 825-4165.*

About ASK

ASK is a network of 16 trained student counselors. ASK also sponsors meetings about educational and career concerns of UCLA students. ASK gives you a chance to get the guidance you need in an informal, conversational context.

You can find ASK at these locations:

Days Ackerman Union Monday-Friday 10 a.m. to 3 p.m.

Campbell Hall (North entrance) Monday-Friday 11 a.m. to 1 p.m.

Powell Library Monday-Friday 11 a.m. to 1 p.m.

Court of Sciences Monday-Friday 10 a.m. to 2 p.m.

Evenings All four undergraduate dorms Monday-Thursday 5:30 to 7:30 p.m.

If You're a "Pre Health Care" Student

Specific counselors/advisors are listed below. You can also find general information as well as attend open counseling sessions. The Pre-Health Care Advisory Office is in 1332 Murphy Hall, Window 9, phone 825-1817. ASK Counselors in the Court of Sciences can provide further information and referrals. They are available at a table by the steps of the Chemistry Building (Young Hall).

Finally, specific "pre-health care" advising resources include:

Pre-Dental—School of Dentistry 53-038, School of Dentistry; Ms. Ann Beech, 10-137 School of Dentistry 825-7146; Prehealth Care Advising Office, 1332 Murphy, Window 9, 825-1817.

Pre-Dental Hygiene—School of Dentistry, 53-038 School of Dentistry; Prehealth Care Advising Office, 1332 Murphy Hall, Window 9, 825-1817.

Pre-Nursing—School of Nursing 12-139, Center for Health Sciences, 825-7181. Prehealth Care Advising Office, 1332 Murphy Hall, Window 9, 825-1817.

Pre-Optometry, and *Pre-Physical Therapy* students are encouraged to contact the Prehealth Care Advising Office, 1332 Murphy Hall, Window 9, 825-1817. Pre-Pharmacy students may contact Robert A. LeWinter, A722 Center for Health Sciences, 825-7101.

Pre-Law Advising

While individual pre-law counseling is not currently available, the College of Letters and Science holds bi-weekly open counseling sessions for those who need to know about application and selection procedures. These are advertised in "Campus Events" of the *Daily Bruin*. Other campus resources—see "Student Services" can also be quite useful to prospective law students. For LSAT preparation, consult the Learning Skills Center, 97 Dodd, 825-7744. For application and selection procedures and informational meetings times, phone 825-3160.

Alternative Academics

UCLA has a variety of options that allow you to bring an added dimension to your academic program.

Designing Your Own Major

The requirements that allow you to be eligible for an individual major vary with each College or School at UCLA. If you qualify—usually after submitting a detailed course of study under the sponsorship of a regular faculty member as well as maintaining the specified grade point average in your college or school—the individual major allows you to tailor your interests and scholarly pursuits.

Designing Your Own Classes

Most departments offer the "199" or individual study course for seniors or juniors with a "B" average or better who want to pursue a particular research interest. Consult your department, or the departmental listings in the "courses" section of this book for more information.

The Lower Division Program

The Lower Division Program is an alternative undergraduate program organized in a sequence of five study units of one quarter each:

Unit 1—"Freedom and Control"
Unit 2—"Contemporary America: The Dilemmas of the Present in the Perspective of the Past"
Unit 3—"The Origins of Life"
Unit 4—"The City in Historical Perspective"
Unit 5—"The Mythic Imagination"

Students have the option of entering or leaving the program at the end of each study unit. Those remaining with the program have the advantage of satisfying College of Letters and Science Breadth requirements.

The program attempts to create a sense of community on campus, and students have the program lounge or "Commons" available to them to study or socialize.

Each LDP unit pproaches a general subject area through the integration of several academic disciplines into one comprehensive "unit" of study. Each unit is under the direction of one faculty member with several other distinguished faculty members also contributing their particular field of expertise. Within each unit, students participate with faculty in lectures, small discussion groups and seminars where they will be encouraged to express themselves in writings and presentation of individual and/or group papers and projects related to the topics being studied.

For more information about the Lower Division Program, visit 374 Kinsey Hall, or telephone 825-7104.

Programs for Freshman and/or Sophomores

UCLA features a range of programs centering on the concerns of new students. Among them are:

Orientation

The Orientation Program takes place at UCLA during the summer and prior to the start of the Winter and Spring Quarters. It brings extensive academic counseling to all new undergraduates entering the university. Individual counseling (fulfills the academic advising recommended for all students and required by some schools and colleges) as well as peer group sessions are offered. In addition, Orientation gives new students various perspectives for dealing with common problems encountered by new students. Programs for parents are also offered. You can get information on the costs and dates of the Orientation Program by visiting 2224 Murphy Hall or by telephoning 825-3626.

Mentor Program

The Mentor Program at UCLA was created to ease the adjustment and acclimation of new students. Faculty, staff and advanced standing students are matched with entering undergraduates in order to personalize the UCLA experience. If you would like more information about the Mentor Program, drop by Campbell Hall 2229 or telephone 825-8425.

Freshman/Sophomore Seminars

Students who are interested in enriching their first-year experience at UCLA by benfiting from a program featuring small class size, association with a senior faculty member and no prerequisites, should look into the Freshman/Sophomore seminar program.

Credit is given for the Freshman/Sophomore program, applied differently depending upon your college or school.

You can get more information in room 374 Kinsey or by telephoning 825-2480.

Freshman/Sophomore Professional School Seminar Program

This program introduces students to the relationships which exist between various academic disciplines and professional practice. It also seeks to build upon the common characteristics which link various professions to one another. Students are introduced to these characteristics in the following way:

1. In order to find answers to problems, professionals must bring together information from varying disciplines.

2. Because of the way that social need often drives scientific investigation, all professionals must be sensitive to the complex interplay between basic research and social problems.

3. Professionals must bring their creativity to the task of translating theoretical knowledge into practical application.

4. Professionals are subject to high level and ethical standards because they exercise control over individuals and society.

Students seeking to define their own academic and career goals will find that these seminars provide a valuable opportunity to assess the role of professionals today and to understand the challenges and demands that stimulate professional activity. The program offers an unparalleled opportunity to be exposed to the views of professionals.

Professional School Seminars are usually offered in the winter and spring quarters. They may not be used to fulfill College of Letters and Science Breadth Requirements. Seminar enrollment is limited in an effort to allow lower division students closer contact with an established member of a professional school faculty.

More information is available in room 374 Kinsey Hall, or by telephoning 825-2480.

Council on Educational Development (CED)

The Council on Educational Development (CED) was created by the Los Angeles Division of the Academic Senate in May 1968. The Council's purpose is to promote academic enrichment and encourage educational diversity and innovation. In fulfilling these objectives, the Council works closely with departments, colleges, schools and research centers on the UCLA campus.

The Council seeks out and, upon approval, supports academic projects, programs and individual courses of scholarly excellence not otherwise available in the University, including courses of timely or topical importance. The Council can offer a course as many as three times, although in principle the Council seeks to encourage departments and schools to adopt appropriate courses into their regular curriculum.

For information about CED courses consult the *Schedule of Classes* and the Registration and other selected issues of the *Daily Bruin*. If you want to find out about credit towards graduation for CED courses, you should consult your major department, college, or school. The CED office is located in 3121 Murphy Hall; telephone 825-5467.

Education Abroad Program

The Education Abroad Program provides opportunities for qualified UC students to earn a full year of academic credit while studying at overseas universities. Currently, there are EAP students enrolled on 44 campuses in 19 different countries. EAP students study with the local students of EAP-affiliated institutions in each country, giving them a unique opportunity to enhance greatly their language skills and to become involved in the culture of the host country, and university.

EAP participating institutions currently include:

Universities in the United Kingdom
- Birmingham
- Kent
- Edinburgh
- Leeds
- London School of Economics
- Polytechnic of Central London
- St. Andrews
- Stirling
- Sussex
- Exeter
- Bath
- Warwick
- Westfield College of the University of London

University College, Nairobi, Kenya

Universities in Israel
- Haifa
- Jerusalem (Hebrew University)

American University of Cairo, Egypt

Chinese University of Hong Kong

International Christian University, Tokyo, Japan

Universities in France
- Bordeaux
- Grenoble
- Marseille
- Montpelier
- Paris (Film Program)
- Pau-Paris
- Poitiers

Georg-August University, Goettingen, Germany

Trinity College, Dublin

Universities in Italy
- Padua
- Bolgna
- Venice

University of Bergen, Norway

Universities in Spain
- Barcelona
- Madrid

University of Lund, Sweden

National Autonomous University of Mexico (UNAM), Mexico City

University of Sao Paulo, Brazil

State University of Leningrad, USSR

University of Vienna, Austria

Pontifica Universidad Catolica del Peru

Designed primarily for undergraduates, the program is open to students who have upper division standing in the University, an overall B average, seriousness of purpose, and an indication of ability to adapt to a new environment. For the centers in Austria, France, Germany, Mexico, Peru and Spain, two years of university-level work in the language of the country with a B average (or equivalent thereof) are required. For all other centers, the language requirements are variable. Each UC Study Center abroad operates under the supervision of a UC faculty member.

Participants pay only the usual UC Registration and Educational fees. The full range of University financial aids is available. UC units and grade points are awarded for overseas courses. A complete range of orientation services are provided, including opportunities to meet with returned students and students attending UCLA from EAP-affiliated universities. Detailed information sheets about these campuses are available in the EAP office, 2221-B Bunche Hall, or by telephone at 825-4889 or 825-4995.

Experimental College

The Experimental College is open to all UCLA Students and offers a variety of innovative classes. There is no credit for Experimental College classes; you are not graded, either. Students also have an opportunity to design- and teach- classes.

You can find out more about the Experimental College by telephoning 825-2727; 409 Kerckhoff Hall.

EXPO Center (Experiential Programs and Opportunities)

The Experiential Programs and Opportunities Center serves as an information clearinghouse and placement service for off-campus opportunities and provides UCLA students, faculty, and staff access to experiences which can supplement the traditional educational format of the lecture hall, laboratory and library.

It offers counseling and information in the following areas:

International opportunities. Provides counseling and information on international travel, overseas study programs, tours, charter flights, visas, passports, health regulations, accommodations, and student discounts. Issue international student identity and youth hostel cards.

National opportunities. EXPO provides information on training programs, internships, grants and fellowships, student hostels, hotel discounts, transportation within the United States; maintains UCLA "ride board."

Local opportunities. Provides information on cultural, recreational and educational activities throughout Los Angeles and Southern California Areas.

The Center offers placement and brokerage services in the following:

Internship Programs. The Center administers the UCLA International, Washington, Sacramento, and Los Angeles Government Internship Programs. It supervises the Model United Nations Programs and the VITA Volunteer Income Tax Assistance Program.

Voluntary Action Center. Provides placement opportunities for volunteers in 3200 different social service agencies in Los Angeles requiring skills from sports to clerical.

For more information about EXPO programs, visit A213 Ackerman Union, or telephone 825-0831.

University Extension

University Extension, UCLA, offers more than 4200 classes and special programs each year, many of them innovative and experimental in content, format and teaching methods, with extensive use of media technology. Extension programs are designed to bring to adults in the community, on a part-time basis, the benefits of the talent, research and resources of the University of California. Credit and non-credit courses in nearly every academic discipline and in interdisciplinary areas provide opportunities for professional/career advancement; for expansion of cultural horizons; for development of scientific literacy; for growth in personal awareness and human interrelationships; for enhancement of capability to assess and deal with the great issues of politics and society in this era of fundamental reappraisal of established ideas and values. In the broad social view, Extension has a primary responsibility for the public service functions of the University, including community development programs and the application of University resources toward the solution of crucial statewide and urban problems.

Programs

Types of programs include regular campus-equivalent classes; lecture series; discussion groups; conferences, institutes, and short courses; community development and other public service programs; film and television series; correspondence study; residential programs; sequential certificate programs; studio/workshop courses in the creative and performing arts; an extensive creative writing program series; family field study trips and foreign travel-study programs; special programs for the blind and other handicapped; counseling and testing.

Credit

For information on transferability of credit earned through Extension toward the Bachelor's Degree at UCLA, please contact the Extension Information and Advisory Service (see "Additional Information" below).

Continuing Education Units

Many Extension non-credit programs offer the opportunity to earn CEU (non-credit Continuing Education Units). One CEU is awarded for each 10 contact hours of instruction. CEU are recorded on the student's transcript. They are widely accepted for relicensure and other professional/career-related purposes.

Additional Information

To obtain the current UCLA Extension catalog, call (213) 825-8895.

An Information and Advisory Service (IAS) is available to all for assistance in planning long or short-term study through Extension, for credit or not for credit. There is no charge for this service. Those interested may write, telephone or visit the IAS offices, Room 114, UCLA Extension Administration Building, at the southwest corner of he campus, 10995 Le Conte Avenue, Los Angeles, California 90024. Telephone (213) 825-1251.

Veterans may use the educational benefits available to them under Federal and State laws to enroll in University Extension classes, provided the classes are part of their prescribed and recognized objectives approved by the Veterans Administration.

Summer Sessions

UCLA offers two six-week Summer Sessions each year. Summer session study is designed to provide academic enrichment, to help students enroll in courses they were unable to take during the year because of schedule conflicts, to correct course deficiences in preparation for graduate school, and to offer small class size.

Credit

Summer session courses may apply toward the minimum unit requirement of the College of Letters and Science and the College of Fine Arts. Consult the Colleges to make sure.

The fees for Summer Sessions differ from those of regular academic quarters because Summer Sessions receive no state support.

Admission

Admission to a Summer Session does not constitute admission to a regular session. Students planning to attend the University in regular session are referred to the "admission" section of this catalog.

You can get more information about Summer Sessions from 1254 Murphy Hall; telephone 825-8355.

The University Library

The University Library system on the Los Angeles campus consists of nineteen libraries which are designed to serve the study and research needs of students, faculty, and staff in all the academic and research disciplines offered on the campus. The libraries collectively contain more than 4 million volumes and extensive holdings of government publications, newspapers, pamphlets, manuscripts, microforms, music scores, recordings in cassette, video cassette, and tape form, and slides. Access is offered to a wealth of information stored in computerized form. In addition, students, faculty, and staff have ready access to the collections of the libraries on the other University of California campuses and of libraries throughout the country through interlibrary loan services. The Library regularly receives nearly 60,000 serial publications, which are listed in a library publication, *Serials Currently Received at UCLA*. This may be consulted at principal service points in campus libraries. Card catalogs in each library and a variety of microfiche catalog supplements list all cataloged and partially-cataloged books in those libraries. The main card catalog in the University Research Library lists holdings in all campus libraries and the William Andrews Clark Memorial Library.

Students have access to the stacks of most of the libraries at UCLA. Orientation to and guidance in the use of campus library facilities, collections, and services is available at each campus library. Self-service photocopying machines for copying periodical articles and portions of books are available in most library units on campus.

University Research Library

Here are found the principal collections in the social sciences and humanities, in open stack arrangement, with seating for 2,000 readers. In addition the Reference Room, Circulation, and the Periodicals Room are located here, serving these collections. The Microform Reading Service, housing some 80,000 reels of microfilm of newspapers, periodicals, and books, contains a variety of reading and copying equipment. The Graduate Reserve Service places books on reserve in open stacks for graduate courses.

Extensive study and research facilities are provided in the University Research Library, including typing and group study rooms and a self-service photocopy center.

The College Library

The services and collections of the College Library, located in the Lawrence Clark Powell Library Building, are designed to meet most of the basic study needs of undergraduates. The College Library book and periodical collections are maintained in open stacks, with course reserve materials available for loan at the Circulation Desk. Microform materials may also be found. Full reference services are offered by librarians at the Reference Desk. The College Library maintains in its Audiovisual Services cassette collections of poetry readings, plays, speeches, and documentaries, and a selection of popular music. A variety of equipment, including audio cassette and video cassette players, is available in this special service. Study carrels and reading rooms are found throughout the building. Typing facilities are also provided. The College Library also offers a self-paced, self-directed non-credit course of instruction in the use of the library, "Learning Library Skills," for a charge of $5.00.

The Department of Special Collections, in the Research Library, contains rare books and pamphlets, manuscripts, the University Archives, certain subject collections of books, early maps, and files of early California newspapers.

Other collections of rare materials are the *Belt Library of Vinciana* in the Art Library, the *Benjamin Collection of Medical History* in the Biomedical Library, and the *Gross Collection of Business and Economic History* in the Management Library.

The Public Affairs Service. Located in the Research Library, this department provides a coordinated service embracing collections of official publications of governments and international organizations and of other books and pamphlets in the social sciences. It is a depository for the official publications of the United States government, the State of California, California counties and cities, the United Nations and some of its specialized agencies, and a number of other international organizations. Also available are selected publications of the other states and possessions of the United States, publications of foreign governments, books and pamphlets on local government, and reference and pamphlet materials on industrial relations and social welfare. The John Randolph Haynes and Dora Haynes Foundation Collection is administered by the Public Affairs Service. This service provides access to research data which are available on computer tapes.

Other Campus Libraries

The resources of the special libraries on the campus are devoted mainly to the subjects of concern to the departments or professional schools in which they are situated. The libraries serve primarily these departments and schools, but their resources, except those in the English Reading Room, are available to all students and faculty members of the University.

The Biomedical Library, in the Center for the Health Sciences, has collections in all of the health and life sciences. Materials for engineering, astronomy, meteorology, and mathematics are kept in the *Engineering and Mathematical Sciences Library*. Education, kinesiology, and psychology are the principal subjects served by the *Education and Psychology Library*, which also has collections in the field of Teaching English as a Second Language. The *Management Library* serves the Graduate School of Management and the myriad subject fields relating to business and management. The following libraries serve the indicated fields: *Architecture and Urban Planning, Art, Chemistry, Geology-Geophysics, Law, Maps, Music, Oriental Languages, Physics, Theater Arts*, and the *University Elementary School*.

The Library Photographic Service, in the Powell Library Building, offers complete documentary photographic service, where photostats, microfilms, slides, ozalid prints, and other photographic work are done.

Supplementing the University Library is the William Andrews Clark Memorial Library of about 75,000 books, pamphlets, and manuscripts, featuring English culture of the seventeenth, eighteenth, and nineteenth centuries, and the history of Montana. Materials in the Library do not circulate. The Clark Library sponsors an annual program of summer postdoctoral fellowships. The areas of study are based on the particular strengths of the Library's holdings. Each year a Clark Library Fellowship is granted to a UCLA graduate student working toward a doctorate within one of the Library's fields of interest, and each year also an eminent scholar is brought to the Library as its Senior Research Fellow. A distinguished scholar is appointed each year to the Clark Library Professorship. This Library is not on the University campus, but is situated at 2520 Cimarron Street, at West Adams Boulevard.

The Clark Library is open Monday through Friday from 9 a.m. to 4:45 p.m. Leaflets describing the Clark Library are available at the Reference Desk in the Research Library, and information on University transportation to the Clark Library may also be obtained here.

Computer Reference Services are offered on a partial cost-recovery basis by reference librarians in the Research Library Reference Department, the Public Affairs Service, the Education and Psychology Library, the Biomedical Library, the Engineering and Mathematical Sciences Library, the Physics Library, the Chemistry Library, and the Geology-Geophysics Library. The services are based on computerized versions of a number of important abstracting and indexing publications, primarily covering subjects in the fields of the social, life, health, and physical sciences, technology, and education. Descriptions and price lists are available at reference desks throughout the Library system.

The resources and services of all the campus libraries are available to all students, faculty, and staff of the University. A Library handbook, describing the organization and services of the University libraries and listing their schedules of hours, may be obtained in any of the campus libraries.

Research Facilities, Museums, Other Resources

Recognizing the value of an interdisciplinary approach to the search for knowledge, the University maintains Regentally designated organized research units and other research programs outside the usual departmental structure. An organized research unit consists of an interdepartmental group of faculty and students engaged in research with them. Research units aid research and may enhance the teaching of participating members of the faculty, but they do not offer regular academic curricula or confer degrees. They may provide research training to graduate students employed in research programs with faculty supervision. These units, along with more specialized activities in focal fields, provide significant support to the educational program and enhance the overall academic quality of the institution.

Universitywide

The **Institute of Geophysics and Planetary Physics** is engaged in interdisciplinary programs related to studies of the interior of the earth, moon, and other planets, the fluid and gaseous parts of the planets, and interplanetary space. Major research programs being actively explored in the laboratories of the Institute include investigations into the origin of the magnetic field; the configuration of the earth's magnetic field in space; the earth-sun interaction; structure and properties of the lunar surface and interior; meteorites; origin of the earth's magnetic field; the history of the solar system; astrophysical plasmas; high energy astrophysics; ocean-atmosphere interactions; seismology; earthquake control and prediction; internal structure of the earth; earth tides; continental drift and plate tectonics; properties of materials under high pressures and temperatures; mineral synthesis; radiocarbon archaeology; geochronology; glaciology; petrology and metamorphism; isotope geochemistry; origins of life; man's interaction with the environment.

The laboratory facilities of the Institute and its faculty are available to guide the dissertation research of students in the physical sciences, including the Departments of Earth and Space Sciences, Physics, Chemistry, Mathematics, Atmospheric Sciences, Astronomy, Engineering and Anthropology.

Leon Knopoff, Associate Director

Campuswide

The **Institute of American Cultures** is charged with promoting and coordinating the activities of the four ethnic centers—the Center for Afro-American Studies, the American Indian Studies Center, the Asian American Studies Center, and the Chicano Studies Center. The Institute conducts no research itself, but fulfills its purpose by making research funds available to the ethnic centers and by encouraging and coordinating the efforts of the centers to recruit faculty and develop new instructional programs. The Institute is guided by an Executive Committee consisting of the four center directors, three faculty members (one of whom serves as the chair), and the Vice Chancellor for Institutional Relations (ex officio). The Director of the Institute is the Executive Vice Chancellor.

The **Center for Afro-American Studies** is an organized research unit established on the UCLA campus in 1969. Its basic mission is to encourage and support research that enhances the interpretation of the Afro-American experience. Pursuant to this objective, it provides faculty and graduate student research grants, sponsors in-house research projects, supports interdisciplinary symposia, encourages related curriculum development, and most important, relates these findings to the community-at-large via lectures, publications, and to a limited extent, cultural programs.

Claudia Mitchell–Kernan, Director

The **American Indian Studies Center** acts as an educational catalyst in a variety of ways. It encourages new programs of study, promotes faculty development and systematic research, and develops library materials and curricula related to American Indian Studies. In addition, the Center is involved with the cultural activities of the Indian community and sponsors lectures, symposia, conferences, and workshops relevant to the American Indian development. Special emphasis is upon coordinating the educational needs of American Indian students with the University and the Community. Kenneth Morrison, Acting Director

The **Asian American Studies Center** seeks to provide a deeper understanding of a particular area of study by the development of related human and material resources. It promotes the systematic development of material resources related to Asian American studies through an aggressive library acquisitions program, coordinated interdisciplinary research, and a broad publications program. Human resources are nurtured by vigorous curriculum development efforts, and courses have been designed with degree-granting programs at both the undergraduate and graduate levels. The Center supports and encourages promising graduate students and postdoctoral scholars to pursue their interests in this vital field of study, as well as sponsoring a variety of conferences, lectures, symposia, and cultural events. In addition, the Center supports a wide variety of projects designed to channel the resources of the University and the fruits of the Center's other areas of activity to Asian American communities

Lucie Cheng Hirata, Director

The **Chicano Studies Center** is an organized research unit established at UCLA in 1969. Its main purpose is to facilitate interdisciplinary academic research related to the Chicano experience. Pursuant to this primary purpose, the Chicano Studies Center seeks the development of Chicano Studies as a unique and scholarly area of activity recognizing that the University and national development of Chicano Studies are interrelated. The objectives of the Chicano Studies Center are: (1) to initiate and support faculty and student development in Chicano Studies; (2) to identify, explore, and document original research on critical issues facing the Chicano community; (3) to support the creation and development of Chicano Studies at other institutions, and the organization of professional associations, conferences, and meetings devoted to Chicano Studies; and (4) to facilitate public service by focusing the unique research, publications, and material collection development resources of the University on the Chicano community.

Juan Gomez–Quiñones, Director

The **Institute of Industrial Relations**, authorized by the Legislature of the State of California in 1945, is concerned with two principal types of activity. The first is an interdisciplinary research and publishing program directed primarily toward the study of labor-management relations, wages and related problems, economic security programs, the labor market, the impact of technological change, the quality of working life, the problems of poverty and minority groups, human relations, labor law, labor history, comparative studies, and manpower problems. Research staff members of the Institute are usually drawn from the regular faculties of the Graduate School of Management, the Departments of Economics, Political Science, and Sociology; and the School of Law. This program affords opportunities to graduate students specializing in personnel management and industrial relations to engage in investigative work under expert guidance. The second main activity consists of community and labor relations programs serving management, unions, the public, and other groups interested in industrial relations activities. The programs consist of public lectures, conferences, symposia and institutes of varying duration, and include a series of courses through University Extension leading to a Certificate in Industrial Relations.

Frederic Meyers, Director

The **Institute for Medical Engineering**, approved by the Regents in 1976, will, when it is activated, provide a physical and intellectual multi-disciplinary environment for faculty and students to conduct research on important medical problems which lie at the interface of health science and engineering. It will seek to encourage the application of the most creative engineering and medical techniques to problems of direct medical significance. As an interdisciplinary organization, it will include faculty participants from the Schools of Engineering, Medicine, Dentistry and Public Health, and will anticipate a growing involvement with other departments and schools. The Institute will receive support from a number of sources, including the University, a large private endowment, Federal and State agencies, foundations and gifts. Coordinator for the Institute until the Director is announced: Frederick G. Allen, 7714 Boelter Hall, School of Engineering and Applied Science.

The **Molecular Biology Institute** was established to serve various interested departments of the biological, medical, and physical sciences in the coordination, support, and enhancement of research and training in molecular biology. Interests and activities of the Institute encompass all approaches which aim to explain biology at a molecular level, with particular emphasis on correlation of structure and function. These include study of structure and function of macromolecules, molecular genetics, and virology; bioenergetics, catalysis and control; molecular basis of cellular architecture, development, evolution, neurobiology and oncology. Staff members from departments in biological, physical, and medical sciences participate in Institute programs, and the Institute aids departments in graduate training and postdoctoral programs in the general area of molecular biology.

Most of the Institute staff are housed in the Molecular Biology Institute building completed in 1976. Approximately one-half of the building space is devoted to the Parvin Cancer Research Laboratories. The Institute building is located adjacent to the Chemistry, Biology and Bacteriology Departments and close to the School of Medicine.

Paul D. Boyer, Director

The **Laboratory of Nuclear Medicine and Radiation Biology** conducts research in the fields of biomolecular and cellular science, environmental biology, and nuclear medicine. It is funded through a contract with the Department of Energy (formerly ERDA and AEC). Most of the program is conducted in Warren Hall, located on the West Medical Campus.

Warren Hall is well-equipped with modern research tools including a cobalt radiation source with an activity of 10,000 curies at the time of installation. The Laboratory also operates a biomedical cyclotron at the Center for the Health Sciences which produces isotopes and is capable of activating procedures in support of its research programs. The Laboratory staff consists of about 190 scientists, technicians and supporting personnel representing many disciplines. Graduate student and postgraduate research programs are supervised by the staff in several fields. O. R. Lunt, Director

Dentistry

The **Dental Research Institute**, located mainly on the 7th floor of the School of Dentistry, involves faculty, graduate and professional students doing original research in six program areas as follows: (1) Immunology/Immunogenetics; (2) Periodontal/Oral Ulceration Disease; (3) Ultrastructure and Cell Biology; (4) Oral Neurology; (5) Craniofacial Biology; and (6) Restorative Biomaterials. M.S. and Ph.D. students are sponsored by individual Institute faculty members. An informational brochure outlining current studies of Institute members is available from the Office of the Director (CHS 43-180, Ext. 55478).

William H. Hildemann, Director

Letters and Science

The **African Studies Center** provides a framework for furthering teaching and research on Africa involving social sciences, education, linguistics, humanities, fine arts, law, the health sciences and the natural sciences. The Center participates in an interdisciplinary master's degree program in African Area Studies and in an undergraduate program in conjunction with degrees in the social sciences or African languages. The Center has also become increasingly involved in special programs which entail the dissemination of knowledge about Africa to the larger community. Through its Research Committee, the Center makes grants to assist UCLA faculty members and students with research on Africa. It participates in administering the NDEA Title VI fellowship awards for the study of African languages, and offers a limited number of supplementary grants-in-aid to students both in master's and in doctoral programs whose focal point is Africa. The Center provides information to faculty and students on extramural sources of research support and employment opportunities which require knowledge of Africa. It also brings Africanists to the University for lectures or as Visiting Professors or Research Associates, and sponsors interdisciplinary colloquia focused on integrative and innovative themes. Other Center activities include the publication of quarterly journals, *African Arts*, UFAHAMU, a student journal, *Studies in African Linguistics*, and *The Journal of African Studies*, *African Law Studies*, *The African Studies Center Newsletter*, *Research in Progress*, as well as occasional papers and books based on the interdisciplinary colloquia. The Center also provides facilities for a student organization, the African Activist Association, which is active in sponsoring events that focus public attention on important aspects of African culture or politics.

Michael F. Lofchie, Director

The **Institute of Archaeology** was established in the summer of 1973 for the purpose of developing and coordinating all aspects of activities relating to archaeology. Its goal is to contribute to the ideal of a comprehensive interdisciplinary reconstruction of the human past, as evidenced especially from artifactual remains.

The Institute includes faculty members from eleven academic units at UCLA, as well as faculty from various other UC campuses. It provides an intellectual focus for all University of California archaeologists, facilitating the exchange of views on theoretical models and technical developments. It does so by sponsoring lectures, seminars, symposia and arranging for visiting faculty; it also helps support excavation programs of the individual archaeologists active on campus. Through the Archaeological Survey, the Institute serves the needs of California archaeology, especially in the southern part of the state. Besides occasional publications, the Institute issues a yearly journal, a series of technical monographs and a series devoted to major archaeological reports and investigations. Given the considerable amount of public interest in archaeology, the Institute promotes a variety of activities which serve a broadly based need in the off-campus community, such as an Extension curriculum in archaeology, field trips, public lectures and publications for the interested lay public.

Giorgio Buccellati, Director

The **Center for the Study of Comparative Folklore and Mythology** is an interdisciplinary research facility that supports and coordinates the comparative study of folklore and mythology from throughout the world. Housed in the Center suite are the Wayland D. Hand Library of Folklore and Mythology, the Western Folklore Archive, the John Edwards Memorial Foundation, a recording studio and sound laboratory, and collections of field recordings, phonograph records, films, and slides. Foci of current Center affiliates' research include American popular beliefs and superstitions, American legends, Anglo-American ballads, Irish narrative songs, Chicano traditional arts and oral history, Indo-European mythology.

Robert A. Georges, Acting Director

The **Latin American Center** is an organized research unit providing support for the multidisciplinary study of Latin America. With over 80 affiliated faculty and visiting scholars, the Center is a major resource for individual and collaborative research activities in the social sciences, arts, humanities, and professions. Cooperation between the Center and seven colleges and professional schools of the University is facilitated by the Dean's Advisory Committee for Latin American Studies.

Designated as a "center of excellence" by the U.S. Department of HEW, the NDEA Latin American Language and Area Studies Center at UCLA supports the interdisciplinary B.A. and M.A. degree programs in Latin American Studies and coordinates articulated graduate degree programs with the Schools of Public Health, Library and Information Science, Management, Education, and Engineering and Applied Science. NDEA Title VI fellowships, research assistantships, and grants-in-aid are available to students in the graduate degree programs.

The Center also sponsors an extensive program of lectures, films, colloquia, and other special events for the University and general public. Additional outreach activities include pre-collegiate curriculum development, special offerings through University Extension, programs for community college instructors, and participation in the Southern California Conference on International Studies.

The Center publishes a series of documentary and scholarly publications, which are the *Statistical Abstract of Latin America*, the *Latin American Studies Series*, the *Reference Series*, the *Journal of Latin American Lore*, and the *Hispanic American Periodicals Index (HAPI)*.

Ludwig Lauerhass, Jr., Director

The **Center for Medieval and Renaissance Studies** is concerned with understanding how, between about A.D. 300 and 1650, European culture in all its aspects built up an unprecedented store of energy and competence. Since during that time the West was an "emerging" society, open to external influences from North Africa and the Near East, the Center embraces not only the Latin West but also Byzantium, the Slavic world, Islam, Judaism, and the minor Eastern Christian communities, as well as the Germanic and Celtic worlds; its interests encompass the arts and sciences, history and languages.

As an organized research unit, the Center does not currently offer courses or degrees. It assists the research of faculty members in various ways; sponsors conferences and publishes two annual journals and three series of books. The Center annually awards several research assistantships to graduate students; three of these are designated for Byzantine studies.

Fredi Chiappelli, Director

The **Gustave E. von Grunebaum Center for Near Eastern Studies** was established to promote individual and collaborative research and training in this area. The Center encourages the research of individual faculty members and collaborates in the solution of basic research problems which require institutional backing. The Center also sponsors lectures, seminars and conferences on various topics falling within the scope of Near Eastern studies, and actively promotes an extensive publication program.

Malcolm H. Kerr, Director

The **Center for Russian and East European Studies** was established to promote, assist and coordinate research and training on Russia and the countries of Eastern Europe. It furthers the research of individual faculty members and graduate students, sponsors colloquia, seminars and lectures, organizes conferences, and participates, with other universities, in academic exchange programs with Russia and Eastern Europe.

Barisa Krêkić, Director

The **Institute for Social Science Research (ISSR)** undertakes basic and policy studies on a broad spectrum of contemporary sociological, psychological, political and economic problems and other social-related community issues. The Institute encourages collaborative research between faculty in the various social science departments as well as cooperative projects that involve members of the professional schools. The core staff of the Institute provides research consultation and supportive services to University faculty members engaged in research investigations as well as advice on the designing and funding of projects. From time to time, the Institute offers special opportunities for graduate students to gain research experience. As funds permit, the Institute provides seed-funding for project development and pilot studies.

An integral part of the Institute is the **Survey Research Center (SRC)** which not only serves the UCLA faculty but investigators from other universities and research groups in the local and national social research community. Several times a year, SRC undertakes studies of Los Angeles County residents that provide research information to a number of different investigators. These multi-purpose surveys allow researchers to economically obtain data-sets on large representative samples of Los Angeles County citizens.

The current research program includes studies in medical care, mental health, human development, law, demography, economic resources, gerontology, energy and economic behavior.

Howard E. Freeman, Director

Management

The **Western Management Science Institute** fosters research and advanced study in management science and operations research, with special emphasis on developments needed for more effective practical applications. The Institute conducts mathematical and computer-oriented studies on a variety of subjects. These include the construction of optimization models for production and distribution systems, finance and marketing policies, conservation of natural resources, and resource allocation in organizations. Appropriate tools of decision-analysis, mathematical programming, and simulation are being developed and applied. The basic economics of decision and information systems are also being studied.

In addition to its research programs, the Institute is engaged in developing faculty resources and graduate curricula in the management sciences, and in sponsoring workshops and seminars such as the Jacob Marshak Interdisciplinary Colloquium on Mathematics in the Behavioral Sciences.

Although composed largely of faculty members of the Department of Management, the Institute staff is interdisciplinary. Fruitful collaborative relationships have occurred with the departments of Economics, Engineering, Mathematics, Political Science, and Psychology.

J.C. LaForce, Acting Director

Medicine

The **Brain Research Institute** provides an environment for research in the neurological and behavioral sciences for investigators particularly from the behavioral, health and life sciences fields but also from the physical sciences and engineering. Three principal goals of the Institute are: (1) to support and conduct research which contributes to an understanding of brain mechanisms and behavior; (2) to contribute to the training of predoctoral and postdoctoral students for professional careers in brain science; (3) to develop and disseminate information about brain function in the interest of the social and scientific communities. Located in the Center for the Health Sciences, the Institute conducts programs which are largely interdisciplinary. General activities include attention to such broad fields of interest as neurobiology, neurophysiology, neurochemistry, neuroanatomy, neuropharmacology, neuroendocrinology, neuropsychiatry, biophysics and communications, neuroimmunology, behavior and neuropathology.

Carmine D. Clemente, Director

The **Jules Stein Eye Institute** is a comprehensive facility located within the Center for the Health Sciences, devoted to research in the sciences related to vision, the care of patients with eye disease and the dissemination of knowledge in the broad field

of ophthalmology. Incorporated in this structure are outpatient, inpatient and operating room facilities for the care of patients with opthalmic disorders; areas for research in the sciences related to vision; and facilities for scientific reading, lectures and seminars. The Institute affords a unique opportunity for the training of students in the School of Medicine, residents and graduate physicians. A close relationship with graduate and undergraduate research and teaching facilities at UCLA is maintained. B.R. Straatsma, Director

The **Mental Retardation Research Center** provides laboratories and clinical facilities for basic and applied research and research training in mental retardation and related aspects of human development. Its interdisciplinary activities range from molecular biology to epidemiology. The Center is closely allied with a Professional Education and Clinical Services Facility, which promulgates interdisciplinary training in the evaluation and treatment of mentally retarded and otherwise disturbed children and their families. Together, these two units comprise a total program directed toward a Major public health program.

Nathaniel A. Buchwald, Director

Museums, Galleries, Special Facilities

The **Frederick S. Wight Art Gallery,** formerly the UCLA Art Galleries, was established with the support of Edward A. Dickson for whom the Dickson Art Center was named. The permanent holdings include the Franklin D. Murphy Sculpture Garden, 69 sculptures from the 20th century including Arp, Calder, Lachaise, Lipchitz, Moore, Noguchi, Rodin and Smith; The Willitts J. Hole Collection of approximately 50 paintings of the Italian, Spanish, Dutch, Flemish and English schools, from the 15th to 19th centuries; 20th century painting, sculpture and photographic collections.

Twelve exhibitions of painting and sculpture, prints and drawings, architecture and design are presented annually in close conjunction with the (UCLA) Museum of Cultural History and the Grunwald Center for the Graphic Arts. One of these exhibitions is regularly sponsored by the UCLA Art Council, the supporting organization of the Galleries. Jack B. Carter, Acting Director

The **Grunwald Center for the Graphic Arts** which houses a distinguished collection of prints and drawings, is maintained as a study and research center for the benefit of students, scholars and collectors, as well as, the general public. The permanent holdings of the Center include significant examples from the 15th century to the present which were originally selected to complement courses given in the history and connoisseurship of the graphic arts. It is particularly noted for its collection of German Expressionist prints formed by Fred Grunwald, as for specialized collections in 19th- and 20th-century lithography (including the Tamarind archive), the history of ornament, Japanese prints (including the Frank Lloyd Wright collection), and comprehensive holdings of Matisse, Picasso and Rouault. Several major exhibitions are organized each year accompanied by the publication of a scholarly catalogue.

E. Maurice Bloch, Director

The **Museum of Cultural History** (formerly The Museum and Laboratories of Ethnic Arts and Technology) comprises growing collections of objects which represent a wide range of the material culture, and specifically of the arts, of peoples who lived until recently at, or beyond, the margins of the major Oriental and Occidental civilizations. These collections represent the arts and archaeology of Africa, Melanesia, the Americas, the Ancient Near East, the circum-Mediterranean cultures, the European, Neolithic and Bronze ages, and the folk arts of Latin America, Europe, and the Orient.

The Museum promotes the study of arts and artifacts as one of the most important avenues toward an understanding of man's cultures. As a resource for UCLA faculty, students, visiting scholars of international repute, and the general public, the Museum offers assistance with instruction, research field work, exhibitions, and seminars, and sponsors exhibitions, lecture programs, symposia and publications.

In the community, the Museum directs a satellite museum program which organizes and mounts exhibitions that are located throughout greater Los Angeles, particularly in culturally disadvantaged areas, and a pre-history program which is designed to make children familiar with museum objects in a classroom setting. Trained volunteers teach classes in prehistoric archaeology in the Los Angeles City School System.

The Museum has an 1,800 square foot multi-purpose facility which is used primarily for exhibits directly related to teaching and research, a focus for classes, seminars, and lectures. Designed as a home for many University, Museum, and community activities, the Gallery will greatly enhance the effectiveness of existing programs and give impetus to further development. The exhibitions highlight various aspects of the Museum's collections.

Christopher B. Donnan, Director

The 8-acre **Mildred E. Mathias Botanical Garden** contains a useful teaching and research collection of about 4,000 species of plants of the world. Included are a native section, desert garden, lathhouse, and experimental field. Adjoining is the Plant Physiology Building, with glass houses and growth chambers. The Herbarium contains a teaching and research collection of about 250,000 specimens representative of the flora of the world, with special collections of the native flora and of ornamental species cultivated in Southern California.

Jonathan Sauer, Director

The Office of Academic Computing (OAC) is responsible for all general-purpose computing activities on the UCLA campus. In support of instructional and research activities, OAC provides a broad range of computing services to the UCLA academic community and, through a nationwide computer network, to institutions throughout the United States. The principal computing resource is an IBM System/360 Model 91KK computer. The 360/91 is available to all departments and schools within UCLA, and timesharing terminals and remote-job-entry stations are located throughout the campus.

Both interactive and batch methods are available for performing work on the 360/91. Interactive terminal-oriented systems available are APL *PLUS (STSC's version of A Programming Language), TSO (IBM's Time Sharing Option), and URSA (OAC developed). The 360/91 supports standard OS/360 batch services as well as a fast, student-oriented batch service (QUICKRUN). Turnaround for jobs run on the 360/91 typically ranges from under a minute for student jobs to under an hour for jobs requiring extensive setup operations.

OAC also maintains a DEC (Digital Equipment Corporation) PDP-OKA computer, principally for student use. Any member of the UCLA student body or faculty can individually establish an account for using the PDP-10. Other noteworthy equipment provided to OAC users is special equipment for graphics work: two plotters (a CalComp 936 Drum Plotter and a Versatec 1200A Electrostatic Plotter) and several Tektronix graphics display devices (models 4081, 4051, and 4013).

Computing activities are supported by an extensive library of application programs, consulting services, and reference documentation. The applications program library for the 360/91 includes a wide range of statistical, engineering and mathematical software. Several FORTRAN and PL/1 compilers, as well as other esoteric computer languages, are also supported on the 360/91. W.B. Kehl, Director

The **Division of Laboratory Animal Medicine** is the centralized animal resource facility responsible for the procurement, husbandry and general welfare of animals required for teaching and investigative services. The Division's veterinary and support staff administers the veterinary medical and husbandry programs throughout the campus. The Division's veterinary programs and physical facilities have been approved for full accreditation by the American Association for Accreditation of Laboratory Animal Care.

Jessie O. Washington, D.V.M., Director

The University of California **Natural Land and Water Reserves System** offers 25 reserves statewide to be used for field studies in unspoiled natural sites and for protected scientific experiments. Graduate students at UCLA regularly use several of these for thesis and dissertation research, including the 14,000-acre Boyd Deep Canyon Desert Research Center and the 56,000-acre Santa Cruz Island Reserve, both of which have field stations. A complex of three Santa Monica Mountain Reserves administered by UCLA has no housing facilities but is close enough to the campus for easy daily access.

Jonathan Sauer, Campus Representative

Zoological collections of the Department of Biology include a research collection of marine fishes, primarily from the eastern Pacific and the Gulf of California, and the Dickey Collection of birds and mammals, primarily from the western United States, western Mexico and Central America. The Department also maintains a more limited collection of amphibians, reptiles and fossil vertebrates. Through a cooperative arrangement, the large zoological collections of the Los Angeles County Museum, containing both fossil and recent specimens, are available for research by qualified students.

The department also maintains an extensive collection of algae, and a smaller collection of fungi and bacteria (including photosynthetic bacteria). These collections, which are part of the culture facility, are available for both teaching and research.

UCLA is a member of the Organization for Tropical Studies, a consortium created to promote research and educational programs in the New World tropics. Fellowships are available for subsistence in field-oriented programs in Central America.

A Note About Resources

Academics form the focus of endeavor for the UCLA community, but other resources—health care, psychological counseling, learning skills, veteran's affairs, and so on—also come into play in the course of any experience here. These additional resources are listed in the "student services" section of this book.

Finally, you may have noticed that nearly all of the academic resources discussed in this section carry room number and/or telephone number information. The reason for that is at once simple and powerful: If you want help, it's there in a variety of useful programs . . . but it's up to you to seek it out.

money at UCLA

In this section, you will find a detailed discussion of various fees and other financial obligations—as well as some of the ways to meet them.

Finding out about Financial Aid is a worthwhile investment of your time. Don't assume that you don't qualify. Or that you do. Either of those guesses can be costly. The Financial Aid Office publishes a guide, called "Passing the Bucks", giving more information about aid. You can get a copy from your high school counselor or from the Financial Aid Office, A129B Murphy Hall, University of California, 405 Hilgard Avenue, Los Angeles, California 90024. Telephone: (213) 825-9097.

A further note: All fees outlined here are subject to change without notice. Payment of registration fees is part of the registration process; you can pay other fees at the Cashier's office in Murphy Hall from 8:30 a.m. to 4 p.m. any weekday.

General Fees

Here are the fees charged UCLA students.

Fees Assessed Undergraduates

As an undergraduate, you must pay a registration fee of $124 per quarter and a Student Union fee of $4, both payable when registering.

In addition, you are assessed on Education Fee of $100 per quarter and an Associated Students Fee of $6 per quarter.

Fees Assessed Graduate Students

Graduate students are required to pay a registration fee of $124.00 and a Student Union Fee of $4.00, both payable when registering.

In addition, you must pay an Education Fee of $120.00 per quarter and a Graduate Students Association Fee of $2.00 per quarter.

The Registration Fee covers certain expenses of students for counseling service, for athletic and gymnasium facilities and equipment, for lockers** and washroom, for registration and graduation, for such consultation, medical advice, and hospital care or dispensary treatment as can be furnished on the campus by the Student Health Service, and for all laboratory and course fees. Membership in the Associated Students is covered by the Associated Student fees. No part of these fees is remitted to those students who may not desire to make use of any or all of these privileges. If you withdraw from the University within the first five weeks of the quarter, a part of these fees will be refunded. Any refund for a withdrawal will be based on the date the completed notice for withdrawal is actually submitted. No claim for refund will be considered unless presented within the fiscal year to which the claim is applicable.

**Lockers are issued, as long as they are available, to registered students who have purchased standard locks. Locks are sold at $1.25 each, and may be used as long as desired or may be transferred by the purchaser to another student.

The Filing Fee for Graduate Students

The University has established regulations governing the use of the $62.00 Filing Fee (one half of the Registration Fee) which can be paid *in lieu* of the ordinary charges for the Registration Fee ($124.00) and Education Fee ($120.00) (and the Nonresident Tuition Fee of $800.00, where applicable) *when a student files a dissertation or thesis or takes the doctoral final oral examination or the final comprehensive examination for the master's degree.*

Administration of the Filing Fee. Under certain circumstances, a candidate for the master's or doctoral degree need not be a registered student at the time the last of the requirements for the degree are completed. Instead of registering and paying the University Registration and Educational Fees (and the Nonresident Tuition Fee, if applicable), the candidate pays the Filing Fee. The circumstances under which this is the appropriate procedure are as follows:

Eligibility for the Filing Fee. Prior to the beginning of the quarter in which requirements for the degree are to be completed, the candidate shall have fulfilled all of the requirements for the degree except for the filing of the dissertation or thesis and/or taking of a formal *final* examination or master's comprehensive examination. If you want to use the Filing Fee for a doctoral degree you must have been advanced to candidacy and completed all research; only the *final reading* of the dissertation and (if required) the defense of the dissertation may remain.

To establish eligibility to pay the Filing Fee, you submit a Filing Fee application approved by the Graduate Adviser and the Chairperson of the Thesis Committee or Doctoral Committee certifying that all other requirements have been met. Forms for this purpose are available in the Student and Academic Affairs Section of the Graduate Division, 1225 Murphy, and should be returned to that office after certification and payment of the fee.

Privileges Not Covered by the Filing Fee. A student who pays the Filing Fee is not eligible for the privileges normally accorded regularly registered students, such as the use of University facilities, other than the attention of the faculty necessary for the final reading of the dissertation or thesis and/or the taking of a formal final examination or master's comprehensive examination. Students may not use this fee for the purpose of taking course work of any kind. Students whose status as fellowship holders, as aliens with particular visas, or others whose status depends on maintenance of a particular course load cannot use the Filing Fee to enroll in the requisite number of courses, but must obtain whatever other certification of activity is needed from the Dean of the Graduate Division.

Registration After Paying the Filing Fee. If, after paying the Filing Fee in any one quarter, a candidate should find it necessary to use the educational facilities of the University in any way other than requiring the attention of the faculty sufficient for a reading of the dissertation or thesis or taking of the formal final examination or master's comprehensive examination, registration as a student must be resumed. If this should occur during a quarter in which the Filing Fee has already been paid, the amount of that payment may be credited toward payment of the Registration Fee. A student who pays the Filing Fee and fails to file the dissertation or thesis or who is required to take the formal final examination or master's comprehensive examination again must either register as a student or pay the Filing Fee again in the quarter in which the final requirement for the degree is completed. The Filing Fee will not be refunded because the dissertation or thesis was not filed or the examination not taken or passed.

Deadlines for Applying for the Filing Fee. Since a student must be either registered or have paid the Filing Fee to benefit from the attention of the faculty in the final reading of the dissertation or thesis, the completed Filing Fee application should be submitted to the Student and Academic Affairs Section, Graduate Division, during the appropriate academic quarter.

About California Residence—Non-Resident Fees

Students who have not been residents of California for more than one year immediately prior to the residence determination date for each term in which they propose to attend the University are charged, along with other fees, a nonresident tuition fee of $800 for the quarter or $1200 for the semester. The residence determination date is the day instruction begins at the last of the University of California campuses to open for the quarter, and for schools on the semester system, the day instruction begins for the semester.

Definition

In order to be classified as a resident for tuition purposes, an adult student must have established his/her residence in California for more han one year immediately preceding the residence determination date for the term during which he/she proposes to attend the University and relinquished any prior residence. An adult student must couple his/her physical presence within this state for one year with objective evidence that such presence is consistent with his/her intent in making California his/her permanent home and, if these steps are delayed, the one-year durational period will be extended until BOTH presence and intent have been demonstrated for one full year. Indeed, physical presence within the state solely for educational purposes does *not* constitute the establishment of California residence under state law regardless of the length of his/her stay in California.

Relevant indicia which can be relied upon to demonstrate one's intent to make California his/her permanent residence include, but are not limited to, the following: registering and voting in California elections; designating California as his/her permanent address on all school and employment records, including military records if one is in the military service; obtaining a California driver's license or California Identification Card, if a nondriver; obtaining California vehicle registration; paying California income taxes as a resident, including income earned outside this state; establishing an abode where one's permanent belongings are kept within California; licensing for professional practice in California; and the absence of these indicia in other states during any period for which residence in California is asserted. Documentary evidence may be required. No single factor is controlling or decisive. All relevant indicia will be considered in the classification determination.

The student must petition to have his or her residence classification changed at the Registrar's Office at the campus attended, and documentation of residence (driver's license, voter registration receipt, etc.) may be requested at that time. All changes of status must be initiated prior to the late registration period for the quarter or semester for which the student intends to be reclassified.

Waivers of Non-Resident Tuition

To the extent funds are available, non-resident tuition waivers may be granted to spouses and dependent, unmarried children under age 21 of University faculty members who are qualified for membership in the Academic Senate; to the unmarried, dependent children under age 21 of a full-time University employee whose permanent assignment is outside California and who has been employed by the University for more than one year immediately prior to the opening of the term; and for certain foreign students. Inquiries regarding these waivers normally should be directed to the Residence Deputy in the Registrar's Office.

In addition, certain student Teaching Assistants and Teaching Fellows, and certain graduate students designated as University Fellows and Distinguished Scholars may be eligible for Non-Resident Tuition Waivers or fellowships. Such students should contact the Graduate Division at their campus for further information.

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

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

Exceptions

1. A student who is an adult alien is entitled to resident classification if the student has been lawfully admitted to the United States for permanent residence in accordance with all applicable provisions of the laws of the United States and has thereafter established and maintained residence in California for more than one year immediately prior to the residence determination date.

A student who is an adult alien shall be entitled to resident classification if he or she is a refugee who has been granted parolee, conditional entrant or indefinite voluntary departure status in accordance with all applicable laws of the United States; provided that he has lived in the state for one year immediately prior to the residence determination date. (Effective until June 30, 1980.)

2. A student who is a minor alien shall be entitled to resident classification if the student and the parent from whom residence is derived have been lawfully admitted to the United States for permanent residence, provided that the parent has had residence in California for more than one year after acquiring a permanent resident visa prior to the residence determination date for the term.

A student who is a minor alien shall be entitled to resident classification if he or she is a refugee who has been granted parolee, conditional entrant or indefinite voluntary departure status in accordance with all applicable laws of the United States; provided that he has lived in this state for one year immediately prior to the residence determination date. (Effective until June 30, 1980.)

3. A student who remains in this state after his or her parent, who was theretofore domiciled in California for at least one year prior to leaving and has, during the student's minority and within one year immediately prior to the residence determination date, established residence elsewhere, shall be entitled to resident classification until the student has attained the age of majority and has resided in the state the minimum time necessary to become a resident so long as, once enrolled, he or she maintains continuous attendance at an institution.

4. Nonresident students who are minors or 18 years of age and can evidence that they have been totally self-supporting through employment and actually present within California for the entire year immediately prior to the residence determination date and have evidenced the intent to make California their permanent home may be eligible for resident status.

5. A student shall be entitled to resident classification if immediately prior to the residence determination date he or she has lived with and been under the continuous direct care and control of any adult or adults other than a parent for not less than two years, provided that the adult or adults having such control have been California residents during the year immediately prior to the residence determination date. This exception continues until the student has attained the age of majority and has resided in the state the minimum time necessary to become a resident student, so long as continuous attendance is maintained at an institution.

6. Exemption from payment of the nonresident tuition fee is available to the natural or adopted child, stepchild or spouse who is a dependent of a member of the United States military stationed in California on active duty. Such resident classification may be maintained until the student has resided in California the minimum time necessary to become a resident. If a student is enrolled in an institution and the member of the military is transferred on military orders to a place outside the United States immediately after having been on active duty in California, the student is entitled to retain resident classification under conditions set forth above.

7. A student who is a member of the United States military stationed in California on active duty, except a member of the military assigned for educational purposes to a state-supported institution of higher education, shall be entitled to resident classification until he or she has resided in the state the minimum time necessary to become a student.

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

Other Requirements

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

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

All students classified incorrectly as residents are subject to reclassification and to payment of all nonresident fees not paid. If incorrect classification results from false or concealed facts by the student, the student also is subject to University discipline. Resident students who become nonresidents must immediately notify the Residence Deputy.

Appeals

Any student, following a final decision on residence classification by the Residence Deputy, may make written appeal to the Attorney in Residence Matters at the above address within 120 days after notification of the final decision by the Residence Deputy.

For More Information

If you have a question about your status as a California resident in connection with tuition, write to the Attorney in Residence Matters, 590 University Hall, 2200 University Avenue, Berkeley, California 94720. Please keep in mind that it is University policy that no other University personnel are authorized to give you information on the definitions of California residence.

Waivers of Non-Resident Tuition

To the extent funds are available, non-resident tuition waivers may be granted to spouses and dependent, unmarried children under age 21 of University faculty members who are qualified for membership in the Academic Senate; to the unmarried, dependent children under age 21 of a full-time University employee whose permanent assignment is outside California and who has been employed by the University for more than one year immediately prior to the opening of the term; and for certain foreign students. Inquiries regarding these waivers normally should be directed to the Residence Deputy in the Registrar's Office of the campus the student proposes to attend.

In addition, certain student Teaching Assistants and Teaching Fellows, and certain graduate students designated as University Fellows and Distinguished Scholars may be eligible for Nonresident Tuition Waivers or fellowships. Such students should contact the Graduate Division at their campus for further information.

Fees for Reduced Programs

If you meet the standards described here, you may be eligible for a fee reduction, as indicated.

Fee assessment for the cases discussed below is based on the total units enrolled as of the 15th day of classes.

Non-Residents

If you are an undergraduate student with college/school approval for enrollment in less than 12 units, the non-resident tuition fee is $266.00 per course ($66.50 per unit). File a "Request for Fee Reduction" with academic dean's office for the applicable quarter. Refunds for courses dropped from the Official Study List are made according to the Schedule of Refunds discussed later in this section.

If you are a graduate student, the non-resident tuition fee is $800.00 ($1200 per semester) per quarter regardless of the number of courses undertaken. There is no reduction in Registration, Educational, Student Union, or Graduate Students Association Fees for less than full-time programs.

Residents

Certain qualified undergraduate students, when properly approved by the dean of their college/school for enrollment in less than 9 units, may be eligible for a $50 reduction in their Educational Fee. The "Request for Fee Reduction" must be filed by the tenth day of instruction. Except for those qualified and approved part-time students, there is no reduction in the Registration, Educational, Student Union or ASUCLA fees.

Other Fees

Following is a list of what might be called "Miscellaneous Fees" charged undergraduate and graduate students at UCLA.

Application fee, $20. This nonrefundable fee is charged every undergraduate applicant for admission, readmission, or intercampus transfer to the University and every graduate applicant for admission, leave of absence, and readmission to the University.

Acceptance of admission fee, $50. For undergraduates only. The fee is non-refundable, but is applied toward the University Registration Fee.

Returned check collection, $5.

Late registration, $25. When permitted.

Duplicate registration and/or other cards in registration packet, $3 each order.

Change in Official Study List after the tenth day of instruction, $3 each petition, when dropping, changing grading basis, or adding a course within published period.

Late filing of study list (Study List Card), $10, when permitted.

Removal of grade "E" or "I", $5 each petition.

Late filing of Degree Candidate Card for the bachelor's degree,$3.

Late payment of fees, $10 (after a published deadline)

Candidacy for Ph.D., Ed.D., or Dr.Ph.H., $25.

Credit by Examination, $5 per petition.

Duplicate diploma, $23.50. Replacement cost upon presentation of evidence original is lost or destroyed.

Transcript of Record, $2 for the first copy and $1 for each additional copy ordered at the same time.

Late application for teaching assignment, $1.

Late return of athletic supplies,** $1 for each 24 hours until full purchase price of article is reached.

**Supplies or equipment not returned before the close of the fiscal year must be paid for in full; return after that date is not permitted.

Failure to empty locker within specified period, $5.

"Third Party" Fee Payment

The University assumes no contractual or other obligation to any third party who pays any University fees on behalf of a student, unless the University has expressly agreed thereto in writing. In this regard, no request for a refund of fees by such third party will be honored, and if the student withdraws from the University with a fee refund due, such refund will be paid to the student.

Refunds

† The Schedule of Refunds listed below refers to Calendar days, beginning with the first day of instruction (Day 1). Percentages listed (days 1-35) should be applied respectively to each Tuition, Educational Fee, University Registration Fee, and other student fees. The effective date for determining a refund is the date you file your official notice of withdrawal with the University, and it is presumed that no University services will be provided to you after that date.

No claim for refund will be considered unless presented within the fiscal year to which the claim is applicable.

New Undergraduate Students

Prior to Day 1. Registration Fee you have paid is refunded except for the $50 Acceptance of Admission Fee, and other fees paid are refunded in full.

Day 1 and after. The $50 Acceptance of Admission Fee is withheld from the Registration Fee, and the Schedule of Refunds (see below) is applied to the balance of fees assessed.

All Continuing and Readmitted Students and New Graduate Students (Except Medical and Dentistry)

There is a service charge of $10 for cancellation of registration before the first day of instruction. Beginning with the first day of instruction the Schedule of Refunds (see below) is applied to the total of fees assessed.

Medical and Dentistry Students

Prior to the first day of instruction, the fees you have paid are refunded in full, except for the Deposit.

Day 1 and after the Deposit is withheld from the fees assessed and the Schedule of Refunds (see below) is applied to the balance of the fees assessed.

In the case of continuing students, the Schedule of Refunds is applied to the total of the fees assessed.

Schedule of Refunds

This schedule applies to the procedures described above

1—14 days	15—21 days	22—28 days	29—35 days	36 days and over
80%	60%	40%	20%	0%

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

Estimated Budgets

The estimated budget presented here was put together based on expense diaries maintained for us by students, the Consumer Price Index, and surveys of local costs for books, rent, transportation, food, clothing—all that is a legitimate part of your school related expenses. It is designed to serve as a guide only. The figures in both the "undergraduate" and "graduate" columns are, for the most part moderate.

Please note that financial aid awards are based on "need" which is defined as the difference between allowable school-related expenses (budget) and the contribution expected from the family. Budgets vary depending on circumstances.

The budget below is geared to a single student living in a shared room in a UCLA Residence Hall.

UCLA Budget

UCLA Residence Hall Budget*	Undergraduates	Graduates
Registration Fee	$372.00	$372.00
Educational Fee	300.00	360.00
Student Union Fee	12.00	12.00
ASUCLA Membership Fee	18.00	
Graduate Student's Association Membership Fee		6.00
Books and Supplies	252.00	252.00
Residence Hall Room and Board (19 meal plan)	1,645.00	1,645.00
Additional expense of holiday recesses and extra meals	398.00	398.00
Personal (clothing, cleaning, medical insurance, recreation, etc.)	768.00	768.00
Local Bus Transportation	108.00	108.00
Total Budget for California Resident	$3,873.00	$3,921.00
Nonresident Tuition	2,400.00	2,400.00
Total Budget for Nonresident of California	$6,273.00	$6,321.00

*You should estimate that living off campus will increase this budget by approximately $600.00. Alternatives to Residence Hall living are talked about in the "housing" section of this Catalog.

Financial Aid Programs

An underlying principle in the determination of financial need is that parents have an obligation to finance the education of their children to the extent that they are able. The expected parental contribution is determined from the information supplied in the Student Aid Application for California (SAAC) for undergraduates and the Financial Aid Form (FAF) for graduates. UCLA uses a nationally approved non-profit system of need-analysis to determine what amounts parents are expected to contribute towards your education. If you are an independent student, your financial circumstances are analyzed rather than those of your parents.

A standard amount of 'self-help' is expected from all students, as a result of earnings, in addition to the parent's contribution and any other resources students may have. Other resources may be savings, spouse's earnings, benefits from other Federal or State agencies (social security, veterans', welfare, etc.), graduate division assistance, and outside agency scholarships or grants. Self-help varies with the student's year in school, family financial strength, and dependency status. The family contribution that is subtracted from school-related expenses to arrive at 'need' is the sum of the parents' contribution, and the student's resources and self-help expectation.

Student Financial Independence

The desire of students or parents to claim financial independence for the student does not necessarily release the parents from the responsibility of providing financial assistance to meet college expenses.

The Financial Aid Office is required to use two distinct definitions of independence to determine whether students are financially dependent on their parents.

California Definition

To qualify for State and University grant aid in 1980-81, the student must meet one of the following criteria:

1) Have been determined financially independent by an educational institution prior to June 30, 1977 **or**

2) Have not lived with either parent for six consecutive weeks or received more than $750 from parents in any of the last three tax years, 1977, 1978, 1979—not been claimed as an income tax deduction by anyone except self or spouse during that period or

3) Have been a ward of the court, **or**

4) Be an orphan, not claimed as a tax exemption this year except by self or spouse, or

5) Have been part of extremely adverse home situation, with documentation by responsible community personnel, and without family assistance for the last full year.

Federal Definition

To qualify for federally funded aid programs, including grants, in 1980-81 you:

1) May not be claimed as a tax deduction by parents for calendar years 1979, 1980, 1981, **and**

2) May not live with parents more than six consecutive weeks during calendar year 1979, 1980, 1981, **and**

3) May not receive more than $750 per year assistance from parents in 1979, 1980, 1981.

As an independent student, you must also demonstrate that you have been self-supporting during the calendar year prior to the academic year in which aid is accepted.

Undergraduate Aid Available from Agencies

Various financial aid programs administered or coordinated by the Financial Aid Office are outlined below. You may be eligible for several types of financial aid and a financial aid "package" is usually offered honoring your preference whenever possible. The forms of aid coordinated by UCLA but awarded by other agencies are: Basic Educational Opportunity Grant (BEOG), California Student Aid Commission Cal Grants A and B, Federal Insured Student Loan (FISL), State Guaranteed Student Loans, American Medical Association, Health Education Assistance and Robert Wood Johnson Loans.

Basic Educational Opportunity Grant

Undergraduate students who are U.S. citizens, permanent residents, or Vietnamese or Cambodian refugees are eligible to apply for the Federal Basic Educational Opportunity Grant. The award amounts for 1979-1980 range from $200 to $1,800. If you apply for UCLA "need based" financial aid, the Student Aid Application for California (SAAC) also serves as your BEOG application. The University of California requires that all eligible undergraduates apply the BEOG.

California Student Aid Commission Cal Grants A and B

Undergraduate California residents who have not completed more than six semesters or nine quarters of college work prior to September, 1980, are eligible to apply for a Cal Grant award. The Student Aid Application for California and Cal Grant Supplements are the official applications for these programs. You can get them from the UCLA Financial Aid Office, room A-129, Murphy Hall (phone: 825-9097), high school counselors, or the California Student Aid Commission, 1410 5th Street, Sacramento, CA 95814. The Student Aid Application for California and Supplements must be filed no later than February 1, 1980.

"Cal Grant A" awards range from $300 to $700 to be applied towards education and registration fees, and are based on need and academic achievement. They are renewable each year.

"Cal Grant B" awards range from $300 to $1,800 and are renewable annually. The State sends renewal applications to continuing Cal Grant recipients.

Federal Insured Student Loan

Federal Insured Student Loans are long-term loans made by banks, savings and loan institutions, and credit unions.

These loans are available to graduate and undergraduate students who are citizens or permanent residents of the U.S. enrolled in at least a half-time program. Applications processed by the Financial Aid Office are then submitted to a lending institution by the student. You should check with various lending institutions to determine individual policies.

You are required to submit a special application for a Federal Insured Student Loan. You may obtain the FISL application in the Financial Aid Office, room A-129B Murphy Hall.

Repayment of the Federal Insured Student Loan begins between 9 and 12 months after completion of, or withdrawal from school. Eligible students receive a Federal interest subsidy so that the loan is interest free during the time you are a student and for 9 months thereafter. You have up to 10 years to repay the loan at an interest rate of 7% per year.

Minimum repayment is $360 a year. Repayment is waived up to three years while the borrower is serving in the armed forces, Peace Corps, or VISTA, or during any period of full-time study. Undergraduate students may borrow a total of $7,500, and graduate students $15,000 including the amount borrowed as an undergraduate. It takes approximately eight to ten weeks to process a Federal Insured Student Loan.

Federal regulations of the Federal Insured Student Loan Program require that student borrowers be notified of (1) their institution's fee refund policy and (2) the percentage of its students who find employment after obtaining a degree. The University of California's refund procedures and schedule will be found under "Refunds" earlier in this section. Salary and employment information for the University of California fits the following pattern:

Field of Study	Degree Level of Graduates: Bachelor's	Master's	Doctorate	Probable or Definite Job Commitment[1]
	Average Monthly Salary			
Engineering	$1261-1534	$1404-1710	$1809-2245	87.5
Humanities	587-1155	652-1364		79.6
Life Science	600-1472			76.6
Management		1224-1816		88.6
Physical Science	952-1526		1532-2276	85.2
Social Science	641-1145	806-1398		79.2
Medical			1112	100.0
Dental[2]			1677	87.7

[1]Source: (Except for Medical and Dental—see Footnote 2). A 1977 national survey of a representative group of colleges conducted by the College Placement Council, representing the 80 percent range of offers throughout the country. It should be noted that a wide variation in starting salaries exists within each discipline based on job location, type of employer, personal qualifications of the individual, and employment conditions at the time of job entry.

[2]Source: *The Job Market for UCLA's 1977 Graduates.* Percentages are based only upon those students who planned to work immediately after graduation. Medical and Dental salaries are shown as means, rather than ranges.

California Guaranteed Student Loan Program (CGSLP)

The California Guaranteed Student Loan Program (CGSLP) is being implemented for the first time during the 1979-80 academic year. The terms of this loan are similar to those of the FISL program above. The CGSLP application becomes available in the late summer of 1979. See a counselor in the Financial Aid Office, A129B Murphy Hall for further application information.

American Medical Association Loan (AMA)

Health Education Assistance Loan (HEAL)

Robert Wood Johnson Loan

The American Medical Association Loan (AMA), the Health Education Assistance Loan (HEAL) and the Robert Wood Johnson Loan are administered by the Financial Aid Office but each requires a special application. The AMA loan is awarded to students in the School of Medicine. The HEAL is awarded to graduate students in the Health Professions Schools of Medicine, Dentistry, and Public Health who have not received a FISL/GSL for the same academic year. The Robert Wood Johnson Loan is awarded to students in the School of Medicine and the School of Dentistry.

Aid Available from UCLA

Scholarships for Undergraduates

Scholarships are categorized as either NEED or NON-NEED (Honorary) based. A need based scholarship is awarded to outstanding students with financial need. A non-need based (Honorary) scholarship is awarded on merit alone, and normally carries only a nominal monetary award. No financial information is required from students who apply for honorarium only scholarships. Scholarship awards range from a $100 honorarium to the amount of the applicant's financial need.

All UCLA scholarship awards are made on a competitive basis. Consideration is given to academic excellence, achievement, and scholastic promise. Scholarships are awarded to entering and continuing students. The terms and amount of the awards vary. Students are expected to *maintain* academic excellence in course work. Eligibility for a scholarship is determined by the University Committee on Undergraduate Student Support, Honors and Prizes. Although most scholarships are open to all undergraduate applicants on a competitive basis, some are restricted by the donors to students who meet prescribed criteria. Students will be considered for all scholarships for which they prove eligible. Awards are based on grade-point average and financial need. (See instructions included in the scholarship packet for details.) Read the instructions sent to all financial aid applicants for grade-point average requirements and special eligibility requirements.

Regents' Scholarships

Unlike other University scholarships, Regents' Scholarships are awarded for four years to students entering from high school and for two years to continuing students and those transferring from another university or college who will have completed their sophomore year by the end of spring quarter. Students who have achieved an outstanding academic record and show a high degree of promise are eligible to apply for Regents' Scholarships. Financial need is not a criterion for this award, but students who wish to be considered for this stipend must file financial information each year. Regents' Scholars receive an honorarium of $100 regardless of need. If you are eligible for financial assistance, you receive a stipend to cover the difference between your resources and the cost of education at UCLA.

Alumni Scholarships

Alumni Scholarships are limited to California residents who will be *entering first year students in the fall quarter.* It is also possible to apply for an Alumni Honorarium only. No financial need is involved and no financial information is required.

Prizes

The generosity of alumni and friends of the University provides each year for competitive prizes and awards in several fields. Selections will be made by committees in the various academic departments concerned.

Grants

Grants are gifts which do not have to be repaid and are based solely on need. Whenever guidelines and funds permit, the student's 'package' includes a grant.

Grant-in-Aid for Graduates and Undergraduates

Grant-in-Aid provides eligible students with financial assistance from University funds. Awards range from $100 to $3900.

Supplemental Educational Opportunity Grants

These awards are Federally funded and are granted only to undergraduate students with exceptional financial need. Grants range from $200 to $1,500 per academic year, but can be no more than one-half the total assistance awarded and must be matched dollar for dollar with other aid.

Educational Fee Grants

In qualifying for this grant, you must demonstrate need, be a California resident and an undergraduate in your first year of attendance at the University. The maximum grant is $100 per quarter for the first three consecutive quarters of attendance. This grant is awarded to pay the Education Fee if it has not been paid by another fee-paying agency.

Work Study Programs

Work-study is a need based "award that allows a student to work a maximum of 20 hours a week while attending school, or 40 hours a week during vacation periods. An academic year's award may be from $600 to $3500. Gross earnings *may not* exceed the amount awarded. You can obtain more information from the Financial Aid Office, A-129 Murphy Hall.

College Work Study (Federal)

A portion of the student's hourly wage is provided by the federal government; the employer contributes the balance. Whenever possible, work is in the field of your educational objectives. Hourly pay rates comply with minimum wage laws and vary with the nature of the work and your experience and capabilities. Employment may be on or off campus. To be eligible you must be a citizen, refugee or permanent resident of the U.S.

President's Work Study

This program is administered in the same manner as the Federal program described above except that funding is provided by the Regents of the University and the employer. The student is limited to on-campus jobs. Citizens, refugees, permanent residents, and *international* students are eligible.

Education Fee Loan

Students who are *residents* of the State of California qualify for a deferral-loan of the Educational Fee.

Educational Fee loans may be awarded up to $300 per year for undergraduates and up to $360 for graduates. Every continuing resident student who is eligible for financial aid and whose fees are not paid by an outside agency will be offered an Educational Fee Loan. Repayment, including interest of 3 percent per year, begins nine months after you terminate at least half-time enrollment. The repayment period may not exceed ten years. Minimum repayment is $30 plus interest per calendar quarter. Interest will not accrue and payments need not be made for a maximum of four years while you are serving in the armed forces, Peace Corps, or VISTA.

Regents' and University Loans

These funds are provided by the Regents of the University and by private individuals and agencies to full-time graduate and undergraduate students. Eligible students may receive Regents' Loans up to $1,200 per academic year. University loans may be for larger amounts. Regardless of your age, you are required to obtain one co-signer for loans up to $1,000 and two co-signers for loans over $1,000. These loans are repayable in ten years in quarterly payments that begin nine months after the borrower terminates at least half-time enrollment. Interest is at the rate of 3 percent per annum, and the minimum quarterly payment is $90.

National Direct Student Loan

These loans are available to all students, undergraduate and graduate, who are *citizens, permanent residents, or refugees* and who are carrying at least one-half the full-time academic workload. Undergraduate students may borrow up to $2,500 during their first two years. The aggregate sum for all undergraduate studies may not exceed $5,000. Graduate or professional students may borrow up to $10,000, including all amounts borrowed as an undergraduate. Students under 18 years of age are required to obtain a co-signer. There is a nine month grace period after termination of at least half-time enrollment during which no interest accrues and no payment is due. Repayment begins twelve months after you cease at least half-time study. Minimum repayment is $90 per quarter including interest at 3 percent per annum. The maximum repayment period is ten years. Loans made subsequent to June 30, 1972 include principal and interest cancellation provisions up to 100 percent of the total debt for those who serve as full-time teachers of certain low income or handicapped students in certain non-profit elementary or secondary schools, as defined by Federal guidelines. Staff members in the Headstart Program may also qualify for this cancellation benefit, depending upon their salary scale. Members of the Armed Forces may qualify for up to 50 percent cancellation at the rate of 12-1/2 percent per annum for service in an area of hostilities. Payments are deferred and interest does not accrue during a period in which you attend school at least half-time or for a maximum of three years while you are a member of the armed forces, the Peace Corps, or VISTA.

Nursing Loans

To be eligible for a nursing loan, you must be a citizen, permanent resident, or refugee who is a student in the School of Nursing. No more than $2500 is available per academic year. Up to 85 percent of the loan can be cancelled upon employment as a full-time registered nurse (including teaching and administration) in any public or nonprofit private agency.

Health Professions and Dental Loans

Health Professions and Dental Loans are awarded to students with exceptional need only. To be eligible, you must be a citizen, permanent resident, or refugee, who is a graduate student either in the School of Medicine or the School of Dentistry. Up to $3250 is available per academic year.

Loan Exit Interview

All loan recipients are required to come into the Loan Services Office (Murphy A107) for a Loan Exit Interview before leaving UCLA whether due to graduation, withdrawal, or dismissal. The purpose of the Exit Interview is to help you understand your loan agreement and to explain to you both your rights and your responsibilities under the programs. Failure to participate in an Exit Interview with the Student Loan Services Office upon separation from the University will result in a hold on your academic records and future registration privileges. Please call the Loan Services Office (Telephone 825-9864) for an appointment for an interview.

Student Loan Obligations

If you receive a loan offer as part of your financial aid award, you should carefully evaluate your total educational indebtedness and ability to repay your loans. All loan funds are of a revolving nature, and money repaid by former borrowers is immediately re-loaned to current students. The University will make every attempt possible to assist you during the repayment of your obligation. University services, including registration and the release of official transcripts, will be withheld if your loan is delinquent. Seriously delinquent accounts are referred to a professional collection agency for handling which includes litigation. Hopefully, none of these measures will be necessary, but it is best that you be aware of the potential risks in accepting a student loan.

Emergency Loan

You *need not be* a financial aid recipient to apply for this loan. *Registered* students qualify. Small amounts may be borrowed for immediate emergency needs. The loans are repayable within 30-45 days depending on which day of the month they are issued. Applications are available in room A107, Murphy Hall, Student Loan Services Office.

Graduate Aid Available

If you are a graduate student seeking support, consult the department in which you wish to study for information on fellowships, traineeships, or assistantships. You should also get a copy of the booklet, UCLA Graduate Support Resources, from the Fellowship and Assistantship Section, Graduate Division, 1228 Murphy Hall, telephone 825-3521 or 825-4386, and consult that office for further information and assistance in applying for financial support.

The In-Candidacy Fee Offset Grant Program for Graduate Students in a Ph.D. Program

An In-Candidacy Fee Offset Grant Program has been established to provide an incentive for early advancement to candidacy and for completion of degree requirements with a normative time set by the department and subject to the approval of the Graduate Council. The grant covers the Educational Fee (presently $120 per quarter).

All students who begin graduate study in the University of California after September, 1978 will be covered by this grant program. Those students with graduate standing prior to September 1, 1978 may elect to be included, and in that event, will be subject to all of the provisions. Eligible students may receive the grant from the time of their advancement to candidacy until the department's normative time-to-degree is reached. Students in the program must register for each regular academic session until all degree requirements are completed, unless a formal leave of absence is approved by the Dean of the Graduate Division.

To be eligible for the grant, the student must attain formal candidacy for the Ph.D. prior to the first day of classes of the academic session for which the grant is sought, and remain in good standing. The accrued time, which is the time since first enrollment at UCLA as a graduate student, as determined by the Graduate Dean, must be less than the established normative time for completion of the Ph.D. in that program. A candidate for the Ph.D. whose status lapses will be ineligible for the In-Candidacy Fee Offset Grant until, following readmission and registration, that student is again advanced to candidacy.

The amount of the grant shall be reduced by the amount of financial aid the student may receive from non-University sources to pay all of a portion of the Educational Fee. If the student is being provided with a package of financial aid, any component of which is need-based aid, the total amount of aid given to him/her, including the grant, may not exceed the student's total need, as determined by the Financial Aid Office.

Payment of the grant shall be in the form of an offset of the Educational Fee. In the event that the student has paid the Educational Fee prior to authorization of the grant, the award will be made as a reimbursement.

No time will be accrued from graduate study at another institution or UC campus except in the case of a student who enters a graduate program following enrollment at UCLA through the Intercampus Exchanange Program.

A Ph.D. candidate must apply for the In-Candidacy Fee Offset Grant on a form provided by the Graduate Division. All information necessary to establish eligibility and the time accrued to that date must be supplied as part of the application.

The Dean of the Graduate Division will determine the accrued time to date and certify the student's eligibility for the grant, if all of the relevant criteria are satisfied. The Graduate Division will be responsible for initiating the fee offset transaction(s) and for taking corrective action in the event a student becomes ineligible.

Notice of expiration of eligibility will be conveyed to each student receiving the grant no later than the beginning of the final quarter of eligibility. Any appeal to correct an alleged error in the determination of eligibility or of accrued time must be submitted by the student to the Graduate Dean promptly, in writing.

If a student fails to register for any regular academic session, in residence or *in absentia* (those students engaged in research outside the State of California throughout a regular academic session), and has not been granted a formal leave of absence, all status as a graduate student and as a candidate for the Ph.D. degree will lapse. A student whose candidacy lapses may, after readmission, be required by a department to retake the written qualifying examinations and may also be required by the doctoral committee to retake the oral qualifying examinations. The student will be required to refile an Application for Candidacy and pay the Candidacy Fee.

At least one quarter of registration subsequent to advancement or reinstatement to candidacy will be required before the Ph.D. will be conferred upon a readmitted student. Thus, a student whose candidacy lapses will be required to register for a minimum of two quarters before award of the degree (one quarter of registration to be re-advanced to candidacy and an additional quarter in which the degree may be awarded).

A student who completes all requirements for the Ph.D., including the final examination and submission of the dissertation, prior to the beginning of classes in the academic session in which the degree is to be conferred need not register for that quarter provided that: 1) no other University policy requires registration for that session; 2) the continuous registration requirement has been met; and 3) the student was registered in the preceding regular academic session.

For further information, please contact the department concerned or the Student and Academic Affairs Section, Graduate Division, 1225 Murphy Hall.

Fellowships and traineeships are available from University sources, from private endowments and foundations, and from programs of the federal government. They are usually awarded for academic excellence and do not require specific duties. Departments appoint graduate students as Teaching Assistants for undergraduate courses, and both departments and organized research units appoint graduate students as Research Assistants. You should consult the department or the director of the research unit concerning requirements, and available assistantships as early as possible.

Extramurally administered fellowships, including those for study abroad, dissertation, faculty and postdoctoral study, require direct application to the specific awarding agency. The Fellowship and Assistantship Section maintains a library of reference materials and can assist students in locating information and applications.

Application Procedures for Financial Aid*

If you are a prospective undergraduate student, you will find descriptive material and instructions for filing for financial aid in the 1980-81 "Undergraduate Admissions and Financial Aid Packet." Continuing students may obtain the UCLA Undergraduate Scholarship and Financial Aid Packet at the Financial Aid Office A-129B Murphy Hall.

Graduate students applying for UCLA "need based" financial aid are required to file a 1980-1981 Application for Graduate Financial Aid and a Financial Aid Form.

Continuing students from foreign countries may obtain a 1980-1981 Financial Aid Application for International Student Financial Aid at the Office of International Students and Scholars, 297 Dodd Hall, Los Angeles, CA 90024. No financial aid is awarded to foreign students in their first year of attendance at UCLA.

The 1980-81 deadline date for all financial aid applications for undergraduates, and continuing graduates is FEBRUARY 1, 1980. The deadline for entering graduates is September 1, 1980. These dates are vitally important to you because the Financial Aid Office will accept applications after the deadline date, but these applications will be classified as LATE. Late applications for financial aid will be considered ONLY after all complete on-time applications have been processed and ONLY if funds are still available.

*It is possible that for 1980-1981 there will be a national application for most forms of financial aid.

ROTC Financial Assistance

Funds for students in the Reserve Officers Training Corps *are not administered* by the Financial Aid Office; the subsistence allowances and scholarships available are briefly described below:

Air Force ROTC

Four-year scholarships are available to high school students, and two-year and three-year scholarships to college students. Scholarships include full tuition, books, and fees plus $100 a month. All cadets receive $100 per month during the last two years of the program and one-half the pay of a second lieutenant during the four-week summer training period or the pay of an airman basic during the six-week training period. Call 825-1742, or contact the Department of Aerospace Studies, 251 Dodd Hall, UCLA, 405 Hilgard Avenue, Los Angeles, California 90024 for full information.

Army ROTC

Cadets receive $100 per month subsistence allowance during the last two years of the ROTC program (Advanced Course). There are also four-year Army ROTC Scholarships which provide financial assistance to outstanding students. (Full tuition, books and fees plus $100 per month for the four years.) During six-week summer training period at the end of the junior year cadets receive one-half the pay of a second lieutenant. Also available are 3-year, 2-year, and 1-year scholarships for students enrolled in Army ROTC. Call 825-7381, or write the Department of Military Sciences, Men's Gym, Room 127, UCLA, Los Angeles, California 90024 for full information.

Navy ROTC

College Program students receive $100 per month subsistence allowance during the last two years of NROTC. Excellent opportunities exist for qualified College Program students to receive full scholarships (tuition, books, and $100 per month) after spending at least two quarters in the NROTC Program. Call 825-9075 or write the Commanding Officer, Department of Naval Science, UCLA, 405 Hilgard Avenue, Los Angeles, California 90024 for full information.

Other Employment Opportunities

There is a fairly wide spectrum of choice and challenge for part-time employment at UCLA.

On campus, ASUCLA has regular job openings in several areas (see the "student services" section of this book) while the Placement and Career Planning Center (located just south of Powell Library) lists jobs in a variety of categories.

Room and board in exchange for work situations are also kept on file at the Center, which is described more completely in the "student services" section of this book.

It is a good idea to also check the *Daily Bruin* and local newspapers for advertisements of potentially appealing part-time opportunities.

housing at UCLA

Where you live while attending UCLA can play an important role in your total college experience. Housing options available to students include: UCLA Residence Halls, UCLA Married Student Apartments, cooperatives, fraternities and sororities, and off-campus rentals. **Student demand for available on-campus and near-campus housing far exceeds the available supply.** If you plan to live off campus, it is advised that you arrive early to make your housing arrangements for the coming academic year. Some students even pay rent year around (and try to sub-let during the summer months to minimize costs) in order to assure accommodations for the academic year.

Office of Residential Life

The Office of Residential Life, 78 Dodd Hall, telephone 825-4491, offers services to facilitate your search for housing and to harmonize relations between you, as a tenant, and your landlord (including the University). Services are provided without charge.

Eligibility to Use Services

You must present a current quarter's Registration Card or a letter of acceptance and a valid photo identification each time you use the services.

Off-Campus Listings

Up-to-date listings are maintained of apartments, houses, rooms, room and board accommodations, part-time work in exchange for room and board, and "share" situations (for people looking for roommates). These listings are available to students who come in person to the Office of Residential Life. **Listings cannot be mailed** as they change daily. The office is open 8:00 a.m. to 4:30 p.m., Monday through Friday.

The University does not inspect rental accommodations and does not make rental or other arrangements on behalf of students. Student transactions must be made individually and directly with landlords. You are advised to have a clear understanding, preferably in writing, of the terms and conditions of tenancy. The Office of Residential Life offers a handbook on becoming a tenant, model lease and rental agreements, other appropriate documents, and advice on landlord-tenant problems.

Rental rates are relatively expensive in and around the Westwood area. The farther you get from campus, the less expensive the rental accommodations. Cost balances convenience. Average rental rates listed with the Office of Residential Life for 1977-1978 varied from $130 up per month for rooms in private homes, from $200 up per month for furnished bachelors and singles, from $275 up per month for one-bedroom apartments, and from $325 up per month for two-bedroom apartments. Rental rates depend upon the furnishings and location of the lodgings. House listings are scarce and rental prices for houses are appreciably higher. For most rentals utilities are extra. A few homes offered room and board in exchange for work from $100 up per month.

Temporary Housing

Motels are located from one to five miles from campus with varying rates and accommodations. It is sometimes advisable for students to accept these accommodations temporarily until more permanent lodgings can be located. Motel listings are available from the Office of Residential Life.

Off-Campus Living Groups

You may find accommodations with a group living experience within walking distance to campus in privately operated cooperatives, in fraternities and in sororities.

Cooperatives

There are three privately-owned, nonprofit, member-controlled student living groups located adjacent to campus. Each student is required to work three to four hours per week as part payment for room and board. The Cooperative Housing Association is for men and women, the YWCA and Stevens House are for women only. For 1978-1979 room and board rates varied from $302-$450 per quarter. Cooperatives normally have long waiting lists, so **early application is important!** To obtain applications and information, write directly to each cooperative. A listing of cooperatives is available from the Office of Residential Life.

Fraternities and Sororities

Most fraternities and sororities own or lease homes near the campus and provide lodging and meals for a number of their members. However, housing is not guaranteed with membership as each group has more members than live-in spaces. If you are interested in affiliating with a fraternity or sorority, contact either the UCLA Interfraternity Council (for fraternities), or the Panhellenic Office (for sororities), care of the Dean of Students Office, 2224 Murphy Hall, 405 Hilgard Avenue, Los Angeles, CA, 90024, telephone 825-3871.

Meals

Students can obtain moderately priced meals at the University Residence Halls on an individual basis or by contracting for meals on a quarterly non-resident meal plan. For further information contact the Residence Halls Cashier's Office, Sproul Hall, 350 DeNeve Drive, Los Angeles, CA, 90024, telephone 825-6131.

In addition, meals may be purchased on an individual basis from the various Associated Students food service facilities and from full-service vending areas located on campus.

University Residence Halls

Four coed residence halls accommodate undergraduate students. Graduate students (21 to 29 years of age) are accommodated in a coed graduate hall.

Rooms (shared by two students) are furnished with studio beds, desks, draperies and pillows. Students must furnish blankets, bed linens, bedspreads and towels.

The residence hall rate (exclusive of recess) is approximately $1632 for the academic year (Fall, Winter and Spring quarters), plus a deposit and membership fee in the residence hall student association. For portions of the year, the rate is prorated. Contracts are issued from the date occupancy is authorized through the end of Spring Quarter, 1979.

Three cafeteria-style meals are served daily with the exception of Saturdays, Sundays and University holidays when two meals are served. Special diets are not available. "Room only" contracts are not available.

Application

A Housing Information booklet, which includes an application for Residence Halls, is mailed to all undergraduate students who apply to the University. Graduate students receive this same booklet upon return of the "Request for Housing Information" Card enclosed with their packet from the Graduate Admissions Office. Further information pertaining to the application process is contained in the booklet.

Assignment

Residence hall assignments are mailed mid-April for the Academic Year beginning in the fall, mid-November for Winter Quarter and mid-February for Spring Quarter.

University Married Student Apartments

The University maintains 643 unfurnished one-, two-, and three-bedroom apartments for married students and single student parents. These units are located on Sawtelle and Sepulveda Boulevards, approximately five miles from campus.

Rental rates for 1978-1979 ranged from $136—$195 per month. Utilities are not included in the rental rate.

Application

Due to the limited number of facilities, applicants can anticipate an average wait of 12-18 months for any apartment. **Early application is important!** An application is contained in the Housing Information booklet mailed to all undergraduate students who apply to the University. Graduate students receive this same booklet upon return of the "Request for Housing Information" Card contained in the packet from Graduate Admissions.

Assignment

Assignments are made only to the full-time student member of the family and are not transferable to another member of the family. Verification of marriage or birth certificates are required for assignment.

To remain eligible for housing, assigned students must be enrolled in all quarters of the academic year (i.e., fall, winter and spring quarters). Only the student and his/her immediate family may live in the apartment. Extension students are not eligible.

transportation at UCLA

UCLA is celebrated for academics, athletics—and parking.

Alternatives

There are several alternatives for personal transportation to and from the campus. Alternatives such as carpooling, public transportation and bicycling are described in a brochure entitled "How To Get To UCLA Without Using Your Car," distributed by the Transportation Services Administration. Copies of this brochure, which includes bus route maps and a carpool application for UCLA students, are available at the Campus Parking Service.

UCLA Parking Permits

A limited number of parkings permits will be sold to students. Parking on campus is only available in limited supply and requires payment of a parking fee. Students who wish to obtain parking permits must petition at Campus Parking Service for a parking assignment. Assignments will be made on a point system based on the information on the petition. Only those persons who have parking permits are assured that they may bring an automobile to campus.

Those students with physical disabilities which preclude walking long distances may apply for permits through the Student Health Service. All other students must file parking petitions with the Campus Parking Service, Room 280, Gayley-Strathmore Structure (Area 8), telephone 825-1887. Permits approved and purchased for the fall quarter may be renewed for the winter and spring quarters, without filing a new petition. If you are not assigned parking in any quarter you must re-apply for subsequent quarters. New or re-entering students for each quarter must file parking petitions. Permits are not renewable from spring quarter for the following fall quarter. Deadlines for filing will be established for each quarter and are listed in each quarter's Schedule of Classes, or you may inquire at Campus Parking Service for additional information. Parking permits are not transferable and may be purchased only from the Campus Parking Service.

Off-Campus Parking

During the past few years Campus Parking Service has made arrangements with commercial parking lots in Westwood Village to sell parking permits to UCLA students, and with the Veterans Administration to provide free parking to UCLA staff and students. For information regarding the availability of off-campus parking please call the Parking Service on 825-1887.

Bicycles, Motorcycles and Mopeds

Bicycle and motorcycle parking areas are provided at convenient locations on campus. Parking permits are not required. Parking regulations, guide maps indicating the location of these facilities and additional information may be obtained from Campus Parking Service, room 280, Gayley Strathmore Structure; telephone 825-1887.

Bus Service

UCLA is linked by bus to most of the L.A. area. Fares range from 25 cents to 80 cents. That's cheap when you consider all the costs of driving—parking, maintenance and the general aggravation that comes with West L.A. traffic.

Two bus companies serve the campus directly: the Southern California Rapid Transit District and the Santa Monica Municipal Bus Lines. For detailed information on routes and schedules call the RTD at 273-0910 or the Santa Monica Bus Lines at 451-5445.

Line	Areas served	Main streets on route	Frequency
SM 1	Venice, Santa Monica, West L.A., Westwood	Main St., Santa Monica Bl., Westwood Bl., Hilgard Av.	Every 10 min. 6:30 a.m.—5:30 p.m.; approximately 20 min. 6:02-11:32 p.m.
SM 2	Venice, Santa Monica, West L.A., Westwood, Brentwood	Main St., Wilshire Bl., VA property, Wilshire Bl., Westwood Bl., Hilgard Av.	Every 15 min. 6:56 a.m.-4:49 p.m.; every 20 min. 5:12-6:52 p.m.; every 30 min. 6:52-10:22 p.m.
SM 8	Santa Monica, West L.A., Westwood	Ocean Park Bl., Westwood Bl., Hilgard Av.	Every 30 min. 6:30 a.m.-6:35 p.m.; every hour 6:35-10:35 p.m.
RTD 76	Beverly Hills, Westwood, Brentwood, Pacific Palisades	Sunset Bl., Hilgard Av., Gayley Av.	Schedule varies; call RTD
RTD 176	Watts, South L.A. Beverly Hills, Westwood, Brentwood, Pacific Palisades	Central Av., Western Av., Santa Monica Frwy., La Cienega Bl., Sunset Bl.	Leaves Watts 5:35, 6:35, 6:50, 7:05, 7:25 and 7:55 a.m.; leaves UCLA 3:52, 4:02, 4:13, 4:34, 5:06 and 5:36 p.m.
RTD 83	L.A., Beverly Hills, Brentwood, Westwood, Santa Monica	Wilshire Bl., San Vicente Bl.	Every 4-10 min.; direct to UCLA every 8 min.
RTD 88	Westchester, Westwood, Sherman Oaks, Van Nuys, Pacoima, Lakeview Terrace	Century Bl., San Diego Frwy., Wilshire Bl., Westwood Bl., San Diego Frwy., Ventura Bl., Van Nuys Bl., Foothill Bl.	Southbound every 10-20 min.; northbound every 15-20 min.
RTD 602	Downtown L.A., Westwood, West L.A., Palms	Santa Monica Frwy., Overland Av., Beverly Glen Bl., Wilshire Bl., Westwood Bl., Gayley Av., Montana Av., Sepulveda Bl.	Leaves downtown L.A. 7:35, 8:10 and 8:45 a.m.; leaves Wilshire and Westwood 3:35, 4:05 and 4:35 p.m.

Fares—The basic RTD fare is 45 cents a ride (except express lines like Line 88, which increase in increments of 20 cents depending on distance traveled). Transfers cost 10 cents.

Student passes for a month of unlimited bus travel cost $12 ($24 for Line 88). Get them in 140 Kerckhoff Hall.

The Santa Monica lines' basic fare is 25 cents with no zone charges. Transfers are free, too; interagency transfers are 10 cents. If you're under 21, you can buy a 10-ride student bus card for $1.25—a 25 per cent discount. Buying tokens will also save you money. Both are available in 140 Kerckhoff Hall.

Culver City also operates a bus line, with 10 transfers to the Santa Monica lines and UCLA. Fares are 35 cents. Students under 21 can purchase a 10-ride bus card for $1 at the Culver City Bus business office, 9815 W. Jefferson Blvd., or the Culver City City Hall. For more information call 837-5211.

Carpools

Carpooling can save you money and at the same time cut traffic congestion, parking problems and air pollution. Commuter Computer, a private nonprofit organization, has a special rider-driver matching program for UCLA. The application—available to students, faculty and staff—accommodates the two types of schedules found here: standard schedules (with the same eight-hour day, each weekday) and variable schedules (with part-time schedules or schedules that vary from day to day).

Within two or three weeks of applying, you'll receive a match list with up to 25 names of UCLA people living in your neighborhood. You can then contact people named on the list and set up carpool arrangements that satisfy your needs.

Vanpooling services may also be offered this year to people with standard schedules. A vanpool consists of 10 people who live near one another and who commute to and from UCLA. In some cases, riders receive door-to-door service, depending on the preferences of vanpool passengers. Riders pay a monthly fare determined by the round-trip mileage of the commute. Costs range from $58 per month for a 30-mile round trip to $76 for a 90-mile round trip. This fee covers fuel, maintenance, insurance and lease payments on the van.

Off-Campus Permit Parking

Parking is available free on Veterans Administration property just northeast of the intersection of Sawtelle Blvd. and Ohio Ave. A shuttle bus leaves this parking lot for campus about every 20 minutes at 10 cents per ride, starting at 6:30 a.m.

Arrangements have also been made with commercial parking lots in Westwood Village to sell permits for their facilities to UCLA students at UCLA's permit rate of $27 per quarter. If you'd like a permit in one of these lots (each of which has at least 50 spaces available), contact a parking kiosk attendant at the facility of your choice: **Westwood Center**, 1100 Glendon Ave.; the **Security Pacific Bank Building**, 10960 Wilshire Blvd.

Permit Alternatives

Metered parking (25 for 37½ minutes, 40 for an hour) can be found across from Ackerman, south of Ackerman on Westwood Plaza, northeast of Murphy, west of University Research Library off Circle Drive, east of Macgowan (15-minute meters only), on Tiverton east of the Medical Center and at the dorms.

Parking in most permit lots is free after 9 p.m. every day, and all day Sunday.

During the day, parking is available for $1 to non-permit holders. You won't always have your choice of lots, however.

Tram Service

Night tram service is available to students needing transportation from main library facilities on campus and all on-campus dorms and sorority houses.

The tram, sponsored by the University in conjunction with student government, runs every 20 minutes between 7:30 p.m. and 11:30 p.m. Sunday through Thursday.

It makes stops on South, North and East Circle Drives, Strathmore Avenue and De Neve Drive. The stops are:

1—Across from the campus police; 2—next to Lot 8 on Circle Drive West; 3—at the top of Bruin Walk across from Dykstra Hall; 4—in front of Sproul Hall; 5—in front of Rieber Hall; 6—in front of Hedrick Hall; 7—past the Women's Gym near Lot 5, on Circle Drive North; 8—behind URL and the North Campus Facility; 9—at Macgowan Hall, on Circle Drive East; 10—on Dickson Court; 11—across from Lot 2, near Geology; 12—across from Hershey Hall.

Tram service is free to students.

Need to know more?

"Finders Keepers"—a handbook to UCLA, with sections on transporation. Reference copies are available through all department, college, school and ASK counselors at the College Library and University Research Library reference desks and at a number of other counseling locations (AAP, Admissions, Dean of Students Office, Honors Programs Office, Placement and Career Planning Center and Psychological and Counseling Services).

student services at UCLA

This section works in concert with two other parts of the Catalog: "academics: resources to help you" and "recreation and participation". Together, this trio of services sections describes the range and variety of programs to help you.

Academic Advancement Program

The Academic Advancement Program (AAP), formerly EOP, is the primary student affirmative action program at UCLA. AAP is designed to provide academic support to students from ethnic and low income communities who have been historically under-represented at UCLA. The program seeks to assist these students in achieving their goal of graduation from the University of California. Applicants must be citizens or permanent residents of the United States and residents of the State of California. This requirement is waived for Native Americans who can document their tribal affiliation. Prospective applicants must meet regular university requirements for undergraduate admission as freshmen or in Advanced Standing. A limited number of exceptions are made each year. Special action admission consideration is given on an individual basis. AAP offers orientation to the campus service; peer counseling for all entering students; extensive personal counseling services; individual and group tutorial programs; career and Graduate/Professional school advisement; career days for all professional fields; seminars and preparation sessions for all graduate school entrance examinations; and help in determining financial aid eligibility for state and federal funds.

Campus Programs and Activities Office

The Campus Programs and Activities Office, 161 Kerckhoff Hall, telephone 825-7041, services all sectors of the campus community through program advisement, planning, and development; offering assistance to campus groups, including the graduate and undergraduate student governments, in securing program funding; uniformly interpreting and applying University rules and regulations; providing general information about all campus meetings, programs and activities; registering all campus groups; and providing production and technical advice and assistance in all phases of programming.

Campus Activities Service Office

The Campus Activities Service Office administers and operates most campus facilities, classrooms for non-class usage, and auditoriums. They have an inventory of audio visual equipment which may be rented for on-campus use. CASO offers technical advice in the public events area to groups holding events on campus. Groups must be registered through the Campus Programs and Activities Office (CPAO, 161 Kerckhoff, *825-7041)* to be eligible to use CASO services. CASO administers the Official and General Purpose Bulletin Boards on campus, as well as the General Assignment Lockers and the sale of UCLA padlocks. Located in room 130, Royce Hall, telephone 825-8981; Audio-visual services in room 2, Royce Hall, telephone 825-7487.

Campus Parking Service

Please read the "transportation" section of this book for a discussion of this service.

Central Ticket Office

The Central Ticket Office serves the UCLA community through two locations—the Ticket Office in the James E. West Alumni Center (ground floor) and at the trailer at 650 Westwood Plaza (across from the Police Station).

Tickets for *all* UCLA events are sold at *both* locations. In addition, the following special ticket services are provided at each location:

The James E. West Alumni Center location offers student tickets to athletic events at reduced prices. Tickets to off-campus events are also sold, through both the Ticketron system and the Mutual Ticket Agency. Bus tickets for the RTD and Santa Monica bus systems (discount rides for students), and special student discount tickets for local motion picture theatres are also available.

The 650 Westwood Plaza location offers student tickets for on-campus cultural events at reduced prices, subsidized by the Student Committee for the Arts. For all student tickets, students must present their Registration Card and Photo I.D. Card. There is a limit of 2 tickets per person. Watch the *Daily Bruin* ads for ticket sales dates.

Child Care

Child Care Services, telephone 825-5086, offers two child care programs to University students, staff and faculty as well as a referral file of over 400 child care centers in Los Angeles.

Child Care Center

Part-time and full-time care, depending upon parents needs, for children two months to six years. Fees range from $26/w—$56/w depending on full or part-time care. The Child Care Center is located in Parking Lot 1, behind the Credit Union and the BRI trailers at 10833 Le Conte, telephone 825-5086.

For information regarding fees call Child Care Services at 825-5086.

Family Day Care

Homes in the community which are licensed by Los Angeles County and participate in training and enrichment by the Child Care Services staff. Full and part-time care; fees and hours arranged with individual Caregivers. Telephone 825-8474 for more information.

UCLA Parent Toddler Group

Located in the Married Student Housing complex four miles south of campus (3327 S. Sepulveda Blvd., telephone 391-9155 or 398-8739), this is a cooperative pre-school open to all members of the UCLA community: full-time students, faculty and staff.

The program is designed to help toddlers aged 18-months to 3-years develop a sense of independence, self-worth and the ability to relate to other children and to adults outside their own families. Some structured activities which encourage mobility and dexterity are available, but the children are encouraged to make their own choices and decisions.

Tuition is on a sliding scale, according to parental income. Parents participating in this cooperative scheme are required to work at school one morning in every four that their child attends. The Parent Toddler Group operates mornings, Monday through Friday, 9:00 a.m. to 12:00 p.m. The afternoon sessions meets 12:15 p.m. to 4:00 p.m., three days a week.

University Parents Co-operative Nursery School

Located in the Married Student Housing complex four miles south of campus (3327 S. Sepulveda Blvd., telephone 397-2735), offers a warm, supportive educational environment to children of the UCLA community. The nature of the school also provides parents of varied cultural backgrounds the opportunity to gain insights and skills in parenting. Care is provided for children ages 3-6 years. The hours are Monday through Friday, 9:00 a.m. to 12:00 p.m. and 12:00 p.m. to 3:45 p.m. with extended care available 3:45 p.m. to 5:30 p.m.

Computer Services

Registered students can obtain an account free of charge on the DECsystem-10 interactive computer operated by the Office of Academic Computing. Special funds from the Chancellor support this resource designed to give students the opportunity to familiarize themselves with the use of computing equipment as a tool to assist in studies. You may use the computer to do homework, edit term papers, conduct independent research, teach yourself programming, or in connection with specific courses that make use of the computer as a learning aid. Terminals to access the computer are available in the Graduate School of Management, the Mathematical Sciences Building, and in Boelter Hall. Apply in room 4302 MSA from 8 a.m. to 5 p.m. on weekdays.

Cultural and Recreational Affairs

The Office of Cultural and Recreational Affairs (room 600 Kerckhoff Hall; telephone 825-3701) is the center of recreational activities on the campus. These are divided into four general areas:

Intramural Sports Office

118 Men's Gym—825-3267. There are teams formed for just about every sport during every season of the year. There are divisions for men and women, as well as participation on a coed basis. Some sports (i.e., basketball) are divided into size or skill divisions, so anyone who wants to can get involved, at whatever level they choose. You can join a team in your dorm, or in your fraternity or sorority house, or you can form an independent team from among your friends. The office can help you form a team. Playoffs are set up in each sport and in each division to determine the "All-U" champs. The Intramural Sports Office is located in room 118 of the men's gym; telephone 825-3267.

Recreation Services and Facilities Office

Located in room 164 Pauley Pavilion (telephone 825-4548), its purpose is to see that facilities are made available for those persons not interested in organized sports. Non-credit classes are also offered in such areas as dance, tennis, outdoor recreation, swimming, golf, judo, self-defense, gymnastics, etc. Information on both is contained in the brochure "Recreation Release" available at the beginning of each quarter in Kerckhoff Hall 600, Pauley Pavilion 164, Men's Gym, Women's Gym, Recreation Center, the Ackerman Union Information Desk, and/or posted in various places around the campus. Also watch the *Daily Bruin* for class schedules.

University Recreation Association

URA is an association of special interest clubs in the cultural and recreational area. There are over 40 clubs already in existence, and you may form a new one by gathering ten other people with the same interest. The types of clubs existing include water ski, chess, scuba, ski, mountaineering, etc. For a complete list, drop by Kerckhoff Hall 600 or call. To join a club, you may either sign-up in Kerckhoff Hall 600 or simply attend the first meeting of the club (check the *Daily Bruin* Campus Events column).

You can find the URA office in room 600 Kerckhoff Hall; telephone 825-3703.

Sunset Canyon Recreation Center

The "Rec Center" is located next to Hedrick Residence Hall. It is normally open 10 a.m. to 7 p.m. (10 a.m. to 8 p.m. during the summer). Its facilities include an olympic sized and a family swimming pool, volleyball courts, barbeque pits, picnic tables, meeting rooms, and large grassy areas. You need to bring your registration card to get in and you can bring along friends for a nominal charge ($1.00/person).

Telephone the "Rec Center" at 825-3671 for more information.

Dean of Students

The Dean of Students Office (room 2224 Murphy Hall; telephone 825-3871) is one of the few generalists left in these days of specialization. Besides the administration of several student services, e.g., legal services, veteran and handicapped students' services, it exists to help students with whatever needs they might have, either directly or by referral.

The direct services offered by the Dean of Students Office include:

Emergency locating of and emergency messages to students; fraternities and sororities; general counseling; "good student" automobile insurance discount verification; honorary societies including Phi Eta Sigma and Alpha Lambda Delta—freshman honor societies, Pi Gamma Mu—social science honor society, Mortar Board—senior honor society; letters of recommendation; Orientation Program; tie-line for business calls to other UC campuses; and assistance in understanding grievance procedures regarding student records, discrimination, and student debts.

The Dean of Students Office also plays a role in the administration of campus discipline. This role is discussed in more detail in the "admission" section of this Catalog.

Financial Aid Office

The Financial Aid Office is located at A129 Murphy Hall. Walk-in counseling hours are 9 a.m. to 5 p.m. Monday through Friday at Counseling Window B. Counselors are also available by appointment 9 a.m. to 12 p.m. and 2 p.m. to 5 p.m. Monday through Friday. Please read the material about financial aid in the "money" section of this Catalog for a complete look at the services of the Financial Aid Office.

Foreign Students

The Office of International Students and Scholars (located in 297 Dodd Hall; telephone 825-1681) provides counseling and general assistance to all foreign students and scholars, from the time of their arrival, to help them best achieve the objectives which brought them to UCLA. Its staff, which includes professional and peer counselors, is uniquely equipped to respond to the questions and concerns of persons from other cultures. The office functions in an advisory or referral capacity on questions concerning financial aids, Immigration and Naturalization Service requirements and procedures, English language resources, academic assistance, employment permission and possibilities, housing assistance and personal matters.

The Office of International Students and Scholars, together with the International Student Center, offers a special Orientation Program for foreign students at the beginning of each academic quarter, as well as regular workshops on topics of concern to foreign students through the academic year.

In addition, the office initiates programs designed to broaden the scope of academic advising and to ensure that academic counseling is concerned with the student's long-range professional goals.

It also functions to increase communication between foreign and American students and the larger community.

Graduate Students' Association

Student government participation by graduate students is detailed in the "recreation and participation" section of this catalog.

Learning Skills Center

At the Learning Skills Center you can work in a variety of ways to increase your effectiveness as a learner. You may meet with an experienced counselor in a one-to-one session; you may enroll in small workshops presented by the Center each quarter; or you may use the self-paced Learning Laboratory. Each of these settings offers a unique addition to the classroom and the lecture hall which can enhance your educational process both within the university and beyond.

In the Center you will find resources available for all of your study-related concerns. These include:

Reading:	To increase your reading rate and comprehension.
Study:	To improve your study effectiveness and reduce study-connected anxiety.
Writing:	To overcome trouble spots in your writing process, whether you have difficulty getting started, generating ideas, or rewriting in any writing tasks from Freshman essays through Ph.D. dissertations.
Speech:	To develop ease in speaking in group settings Videotape playbacks are available for practicing formal and informal presentations.
Math-Science:	To improve your reading of science texts, with special emphasis on problem-solving

and reducing your anxiety in the physical and life sciences.

Exam Preparation:	To increase effectiveness in mid-term and final exam preparation and performance. Special workshops on preparing for the LSAT GMAT and GRE exams are offered each quarter.
The Self-Paced Learning Laboratory:	To improve your skills by working during your free hours and at your own pace on a variety of programs with supervision as needed.

The Learning Skills Center is neither a tutorial nor an editorial service.

The Learning Skills Center is located in 77 Dodd Hall, Telephone 824-6145; Monday to Friday, 8 a.m. to 5 p.m.

Office of Experimental Educational Programs

The Office of Experimental Educational Programs (OEEP) serves as a developmental and administrative center for programs and services providing internships, field studies, service-learning, and other learning opportunities that enrich and supplement the instruction offered through the University's academic curriculum. Four professionally staffed units assist students interested in getting more actively involved in their education.

Academically Affiliated Programs

Information about a variety of programs and courses with field experience components is available through the Special Projects Unit. Call 825-2295 or visit Dodd 50 for more details on UCLA undergraduate field study opportunities. Most of these opportunities are co-sponsored by OEEP and related academic departments and offer academic credit.

Community Service-Learning Center (CS-LC):

Staff at the CS-LC work with students to develop a wide variety of "tailor made" opportunities. For working with a range of community agencies, a holistic approach to student placement is pursued, assessing each student's academic, personal, and experiential needs before placement occurs. Assistance is offered in the areas of:

- Program structure and placement,
- goal clarification,
- personal competence assessment,
- proposal and learning contract development,
- design and implementation of self-initiated independent and field work projects,
- evaluation and documentation of non-classroom learning experiences.

Programs developed through the CS-LC are designed to stress an exchange relationship between the student and a community agency. Usually students offer their services in return for exposure to professionals with proven expertise in an area of the student's interest. The first-hand knowledge each student acquires can be applicable to either the public or private sectors of society, though service to needy communities is emphasized. Interested students should visit or call the Community Service-Learning Center for an appointment. CS-LC is located in 51 Dodd, 825-5969.

Experiential Programs and Opportunities Center (EXPO):

EXPO serves as an information clearinghouse and placement service for off-campus opportunities and provides students, faculty, and staff with access to experiences that supplement the traditional educational format of the lecture hall, laboratory, and library. It offers counseling, information, and programs in the following areas:

- *Internship Programs*, including the UCLA International, Washington, Sacramento, and Los Angeles Internship Programs, the Model United Nations Program, and the Volunteer Income Tax Assistance Program.
- *International Opportunities*, including information on study and travel abroad programs, International Student Identity and Youth Hostel cards, and internships with international agencies in the United States and abroad.
- *National Opportunities*, including information on alternative and summer study, internships, and travel opportunities offered throughout the United States.
- *Local Opportunities*, including information on cultural, recreational, and volunteer opportunities throughout Los Angeles and Southern California.

Ask and you will probably find it at EXPO, Ackerman Union A-213 (825-0831).

Ombudsman

The purpose of the Ombudsman office is to seek to resolve personal grievances of members of the university community emerging from policy, practices, and/or personalities. As an independent agent with investigatory powers, the Ombudsman accepts grievances only after the grievant has tried to resolve the problem through regular channels and when there is evidence that adverse decisions are questionable.

The office is located in Kinsey Hall, Room 280 (phone 825-7627) and is open to all University-related persons; also at times and other places convenient to the aggrieved.

Orientation

The Orientation Program offers extensive academic counseling and educational planning to all new undergraduates entering the University. Working in small groups with peer counselors, students plan their schedules for the upcoming quarter and learn of the educational opportunities open to them. In addition, undergraduates can learn about student services and the University's facilities and activities. Each student also receives individual time with a counselor, fulfilling the academic advising recommended for all students (required by some schools/colleges) for enrolling in classes. Orientation sessions provide opportunities for dealing with the common problems in adjusting to university life.

For further information about the program (including costs and dates), contact the Orientation Program, located in the Dean of Students Office, 2224 Murphy Hall or phone (213) 825-3626.

You can find information about other programs for new students in the "academics: resources to help you" section of this Catalog.

Placement and Career Planning Center

The Placement and Career Planning Center offers career development and placement services to students of all disciplines and all degree and class levels. It is comprised of three functional divisions: Career Development, Student Employment, and Educational Career Services. Services are located in the Placement and Career Planning Center building and in two satellite locations: 1349 GSM, specializing in Management, and 6417 Boelter Hall, specializing in Engineering and the Physical Sciences.

Career Development

A staff of career counselors is available to assist in career exploration, choice, and the job search. The Career Resources Library furnishes information for planning further education and alternative careers.

The Campus Interview Program provides convenient access for students to interview with employers and graduate school representatives. A more diverse array of job opportunities is posted for direct referral to the employer.

Student Employment

A job listing and referral system is provided for currently enrolled students and their spouses who are seeking part-time, temporary, or vacation employment. Career-related opportunities (including paid and non-paid internships) are available either through the listings or through personal search with the assistance of this unit.

Educational Career Services

Specialized information and counseling is available to assist students and alumni seeking positions in universities, colleges, community colleges, and secondary and elementary schools. Current listings of educational job opportunities, internships in educational institutions, and a professional file service are included.

Psychological and Counseling Services

The Psychological and Counseling Services include two separate divisions—The Behavioral Division and The Counseling Division. Both divisions provide professional services focusing upon student development, and are for the voluntary use of any regularly enrolled student.

Behavioral Division

The Behavioral Division (4223 Math Sciences, 825-4207) offers counseling for students who want to increase their effectiveness in handling specific problems encountered in the course of University life. Typical concerns which can be resolved through a self-management learning process include overcoming test-taking anxiety, fear of oral exams or participating in classroom discussions, public speaking anxiety, tension or inexpressiveness in difficult interviews, and procrastination in studying. Other personal problems in which excessive anxiety or inappropriate learned behaviors interfere with performance can also be relieved, such as lessening difficulty in meeting people, learning to express oneself more directly and honestly in interpersonal relationships, and finding ways to increase self-confidence and self-control. Emphasis is placed upon the learning of techniques and abilities to help students implement decisions they have made and more effectively to realize their goals.

The staff is composed of professional psychologists. Both individual and group programs are offered. Students should call or come in to arrange an appointment or to receive further information.

Counseling Division

The Counseling Division (4223 Math Sciences Building, 825-0768) offers individual and group counseling for students who are experiencing any of the number of general concerns, dilemmas, crises or indecisions which are often encountered by students. Difficulties related to the process of making decisions, the clarification of values or long-range personal and career goals, the resolution of conflict in expectations, the handling of intense emotional experiences, and other concerns affecting the personal growth of students are among those to which the Counseling Division frequently responds. Educational and career interest inventories can be taken upon request. Marital and pre-marital counseling, and counseling related to problems encountered in other forms of relationships is also available. Emphasis is placed on the exploration and clarification of feelings, choices, expectations, and alternatives, and the resolution of indecision or inability to act.

The staff is composed of counseling psychologists and other professionals familiar with the needs and interests of college students. Students should call or come in to arrange an appointment (immediate appointments are possible, if indicated) or to receive further information.

Religious Programs

The University Religious Conference is located at 900 Hilgard Avenue at LeConte. URC membership is held by the Baptist, Catholic, United Church of Christ, Disciple, Episcopal, Jewish, Lutheran, United Methodist and United Presbyterian organizations. The URC serves as the headquarters for various campus ministries and programs which are carried out on the campus and within the building. Other facilities of the URC members include the Catholic Center, 840 Hilgard Avenue; Campus Baptist Chapel, 668 Levering; University Lutheran Chapel 10915 Strathmore, and Episcopal Center, 580 Hilgard Avenue.

Other campus related religious facilities include the L.D.S. Institute of Religion, 856 Hilgard Avenue; Christian Science Organization, 500 Hilgard Avenue; the Y.W.C.A. at 574 Hilgard Avenue; Chabad House, 741 Gayley Avenue.

In these facilities are held worship services, religious discussion groups, lectures, Bible classes, social gatherings, luncheons, dinners, social action conferences and other meetings dealing with campus religious life. In addition the URC student religious organizations and others also hold regular meetings and occasional services on campus.

ROTC

In accordance with National Defense Act of 1920, and with the concurrence of the Regents of the University, a unit of the Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July, 1920.

Air Force

Air Force ROTC, through its Aerospace Studies offerings, enables students to develop, demonstrate, and apply the knowledge and leadership qualities requisite for an officer's commission in the U.S. Air Force. Students who demonstrate dedication to their assignments, who willingly accept responsibility, who think critically and who have the ability to communicate with clarity and precision will, upon completing the curriculum and graduating from the University, receive an officer's commission. See Aerospace Studies listing in the "courses" section of this catalog for more details.

Army

The purpose of the Army ROTC is to qualify selected male and female students as leaders in their chosen fields, as far as the requirements of the service permit. These fields include: engineering; communications; administration; logistics; personnel management; intelligence; and many others. The ROTC Program qualifies graduates for commissions as officers in the United States Army Reserves, National Guard and Active Army. Distinguished graduates may qualify for a commission in the regular Army.

Options now available include two-, three- and four-year programs leading to an Army commission. Cross-enrollment is available through UCLA Extension from community colleges or other colleges that do not offer Army ROTC. You can check the Military Science Department listing in the "courses" section of this catalog for details of the program.

Navy

By action of the Secretary of the Navy and of the Regents of the University of California in June, 1938, provision was made for the establishment of a unit of the Naval Reserve Officers' Training Corps on the Los Angeles campus of the University.

The primary objective of the Naval Reserve Officers' Training Corps is to provide an education at civil institutions which will qualify selected students of such institutions for appointment as officers in the Regular Navy, Naval Reserve, Marine Corps, and Marine Corps Reserve. Upon successful completion of the four-year program, which includes the receipt of a baccalaureate degree from the University, you may expect to be commissioned and to be ordered to active duty in ships, submarines or aircraft of the Navy, with field units of the Marine Corps, or with Marine Aviation. You can check the Naval Science listing in the "courses" section of the catalog for more details.

In addition, each of these programs offers financial assistance to participating students. Turn to the financial aid section of "money" in this Catalog for more information.

Student Health Services

General Description

The Student Health Service is a campus organization dedicated to helping you meet your health needs as a UCLA student. Three major program elements are integrated by Student Health to provide a comprehensive approach to addressing your health care concerns. These are:

1. *Clinic Facilities* conveniently available on campus, designed and staffed to provide a broad range of direct ambulatory services, both preventative and medical, to anticipate and meet most of your health care needs.

2. *Programs and Learning Opportunities* to increase your awareness of your own health and your responsibilities for it, to keep you free from disease and to assist you in achieving "good health".

3. A *Voluntary Supplemental Health Insurance Plan*, available for purchase at reasonable rates, designed to provide substantial financial coverage for the costs of necessary care which cannot be obtained in Student Health, such as in-patient hospitalization, surgery, or off-campus treatment.

The Student Health Service's available resources must currently be primarily organized to meet the majority's needs for health care, health education and counseling as may arise during active attendance at the University, and cannot offer total coverage of all conditions. In selected cases, some direct care may be offered for predictably chronic or recurring needs. For most long term conditions, however, the student will be assisted in locating other resources off campus.

Benefits, Locations, and Hours

Direct Student Health services are available to students at the UCLA Student Health facilities and in some officially connected facilities, except for benefits through the Student Health Services of other UC campuses.

General and Emergency Care is available at the Student Health Clinic on "A" floor of the Center for the Health Sciences or at the Pauley Pavilion Emergency Station during hours when they are open. Office hours are: Monday through Friday, 8:00 a.m. to 12:00 noon, and from 1:00 p.m. to 5:00 p.m. EXCEPT TUESDAY when service begins at 9:00 a.m. Emergencies only, as determined by staff, are seen between 11:30 a.m. and 1:00 p.m., and between 4:30 p.m. and 5:00 p.m. daily. Pauley Pavilion Station is open from 1:30 to 6:00 p.m. Monday through Friday, and is especially staffed and equipped to provide prompt expert care for athletic injuries.

When these facilities are closed, students in need of emergency care must seek care elsewhere, such as in the UCLA Hospital Emergency Room, or in the Hospital's Acute Care Clinic. Charges for UCLA Hospital emergency services are NOT the responsibility of the Student Health Service. They will usually be covered by whatever health insurance the student may have, but where no insurance is applicable, will remain the student's responsibility.

The Student Health Service is not responsible for in-patient hospital costs at UCLA or elsewhere, and is not responsible for ambulance fees, except when authorized in connection with on-campus emergencies, although such costs are usually covered by the student's health insurance, including the UCLA Supplemental Health Insurance Plan, for any legitimate use.

Benefits are subject to change at the discretion of the Chancellor, with appropriate offical prior notice.

General Medical and Surgical Services

The Student Health Clinics include: (a) Primary Care Clinics where students with all kinds of ailments may be seen either by appointment or on a walk-in basis. These clinics are organized to provide students with efficient quality care. Qualified clinic personnel screen students who arrive without advance appointments in order to determine how best to meet their needs. Students will be seen in the Rapid Care unit unless their condition requires further diagnostic work or consultation with a specialist, in which case they may be scheduled to see a clinician in one of the General Care units or be referred to one of the Specialty Clinics. Any student may make an advance appointment for one of the General Care units by stopping by the appointment desk in person or by calling 825-2463. (b) A wide variety of Specialty Clinics are staffed by consultants with specialized knowledge and experience. Students are seen in these clinics only by appointment and only after referral from the Primary Care Clinics or another Specialty Clinic. A small charge for missed appointments applies to both the General Care units and to the Specialty Clinics. Ancillary services, such as Clinical Laboratory, X-Ray, and Pharmacy, are available at Student Health. An immunization clinic operates during the selected hours, Monday through Friday. Modest fees are charged for pharmacy, immunizations and health physicals. All other general health care services are provided at no additional cost to fully registered students.

The Dental Clinic

Available without need of referral, the primary function of the Student Health Dental Clinic is to treat dental emergencies. Emergency care has priority over non-urgent procedures. Dental examinations, x-rays, prophylaxis, hygiene instructions and advice and consultation on dental problems are provided. A limited amount of general dentistry and dental surgery is available. It should be noted, however, there is a fee for all services in this clinic. Students are required to pay the scheduled fee for dental care at the time of treatment. Exception: Initial examination for dental injury or conditions may be given at no cost if referred by other Student Health professional staff, and if no x-rays or operative procedures are required. For information call 825-5858.

Mental Health Service

The Mental Health Clinic offers individual and/or group psychotherapy, along with many other diagnostic and psychotherapeutic techniques. The professional staff, which consists of psychiatrists, psychologists and clinical social workers, provides help with situational stresses, such as school pressures, exam anxiety, family problems or relationship problems, as well as with other emotional or psychological problems. Mental Health Service records are kept totally confidential. In an emergency a student will always be seen immediately. For information call 825-7985.

Gynecology and Contraceptive Services

Services in the clinic which are available to all registered students include: (1) routine women's health care needs, (2) gynecology problem clinics, (3) family planning through CCEC (Conception

Counseling and Education Clinic), (4) sexuality (relationship concerns) counseling, and (5) pregnancy testing, counseling and referrals.

Students who wish to utilize the contraceptive services are required to first attend one of the educational classes (approximately 1½ hours) offered in the clinic several times each week. We also encourage men to attend these classes.

All of the services offered in the clinic are at no cost to students with the exception of contraceptive materials and other medication except during the summer quarter when a fee-for-service charge for visits is in force. No direct service or coverage is provided by Student Health for indicated abortions except for counseling and referrals. The clinic is operational on a year-round basis except for official University holidays. For additional information and/or appointments, call 825-5850 weekdays from 8-9 a.m. (except Tuesdays) and from 3:30 to 4:40 p.m. or come in person to SHS.

Hospitalization

The University and its Student Health Service does not provide coverage *for the costs of students' hospitalization in in-patient care at UCLA or at any other hospital.* All such hospital and related costs are the student's responsibility.

To assure protection against unexpected and sometimes severe financial losses, students must be certain that they are adequately covered either through independent hospital/medical insurance, or through purchase of the UCLA Supplemental Health Insurance Plan at the beginning of the first registered quarter.

Financial Support of Health Services

Student Health is supported principally by *allocations from the Registration Fee* paid by all fully registered students, and by the Optional Health Service Fee paid by some other categories of students. Those paying the Registered Fee, or the Optional Health Service Fee, receive all benefits as described above at no further cost, except minimal fees for medications and injections, for dental services, for required health evaluations, for missed appointments, and for a few other services.

Students who are not otherwise eligible may use Student Health on a *Fee-for-Service* basis, as they would a private physician or clinic, paying for services actually received according to a fee schedule which is available for students inspection upon request.

Summer Session Fees, Filing Fees, and any other monies advanced for special study categories short of full Registration *do not in themselves provide any support to or eligibility for Student Health services,* but may make such persons eligible for benefits either by paying the Optional Health Service Fee or on a Fee-for-Service basis as explained below. Benefits not directly provided through the UCLA Student Health Service or exceeding stated limits, are the student's personal financial responsibility, with or without the aid of any health insurance he/she may hold. Such insurance, including the UCLA Supplemental Health Insurance Plan (see below) effectively extends the student's overall health-care coverage beyond the limits of direct Student Health service.

Conditions of Eligibility

Student Health is primarily reserved for the use of students at the Los Angeles campus of the University of California, and in special situations, for students from other U.C. campuses.

Students paying a full Registration Fee in any quarter of the regular academic year of any school, college or division of UCLA are entitled to full benefits as set forth below with official verification of registration. This entitlement extends from the first day of the Quarter (as officially published) through the last day of same, except if the student withdraws. (See below for limitations following withdrawal.) If the student intends to register for the next immediately following quarter, his coverage extends through the break between quarters.

On the basis of a reciprocal arrangement between U.C. campuses, students currently registered at other UC campuses may receive necessary care on the same basis as those at UCLA. In the case of an officially confirmed transfer to UCLA as a fully registered student, the student will be entitled to full benefits, during the regular academic year, for the period between the last day of official registration at another UC campus and the first day of the UCLA quarter immediately following.

Some categories of students who pay anything less than the full Registration Fee may receive Student Health benefits during any quarter (including Summer months) in which their eligibility applies by electing one of the two following payment methods:

A. They may receive full benefits by *pre-payment of the optional health service fee* prior to the close of the 30th calendar day of the quarter or initial Summer Session, or:

B. They may utilize the Student Health Service on a *Fee-for-Service* basis between the last official day of the academic session just preceding and the opening day of the next session following such periods.

The specific categories of students eligible for these options are as follows:

1. *Continuing students* (including those from other U.C. campuses transferring to UCLA) during Summer months, whether attending Summer Session or not.

2. *Accepted candidates for any UCLA degree* during any one quarter of non-registration, for any reason except withdrawal, provided that they have been fully registered or have paid the Optional Health Fee in the previous quarter, and that they have satisfactory evidence of intent to re-register fully in the next applicable term.

3. *Graduate students* actively researching and/or writing dissertations, who have no need to take classes or to register for this purpose, and who are not ready to submit their theses and pay Filing Fees. Service is contingent upon presentation of any official written confirmation of current sponsorship and continuing BONA FIDE degree candidacy for the Quarter from the responsible senior Faculty member or Department Head.

4. *Graduate students paying a "Filing Fee"* for dissertations, but not otherwise registered for that quarter or Summer period in which that fee is paid.

5. *Postdoctoral fellows and trainees,* properly identified as such by their sponsors, working full time towards additional credentials in any quarter or summer period.

6. *Foreign students,* not yet registered, but living near campus and working under University sponsorship to meet language and/or other academic prerequisites to full registration, when approved by the Office of International Students and Scholars.

7. *Medical and Dental students,* technically "registered" for purposes of medicolegal coverage during elective or "free" quarters, but paying no registration fee, with appropriate confirmation.

In all of the above situations service charges incurred prior to the 30th day of the eligible period are NOT automatically cancelled by subsequent payment of the Optional Health Service Fee.

Some other categories of students having only intermittent, partial, or qualified University status, may be eligible for Health Services use, *but solely on a Fee-for-Service basis* as follows:

1. *Students enrolled in Summer Sessions only,* who were not, and will not be, fully registered or enrolled in the preceding or following quarters.

2. *Students whose re-registration in the next regular quarter is in any doubt* following withdrawal, or receipt of a degree. In such cases, the Fee-for-Service use privilege extends only to the opening day of the next regular quarter, or the initial Summer Session, whichever is sooner. *Thereafter, eligibility on any basis terminates* until official confirmation of re-registration or Summer enrollment is presented.

3. *Special Scholars,* specifically sponsored part-time, visiting, and exchange students and researchers primarily based elsewhere, when officially designated as such by the sponsoring department, may use the Health Service, but only for emergency care of acute illness and injury apparently arising in connection with their scheduled study and activities on the UCLA campus, on a Fee-for-Service basis.

Prospective students arriving from significant distances and students required for any University-connected reasons to be on campus prior to the first day of the quarter will be entitled to full benefits during such periods with reasonable documentation of their status and intent to register; if later they fail to register, they will be charged for services actually received.

In some unusual situations, if in the best interests of the student and the University, the Director may approve eligibility as an exception to the foregoing conditions, on a case-by-case basis.

Supplemental Health Insurance

The cost of necessary hospital in-patient care is *not* covered by Student Health nor is the cost of any care obtained outside of Student Health. Students treated within Student Health following withdrawal from school or during an unregistered Quarter are liable to Fee-for-Service charges for care received. Since such costs are the student's responsibility, and may cause serious financial hardship, it is of great importance that each student have adequate health insurance. In the case of Foreign Students attending UCLA on non-immigrant visas, *the University requires as a condition of Registration* that they have, or purchase, adequate insurance as judged by Student Health. Additionally, it should be noted that the University reserves the right to require adequate health insurance of *all* students as a condition of registration.

If not already covered by health insurance, the student may purchase the Supplemental Health Insurance Plan developed by the UCLA Student Health Insurance Committee, whose membership includes students, administrators and Student Health staff. This Plan is available at very low cost through Student Health only at the beginning of each Quarter. The specific enrollment periods for the insurance appear in the Calendar at the front of this Catalog.

Supplemental Health Insurance coverage is negotiated annually and is typically structured as follows: It is an "excess" plan providing benefits only after all benefits available from other insurance coverage have been exhausted.

It is a "supplemental" plan, which is intended to provide coverage ONLY for those services not available to students through the Student Health Service facilities. Consequently, no benefits will be payable under this policy should expenses be incurred for services which could have been obtained in Student Health.

"Pre-existing"conditions are not covered. These are conditions for which professional advice or treatment was received elsewhere or which were manifest prior to purchase of the Plan. Such conditions are covered only after continuous enrollment in the Plan for 12 months.

The Plan will also have other specific benefit exclusions. Students are urged to carefully review the policy prior to purchase. Assistance is available at the Student Health Insurance desk or by calling the Insurance Coordinator at 825-1856.

The Supplemental Health Insurance Plan is not automatically renewed and students are not automatically enrolled in it. Students must re-apply for the Plan on or before the coverage period expires. Renewal notices are not mailed.

Care of Students' Dependents

Due to limitations of staff and space, no care for students' dependents can be provided within the Health Service. The UCLA Supplemental Health Insurance Plan may be purchased at Student Health for the dependents of any student who has purchased it for him/herself. Dependent benefits under the insurance plan will be identical to those available to the student.

Confidentiality of Medical Records

To protect individual privacy, no information whatsoever will be given to any person regarding a student's medical condition without his/her prior written consent or a legal court order, except in cases of extreme emergency when not to do so would in the Director's opinion endanger the student's life, or the lives of others and as otherwise required by law. Students have the right to examine and review the contents of their medical records in the presence of Student Health professional staff members by appointment and according to established rules. The record itself, however, is the property of the University, and may not be removed from the premises by any person, except under court order.

Care Off Campus

When visiting another University of California campus, a UCLA student is eligible for services at that campus Student Health Service under the same conditions that apply to students enrolled on that campus. Verification of student registration at UCLA will be required. While a student is off-campus participating in an officially sponsored event, necessary medical expenses incurred because of injury are covered by insurance carried by the Regents of the University. This policy does not cover any care which the student could reasonably have obtained through UCLA Student Health Service.

Third-Party Liability and Subrogation

When a student is treated under Student Health Services auspices for illness or injury resulting from third party negligence or intent, the University reserves the right to recover the actual costs of such care as the "prime insurer", by assignment or subrogation from any subsequent legal settlements and/or awards to the patient.

Federal Income Tax Deduction. For federal income tax purposes, the amount allocated to Student Health from each quarterly Registration Fee paid during the taxable year may be taken as a deduction for medical care. This amount changes each year, and the exact figure for the most current taxable year may be obtained by contacting the Information Desk at Student Health.

Additional Information

Students and others may obtain additional information by calling Student Health at 825-4073, by visiting the Service, or by writing the Director. Beside the general information number, the following may be useful for specific information or appointments:

Conception Counseling and Education	825-5850
Dental Clinic	825-5858
Insurance Coordinator	825-1856
Mental Health	825-7985
Pauley Pavilion Station	825-5704
Primary Care Clinics	825-2643
Specialty Services	825-0861
UCLA Hospital Emergency Room	825-2111
Emergency (Campus Police)	35

There are certain responsibilities students can take to guarantee maximum benefit from the Student Health Service:

- Know about all the services Student Health provides and take advantage of them.
- Participate in the self-help clinics and student-run health problems.
- Make appointments, but remember charges are made for missed appointments, so cancel ahead of time.
- Early in the day is best for walk-in service. Early is also best for appointments.
- Buy insurance.
- Be a responsible employer.

Health Requirements at Entrance

Before coming to the University, all students are urged to have their own physician and dentist examine them for fitness to carry on University work, and to have all defects capable of being remedied, such as dental cavities, defective hearing, or defective eyesight corrected.

All new and re-entering students in the Graduate School of Dentistry, Education, Medicine, Nursing or Social Welfare must complete and return to the Student Health Service the health evaluation form mailed to them with their registration materials. These individuals are required by the respective schools to be given a thorough physical examination, and selected tests and immunizations, by appointment in Student Health. See school catalogs for additional information. Necessary changes for such examinations are the responsibility of the individual student.

All new and re-entering foreign students must complete and return to Student Health the health evaluation form mailed to them with their registration materials. These individuals are required to be cleared by Student Health for adequacy of health insurance and freedom from active tuberculosis before completing registration.

Other students are not required to complete a health evaluation form as a condition of registration. However, students who would like to participate in a special campus medical program for the physically disabled are urged to contact the disABLEd Student Medical Program Co-ordinator in the Student Health Service.

Student Legal Services

Registered students with legal problems may obtain assistance free of charge in the resolution of their difficulties in such diverse areas as landlord/tenant relations, domestic relations, accident and injury problems, criminal matters and contract and debt problems. Each student will be seen on a walk-in basis in the Dodd Hall 70 office by an attorney or by a law student participating in a clinical program of the UCLA School of Law under the direct supervision of an attorney.

University Policies Commission

The University Policies Commission functions as a deliberative body to study and, when appropriate, to recommend innovations or policy changes which would enhance the quality of the campus environment. Representing all segments of the campus community, its membership includes three students, three faculty members, three non-academic staff members, and three administrators.

Students, faculty, staff and administrators are encouraged to contact the Office at 126 Royce Hall or call 825-7906 with policy items of concern to them and the campus community. For more information about UPC and student government, see the "recreation and participation" section of the Catalog.

Veteran Affairs

The Office of Special Services/Veterans Affairs (located in A-253 Murphy Hall; telephone 825-1501) provides numerous counseling and support services for veterans and physically disabled students. The office also verifies enrollment for Social Security purposes. Services include:

Information

Information about V.A. educational benefits, compensation and pension educational benefits, tutorial assistance, V.A. work-study and loan programs.

Fee Waivers

Issued to dependents of California veterans who are deceased or disabled because of service-connected injuries and meet the income restrictions in Education Code Section 10652.

Services for Disabled Students

Available to any physically limited student including assistance in registration and enrollment, parking permits, fee deferments authorized by the California Department of Rehabilitation, Readers for the Blind, proctoring examinations and minor repairs to wheelchairs.

Status Certification

Certification of student status. For recipients of Social Security benefits.

Visitors Center

The Visitors Center (located in 1215 Murphy Hall; telephone 825-4338) has a reception area where visitors are met, welcomed, and assisted. Campus appointments for both domestic and foreign visitors, including escorting and interpreting, are part of the services offered.

Campus tours for the public are frequently offered, and personalized campus tours are arranged on special request for visitors and guests of University staff and faculty.

Literature and information on campus events, concerts, exhibits, lectures, and recreation areas are kept on hand in the Center.

Women's Resource Center

The Women's Resource Center (WRC), Dodd 2, 825-3945, was created by students, staff, and faculty who were concerned about unmet needs of women on the UCLA campus. The Center provides a comprehensive referral service, an answer to or a way to find answers to any questions a person may have, a meeting place for new and ongoing groups. programming on women's interests for the general campus community, and a center for activism on behalf of women's issues. Services include:

- *Personal Referral,* in the areas of career, lifestyle, employment, medical, legal, academic, affirmative action, financial and credit information, and personal counseling.
- *Information Services,* books and magazines on women, information on groups and women's organizations, Women's Studies, single sheet and articles on a wide variety of topics that can be used for research.
- *Group Involvement,* in consciousness raising, assertion training referrals, women returning to education, lesbian sisterhood, program planning, participation in any of the groups that plan and work for the Women's Resource Center, such as volunteer staffing, program development, the quarterly newsletter, the Women's Information Network (WIN).

About ASUCLA

The Associated Students of UCLA is a combination of four diverse vital campus functions within one organizational structure. Its basic goal is to enhance the quality of UCLA campus life for students and the entire UCLA community by providing meaningful programs and activities through the undergraduate (SLC) and graduate (GSA) student governments and the Communications Board, and by providing commercial services and facilities through its professional staff ASUCLA operates and manages Ackerman Union, Kerckhoff Hall and the North Campus Student Center.

You will find information about student government in the "recreation and participation" section of this book; a description of ASUCLA services follows below:

Food Services

ASUCLAoperates the general campus food service for UCLA with a number of menu options at a variety of locations.

The Treehouse—Located on the first floor of Ackerman Union, the Treehouse is the Student Union's main cafeteria and is open for breakfast, lunch and dinner. You can find a carved-to-order roast beef sandwich and make-your-own salad bar; the "Truck Farm" which offers fresh vegetable salads, cold soups, cheese wedges, sandwiches-by-the-inch, fresh fruit, freshly baked specialties; and two lines of cafeteria fare. Adjacent to the Treehouse is the Sandwich Room where you can find low-cost traditional sandwiches, along with Belgian waffles for breakfast and barbecued beef sandwiches for lunch. Open *Mon-Fri 7:15 am-7:30 pm.*

The Coop—The Coop is a fast food operation on A Level of Ackerman Union which provides hamburgers hot dogs, french fries, Mexican dishes, pizza and Italian submarine sandwiches. In addition, the Coop offers omelets for breakfast and top sirloin steak dinner sandwiches. Open *Mon-Fri 8 am-9 pm, Sat 10-6, Sun 12-7.*

North Campus Student Center—This food service facility is located just south of the Research Library and offers a full range of menu options, including carved-to-order sandwiches, full-course entrees, deli-type sandwiches, a salad bar, hanburgers and french fries, and special "garden sandwiches". North Campus is open for breakfast, lunch and dinner. Hours are: *Mon-Thu 7:30 am-11 pm, Fri 7:30 am-8 pm, Sat 10-6, Sun 11-8.*

The Bombshelter Deli and Burger Bar—This unique food service is located in the center of the Court of Sciences. It offers an assortment of deli sandwiches and salads at low prices. In addition, you can get hamburgers and fries or a genuine falafel for lunch. "Gypsy breakfasts" are served in the morning. It is open *Mon-Fri; 7:30 am-5 p.m., Sat 10-3.*

Campus Corner—The oldest of the ASUCLA facilities, the Campus Corner is located just across Bruin Walk from Myerhoff Park. Pita bread pocket sandwiches, soft frozen yogurt, hamburgers and french fries are available. Hours are *Mon-Thu 8:30 am-5 pm, Fri 8:30-5 pm.*

Kerckhoff's Coffee House is a Baskin-Robbins 31 Flavors Ice Cream Store, a Creperie and a traditional coffee hours. Live entertainment is a nightly attraction at the Coffee House. The coffee house is located on the second floor of Kerckhoff Hall. It is open *Mon-Fri 8am-11 pm, Sat 11 am-6 pm and Sun 11 am-5 pm.*

Potlach is a lounge on the first floor of the Graduate School of Management (GSM 1323A) which offers sandwiches, snacks and beverages. Hours are *Mon-Thu 8 am-9 am; Fri 8 am-2 pm.*

Banquets and Catering—The ASUCLA Food Service also provides catering service within the Student Centers and throughout the UCLA campus. They will be delighted to discuss any banquet or catering needs and are prepared to offer attractive and innovative options. Visit the catering office in 1311 Ackerman Union or call them at 825-0611.

Students' Store

The ASUCLA Students' Store is actually a "mini department store" with three locations on campus: Ackerman Union, the Center for the Health Sciences and the North Campus Student Center. You can buy books, school and art supplies, dental and medical supplies, casual and fashion clothing, gifts, sporting goods, electronics, food, health aids and Lecture Notes. The main store is located on B level of Ackerman Union; telephone 825-7711. It is open *Mon-Thu 7:45-7:30, Fri 7:45-6:00, Sat and Sun 12-5.*

Graphic Services

ASUCLA Graphic Services is the campus center for photographic, printing, typographical and other "graphic" services. It is located on the first floor lobby of Kerckhoff Hall in what was formerly just the Campus Studio. Services include Xerox and book copying, quick offset, custom printing, typesetting, commercial photography, color portraits, senior portraits (all academic apparel furnished), identification and passport photographs, "Perma Plaques", film and discount photofinishing. Telephone is 825-0611; Hours are *Mon-Thu 7:45-7:30; Fri 7:45-6:30; Sat 10-5; Sun 12-5.*

Check Cashing

The check cashing windows, in 140 Kerckhoff Hall, will cash a personal check for up to Fifty Dollars a day, with a 15 cent service charge for each check. You can also postdate a check—it will be held for two weeks before being sent to your bank—for up to $50, with a 35 cents service charge. (Only one postdated check per two-week postdating period is allowed.) Cashing of Traveler's Checks in amounts up to $50 per day is also available. There is a 5 cents service charge. Hours are *Mon-Fri 9 am—4 pm.*

Money Orders

At the Money Order Window in 140 Kerchoff Hall, you may purchase money orders for up to $200. Money orders to the UC Regents can be over this limit. There is a service charge of 35 for each money order. The Money Order Window is open *Mon-Fri 8:30 am—4:00 pm.*

Post Office Boxes

Are available to students, staff and faculty in 140 Kerckhoff Hall for $4.50 per quarter or $15 per year for a small box or $5.50 per quarter or $20 per year for a large box. The Post Office Box rental window is open *Mon-Fri 8:30 am—4:30 pm.*

Meeting Rooms and Lounges

The following lounging and meeting spaces are available for the use of the entire campus community, with emphasis on students and groups: four meeting rooms, two very large activity rooms and the Grand Ballroom in Ackerman Union; three meeting rooms in Kerckhoff Hall; and two meeting rooms in the North Campus Student Center.

Public lounges include the Upstairs Lounge located on the third floor of Kerckhoff Hall; the Downstairs Lounge and the Alumni Lounge, on the second floor of Kerckhoff Hall; and a yet unnamed lounge in the North Campus Student Center.

You can reserve a place for a meeting by visiting the Information Desk on the first floor of Ackerman Union or telephoning 825-0611.

Travel Service

The ASUCLA Travel Service on "A" level of Ackerman Union, offers a selection of domestic and international charter flights, land arrangements/charter packages, student tours, and scheduled air and rail tickets, as well as other travel-related services. The Travel Service is open *Mon-Fri 9 am—6 pm, telephone 825-9131.*

Need a Job?

ASUCLA Personnel provides opportunities for students who want part-time jobs. ASUCLA offers more than 1200 part-time positions, all reserved for registered UCLA students, and, in many cases, no prior work experience is required. These are expecially good jobs since ASUCLA is used to arranging your work schedule around your academic schedule.

You can find the ASUCLA Personnel Office in 205 Kerckhoff Hall; telephone 825-7055. Hours are *Mon-Fri 8 am—5 pm.*

Alumni Association

You don't have to be an alum to take advantage of the programs and benefits of the UCLA Alumni Association. Staff, parents, University Extension students are all eligible for membership—and students can join for only $5 a year.

If you're a graduating senior, you may want to join as an alumni member ($20 a year), which lets you in on free cap and gown rental, a 20% discount on diploma permaplaquing, a discount on a University Extension class, priority football seating, discounts on UCLA Athletics and more. Those joining as life members also receive 10 free graduation announcements. Some of the activities of the Alumni Association are:

Student Relations

Student Relations Programs are designed to encourage students to talk and meet with UCLA students, faculty and alumni through a series of unique "Dinners for 12 Strangers" which are held during the Winter Quarter each year. Other alumni programs for students feature student membership, which offers all kinds of benefits at a special price, and young alumni events for recent graduates.

Tutorial Program

Jointly sponsored by the Los Angeles City Schools' Volunteer and Tutorial Program, the alumni program consists of a youth tutorial project and a project which provides tutorial services to functionally illiterate adults. All members of the UCLA community are welcome to participate in this program.

Career Resources

The Association is also committed to the career and employment needs of students and graduates and has recently established several cooperative programs with the UCLA Placement and Career Planning Center for the purpose of providing informal career guidance and generating job opportunities.

Advisory and Scholarships

Advisory and Scholarship Program, the oldest of the ssociation's programs, awards approximately $70,000 in scholarships to entering freshmen. Eligibility for the awards are a minimum 3.50 GPA and California residency. Financial "need" is not a requirement, and the awards are conferred on a competitive basis. Recipients of the awards are known as Alumni Scholars and form a club which engages in a number of service and recreational activities. In addition, the program provides an "advisor" service to highly able high school seniors, in a project jointly sponsored with the Office of Academic Services.

Clubs

Under the umbrella of the Alumni Association are many organizations, grouped according to their function or geographic location.

More Information

You can get more information about the facilities of the UCLA Alumni Association by phoning 825-3901, or drop by the James E. West Center (across Westwood Plaza from Ackerman Union)*Mon-Fri 8:30 am—5:30 pm.*

Need to Know More?

This section of the Catalog has given you a spotlighted selection of available student services. It's designed to tell you that they're here—and how to find them. It is worth repeating, though, that the best way to learn more about each of them is to call or visit the offices mentioned here.

Reference copies of "Finders Keepers" also include information about Student Services. They are available through all department, college, school and ASK counselors at the College Library and University Research Library reference desks and at a number of other counseling locations (AAP, Admissions, Dean of Students Office, Honors Programs Office, Placement and Career Planning Center and Psychological and Counseling Services).

recreation and participation at UCLA

The fact is, the phrase "a college education" is an incomplete description of the opportunities available at UCLA. One of the most stimulating aspects of the UCLA experience is the fact that there is not just a single education here—"a college education"—but actually many different avenues to learning which, taken all together, make up the components of your education at UCLA.

Most of the other sections of this Catalog have focused on the academic aspects of UCLA. This section will attempt to describe the educational experiences which occur outside the classroom.

One other note: the information you find here is related to the "student services" section of this book as well as the chapter called "academics: resources to help you". And, like those other sections, this information will only be of real value if you actually make a move and use it.

Lastly, you should notice, too, that the activities, places and experiences touched on here are open to people at all levels of skill or interest, with all levels of spare time or spare money.

Involvement outside the classroom can make a major difference to the quality of your education here—"a college education" enhanced by the collection of choices talked about below.

Athletics

A first look at UCLA, an impression of classrooms surrounded by a grassy sea of playing fields, is a fairly accurate picture of the relationship between athletics and academics here.

There is a wide assortment of athletic opportunities available for men as well as women, for intercollegiate team play or a solitary jog at dusk. If you already have a favorite sport, you will get plenty of chances to practice it. If you have always wanted to learn about a new one, there are lots of people to teach you how to do it.

Men's Intercollegiate Sports

UCLA is a member of the Pacific 10 Conference, which includes Arizona State University, University of Arizona, University of California, Berkeley, Stanford University, University of Southern California, University of Oregon, Oregon State University, Washington State University, and the University of Washington. The Pacific 10 provides opportunities for participation on the varsity level in football, basketball, track, baseball, tennis, crew, volleyball, gymnastics, swimming, water polo, riflery, golf, wrestling, soccer, rugby, fencing, cricket and cross-country.

As a player or a spectator, there is always something happening on the UCLA men's intercollegiate calendar.

Women's Intercollegiate Sports

The Department of Women's Intercollegiate Athletic sponsors eleven different varsity programs for women athletes under the jurisdiction of the Association for Intercollegiate Athletics for Women (AIAW) and the Western Collegiate Athletic Association (WCAA). UCLA's women's teams have won many national, regional and conference titles and have national ranked teams in basketball, volleyball, swimming, tennis, track and field, cross-country, and gymnastics. Athletic grants-in-aid are available on a selective basis in most sports.

UCLA is proud of its commitment to women's athletics and is equally proud of the athletes themselves, who have achieved distinction at the highest levels of national and international competition.

More Information

If you would like more information on the UCLA Intercollegiate Sports Program, call the Department of Athletics at 825-3236 or 825-3326.

Office of Cultural and Recreational Affairs

The Office of Cultural and Recreational Affairs serves as the administrative center for the coordination of facilities, equipment, programming and supervision of campus recreational activities and services. All students who have paid the full registration fee are entitled to these services. Four professionally staffed divisions provide a variety of services and programs to accommodate the total campus community. You will find additional descriptions of these activities in the "Student Services" section of this book. These are:

Recreation Services and Facilities: Opportunities for informal participation in swimming, body conditioning, basketball, handball, volleyball, badminton, tennis, and field sports are available seven days a week at the two gymnasiums, the Memorial Activities Center, the athletic fields, and tennis courts. In addition, recreation classes are offered in tennis, skiing, volleyball, exercise and figure control, swimming, water safety, senior lifesaving, gymnastics, etc.

You can get more information by visiting room 164 of Pauley Pavilion, or by telephoning 825-4546.

Intramural Sports: Organized participation at various skill levels in seventy-four activities is available on an individual, dual, and team basis. The total program includes coed activities as well as the wide range of sports for men and women. The Intramural Office is located in Men's Gym 118, telephone 825-3267 or 825-3360.

University Recreation Association: The University Recreation Association is a federation of over forty special interest clubs which features clinics, seminars, exhibitions, concerts, lectures, classes, tournaments, and field trips. The clubs serve students with interests ranging from chess to surfing, and karate to skiing. Visit the URA Office in Kerckhoff Hall 600 or telephone 825-3703.

Sunset Canyon Recreation Center: The Sunset Canyon Recreation Center is a recreational and cultural facility aesthetically designed to serve the University community. It is open all year, seven days a week, for formal and informal use on both an individual and a group basis. Located in the hills of the west campus adjacent to the residence halls, it features two swimming pools (one for children), picnic-barbecue areas, multipurpose play fields, and an outdoor amphitheater. Rooms are available for meetings, receptions, symposia, dances, catered luncheons and dinners. The Center sponsors programs of poetry readings, informal concerts, exhibitions and art and dance classes for adults and children. An extensive aquatic program includes swim classes for children and adults. You can call 825-3671 to get more information.

Cultural Opportunities

The geographical location of UCLA and its position as a leader in the arts combine to make a rich variety of cultural activities available.

On Campus

If you wish to be active beyond the sphere of your field of specialization, there are clubs (see description later in this section) and interesting classes offered to non-majors by various academic departments.

Complementing the academic environment, UCLA offers you the opportunity for personal growth and development in a variety of programs and activities.

The campus presents a changing variety of cultural and recreational events, many of which are free of charge or available to the student with substantial discounts. For time and place you are urged to check the student newspaper—the *Daily Bruin*—and the campus announcement boards.

All that can be done in a catalog is to give you an overview of what happens on campus.

In Music there are fine choral groups as well as the Opera Theater. Also, instrumentalists are invited to play with the University Symphony Orchestra and the Collegium Musicum, a group utilizing the famous Lachmann Collection of Historical Stringed Instruments. The UCLA bands include the Wind Ensemble, the Symphonic Band, the Marching Band, the Varsity Band and the Jazz Ensemble. Augmenting the campus activities of the bands are frequent off-campus performances.

Since there is an extensive program in ethnomusicology on the UCLA campus, students also have the unique opportunity to participate with various non-Western performance groups, all playing on representative native instruments.

UCLA also offers students numerous opportunities in theater arts through the various programs of the Theater Arts Department. The creative and technical work on productions is done by major students in the Department, but acting roles in all media are open to any student registered in the College of Fine Arts. Each year the Theater Division presents to the general public a series of major productions in the Ralph Freud Playhouse, the Little Theater and the "arena theater." Other activities of the division include the program of One-Acts written and directed by students; the productions of the puppet theater; and the Children's Theater program. The Motion Picture/Television Division produces about three hundred student-directed films each year, with various screenings, as well as numerous television programs.

You will also find the opportunity for participation in afternoon and evening dance concerts and demonstrations and in dance assignments in many theater and opera workshop productions. There are folk and ethnic performing groups which meet regularly. Students of dance may direct and choreograph, as well as perform.

In addition, UCLA is one of the nation's leading university centers for the performing and graphic arts, presenting an average of more than 600 individual cultural events each year to both campus and community audiences. An extensive schedule of professional presentations of the Committee on Fine Arts Productions features performances by world-renowned artists both classical and popular. There is a full calendar of exceptional programs by the Music, Dance and Theater Arts Departments, including the Motion Picture and Ethnic Music Divisions. Another aspect of the program, sponsored by ASUCLA and/or the Student Committee for the Arts, brings leading jazz and folk presentations and artists-in-residence to campus.

The Committee on Public Lectures sponsors free public lectures of general and scholarly interest by distinguished authorities, supplementing and stimulating the work of University departments and sharing with the community at large its resources and expertise.

In the graphic arts, the Frederick S. Wight Art Gallery and the Grunwald Center for the Graphic Arts in Dickson Art Center have established a national reputation for presenting and originating important exhibitions, including the distinguished annual UCLA Art Council Exhibition. The Museum of Cultural History presents regular exhibitions that include works from one of the world's foremost university collections of ethnic art.

A special Student Committee for the Arts subsidy program provides tickets to UCLA students at only $2 for a great many campus events. Tickets are obtainable at the Kerckhoff Hall Ticket Office. Public tickets to events sponsored by the Committee on Fine Arts Productions are available at the UCLA Central Ticket Office, 650 Westwood Plaza, which also makes a limited number of tickets available to all full-time day students at reduced rates.

Off Campus

Westwood Village has become the entertainment magnet for the entire West Los Angeles area. There are 17 first-run movie theaters, a crowded menu of restaurants, several bookstores, a couple of discos and a pinball arcade. Prices tend to be high, but Westwood has the advantage of being accessible from campus on foot. In fact, the most popular Westwood activity—walking the streets and watching the people—is free.

In any one of the bookstores in Westwood, you will also find an entire shelf of books devoted to the cultural attractions of the town beyond Westwood—Los Angeles. While these guidebooks attest to the impossibility of summarizing the vibrant cultural life of the city, they also indicate the virtually limitless list of "things to do". Los Angles is home to major museums, motion picture studios, a world-renowned symphony orchestra and many other cultural focal points.

Two encouraging generalizations can be made, however: most cultural activities (Music Center, Los Angeles County Art Museum and so forth) feature a student discount policy or student ticket performances. And, a car isn't really necessary to get to most of the off-campus attractions. (Please see the "transportation" section of this Catalog.)

UCLA and the Natural Environment

UCLA is located in an urban setting but the campus is also near to miles of coastline along the Pacific Ocean, and acres of protected wilderness in the Santa Monica Mountains. The natural environment beyond Los Angeles offers the unmatched resources of the entire state, from uninhabited islands to popular ski resorts.

Travel

Several sorts of travel opportunities are available at UCLA. The ASUCLA Travel Service (see listing in the "student services" section of this Catalog) can arrange charter air fares to many major cities at the lowest possible cost; rail tickets are also on sale.

In addition, several clubs offer charters and tours.

Day trips to San Diego or weekend excursions to San Francisco are also popular outings.

Clubs

The clubs and registered organizations on campus provide an added dimension to the UCLA experience. There are clubs for joiners and non-joiners, too, representing almost every interest. And, if your interest isn't covered by a club, you can start your own.

A full listing of registered student organizations is available in the CPAO Office, 161 Kerckhoff Hall (telephone 825-7041); clubs centering on sports and recreation are listed in the University Recreation Association Office, 600 Kerckhoff Hall (telephone 825-3703). Each of these offices can provide you with information on how to join—or start a club at UCLA.

Fraternities and Sororities

Sample costs are discussed in the "housing" section of this Catalog. However, fraternity and sorority life offers those who are part of it more than simply a place to live. Serving as a small, tightly knit community within the larger community of UCLA, each fraternity or sorority house provides a center for academics, athletics and social life.

You can find out more about the fraternities and sororities at UCLA by contacting either the Panhellenic Office (sororities) or the UCLA Interfraternity Council (fraternities) in care of the Dean of Students Office, 2224 Murphy Hall, 405 Hilgard Avenue, Los Angeles, California 90024.

In the past few years, UCLA has witnessed a tremendous upsurge in the popularity of fraternities and sororities—otherwise known as the Greeks—whose members now number more than 3,500.

There are 24 fraternities and 18 sororities, all chapters of their respective national organizations. The fraternities are bound together and overseen by the Interfraternity Council, the sororities by Panhellenic Council, making them the most organized of the living groups.

Student Government

Student Government at UCLA offers a chance for expression that students may feel is lacking in other parts of their university experience: Why not make an effort to become involved in the decision-making process here?

Students have control of more than $4,000,000 to run over 30 different programs.

Undergraduate student government at UCLA is embodied in the **Student Legislative Council.** Remember that the commissions of SLC change frequently and that all programs don't operate at all times. SLC and its officers change every year. Student government officials have considerable flexibility and sizable budgets. In recent years much creativity, innovation and professionalism have been exhibited by SLC.

For more information on undergraduate student government at UCLA, visit room 304, Kerckhoff Hall or telephone 825-7068.

Graduate Student Government

UCLA's Graduate Students Association is the only graduate government in the UC system with a mandatory fee and a separate, fully participating government which shares an equal voice with the Undergraduate Students Association in the governance of ASUCLA.

This organization is predicated on the fact that graduate students should have an important role in student government, not only because their viewpoints are often different, not only because they inject a mature perspective in student deliberations, but because they, too, are students and must share student concerns.

The GSA is governed by a body which acts as a watchdog for all funding of graduate student mandatory fees (including council and programming monies). Among the types of programs funded are community services, departmental publications and council programs (e.g., honoraria, symposia and orientation seminars). GSA represents approximately 10,000 graduate students (one-third of the total enrollment at UCLA) which places it well into the middle of all University of California student government in size. GSA is able to claim close representation: no GSA representative represents more than 100 students.

The Graduate Students Association is located in Kerckhoff 301, telephone 825-4584.

The Community Services Commission of the Student Legislative Council also provides service opportunities, mostly off campus. These include the **Associated Students Tutorial Project, Consumer Protection Project, Exceptional Children's Tutorial Project, UCLA Prison Coalition, Campus Coalition to Bridge the Gap, Community Theater Workshop, and Project Motivation.** The Graduate Students Association also runs programs in the community.

Service Projects

If you get satisfaction from helping others, UCLA service groups welcome your participation.

Among these are the **Arnold Air Society** (Dodd 251, 825-1742), **Bruin Belles** (825-3091), **Bruin Circle K** (824-1313), **Bruin Sign Language Club, Phrateres** (825-3901), **Delta Sigma Theta, Omega Sigma Tau** (an Asian service group), **Peer Health Counselors** (Kerckhoff 312-A, 825-8462), **Phi Alpha Theta, Rally Committee** (Kerckhoff 129, 825-2168), **Theta Kappa Phi, UCLA Anchors** (Navy ROTC, 825-9075), **UCLA Helpline** (825-7464), **Panhellenic Council** and **Interfraternity Council** (825-3871) and **Alpha Lambda Delta.**

Each of these provides, in some form or another, an opportunity to get involved in service projects.

An Urge to Action

Through its commissions, governing boards—and the people who serve on them—student government at UCLA offers a direct role in decision making at UCLA. Students hold membership on policy groups governing the use of the Registration Fee, ASUCLA Board of Control, Academic Senate and the Board of Regents, to name just a few. Additionally, student activities such as Mardi Gras, participation on student publications, and nearly every other facet of student life is sponsored or organized in some way by student government. Some 40 different committees, in fields ranging from the arts to general University policy offer an opportunity for involvement outside the classroom.

Living groups such as the dormitories as well as many academic departments also encourage student activities. Whether on your dorm floor, or at a meeting of the Board of Regents, students have a say in the actions which govern their lives at UCLA.

Remember, too, that any community tends to "get the government they deserve."—another way of saying that your participation (or lack of it) can make a difference.

Need to Know More?

"Finders Keepers" has more information about recreation and participation opportunities at UCLA. Reference copies are available through all department, college, school and ASK counselors at the College Library and University Research Library reference desks and at a number of other counseling locations (AAP, Admissions, Dean of Students Office, Honors Programs Office, Placement and Career Planning Center and Psychological and Counseling Services).

At the start of this section, it was indicated that unlike some other sections of this book, specific details covering every available cultural and recreational opportunity available presents an impossible task. Checking daily newspapers, the *Daily Bruin*, campus bulletin boards or taking a stroll up Bruin walk will serve to keep you current with what is going on.

admission registration enrollment & student conduct . . .

Non-Discrimination

The University of California, in compliance with Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972 (45 CFR 86), and Sections 503 and 504 of the Rehabilitation Act of 1973, does not discriminate on the basis

of race, color, national origin, religion, sex, or handicap in any of its policies, procedures, or practices; nor does the University, in compliance with the Age Discrimination in Employment Act of 1967 and Section 402 of the Vietnam Era Veterans Readjustment Act of 1974, discriminate against any employees or applicants for employment on the basis of their age or because they are disabled veterans or veterans of the Vietnam era. This nondiscrimination policy covers admission, access, and treatment in University programs and activities, and application for and treatment in University employment.

In conformance with University policy and pursuant to Executive Orders 11246 and 11375, Section 503 of the Rehabilitation Act of 1973, and Section 402 of the Vietnam Era Veterans Readjustment Act of 1974, the University of California is an affirmative action/equal opportunity employer.

Inquiries regarding the University's equal opportunity policies may be directed to the Assistant Chancellor-Legal Coordinator, 2135 Murphy Hall, UCLA, or the Director of the Office for Civil Rights, Department of Health, Education& Welfare.

Students may complain of any action which they believe discriminates against them on the ground of race, color, national origin, religion, sex, or handicap, and may contact the Dean of Students, 2224 Murphy Hall, for further information and procedures.

Undergraduate Admission

The admission requirements of the University of California are founded on two basic assumptions: first, that the best assurance of success in the University is shown by high quality of scholarship in previous work; and second, that the study of certain specified subjects will provide students not only sound preparation for the range of University courses but also reasonable freedom in choosing their field of specialization.

Fulfilling the requirements stated below, however, may not necessarily assure admission to the campus of your first choice. On some University of California campuses, limits have had to be set for the *enrollment of new students;* thus, not everyone who meets the minimum requirements can be admitted. At UCLA, for example, students who are, or who would be, college seniors are discouraged from applying. If additional enrollment restrictions are necessary, sophomores may be restricted.

Admission to Freshman Standing—Residents

An applicant for admission to freshman standing is one who has not enrolled in any college-level institution since graduation from high school (except for a summer session immediately following high school graduation).

The requirements listed below apply to California residents; if you are a non-resident, please see the "special requirements for non-residents" discussion later in this section of the Catalog.

High School Subject Requirements

Courses offered in satisfaction of the following subject requirements must be included on a list submitted to the Director of Admissions of the University by the high school principal, if the school is located in California. This list must have been certified by the principal and then, in turn, have been approved by the Director of Admissions. If the high school is not located in California but is regionally accredited, appropriate courses will be considered acceptable.

A. History—1 Year

This must consist of a year course in United States history, or one-half year of United States history and one-half year of civics or American government.

B. English—3 Years*

*Effective Fall Quarter, 1981, four years of English will be required.

These must be university preparatory courses in English composition and literature.

C. Mathematics—2 Years

These must consist of university preparatory courses in such subjects as algebra, geometry, trigonometry, calculus, elementary functions, matrix algebra, probability, statistics, or courses combining these topics.

D. Laboratory Science—1 Year

This must be a year course in one laboratory science.

E. Foreign Language—2 Years

These must be in one language. Any foreign language with a literature is acceptable.

F. Advanced Course—1 or 2 Years

This must be chosen from one of the following:

Mathematics. A total of 1 year of mathematics beyond the 2 years offered toward the mathematics requirement.

Foreign language. Either an additional year in the same language offered toward the foreign language requirement or 2 units of another foreign language.

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

The subject requirements listed above may be satisfied only by courses completed with a grade of "C" or higher.

Scholarship Requirements

Eligibility for admission is based on a combination of your grade point average in the A-F subject requirements listed above and the scores on either the SAT examination given by the College Entrance Examination Board or the ACT test given by the American College Testing Program. In addition, you are required to submit scores for three achievement tests of the College Entrance Examination Board, which must be taken in the following areas:

1. English composition
2. Mathematics
3. Social studies or a foreign language.

Eligibility Table

The following Eligibility Index Table may be used by California high school graduates and residents to determine their eligibility for freshmen admission to the University.

A-F*** GPA	ACT* Composite	SAT** Total
2.78	35	1600
2.79	35	1580
2.80	34	1550
2.81	34	1530
2.82	33	1510
2.83	33	1480
2.84	33	1460
2.85	32	1440
2.86	32	1410
2.87	32	1390
2.88	31	1370
2.89	31	1340
2.90	30	1320
2.91	30	1300
2.92	29	1270
2.93	29	1250
2.94	28	1230
2.95	28	1200
2.96	27	1180
2.97	27	1160
2.98	26	1130
2.99	26	1110
3.00	25	1090
3.01	25	1060
3.02	24	1040
3.03	24	1020
3.04	23	990
3.05	22	970
3.06	21	950
3.07	21	920
3.08	20	900
3.09	19	880
3.10	18	850
3.11	18	830
3.12	17	810
3.13	16	780
3.14	15	760
3.15	14	740
3.16	14	710
3.17	13	690
3.18	12	670
3.19	11	640
3.20	10	620
3.21	9	600
3.22	9	570
3.23	8	550
3.24	8	530
3.25	7	500
3.26	7	480
3.27	6	460
3.28	6	430
3.29	5	410
3.30	5	400

*ACT is scored in intervals of 1 point from a minimum of 1 to 35 maximum.
**SAT is scored in intervals of 10 points from a minimum of 400 to 1600 maximum.
***"A-F" subjects are listed above, under "high school subject requirements".

If prospective applicants need detailed information about these requirements, they should consult the Undergraduate Admissions Circular or the Undergraduate Admissions and Financial Aid Application Packet available in the Undergraduate Admissions and Relations with Schools Office or in high schools and community colleges.

The test results of all applicants will be used for purposes of counseling, placement and, when possible, satisfaction of the Subject A requirement, as well as determining eligibility for admission.

The verbal and mathematics scores on the Scholastic Aptitude Test must be from the same sitting.

For arrangements to take the tests, see below.

Admission by Examination Alone

An applicant who does not meet the scholarhip and subject requirements for admission and who has not registered in any college-level institution (except for a summer session immediately following high school graduation) may qualify for admission by examination alone. For admission of nonresident applicants by this method, see "special requirements for non-residents" later in this section.

To qualify, you must achieve high scores in the examinations required of all eligible applicants. Your total score on the Scholastic Aptitude Test must be at least 1100; the scores on the three Achievement Tests must total at least 1650, and your score on each must be at least 500.

Taking the Tests

You can obtain information about the tests or make arrangements for taking them by applying to Educational Testing Service, P.O. Box 1025, Berkeley, California 94701, or P.O. Box 592, Princeton, New Jersey 08540, or the American College Testing Program, 555 Capitol Mall Suite 766, Sacramento, California 95814. Scores will be regarded as official only if they are received by the Admissions Office directly from these Testing Services.

High School Proficiency Exam

The University of California will accept the Certificate of Proficiency, awarded by the State Department of Education upon successful completion of the California High School Proficiency Examination, in lieu of the regular high school diploma. However, all other University entrance requirements (subject pattern, grades, tests), must be met. The date of graduation on University records will be the date of the certificate. Entrance by CEEB scores will remain an option for the student ineligible on the basis of high school record.

Admission to Advanced Standing—Residents

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

Requirements

As you will see below, the requirements for admission in advanced standing vary according to your high school record. If you are a nonresident applicant, you must also meet the additional requirements described under "special requirements for non-residents" later in this section. If you have completed less than twelve quarter or semester units of transferable college credit since high school graduation, you must also satisfy the examination requirement for freshman applicants.

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

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

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

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

1. If you were eligible for admission to the University as a freshman, you may be admitted in advanced standing at any time after you have established an overall grade-point average of 2.0 or better in another college or university.

2. If you were not eligible for admission as a freshman only because you had not studied one or more of the required high school subjects, you may be admitted after you have:

a. Established an overall grade-point average of 2.0 or better in another college or university,

b. Completed, with a grade of "C" or better, appropriate college courses in the high school subjects that you lacked, and

c. Completed twelve or more quarter or semester units of transferable college credit since high school graduation or have successfully passed the CEEB tests required of freshman applicants.

3. If you were not eligible for admission as a freshman because of low scholarship or a combination of low scholarship and a lack of required subjects, you may be admitted after you have:

a. Established an overall grade-point average of 2.4 or better in another college or university,

b. Completed, with a grade of "C" or better, appropriate college courses in high school subjects that you lacked. Up to two units (a unit is equal to a year's course) of credit may be waived, and

c. Completed 84 quarter units (56 semester units) of college credit in courses accepted by the University for transfer.

Credit for Work Taken in Other Colleges and by Examination

The University grants unit credit for courses appropriate to its curriculum which have been completed in other regionally accredited colleges and universities. This credit is subject to the restrictions of the senior residence requirement of the University. (You can find this requirement under "grades and scholarship requirements" in the "academics: undergraduate education" section of this book.)

As an integral part of the system of public education in California, the University accepts, usually at full unit value, approved transfer courses completed with satisfactory grades in the public junior colleges of the State. Such transfer courses are limited, however, to a maximum of 70 semester units or 105 quarter units. Individual colleges and schools should be consulted concerning additional credit limitations.

Extension courses taken at an institution other than the University may not necessarily be acceptable. The decision regarding their acceptability rests with the Office of Undergraduate Admissions.

In addition, credit may be allowed for having completed with high scores, certain tests of the College Board. These include Advanced Placement Examinations. You should be sure to contact the Admissions Office before taking any examinations to determine whether they are acceptable.

Special Requirements for Non-Residents

The regulations discussed below are designed to admit out-of-state applicants whose standing, as measured by scholastic records, is in the upper half of those who would be eligible under the rules for California residents.

You can find a full definition of residence and nonresidence in the "money" section of this Catalog.

Freshman Standing

(See also Requirements for Admission to Freshman Standing for residents, discussed earlier in this section.)

Graduation from High School The acceptability of records from high schools outside California will be determined by the Office of Undergraduate Admissions.

Subject Requirements The same subject pattern as for California residents is required.

Scholarship Requirements You must have maintained a grade-point average of 3.4 or higher in the required high school subjects (grade points are assigned as follows: for each unit of "A", 4 points; "B", 3 points; "C", 2 points; "D", 1 point; incomplete and failure, no points).

Examination Requirement A nonresident applicant must take the same SAT or ACT tests as those required of a resident applicant.

Admission by Examination Alone

A nonresident applicant who is not thus eligible for admission and who has not registered in any college-level institution (except to a summer session immediately following high school graduation) may qualify for admission by examination alone. The requirements for a nonresident applicant are the same as those for a resident (discussed above) except that the scores on the three Achievements Tests must total at least 1725.

Advanced Standing

In addition to the regular admission requirements (see Admission to Advanced Standing Residents) a non-resident applicant for admission to advanced standing must have earned a grade-point average of 2.8 or higher in college subjects attempted and acceptable for transfer credit.

If you did not have at the time of high school graduation an average of 3.4 or higher in courses satisfying the required subject pattern, you must present a minimum of 84 acceptable quarter units or 56 acceptable semester units with a grade-point average of 2.8 or higher.

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

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

Applicants from Other Countries

The credentials of an applicant for admission from another country are evaluated in accordance with the general regulations governing admissions. An application, official certificates, and detailed transcripts of record should be submitted to the Office of Undergraduate Admissions early in the appropriate filing period (see the "Application for Admission" section which follows). Doing so will allow time for exchange of necessary correspondence and, if the applicant is admitted, will help in obtaining the necessary passport visa.

Proficiency in English

As an applicant from another country whose mother tongue is not English you may be admitted only after demonstrating a command of English sufficient to permit you to profit by instruction in the University. Your knowledge of English will be tested by an examination upon your arrival at the University. Admission of an applicant who fails to pass this examination will be deferred until proficiency in the use of English has been acquired. The student held for the English as a Second Language requirement who fails to take the test on the date specified will not be permitted to register for the quarter for which admission is approved. If you are an applicant from a non-English speaking country you are urged to take the Test of English as a Foreign Language as a preliminary means of testing your ability. Arrangements to take the test may be made by writing directly to TOEFL, Educational Testing Service, P.O. Box 899, Princeton, New Jersey 08540, U.S.A. Results of the test should be forwarded to the University.

Language Credit

As a student from a country where the mother tongue is not English you will be given college credit in your own language and its literature only for courses satisfactorily completed. Such credit will be allowed only for courses taken in your country at college level institutions, or for advanced

level upper division or graduate courses taken in this University or in another English-speaking institution of approved standing.

Health Insurance

As a condition of registration, entering foreign students, except those in the United States on permanent immigration visas, must acquire at the Student Health Service: health insurance, tuberculin test, and/or chest X-ray.

Engineering

A freshman applicant seeking a bachelor's degree in engineering, whose entire secondary schooling was outside the United States, must pass, with satisfactory scores, the College Entrance Examination Board Scholastic Aptitude Test (verbal and mathematics sections) and Achievement Examinations in English composition, physics and advanced mathematics, before a letter of admission to engineering can be issued. Arrangements to take the tests in another country should be made directly with the Educational Testing Service, P.O. Box 592, Princeton, New Jersey 08540, U.S.A. You should request that your scores for the tests be forwarded to the University.

Applying for Undergraduate Admission

An application form may be obtained at the Office of Undergraduate Admissions, 1147 Murphy Hall, University of California, Los Angeles 90024, in person or by mail.

The opening dates for filing applications for the year 1979- 1980 are as follows: Fall Quarter 1979, November 1, 1978; Winter Quarter 1980, July 1, 1979; Spring Quarter 1980, October 1, 1979. Applications for the Fall 1980 quarter should be filed during the month of November 1979.

A fee of $20 must accompany each application.

You are responsible for requesting the graduating high school (and each college attended if you apply in advanced standing) to send official transcripts of your record directly to the Office of Undergraduate Admissions.

If admitted, you must return a Statement of Intention to Register, a Statement of Legal Residence, together with a nonrefundable fee of $50 which will be applied to the University Registration Fee, if you register in the quarter for which you applied. Registration materials will be prepared only after you submit these forms.

Subject A: English Composition

Every undergraduate entrant must demonstrate an acceptable ability in English composition. There are several ways in which this requirement may be met before the first quarter in residence (see Subject A: English Composition in the "academics undergraduate education" section of this Catalog). But students who have not already fulfilled the requirement must, during their first quarter, enroll in either English A or English 1. Assignment to one of these courses is determined by performance on the Subject A Placement Test.

Graduate Admission

An applicant for admission to the Graduate Division is expected to hold a bachelor's degree from a regionally accredited institution, comparable in standard and content to a bachelor's degree from the University of California. Graduates from institutions which have only candidacy status with the regional associations will be considered only on an individual basis. In addition, you are expected, at minimum, to have achieved a "B" average, or its equivalent if the letter grade system is not used, for the last two years of undergraduate and in any post-baccalaureate study.

Applying for Graduate Admission

You may obtain the combined Application for Graduate Admission, Fellowship, and Financial Aid form in person or by mail from Graduate Admissions, Graduate Division, 1247 Murphy Hall, University of California, Los Angeles, California 90024, or from the department in which you wish to study. The UCLA *Information for Graduate Applicants* pamphlet is enclosed with the application form. The pamphlet lists the major fields offered, the individual departmental requirements and other pertinent information.

Application for admission to graduate status is limited to the Fall, Winter, and Spring Quarters of the regular academic year. For admission limited by departments to a particular quarter, please consult the information pamphlet. Enrollment in courses in the Summer Sessions does not constitute admission to graduate status.

Applications and supporting papers should be submitted to Graduate Admissions, Graduate Division, on or before the following dates:

February 15 for the Fall Quarter
October 1st for the Winter Quarter
December 30 for the Spring Quarter

Earlier application deadlines are required for certain departments, and these are stated in the information pamphlet.

Application Materials

The following materials should accompany the application:

1. Application fee of $20 (nonrefundable), by check or money order payable to the Regents of the University of California, drawn on a United States bank.

2. Official transcripts of record, *in duplicate*, from *each* college or university at which the applicant has completed work. (Transcripts should accompany or immediately follow the application and are nonreturnable.) One set of transcripts will become a part of the permanent UCLA file, and the other set will be sent to the major department to assist in the evaluation of your past record and for advisory purposes regarding graduate studies at UCLA. If you have graduated from UCLA or from another University of California campus and have there completed the last two years of study for the bachelor's degree and any postbaccalaureate work, transcripts are requested from only that campus. For detailed information see *UCLA Information for Graduate Applicants* sent with the application form.

Financial Aid

If you are requesting a fellowship or other financial assistance, you should check the proper entry on the *Application for Graduate Admission, Fellowship, and Financial Aid*. Foreign students holding F-1 or other temporary visas are not eligible during their first year of study. Financial aid is fully discussed in the "money" section of this Catalog.

Application Review and Notice of Admission

Graduate Admissions screens all applications to determine whether or not they meet University minimum requirements for graduate status. Ordinarily, only the applications of those students who have fulfilled at least the minimum requirements are then referred to the department. There they are subjected to a more specific and intensive review. Although, at this stage, departments may choose to make contact with applicants, Graduate Admissions alone is empowered to make the formal offer of admission, taking the departmental recommendation into full consideration.

Graduate Admissions sends instructions on required registration procedures to admitted applicants with the formal notification of admission.

Applicants who are offered admission with work in progress are reminded that admission is contingent upon receipt of evidence of satisfactory completion of this work, and a statement of award of degrees.

Graduate Record Examination

As an additional means of evaluating the qualifications of applicants, a number of departments and schools include the nationally standardized Graduate Record Examination among criteria for judgment.

Even though an application may be considered complete in the Graduate Admissions Office, departments requiring the GRE will not make a recommendation prior to receipt of the score reports. The departmental requirements are listed in the *UCLA Information for Graduate Applicants* pamphlet.

Applications for the information concerning the Graduate Record Examination (GRE) may be obtained from offices of the Educational Testing Service, either at Box 995, Princeton, New Jersey 08540, or at 1947 Center Street, Berkeley, California 94704. Applicants should write to the address which is closest to their home. GRE scores should be directed to the department as the Graduate Admissions Office has no provision for forwarding these scores.

U.S. students who will be seniors in 1979-80, who are receiving financial aid at an undergraduate institution, and whose estimated parental contribution is calculated at zero are eligible to apply for GRE Fee Waivers. For additional information on the GRE Fee Waiver, write to the Associate Program Director, Educational Testing Service, Princeton, New Jersey 08540.

1979-80 GRE Test Dates

October 20, 1979
December 8, 1979
January 12, 1980
April 26, 1980
June 14, 1980
APTITUDE ONLY:
February 23, 1980

It is strongly urged that all nationally administered tests be taken by February but not later than April.

Letters of Recommendation

Though letters of recommendation are not a Graduate Division requirement, most graduate professional schools, departments and interdepartmental programs require applicants to submit three letters of recommendation attesting to the ability of the applicant to succeed in graduate study. The letters are typically used to augment, validate or explain the information provided in the formal application, Statement of Purpose, and/or essay. For some applicants, the information provided in these letters will mean the difference between acceptance and rejection. If letters of recommendation are required (Consult UCLA *Information for Graduate Applicants* pamphlet), you may obtain the booklet *Graduate School: A Student Guide to Obtaining Letters of Recommendation*, from Student Services and Development Division, 1172 Placement and Career Planning Center.

Foreign Applicants

The requirements and application dates are the same for foreign applicants and U.S. applicants (see above). Because the evaluation of foreign credentials may take considerable time, however, if you are an applicant with credentials from institutions in other countries, you are advised to submit applications at least four to six months before the quarter in which you wish to be considered for admission.

Foreign applicants should submit official transcripts of record, *in duplicate*, for all college and university work. College and university transcripts must show subjects studied, examination grades achieved, and award of degrees. If photocopies are

submitted rather than original documents, they must bear the seal of the issuing institution and the actual (not photographed) signature of the college or university registrar. Specific instructions are given in the information pamphlet for admission requirements and required credentials. The pamphlet, *UCLA Information for Graduate Applicants*, is sent to you when you apply for graduate admission.

If you are a foreign applicant you are advised not to come to UCLA until you receive formal notice of admission to the Graduate Division. You will be notified by airmail as soon as a decision has been reached, and, if requested on the application, the I-20 form necessary to secure the student visa is enclosed with the notification of admission. Foreign applicants who have been accepted are encouraged to report to Graduate Admissions as well as to the Office of International Students and Scholars as soon as possible after they arrive at UCLA in order to receive assistance in completing admission and registration procedures.

English Examination for Foreign Students

Since English is the language of instruction at UCLA and success in graduate study depends largely on facility in its use, foreign students whose first language is not English are required to take a proficiency examination before the term in which they are to register. The achievement in this examination determines whether they will be required to include English courses in their program or will be permitted to carry a full or a moderate graduate program. If you should be required to take English courses, you should anticipate spending a longer period of time at the University than normally would be required to complete a degree program. Admission of an applicant who fails to pass this examination will be deferred until the applicant has acquired the necessary proficiency in the use of English.

Foreign students are encouraged to take the Test of English as a Foreign Language (TOEFL), if possible, in order to become aware of their level of proficiency in English before undertaking the expense of traveling to the United States. However, the TOEFL, or any other test of English proficiency, may not be substituted for the required examination in English which must be taken at UCLA on arrival.

Even though the TOEFL examination is not a general University requirement, some departments request it and will not make a recommendation unless the test result is submitted. (See *UCLA Information for Graduate Applicants.)*

The TOEFL is administered in more than ninety testing centers throughout the world by the Educational Testing Service, Princeton, New Jersey 08540, U.S.A. Write to them for more information about the TOEFL examination.

Renewal of Application

The offer of admission is valid for a specific quarter only. Applicants who failed to register in the quarter for which they were accepted in graduate status but who wish to reactivate their applications for a later quarter should file a Renewal of Application Form. You can get a Renewal of Application Form from Graduate Admissions, Graduate Division, 1247 Murphy Hall, UCLA, 405 Hilgard Avenue, Los Angeles, California, 90024; or by writing to the academic departments. You should submit the form to Graduate Admissions after it is completed. Filing dates are the same as those for original applications. The Renewal of Application should be accompanied by official transcripts, (!in duplicate, **of any college or university work (including University Extension courses) completed since the former application. Acceptance for admission at any earlier date does not guarantee approval of the Renewal of Application. Only *one* Renewal of Application will be accepted without the $20 (nonrefundable) application fee. The application fee is due with *each* Renewal of Application filed after the first one.**

If you are seeking admission more than two years after your original application, you must file a new application rather than a Renewal of Application forms since records are not retained for more than two years.

Readmission

If you have been registered at any time in graduate status at UCLA and wish to return after an absence, you must file a Graduate Application for Readmission. Forms for this purpose may be obtained by mail or in person from Graduate Admissions, or from the respective department, and are submitted to Graduate Admissions, Graduate Division, 1247 Murphy Hall, UCLA, Los Angeles, California 90024. Filing dates are the same as those for original applications for admission to graduate status. Since some schools and departments permit readmission only in specified quarters or may stipulate earlier deadlines, you should consult your chosen department for additional information.

Applications for readmission should be accompanied by:

1. Application fee of $20 (nonrefundable), by check or money order payable to The Regents of the University of California.

2. Official transcripts of record, *in duplicate*, for all college and university work (including University Extension courses) completed since last registration at UCLA.

Formal application for readmission is not required if you are returning from an official leave of absence.

Admission to Concurrent Degree Programs

In addition to those programs offered in an individual discipline, it is possible to complete studies leading toward two degrees through concurrent degree programs. Concurrent degree programs have the advantage of allowing you to acquire the two degrees in less time than normally required if the courses of instruction are taken in sequence. The aim of these programs is to provide an integrated curriculum of greater breadth between the two disciplines. Programs leading to concurrent degrees have been approved in the following disciplines:

Economics, M.A.—Law, J.D.
Latin American Studies, Interdepartmental M.A.—Management, M.B.A.
Law, J.D.—Architecture and Urban Planning, M.A.
Management, M.B.A.—Law, J.D.
Management, M.B.A.—Public Health, M.P.H.

In addition to the application form to the graduate program, you should also file an application to the School of Law when applying to work for the J.D. degree. Inquiries should be directed to the departments or schools involved.

Admission to the Schools of Dentistry, Law, and Medicine

If you wish to apply for programs leading to the M.A., M.S., and Ph.D. degrees in departments of the School of Medicine or the School of Dentistry, you should apply for admission to the Graduate Division in accordance with procedures described above. For admission to the Schools of Dentistry, Law, or Medicine, you should refer to these schools for their published Announcements and for information and application procedures.

Duplication of Degrees

The University of California, in general, discourages the duplication of advanced degrees. At the same time, it recognizes that a professional degree does not duplicate an academic one, and that the holders of an adademic or professional degree may have the pressing need to earn another degree in an area quite different from that of their first endeavors.

All applicants for a *second academic graduate degree at the same level as, or at a level lower than*, the graduate degree they already hold, will be required to show compelling cause and to file the "Petition to Work for a Second Graduate Degree" for departmental review and recommendation, and action by the Dean of the Graduate Division. All applications for a second academic doctoral degree, following departmental review, will be referred to the Admissions Committee of the Graduate Council for recommendation to the Dean of the Graduate Division. Applicants for a professional graduate degree (M.Arch., M.A.T., M.B.A., M.Ed., M.Engr., Engr., M.F.A., M.L.S., M.N., M.P.H., D.Env., Ed.D., M.S.W., Dr. P.H., D.S.W.) are not required to complete the petition.

If admitted, such applicants will be held to all the usual degree requirements and University regulations pertaining to fees, registration, examinations and advancement to candidacy. These are discussed in other sections of this catalog.

More Information

You can get more information about Graduate Admission to UCLA from the Announcement of the Graduate Division available in the Office of Graduate Admissions, Graduate Division, 1247 Murphy Hall, UCLA, Los Angeles, California 90024. Additionally, all graduate schools also publish their own announcements; you are advised to get a copy for specific details on your prospective field of study.

Leaving UCLA

Undergraduate students currently registered on any campus of the University in a regular session (or those previously registered who have not since registered at any other school) may apply for transfer to another campus by filing an Intercampus Transfer Application on their present campus. This application must be obtained and filed at the Office of the Registrar, Information Window A, Murphy Hall. There is a $20 nonrefundable fee. The deadlines are the same as the admission applications deadlines given under the Admissions to the University section. Transcripts required for the processing of the application for transfer are provided without additional charge. For details regarding particular campus admission provisions, visit the Intercampus Transfer Clerk at the Registrar's Information Window A, in Murphy Hall.

Cancellation

Prior to the first day of classes, you may cancel registration by submitting a written notice, together with the current Registration Card and Student Identification Card to the Registrar's Office, 1134 Murphy Hall.

Withdrawal

A student withdrawing from the University within the course of a quarter must file with the Registrar's Office an acceptable Notice of Withdrawal. Failure to do so will result in nonpassing grades in all courses, thus jeopardizing your eligibility to reenter the University of California or your admission by transfer to another institution. Forms containing complete instructions are issued at the office of the Dean of the student's College, School or Graduate Division. The completed form must be filed at the Registrar's Office Information Window A, Murphy Hall, after necessary clearances are obtained. Your current Registration Card and UCLA Student Identification Card must be turned in with the completed Notice of Withdrawal. Failure to attend classes, neglect of courses or stopping payment on checks tendered for registration do not constitute notice of withdrawal.

If you cancel registration prior to the first day of classes or withdraw within the course of a quarter you must file an Application for Readmission for the quarter in which you propose to return to the University provided a quarter—three months, including the period between the Spring and Fall

quarters—has intervened since the last date of attendance. This application is necessary in order that the Registrar may be prepared to register you. The deadlines for filing applications for readmission will be found in the academic calendar in this catalog and in the quarterly Schedule of Classes.

Leaves of Absence for Foreign Students. Leaves of absence for foreign students who hold J-1 or F-1 visas are allowed only under the following conditions: if they will be out of the United States during the term of their leave of absence; or if they have just received the master's degree and have been accepted to pursue the doctorate, but wish to gain practical training in their field before resuming their doctoral studies. All non-immigrant foreign students, including those who have permanent residence, must have their applications for leave of absence approved by the Office of International Students and Scholars.

Commencement

Commencement exercises honoring candidates for undergraduate and graduate degrees are held in mid-June—either one or two days following the end of final examinations. During the early part of Commencement Day, individual departments, schools, and colleges hold small, informal gatherings at which prizes and honors are awarded and students and their families meet faculty members. In mid-afternoon, all students, faculty, parents, and friends gather in Drake Track and Field Stadium for formal exercises and the conferring of degrees. This academic pageant is a colorful affair—planned by the Committee on Public Ceremonies—featuring music, degree banners, student speakers, and the wearing of gold fourrageres by undergraduate candidates who have achieved high academic distinction (upper 15 percent of the seniors graduating each quarter).

Diplomas are not distributed at Commencement. During the period between final checking of degrees and the distribution of diplomas, a Certificate of Completion is sent to every student entitled to receive a diploma. Recipients are notified when their diplomas are available at the Registrar's Office, Information Window "A," Murphy Hall. There is no diploma fee. Upon request, diplomas are sent to the student by certified mail, with a mailing charge of $3.00 ($6.00 abroad).

Transcript of Record

Upon formal application to the Registrar, you may have issued on your behalf transcripts of your record of work taken at UCLA in either regular or Summer Sessions. A fee* of $2 is charged for the first copy (and $1 for each additional copy ordered at the same time) of each transcript, undergraduate, graduate, or Summer Session. Transcripts required for the intercampus transfer of undergraduate students within the University are provided without charge.

*Fees are subject to change without notice.

Readmission

If you wish to return to the University after an absence of more than one calendar quarter (three months) you must file an Application for Readmission. During the academic year 1979-80 applications for readmission are required as follows:

For Fall Quarter, 1979. All students returning in the same status (graduate or undergraduate) who did not complete the Spring Quarter, 1979.

For Winter Quarter, 1980. All students returning in the same status (graduate or undergraduate) who were not registered in the Fall Quarter, 1979.

For Spring Quarter, 1980. All students returning in the same status, (graduate or undergraduate) who neither completed the Fall Quarter, 1979, nor were registered for the Winter Quarter, 1980.

Undergraduate

Undergraduate students may obtain application forms from the Office of the Registrar, Window A, Murphy Hall. The completed application along with a $20 application fee (nonrefundable) and transcripts of records from other institutions, including University Extension, attended during their absence must be filed with the Registrar on or before August 1 for the Fall Quarter; November 15 for the Winter Quarter; February 15 for the Spring Quarter.

Graduate

If you have been registered at any time in graduate status at UCLA and wish to return after an absence you should file a Graduate Application for Readmission. Forms for this purpose may be obtained by mail or in person from Graduate Admissions, 1247 Murphy Hall, and are submitted to that office. Filing dates are the same as those for original applications for admission to graduate status. Since some schools and departments permit readmission only in specified quarters or may stipulate earlier application deadlines, you should consult your chosen departments for additional information.

Applications for readmission should be accompanied by:

1. Application fee of $20 (nonrefundable), with a check or money order made payable to the Regents of the University of California.

2. Official transcripts of record, *in duplicate*, for all college and university work (including University Extension courses) completed since last registration at UCLA.

Formal application for readmission is not required of a student returning from an official leave of absence.

Registration

Registration is the payment of fees, enrollment in classes, and the filing of various informational forms. Your name is not entered on official rolls of the University unless the registration process is completed as published by the Registrar in the "Registration Circular" and the *Schedule of Classes*. Failure to complete and file all forms by established deadlines may delay or even prevent you from receiving credit for work undertaken.

Registration is divided into two equal, but separate processes. Registration materials (the "registration packet") are issued by the Registrar and include cards for payment of the quarterly fees and a study list card for requesting enrollment in classes. When both processes are completed, you are considered a duly registered and enrolled student for the quarter.

Registration by Mail

In advance of the quarter, the registration processes may be completed entirely through the mail. All eligible students are encouraged to register by mail. Currently registered students may obtain their "registration packet" for registration by mail at the time (approximately the fifth week of the preceding quarter) and place announced in the campus newspaper, the *Daily Bruin*, and on official campus bulletin boards. New and re-entering students eligible to register by mail (see calendar) will receive the "registration packet" in the mail from the Registrar approximately six weeks before the quarter begins. Complete instructions and envelopes for return of the cards are included with the registration materials. Each student is responsible for purchasing the quarterly *Schedule of Classes*, available in the Students' Store on campus.

The Registrar and the Main Cashier process enrollment and fee payment separately—date of payment does not affect enrollment provided such date is "on time" as published in the *Schedule of Classes*. At the completion of the by mail process, materials are returned to all students who participated. Students who requested enrollment will receive the results of the enrollment processing (see Enrollment in Classes) while students who paid their quarterly fees will receive the valid Registration Card (proof of student status for University services). These separate mailings are made approximately ten days prior to the beginning of the quarter.

In Person

At the beginning of the quarter, in-person processing of fee payment and enrollment in classes is available for all students not processed by mail. Dates and location of registration in person processing are announced in the *Schedule of Classes*, the "Registration Circular," the *Daily Bruin*, and on official campus bulletin boards. Students eligible to register by mail are not issued specific times for registration in person, but are advised to observe the registration time recommended in the Registrar's publications. By observing this suggested time schedule for reporting to register, you can complete the registration procedure with a minimal delay. New and re-entering students processed for registration in person will be issued an Appointment to Register in Person by the admitting (or re-admitting) officer upon receipt of their Statement of Intention to Register and accompanying forms. The Appointment is your notice of the date, time, and location that the Registrar will be prepared to issue individualized materials for your registration process.

While you may use a combination of both processes (by mail/in person) to pay fees and enroll in classes, the University requires that the full amount of fees be paid by the Friday before instruction begins. If fees are not paid by that date, all course enrollment is dropped.

Any student allowed to register on or after the first day of instruction is subject to a late fee and may request classes only after payment of fees is completed. Late registration with payment of a late fee is accepted during the first ten days of classes; enrollment in classes, however, may be difficult. No student may register after the tenth day of classes without prior written approval of the academic dean and payment of all regular and late fees.

Continuous Registration

Unless granted a formal leave of absence, graduate students are expected to register every quarter, including the quarter in which their degree or certificate is to be awarded. If you have completed all requirements for the degree except the filing of the thesis or dissertation and/or the formal final examination (master's comprehensive examination or doctoral final oral examination) you may pay the filing fee of $62 instead of registering.

To be eligible to take final examinations, file theses or dissertations, or receive degrees during the summer, you must pay the filing fee unless you are registered in a Summer Session.

The Filing Fee is discussed fully in the "money" section of this Catalog.

Graduate Student Leave of Absence

On recommendation of your department, a leave of absence may be granted by the Graduate Division to continuing graduate students in good standing who have completed at least one quarter in graduate status at UCLA. "Request for a Leave of Absence" forms are available at the Student and Academic Affairs Section of the Graduate Division, 1225 Murphy Hall. If registration fees have been paid for the quarter in which the leave is to begin, a percentage of the fees paid is refunded according to the calendar date on which the approved leave request is submitted to the Graduate Division. All leaves must be requested before the deadline published for each quarter. Deadlines are published in the academic calendar the the beginning of this catalog and in the quarterly *Schedule of Classes*.

A leave is normally granted for a period of up to one year. Leaves may be extended for a total of five years at the request of the student and on the recommendation of the department involved. Students wishing to return to their graduate studies after a period of five years must apply for readmission to the Graduate Division. If you can demonstrate that the process of applying for annual renewals of the leave would be exceedingly difficult, the Graduate Division, upon the recommendation of your department, may grant a leave of absence for a period of more than one year, but not for a period of more than five years.

Chairs of doctoral committees will be asked by the Graduate Division to verify that students applying for leaves or extensions of leaves will not be using University facilities or faculty time while on leave.

If you are granted a leave for any period of time you may not keep an appointment to any apprentice teaching or research title, may not make use of University facilities, and may not place demands upon the faculty during your leave. Furthermore, the granting of a leave of absence does not automatically relieve you from meeting the requirements for the degree as they exist when you return to campus.

Application for a leave of absence to accept University employment must be accompanied by a letter from the department chairperson or other employing officer elaborating the reasons for which the leave is requested. In supporting such a request, the employing unit is obligated to demonstrate that such employment is essential to its program, that the departmental need results from an unforeseen circumstance, and the employment is for a specified and limited period of time.

If you are granted a leave of absence you must notify the Registrar of your intention to return to the campus and file all required forms no less than six weeks prior to the registration period for the quarter in which you plan to resume your studies.

A request for extension of a leave of absence should be addressed in writing to the Student and Academic Affairs Section, Graduate Division, which will send you an extension of leave of absence request form.

Enrollment

A student's name is entered on official rolls of the University only after the registration process is completed as published in the *Schedule of Classes*. This quarterly publication is available in June for the Fall Quarter, in November for Winter Quarter and in February for Spring Quarter at the Students' Store, Ackerman Union. It is available by mail; write to attn: Mail Out, ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, California 90024; include $1 in check or money order, payable to ASUCLA.

The *Schedule* lists courses, final examination groups, names of instructors, class times and meeting locations, a detailed calendar of deadlines, enrollment restrictions, and full instructions for registration (payment of fees and enrollment in classes). From the *Schedule* and with the aid of academic counseling, you can assemble a program of courses. Two or three alternate programs should be planned in case your first choice of courses is not available. You may not choose two courses in the same examination group and should not choose classes which conflict in the class meeting times. If conflicts are unavoidable, you should consult with the instructor of each course at the first meeting of the class.

Enrollment requests are processed by the Registrar's Office from the completed Study List Card contained in the "registration packet" issued to each prospective student.

All continuing students (who are eligible to register in the same status without filing applications for readmission) have the opportunity and are encouraged to request their classes by mail.

New and re-entering students who have completed the admission/readmission process by the eligibility date to register by mail (see calendar) will receive registration materials from the Registrar approximately six weeks prior to the beginning of their first quarter.

Results of enrollment by mail are printed on a Tentative Study List mailed by the Registrar approximately ten days prior to the beginning of the quarter.

For the convenience of undergraduates who wish to enroll in person at computer terminals, an appointment to enroll is printed on the tentative study list. This appointment should be kept only if you want to make changes in enrollment. Students who did not participate in the by mail process and those eligible for in person processing will receive an enrollment appointment time as a part of the registration (fee payment) process.

All graduate students enroll by filing the Study List Card by the third day of instruction with their major department or school after it has been approved by their adviser.

Study List

Your Official Study List is the list of courses in which you are officially enrolled at the end of the second week of classes, at which time a copy is mailed to you. You are responsible for every course listed, and can receive no credit for courses not entered on it. Unapproved withdrawal from or neglect of a course entered on the study list will result in a failing grade.

Changes in the Official Study List require approval of the Dean of your College, School or Graduate Division. Forms for this purpose may be obtained at the office of your dean or department. The approved petition must be filed with the Registrar. There is a fee for such changes. See the academic calendar at the beginning of this catalog for the last day to add or drop courses or change grading basis.

Study List Limits: Undergraduates

The minimal program for an undergraduate student to be considered full-time is three courses (12 units).

The normal program for an undergraduate student is four courses. A student on scholastic probation, except in the School of Engineering and Applied Science, is limited to a program of three courses each quarter.

For students in good academic standing, undergraduate study lists may be presented as follows:

School of Engineering and Applied Science: within the limits prescribed in each individual case by the Dean or his representative.

College of Fine Arts: three or four courses per quarter without special permission. After your first quarter, you may petition to carry a program of not more than five courses if in the preceding term you attained at least a "B" average in a program of at least three courses included in the grade-point average.

College of Letters and Science: three courses for students in the first quarter of the freshman year. All other student who have a "C" average or better and are not on probation may carry four courses without petition. After the first quarter, you may petition to enroll in as many as five courses if in the preceding term you attained at least a "B" average in a program of at least three courses included in the grade-point average. First-quarter transfer students from any other campus of the University may carry excess study lists on the same basis as students who have completed one or more terms on the Los Angeles campus.

School of Nursing: three courses. You must petition to enroll in more courses.

Any course, such as Mathematics M or Music 4, which does not give full credit toward a degree, nevertheless displaces one course from your program. These courses are identified in the *Schedule of Classes*. All military science, and all repeated courses are to be counted in study list limits.

Study List Limits: Graduate Students

You can find a discussion of study list limits for graduate students in the "academics: graduate education" section of this Catalog.

Concurrent Enrollment

Concurrent enrollment in resident courses and in courses in University Extension or another institution is permitted only when your entire program has received the approval of the proper dean or study-list officer and has been filed with the Registrar before the work is undertaken.

Special Studies 199 Courses

Senate regulations limit the undergraduate student to two course (8 units) of credit per quarter in special studies (199 courses). The total number of units allowed in such courses for a letter grade is 16. A separate petition is required for each enrollment in a special studies 199 course.

Credit by Examination

A student who has completed a minimum of 12 units of work at this University and is in good standing may petition to receive credit by examination in a course regularly offered by the University. You must satisfy conditions stated on the petition and make arrangements in advance both with the instructor who will give the examination and with the Dean of your College or School, from whom the required petition form may be secured. There is a $5.00 fee for each petition.

The results of such examinations are entered upon your record in the same manner as regular courses and corresponding grade points are assigned.

About Student Conduct

Most of this Catalog is devoted to the academic regulations which govern membership in the UCLA Community. But, in addition to these, your conduct as a student is also subject to standards of behavior consistent with the role of UCLA as an institution dedicated to the pursuit of knowledge.

Just as you are subject to the provisions of the California Criminal Code regardless of whether or not you are aware of each statute it contains, so, too, are you responsible for the provisions published in the *University of California Policies Applying to Campus Activities, Organizations, and Students (Parts A and B)* and *UCLA Activity Guidelines* —and to the standards of conduct spelled out in these booklets.

You can get a copy of each of these by contacting the Dean of Students, 2224 Murphy Hall, or the Campus Programs and Activities Office, 161 Kerckhoff Hall.

The Dean of Students Office plays a central role in the interpreting, administering and applying the standards of citizenship which you are expected to follow at UCLA.

Since UCLA is large and diversified, the *UCLA Daily Bruin* is another source of general information. "Official Notices" run twice a week (Monday and Thursday), and you are held responsible for the information in them.

Graduate Student Complaints

Because of the separation of functions within the University, it is sometimes unclear to students where they should direct their complaints. The following information may be helpful in advising students who wish to do so. Graduate students with complaints of a scholastic or professional character involving faculty, should take them up with the faculty member concerned or, if that is not feasible, with the chairperson of the department. If the chairperson or the department as a whole is involved, the matter should be taken to the appropriate divisional dean; the Dean of the Graduate Division, 1237 Murphy Hall, or to the appropriate dean in the School concerned.

A graduate student or a group of graduate students wishing to lodge a complaint of misconduct against another student or group of students, should go to the Office of the Dean of Students, 2224 Murphy Hall.

Graduate students who wish to make complaints concerning alleged violation of the policies and regulations governing graduate study, should see the Associate Dean, Student and Academic Affairs Section, Graduate Division, 1225 Murphy Hall.

Disclosure of Student Records

Pursuant to the Federal Family Educational Rights and Privacy Act of 1974 and the University of California Policies Applying to the Disclosure of Information from Student Records, students at UCLA have the right: 1) to inspect and review records pertaining to themselves in their capacity as students, except as the right may be waived or qualified under the Federal Act and the University Policies; 2) to have withheld from disclosure, absent their prior consent for release, personally identifiable information from their student records, except as provided by the Federal Act and the University Policies; 3) to inspect records maintained by the University of disclosures of personally identifiable information from their student records; 4) to seek correction of their student records through a request to amend the records and subsequently through a hearing; 5) to file complaints with the Department of Health, Education, and Welfare regarding alleged violations of the rights accorded them by the Federal Act.

The University may publish, without the student's prior consent, items in the category of "public information", which are name, address, telephone number, date and place of birth, major field of study, dates of attendance, degrees and honors received, the most recent previous educational institution attended, participation in officially recognized activities, including but not limited to intercollegiate athletics, and the name, weight and height of participants on intercollegiate athletic teams. Students who do not wish all or part of the items of "public information" disclosed may, with respect to address and telephone number, so indicate on the Student Data card in the registration packet, and with respect to the other items of information, by filling out a "Decline to Release Public Information Form" available in the Registrar's Office, 1105 Murphy Hall.

Student records which are the subject of the Federal Act and the University Policies may be maintained in a wide variety of offices. Students are referred to the UCLA Directory, pages 1 through 21, which lists all the offices which may maintain student records, together with their campus address, telephone number and unit head. Students have the right to inspect their student records in any such office subject to the terms of the Federal Act and the University Policies.

A copy of the Federal Act, the University Policies and the UCLA Directory may be inspected in, and information concerning these matters and the students' hearing rights may be obtained from the Office of Assistant Chancellor-Legal Coordinator, 2248 Murphy Hall.

Change of Address/Name

The Registrar should be notified as soon as possible of any change in address that occurs after the return of the student data card (from the registration packet). Forms for this purpose are available at the Registrar's Office, Information Window "A", or 1134 Murphy Hall. Veterans receiving benefits must also notify the Office of Special Services.

In case of change of name, forms available at the Registrar's Office, Information Window "A", should be filed before the beginning of the next quarter. Since changes require approximately three months to be processed, you should continue to use your former name until notified that the records reflect the change.

Need to Know More?

You will find a full discussion of academic regulations as they relate to your specific program in the sections of this catalog concerned with graduate and undergraduate education.

Courses

The following symbols are used in the departmental faculty rosters and course listings.

Faculty Roster Symbols

[1]In Residence summer only.

[2]In Residence fall only.

[3]In Residence winter only.

[4]In Residence spring only.

[5]On leave summer.

[6]On leave fall.

[7]On leave winter.

[8]On leave spring.

[9]On leave summer and fall.

[10]On leave fall and winter.

[11]On leave fall and spring.

[12]On leave winter and spring.

[13]On leave spring and summer.

[14]On leave.

[15]Recalled to active service.

[16]Member of Brain Research Institute.

[17]Member of the Institute of Geophysics and Planetary Physics.

[18]Joint Appointment.

Course Listing Symbols

*[1]Not offered 1979-1980.

*[2]Given in alternate years, not offered 1979-1980.

*[3]Offered as schedule and staff allow.

*[4]Not offered every year.

*[5] Given alternate years; offered 1979-1980.

*[6]Offered Fall 1979 only.

*[7]Offered Winter 1980 only.

*[8]Offered Spring 1980 only.

*[9]Offered on request depending upon enrollment.

*[10]Consult department for details.

*[11]Not applicable to M.A. degree.

*[12]Native speakers not normally eligible.

*[13]A and B offered in alternate years.

*[14]Enrollment is limited. Consult Office of Undergraduate Affairs.

*[15]Determined on basis of change in course content.

*[16]Only course C to be offered.

*[17]Courses A and B to be offered.

*[18]Open only to Engineering Executive Program students.

*[19]Not offered Fall, 1979.

*[20]Not offered Winter, 1980.

*[21]Not offered Spring, 1980.

*[22] This course may not be applied toward the requirements of any graduate degree offered by SEAS in the School of Engineering and Applied Science.

Undergraduate Courses

Undergraduate courses are classified as lower division and upper division. Lower division courses (numbered 1-99) are open to freshmen and sophomores, and are also open to upper division students but without upper division credit. Upper division courses (numbered 100-199) are ordinarily open to students who have completed at least one lower division course in the given subject, or two years of college work. Courses in the 100 series may be offered in partial satisfaction of the requirements for the master's degree by a student registered in graduate status if taken with the approval of the major department.

Courses number 198 are structured special studies courses for groups. They are not listed in the catalog because they vary in content and are offered irregularly.

Graduate Courses

Graduate courses (numbered 200-299) are ordinarily open to students admitted in graduate status. As a condition for enrollment in a graduate course you must submit to the instructor in charge of the course evidence of satisfactory preparation for the work proposed.

(400-499) — All graduate courses especially designed for programs leading to graduate degrees other then the M.A. and M.S. and Ph.D. These may not be used to satisfy the minimum graduate course requirements for M.A. and M.S. degrees.

Individual study or research graduate courses (numbered 500-599) may be used to satisfy minimum higher degree requirements within the limitations prescribed by the major department and approved by the Graduate Council.

Professional Courses

Teacher-training courses (numbered 300-399) are highly specialized courses dealing with methods of teaching, and are acceptable toward the bachelor's degrees only within the limitations prescribed by the various colleges or schools. Courses in this series do not yield credit toward a higher degree.

University Extension Courses

University of California Extension courses bearing numbers 1-199, prefixed by X, B, XD, XI, XL, XR, XSB, XSC, XSD yield credit toward the bachelor's degree. They are rated with respect to the general and specific requirements for the degree, on the same basis as courses taken in residence at collegiate institutions of approved standing. Concurrent enrollment in resident courses and in University Extension courses (or courses at another institution) taken with a view to credit toward a degree is permitted only when the entire program has been approved in advance by the Dean of the Student's College.

Course Listings

Each course in the following listings by departments, as in the samples that follow, has the credit value of a full course unless otherwise noted. Thus a listing, **Mathematics 11A-11B-11C, Calculus and Analytic Geometry.**, indicates three full courses, 11A, 11B, and 11C; while a listing, **Dance, 114A-114F, Advanced Contemporary Dance, (½ course each)**, indicates six half courses, 114A, 114B, 114C, 114D, 114E, and 114F. Some courses have a variable value; for example, **Management 596A-596N, Research in Management, (¼ to 2 courses)**, where within the limits indicated, the exact value of the course is fixed for each individual student when he enrolls.

Where noted, credit for a specific course is dependent upon completion of a subsequent course.

A capital "M" before the initial number of a course indicates multiple course listings in two or more different departments.

AEROSPACE STUDIES

(Department Office, 251 Dodd Hall)

Ronald E. Hagler, M.B.A., *Lt. Colonel, U.S. Air Force Professor of Aerospace Studies (Chairman of the Department).*
Ralph E. Olson, M.B.A., *Lt. Colonel, Assistant Professor of Aerospace Studies.*
Richard T. Dineen, M.Ed., *Captain, Assistant Professor of Aerospace Studies.*
John C. Croston, M.B.A., *Captain, Assistant Professor of Aerospace Studies.*

Air Force Reserve Officers Training Corps (Air Force ROTC)

Air Force ROTC provides selected students the opportunity to develop those attributes essential to their progressive advancement to positions of high responsibility as commissioned officers in the U.S. Air Force. This includes understanding Air Force history, doctrine, and operating principles, demonstrating ability to apply modern principles of management and human relations in the Air Force environment, and mastery of leadership theory and techniques.

Scholarship Program

Scholarships are available to qualified cadets in both the four-year and two-year programs. Scholarships cover full tuition, laboratory expenses, incidental fees, allowances for books, and a stipend of $100.00 per month.

Four-Year Program

The four-year program is open to beginning freshmen. It consists of an initial two-year General Military Course (GMC), described below, followed by a two-year Professional Officer Course (POC), described under "Two-Year Program."

Leadership Laboratory

All Air Force ROTC students must enroll each quarter in the Leadership Laboratory as published in the UCLA Schedule of Classes.

Freshman Year

1A-1B-1C. U.S. Military Forces in the Contemporary World. (¼ course each) Prerequisite: 1A is prerequisite to 1B and 1B is prerequisite to 1C. This sequence of course examines the role of the Air Force in the contemporary world by studying the total force structure, strategic offensive and defensive forces, general purpose forces, and aerospace support forces. Lt. Col. Hagler

Sophomore Year

20A-20B-20C. The Developmental Growth of Air Power. (¼ course each) Lecture-seminar, one hour. Prerequisite: courses 1A, 1B, 1C. These courses examine the development of air power over the past sixty years. They trace the development of various concepts of employment of air power and focus upon factors which have prompted research and technological change. Key events and elements in the history of air power are stressed, especially where these provide significant examples of the impact of air power on strategic thought. The Staff

Two-Year Program

The two-year Air Force ROTC program is offered to accommodate those students who have attained at least junior standing and have two years remaining in the University, either as an undergraduate or graduate student. A prerequisite for students entering this program is successful completion of a six-week field training course on an Air Force base during the summer preceding their enrollment in the program.

Students interested in this program must make application to the Professor of Aerospace Studies during the fall quarter preceding the six-week summer field training course. Students attending the six-week summer field training are provided meals, quarters, travel expenses, and are paid approximately $580.00. Students enrolled in the POC receive $100.00 per month retainer fee for 20 consecutive months.

Data concerning physical and age qualifications for flying and navigator training and for nonflying applicants is the same as for four-year program.

Four-Week Field Training Course

Students who complete GMC, and wish to enter POC, attend a four-week field training course, the summer following GMC completion. At field training, students are provided meals, quarters, clothing, travel expenses, and are paid about $390.00 to cover incidental expenses. Subjects covered at field training, include junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions, Air Force environment, and physical training.

Field Training Course Staff

130A-130B-130C. Concepts of Air Force Management and Leadership. (¾ course each) Lecture-seminar, three hours. Prerequisite: 130A is prerequisite to 130B and 130B is prerequisite to 130C. This is a three part course. An analysis of the principles and functions of management, leadership and organizational behavior with special reference to the Air Force as a model. The course includes problem solving, information systems and models, quantitative methods and computer systems. Group discussions, case studies, films and role-playing will be used as teaching devices. Communicative skills will be strengthened through preparation of written reports and oral presentations. Lt. Col. Olson

140A. Military Judicial System. (¾ course) Seminar, three hours. Prerequisite: course 130C. An introduction to the foundation of the military profession, and the Military Judicial System. Oral and written student reports will be expected. Capt. Dineen

140B. The Military in American Society. (¾ course) Seminar, three hours. Prerequisite: course 140A. Examines forces and issues in the social context that affect the functioning of the U.S. military. Influence of social norms, societal pressures and cultural factors on the functioning of the military profession in the United States is analyzed. Communication techniques are strengthened and communicative abilities are oriented to Air Force requirements through preparation of papers, classroom presentations and discussion. Capt. Dineen

140C. American Defense Policy. (¾ course) Seminar, three hours. Prerequisite: course 140B. Examines U.S. security policy with respect to factors that influence its formulation, the bureaucracy that formulates and implements it, and the forms it has taken and may take in the future. Communication techniques are strengthened, and communication abilities are oriented to Air Force requirements through preparation of papers and classroom presentation and discussion. Capt. Dineen

AFRICAN AREA STUDIES (INTERDEPARTMENTAL)

Special Program in African Studies

For details of the program in African Studies taken in conjunction with a bachelor's degree, see Interdisciplinary Majors in Area Studies.

Master of Arts in African Area Studies

The Master of Arts in African Studies is administered by an Interdepartmental Committee. Members of this Committee are: Michael F. Lofchie (Political Science) Chairman; Jacques Maquet (Anthropology); D.S. Hobbs (Political Science); Frederick Kintzer (Education); Christopher Ehret (History); Derrick Jelliffe (Public Health); Gerry Hale (Geography); Richard L. Sklar (Political Science); Russell Schuh (Linguistics).

The program for the Master of Arts in African Area Studies is designed to provide interdisciplinary training in the African area. It thus provides the student an opportunity to concentrate his work on the African area through a variety of disciplinary perspectives. The M.A. program also furnishes an approach to doctoral work related to Africa. Students gain exposure to several disciplines before deciding on the one most closely suited to their interests and capabilities. The degree is intended to (a) allow entering graduate students interested in Africa to gain an in-depth knowledge of this world area and (b) give an African area dimension to the studies of students within specific academic disciplines. The Center gives new emphasis to the arts and humanities in relation to Africa, and it is now possible to concentrate on these subjects within the framework of the Master of Arts in African Studies. For example, such subjects as African Literature in French or English, Ethnomusicology and traditional African Art may be combined with background studies in one or more social sciences to produce an intellectual synthesis. Students may also choose as one of their areas of specialization courses in Education, Public Health and Urban Planning.

A doctor's degree in African Area Studies is not offered. Students interested in pursuing doctoral programs with an emphasis on Africa should write directly to the department in which they are interested.

Admission to the M.A. Program

In addition to meeting the requirements of the Graduate Division, the student must have adequate preparation in undergraduate fields related to the program. Required preparation for the Master's degree in African Area Studies is a degree of Bachelor of Arts in the social sciences or arts and humanities. The program requires between one and two years to complete, depending upon the student's preparation and the courses selected.

Requirements for the Master's Degree

General Requirements: See the Graduate Division.

The M.A.A.S. program requires that a student demonstrate proficiency in an African language. The student may satisfy this language requirement in one of the following ways: (a) Take three quarter-length courses (12 units) in an African language, with an average grade of B− or better. These courses will not count toward the nine courses required for the degree; (b) Pass a Linguistic Department examination in an African language not regularly offered; (c) Prove that the student is a native speaker of an African language; (d) Prove that the student has a Foreign Service Institute rating of 3 or above in an African language.

Students whose first language is other than English may petition the Graduate Advisor for a waiver of the language requirement.

Course of Study. A minimum of nine courses dealing with Africa in at least three disciplines. Of these, five or more must be at the graduate level (200 series). A student in the Master's Program must offer a major and a minor field. Major field concentration is defined as a minimum of four courses, of which two must be at the graduate level; minor field concentration is defined as a minimum of two courses, at least one of which must be at the graduate level. A student may, with the consent of the graduate adviser, offer methodology courses or contrastive courses for purposes of completing his major or minor fields of concentration. The student will be held responsible for both the major and minor fields in his final examination sequence for the M.A. degree. As a third discipline, a student will be expected to take African Languages 190 (Survey of African Languages) or a survey course on Africa in a field outside his major and minor areas of concentration.

Course Limitations: (1) No more than one independent graduate study course (596) may apply toward the minimum of nine courses required for the M.A. degree, except by permission of the Graduate Adviser; a second 596, when permitted, may not be applied toward the minimum of five graduate courses required for the degree; (2) No more than

NOTE: For key to symbols, see page 74

one course graded on an S/U basis may be counted toward the minimum of nine courses required for the M.A. degree, except by permission of the Graduate Advisor.

Qualifying Examination: Students must pass a written comprehensive qualifying examination in the major and minor disciplines. This examination must be prepared and graded by a committee consisting of at least three faculty members at least two of whom are in the student's major department. It is the student's responsibility to make arrangements for this examination with faculty members in the appropriate department. Students should have these arrangements completed by the middle of their second quarter in residence. Any student who fails the written examination will be allowed to retake it only with the written consent of the graduate adviser and major field examiners.

Oral Examination: The normal presumption is that an oral examination will be held. This oral examination may be waived if, in the view of the qualifying examination committee, it would be unnecessary.

The following courses pertaining to Africa are offered by the departments listed. With the approval of the Committee, other related courses may be included in a student's program.

Anthropology 107A-107B. Introduction to African Societies and Modes of Thought.

109. Old Stone Age Archaeology.

111A-111B. Fossil Man and His Culture.

112. Hunting and Gathering Societies.

113. Civilizations of Sub-Saharan Africa.

119. Culture Stability and Culture Change.

141. Social and Psychological Aspects of Myth and Ritual.

143. The Individual in Culture.

144. Aesthetic Anthropology.

M158. Health in Culture and Society.

161. Development Anthropology.

230A-230B. Anthropological Theory.

231. Social Anthropology.

254. African Cultures.

M269N. Medical Anthropology.

269U. African Cultures.

M270E. Legal Anthropology.

Architecture and Urban Planning 232. Spatial Planning: Regional and International Development.

233. Spatial Organization and Urban Planning.

234. Seminar in Spatial Development Policy.

257. Loss and Change.

Art 118C. The Arts of Sub-Saharan Africa.

119A. Advanced Studies in African Art: Western Africa.

119B. Advanced Studies in African Art: Central Africa.

216. Topics in African Art.

220. The Arts of Africa, Oceania and Pre-Columbian America.

Dance 140A. Dance of Africa.

171B. Dance of Ghana.

226A-226B-226C. Dance Expressions in Selected Cultures.

Economics 110. Economic Problems of Underdeveloped Countries.

111. Theories of Economic Growth and Development.

112. Policies for Economic Development.

211. Economic Growth: Measurement and Theory.

212. Economic Development of Underdeveloped Areas: Theory and Policy.

Education 240A. Topics and Issues in International and Comparative Education.

204B. Introduction to Comparative Education.

204C. Education and National Development.

207. Politics of International Education.

253A. Current Problems in Comparative Education.

253B. Seminar: African Education.

253F. Education in Revolutionary Societies.

English 114. World Literatures in English.

270. Language Policy in Developing Countries.

271. Studies in African Literature in English.

French 121A. Franco-African Literature.

221A. Introduction to the Study of French-African Literature.

221B. French-African Literature of Madagascar and Bantu Africa.

221C. French-African Literature of Berber-Sudanese and Arabo-Islamic Africa.

257A-257B. Studies in French-African Literature.

Geography 117. Animal Geography: Cultural Aspects.

122. Man and Environment in East Africa.

188. North Africa.

189. Middle and Southern Africa.

288. Seminar in Regional Geography: Northern Africa.

289. Middle and Southern Africa.

Germanic Languages 101B. Elementary Afrikaans.

101E. Intermediate Readings in Afrikaans.

112. Dutch, Flemish and Afrikaans Literature in Translation.

135. Introduction to Afrikaans Literature.

History 109A-109B. History of North Africa From the Moslem Conquest.

142A-142B. The British Empire Since 1783.

175A. Topics in African History: Early African Cultural and Technological Traditions.

175B. Topics in African History: Africa and the Slave Trade.

175C. Topics in African History: Africa in the Age of Imperialism.

176A. History of West Africa: From Earliest Times to 1800.

176B. History of West Africa: Since 1800.

177. Ethiopia and the Horn of Africa.

178A-178B. History of East and Central Africa.

179A. History of Southern Africa: From Origins to 1870.

179B. History of Southern Africa: Since 1870.

244A-244B. Seminar in British Empire History.

275. Introduction to the Professional Study of African History.

276. African Archaeology: Field Techniques.

277. African Archaeology: Data Analysis.

278A-278B. Seminar in African History.

Linguistics 220. Linguistic Areas (Africa).

225. Linguistics Structures.

African Languages 101A-101B-101C. Elementary Swahili.

102A-102B-102C. Intermediate Swahili.

103A-103B-103C. Advanced Swahili.

104A-104B-104C. Elementary Luganda.

105A-105B-105C. Elementary Sotho.

106A-106B-106C. Intermediate Sotho.

107A-107B-107C. Elementary Zulu.

108A-108B-108C. Intermediate Zulu.

109A-109B-109C. Elementary Xhosa.

110A-110B-110C. Intermediate Xhosa.

111A-111B-111C. Elementary Yoruba.

112A-112B-112C. Intermediate Yoruba.

113A-113B-113C. Elementary Igbo.

114A-114B-114C. Intermediate Igbo.

115A-115B-115C. Elementary Twi.

121A-121B-121C. Elementary Fula.

131A-131B-131C. Elementary Bambara.

132A-132B-132C. Intermediate Bambara.

133A-133B-133C. Advanced Bambara.

141A-141B-141C. Elementary Hausa.

142A-142B-142C. Intermediate Hausa.

143A-143B-143C. Advanced Hausa.

150A-150B-150C. African Literature in English Translation.

190. Survey of African Languages.

192. Comparative Studies in African Languages.

201A-201B. Comparative Niger-Congo.

202A-202B-202C. Comparative Bantu.

270. Seminar in African Literature.

Music 143A-143B. Music of Africa.

M154A-M154B. The Afro-American Musical Heritage.

190A-190B. Proseminar in Ethnomusicology.

255. Seminar in Musical Instruments of the Non-Western World.

280. Seminar in Ethnomusicology.

287. Seminar in African Music.

Near Eastern Languages

Arabic 1A-1B-1C. Elementary Arabic.

102A-102B-102C. Intermediate Arabic.

103A-103B-103C. Advanced Arabic.

111A-111B-111C. Spoken Arabic.

220A-220B-220C. Islamic Texts.

240A-240B-240C. Arab Historians and Geographers.

Berber 101A-101B-101C. Elementary Berber.

102A-102B-102C. Advanced Berber.

120A-120B-120C. Introduction to Berber Literature.

130. The Berbers.

Political Science 139A-139Z. Special Studies in International Relations.

165. Government and Politics in North Africa.

166A-166B-166C. Government and Politics in Sub-Saharan Africa.

167. Ideology and Development in World Politics.

250E. African Studies.

250K. North African Studies.

271. Seminar in Political Change.

Public Health 111. Human Disease and Public Health.

113. Infectious Diseases and Public Health.

161. Nutrition and Health.

186. The World's Population and Food.

198. Health Problems and Programs in Africa.

214. Infectious and Tropical Disease Epidemiology.

216A. Ecology of Exotic Diseases.

216B. Viral Diseases of Man.

218A-218B. Protozoal Diseases of Man.

272. Seminar on Current Issues in Maternal and Child Health.

472. Maternal and Child Health in Developing Areas. (By consent of Graduate Advisor)

Sociology 130. Social Processes in Africa.

140. Political Sociology.

213A-213B. Techniques of Demographic and Ecological Analysis.

256. Demography.

274. Selected Problems in the Sociology of Africa.

Theater Arts 102E. Theater of the Non-European World.

106C. History of African, Asian and Latin American Film.

M209C. Seminar in Ethnographic Film.

M265A-M265B. Ethnographic Film Direction.

ANATOMY

(Department Office, 73-235 Health Sciences Center)

George W. Bernard, D.D.S., Ph.D., *Professor of Dentistry (Oral Biology) and Anatomy.*
P. Dean Bok, Ph.D., *Professor of Anatomy.*
[16]Nathaniel A. Buchwald, Ph.D., *Professor of Biobehavioral Sciences and Anatomy in Residence.*
[16]Carmine D. Clemente, Ph.D., *Professor of Anatomy.*
Edwin L. Cooper, Ph.D., *Professor of Anatomy.*
Jean S. de Vellis, Ph.D., *Professor of Anatomy.*
[16]Earl Eldred, M.D., *Professor of Anatomy (Vice Chairman, Gross Anatomical Teaching Resources.)*
Louis J. Goldberg, D.D.S., Ph.D., *Professor of Dentistry (Oral Biology) and Anatomy.*
[16]Roger A. Gorski, Ph.D., *Professor of Anatomy.*
[16]Lawrence Kruger, Ph.D., *Professor of Anatomy and Anesthesiology.*
Richard N. Lolley, Ph.D., *Professor of Anatomy in Residence.*
[16]David S. Maxwell, Ph.D., *Professor of Anatomy and Biobehavioral Sciences.*
[16]Daniel C. Pease, Ph.D., *Professor of Anatomy (Chairman of the Department).*
[16]Charles H. Sawyer, Ph.D., *Professor of Anatomy.*
[16]Arnold B. Scheibel, M.D., *Professor of Anatomy and Psychiatry.*
[16]John D. Schlag, M.D., *Professor of Anatomy.*
[16]José P. Segundo, M.D., *Professor of Anatomy.*
G. Douglas Silva, F.D.S., M.R.C.S., *Professor of Dentistry and Medicine.*
Reidar F. Sognnaes, Ph.D., D.M.D., *Professor of Dentistry (Oral Biology) and Anatomy.*
William K. Stell, M.D., Ph.D., *Professor of Ophthalmology and Anatomy.*
[16]M.B. Sterman, Ph.D., *Professor of Anatomy and Biobehavioral Sciences in Residence.*
Bernard Towers, M.B., Ch.B., (Liv.), M.R.C.S., L.R.C.P., *Professor of Pediatrics and Anatomy.*
Jaime R. Villablanca, M.D., *Professor of Biobehavioral Sciences and Anatomy in Residence.*
[16]Charles D. Woody, M.D., *Professor of Psychiatry and Anatomy in Residence.*
Richard W. Young, Ph.D., *Professor of Anatomy.*
[16]Mary A.B. Brazier, Ph.D., *Emeritus Professor of Anatomy and Physiology in Residence.*
[16]John D. French, M.D., *Emeritus Professor of Anatomy.*
[16]H.W. Magoun, Ph.D., *Emeritus Professor of Anatomy.*
Richard E. Ottoman, M.D., *Emeritus Professor of Radiology and Anatomy.*
Anthony M. Adinolfi, Ph.D., *Associate Professor of Anatomy and Biobehavioral Sciences (Vice Chairman, Graduate and Postdoctoral Programs).*
John H. Campbell, Ph.D., *Associate Professor of Anatomy.*
[16]Emilio E. Decima, M.D., *Associate Professor of Anatomy.*
[16]Rafael Elul, M.D., *Associate Professor of Anatomy.*
Jerome Engel, M.D., Ph.D., *Associate Professor of Neurology and Anatomy.*
[16]Ronald M. Harper, Ph.D., *Associate Professor of Anatomy.*
[16]Anna N. Taylor, Ph.D., *Associate Professor of Anatomy in Residence.*
[16]Emery G. Zimmermann, M.D., Ph.D., *Associate Professor of Anatomy.*
George M. Butterstein, Ph.D., *Visiting Associate Professor of Anatomy.*
[16]Michael Chase, Ph.D., *Professor of Physiology in Residence, and Research Anatomist.*
Earle E. Crandall, M.D., Ph.D., F.A.C.S., *Assistant Clinical Professor of Anatomy.*
Ellen R. Dirksen, Ph.D., *Acting Associate Professor of Anatomy.*
[16]Thelma Estrin, Ph.D., E.E., *Adjunct Professor of Computer Sciences and Anatomy and Research Engineer.*
Debora B. Farber, Ph.D., *Adjunct Associate Professor of Ophthalmology and Associate Research Anatomist.*
Vladimir Golovchinsky, M.D., *Assistant Research Anesthesiologist.*
Stanley J. Gross, M.D., *Adjunct Professor of Anatomy.*
Frances S. Grover, Ph.D., *Adjunct Professor of Anatomy.*
Peter J. Hauri, Ph.D., *Visiting Professor of Anatomy.*
Raymond J. Last, M.D., F.R.C.S., *Visiting Professor of Anatomy.*
Bessie H. Lee, Ph.D. *Assistant Research Anatomist.*
Carlos A.E. Lemmi, Ph.D., *Adjunct Assistant Professor of Anatomy.*
[16]Robert D. Lindsay, Ph.D., *Associate Research Anatomist.*
[16]Rafael Lorente de Nó, M.D., *Visiting Professor of Anatomy and Surgery.*
James F. McGinnis, Ph.D., *Adjunct Assistant Professor of Anatomy and Assistant Research Biologist.*
Dennis J. McGinty, Ph.D., *Adjunct Associate Professor of Psychology and Associate Research Anatomist.*
Samuel L. Moise, Ph.D., *Associate Research Anatomist.*
[16]Hiroharu Noda, M.D., Ph.D., *Adjunct Professor of Physiology and Anatomy.*
William T. O'Day, Ph.D., *Assistant Research Anatomist.*
Anselmo R. Pineda, M.D., *Associate Clinical Professor of Anatomy.*
Chung-Ning Pang, Ph.D., *Visiting Assistant Research Anatomist.*
Madeleine L.H. Schlag-Rey, Ph.D., *Associate Research Anatomist.*
Sant S. Sekhon, Ph.D., *Associate Research Anatomist.*
James R. Soares, Ph.D., *Assistant Research Anatomist.*
[16]Donald O. Walter, Ph.D., *Associate Research Biobehavioral Scientist and Anatomist.*
Alfred Weinstock, D.D.S., Ph.D., *Clinical Professor of Dentistry and Anatomy.*
David I. Whitmoyer, Ph.D., *Lecturer and Associate Research Anatomist.*
Richard K. Wright, Ph.D., *Assistant Research Anatomist.*
[16]Wanda Wyrwicka, Ph.D., *Research Anatomist.*

Admission to Graduate Status

Students intending to take advanced degrees in the Department of Anatomy must have a bachelor's degree in physical or biological science or in the premedical curriculum. Introductory courses in zoology and vertebrate embryology are required, as well as one year of general and organic chemistry and one year of college physics. Deficiencies in these courses must be made up before the student is admitted. Strongly recommended are courses in comparative anatomy, microscopic technique, elementary statistics, philosophy of science, and scientific German and French.

Requirements for the Master of Science Degree

The student seeking to enter the profession of anatomy must apply himself directly to attaining the Ph.D. degree. The Department offers the Master of Science degree only for the restricted purposes of individuals whose major interest lies in allied fields (paramedical subjects, postgraduate medicine or dentistry).

Candidates may elect either the thesis or examination plan. If the latter, the candidate must demonstrate a knowledge of general principles of anatomy, as well as competence in a restricted area of science. The following courses are required of all master's degree candidates: two of the major anatomy courses chosen from Anatomy 101, 206A-206B and 207A-207B; one departmental seminar; other courses as necessary to the candidate's particular program. No foreign language is required.

Requirements for the Doctor of Philosophy Degree

The following courses are required: Anatomy 101, 206A-206B, 207A-207B; Biochemistry; Mammalian Physiology; at least two different departmental seminars; additional courses selected by the student and his adviser as necessary to his program.

The student must complete a "research tool" consisting of eight units of work selected by the student and his/her advisor. This individual course of study augments the thesis project. This requirement can also be met by demonstration of the ability to read a foreign language.

Upper Division Courses

101. Microscopic Anatomy. (2 courses) Four three-hour sessions per week in the fall quarter. Prerequisite: enrollment in School of Medicine or consent of the instructor. Microscopic study of the tissues and organs of the human body.
Ms. Dirksen and the Staff

102A-102B. Gross Anatomy of the Human Body. (½ course, 2 courses) (Formerly numbered 100 and 102.) One hour of lecture and four of lab per week in the winter quarter; four hours of lecture and twelve of lab per week in the spring. Prerequisite: enrollment in School of Dentistry or consent of the instructor. Course 102A is prerequisite to 102B. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Systemic and topographical human anatomy with dissection of the human cadaver. Emphasis on head and neck.
Mr. Adinolfi and the Staff

M103A-103B. Basic Neurology. (¼ course, ¾ course) (Same as Physiology M103A-103B.) Two four-hour sessions and one three-hour session per week of the last three weeks of the winter quarter; two two-hour sessions and two three-hour sessions per week in the spring quarter. Prerequisite: Medical school status or consent of instructor. Lectures, conferences, demonstrations and laboratory procedures necessary to an understanding of the function of the human nervous system.
Mr. Schlag and the Staff

104. Mammalian Histology. (1½ courses) Three three-hour sessions per week in the fall quarter. Prerequisite: enrollment in School of Dentistry or consent of the instructor. Lectures, demonstrations and laboratories dealing with the structural organization of tissues and organs at the microscopic level. Mr. Campbell and the Staff

105A-105B. Gross Anatomy. See 207A-207B. Gross Anatomy.

106. Mammalian Neurology. One one-hour session and one four-hour session per week in the winter quarter. Prerequisite: enrollment in School of Dentistry or consent of the instructor. Lectures, demonstrations and laboratories dealing with the fundamental structure and functional organization of the nervous system. Mr. Kruger and the Staff

Graduate Courses

201. Structure and Function of Cells and Tissues. (½ course) One hour of lecture and one of discussion per week in the fall quarter. Prerequisite: course 101 (which may be taken concurrently) and consent of instructor. Current topics on structural and functional aspects of microscopic anatomy. Graded on an S/U basis. May be repeated for credit.
The Staff

M206A-206B. Neurosciences: The Introductory Course for Graduate Students. (1¼ courses, 1¾ courses) (Same as Neurosciences M206A-206B.) Two hours of lecture and two of lab per week in the winter quarter; five hours of lecture and two of lab per week in the spring quarter. Prerequisite: a course (or equivalent) in basic and/or general physiology such as Biology 171 or Physiology 101 or consent of instructor. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Introductory course in the basic principles of the nervous system for graduate students as a prerequisite to more advanced courses. Fundamental approaches to neuroanatomy (winter quarter), neurophysiology and the brain mechanisms for behavior (spring quarter) will be stressed.
Mr. Decima, Mr. Scheibel and the Staff

207A-207B. Gross Anatomy. (2 courses, 1 course) Four four-hour sessions per week in the fall quarter; one three-hour, one four-hour and one five-hour session per week in the winter quarter (first seven weeks). Prerequisite: consent of the instructor. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Lectures and dissection of the human body. Medical students must enroll for Anatomy 105A-105B.
Mr. Sawyer and the Staff

208A-208B. Electronics for Neuroscientists. Two hours of lecture and four of lab per week in the fall and winter quarters. Prerequisite: consent of instructor. To develop an understanding of electronic methods used in neuroscience. Basic principles of

NOTE: For key to symbols, see page 74

passive networks, operational amplifiers, semiconductor theory, digital logic, waveform generation, signal conditioning, data acquisition methods and neurophysiological instrumentation systems. S/U grading only. Ms. Estrin, Mr. Whitmoyer

209. Fine Structure and Function in the Central Nervous System. (½ course) Two one-hour sessions per week in the fall quarter of even-numbered calendar years. Prerequisite: Basic Neurology. Lectures and discussion of the fine structure of selected areas of the central nervous system, together with related electrical and biochemical patterns of activity. Mr. Scheibel

210A-210B. Inflammatory Components in Neoplasia and Immunity. (½ course) One two-hour session per week in the fall and winter quarters. Prerequisite: consent of the instructor(s). Fall quarter sessions will consist of one-hour lectures on the various components of inflammation and other non-specific systems and their interrelation with neoplasia and specific immune phenomena. Current research literature will be discussed during the second hour. The winter quarter sessions will consist of presentations by invited guests involved in research in the specialty areas covered in the fall quarter. Organized discussions will follow these presentations. Mr. Lemmi and the Staff

211. Anatomical and Physiological Substrates of Behavior. (½ course) One two-hour session per week in the fall quarter. Prerequisite: Anatomy 101, Physiology 101, Physiology 102. This course is aimed at meeting the needs of graduate students in anatomy and physiology by presentation of material on behavioral neurophysiology not currently available in such courses as Basic Neurology 103. It includes detailed neuroanatomy and neurophysiology of cerebral systems primarily involved in processes of alerting, focusing attention, learning and recall. Mr. Woody

212. Neural Mechanisms of Inhibition. (½ course) Two hours per week in the fall quarter of even-numbered calendar years. Prerequisite: Basic Neurology. A systematic consideration of inhibitory processes in the nervous system from the synapse to integrated behavior. Special attention is given to the recent concepts of inhibition at the behavioral level and their implications for learning, emotion and mental health. Mr. Sterman

213. Evolution and the Structure of Biomolecules. (½ course) One two-hour session per week in the spring quarter. Prerequisite: consent of instructor and upper level courses in two of the following subjects: genetics, evolution, biochemistry. Interpretation of pattern in molecular organization of living organisms in terms of evolution, and considerations of the impact of such pattern on evolutionary theory. Mr. Campbell

214. Data Acquisition in Behavioral Neurophysiology. Two hours per week in the fall quarter of odd-numbered calendar years. Prerequisite: course 211. Neurophysiological techniques in behavioral studies; data acquisition systems and computer analysis of neurophysiological data. Mr. Harper and the Staff

215. Biopotentials in Volume Conductor. (1/2 course) Two hours of lecture per week in the winter quarter of even-numbered calendar years. This course will provide medical and graduate students with the theoretical background for interpretation of biopotentials recorded through volume conductor, such as EEG, ERG, EMG, and ECG. Mr. Elul

216. Microphysiology of EEG and Evoked Potentials. (½ course) Two hours of lecture per week in the fall quarter of odd-numbered calendar years. Prerequisite: course 215 or consent of the instructor. The cellular processes underlying generation of spontaneous brain activity (EEG) and evoked potentials will be studied, as well as the statistical laws controlling summation of individual cellular activities which form the potentials recorded by gross electrodes. Mr. Elul

221. Gross Anatomy of the Head and Neck. Two hours of lecture, one of discussion and six of lab per week. Prerequisite: course 102A-102B or 105A-105B or 207A-207B. Intensive and advanced study of the head and neck with relevant study of the thorax and axilla. Special emphasis is placed on applied anatomy and on understanding basic organizational concepts. This course is intended for those who anticipate research or professional school teaching. Enrollment limited to 12. Offered in the spring quarter only of even-numbered years. Mr. Maxwell

M224A-224B. Structure and Chemistry of Connective Tissue. (½ course each) (Same as Oral Biology M224A-224B.) Prerequisite: histology, biochemistry. This seminar course is designed for graduate students in dentistry or basic science. The objective of the course is to provide students with fundamental information on the fine structure and the chemical composition of bone, dentin, cementum, cartilage, cells of connective tissue in general, as well as enamel. Emphasis will be placed on the biosynthesis of collagen, non-collagenous proteins and glycoproteins, and glycosaminoglycans (mucopolysaccharides). The possible roles of the cellular and non-cellular elements in the process of biological mineralization will also be discussed. Correlation of biological processes to periodontal pathology will be stressed when possible. Mr. Weinstock and the Staff

M232. Vertebrate Visual System, I: The Retina. (Same as Ophthalmology M232.) Two hours of lecture and two of discussion per week in the winter quarter. Prerequisite: microscopic anatomy and neurophysiology and consent of instructor. The functional organization of the retina is considered, with emphasis on cellular structure and electrophysiology. Topics will be selected from: light absorption and generation of photoreceptor response; synaptic mechanisms and pathways for analysis of form, color, etc.; coding in optic nerve fibers. May be repeated for credit with departmental approval. Mr. Stell, Mr. Fain

251. Problems in Developmental and Comparative Immunology. (½ course) One two-hour session per week in the winter quarter. Prerequisite: consent of the instructor. Review of current literature emphasizing early development and evolution of immune competence. Mr. Cooper

252. Seminar on Basic and Quantitated Neurophysiology. (½ course) Prerequisite: consent of the instructor. One 90-minute session of lecture and one of discussion per week. Lecture series on basic neurophysiology. Early lectures by invited specialists on their specific fields. Later lectures, one per student and on a topic chosen and prepared in collaboration with the instructor. Offered in the spring quarter only of even-numbered years. Mr. Segundo

253. Communication and Coding in Nervous Systems. Two 90-minute and one two-hour sessions per week. Prerequisite: consent of the instructor. Presentation, discussion and critique of efforts to quantify neuronal function, where the essence of the mathematics is expressed in qualitative and physiologically meaningful terms. For example: stability, neurons as analyzers of spike trains, identification of synaptic operators. Offered in the spring quarter only of odd-numbered years. Mr. Segundo

255A-255D. Seminar in Endocrinology. (½ course each) One two-hour lecture per week in the winter and spring quarters. Prerequisite: consent of the instructor. Mr. Sawyer and the Staff

256. Seminar in Cell Structure and Function. (½ course) One hour of lecture and one of discussion per week in the winter and spring quarters. Prerequisite: consent of instructor. Selected topics in cell biology emphasizing those areas which are of current interest. Includes an analysis of the various techniques being used to study the cell. Ms. Dirksen and the Staff

257. Journal Reviews in Experimental Anatomy. (½ course) One two-hour session per week. Research frontiers in various fields of experimental anatomy are reviewed and mutually discussed by graduate students and professors. The Staff (Yr.)

258. Seminars in Neuroscience. (½ course) Two hours per week in the fall quarter of odd-numbered, and winter quarter of even-numbered calendar years. Prerequisite: a course in basic neurology and course 209. Topics of current interest or ongoing research projects are presented, and both content and method of presentation are examined. May be repeated for credit. Mr. Scheibel

M260. Fundamental Concepts of Neuroendocrinology. (Same as Neuroscience M260.) Two hours of lecture and two of discussion per week in the winter quarter of odd-numbered calendar years. Prerequisites: Biochemistry 101C, Anatomy 206A and 206B, or consent of instructor. Basic concepts of neuroendocrine integration including analysis of the current literature and research techniques. Mr. Gorski

265. Evolution of Cancer. (½ course) Two hours of lecture or discussion per week during the winter quarter. Prerequisite: consent of the instructor. Review of current literature emphasizing the appearance of tumors and neoplasms in representative invertebrates, fishes, amphibians and reptiles. Theories of cancer development from the evolutionary viewpoint. Mr. Cooper

390A-390B. The Peer Review System. (½ course each) Two hours of discussion per week in the winter and spring quarters, odd-numbered calendar years. Prerequisite: advancement to candidacy in integrative or systems biology, or consent of instructor. An unique and experimental introduction to the peer review system for the evaluation of research proposals. After consideration of the grant review process, each student will prepare an abbreviated grant application. These student proposals will be evaluated in a mock peer review session moderated by the faculty. Graded S/U. Mr. Gorski

495. Communicating Scientific Information. (½ course) Two hours of lecture per week in the winter quarter. Prerequisite: enrollment as a candidate for advanced degree in Anatomy. Student papers and lectures serve as the basis for group discussions of the art and science of effective written and oral communication of scientific information. May be repeated for credit. The Staff

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

596. Directed Individual Study or Research. (½ course to 3 courses) The Staff

597. Preparation for the Master's Comprehensive Examination or the Doctoral Qualifying Examination. (½ course to 3 courses) The Staff

598. Thesis Research for Master's Candidates. (½ course to 3 courses) The Staff

599. Dissertation Research for Ph.D. Candidates. (½ course to 3 courses) The Staff

Medical History Division

Franklin D. Murphy, M.D., Sc.D., *Professor of Medical History.*
Mary A.B. Brazier, Ph.D., *Emeritus Professor of Anatomy and Physiology in Residence.*
John Field, II, Ph.D., *Emeritus Professor of Medical History and Physiology.*
L.R.C. Agnew, M.D., *Associate Professor of Medical History.*
Ynez V. O'Neill, Ph.D., *Associate Professor of Medical History in Residence.*
Robert G. Frank, Jr., Ph.D., *Assistant Professor of Medical History and History.*
Elizabeth R. Lomax, M.D., Ph.D., *Lecturer and Assistant Research Medical Historian.*
Frances Keddie O'Malley, M.D., *Research Dermatologist and Medical Historian.*

Upper Division Courses

107B. Historical Development of Medical Sciences. Three hours per week in the spring quarter. The major contributions of medicine and medical personalities from the 5th century B.C. to the 19th century A.D. Illustrated lectures and required readings from selected texts. Mr. Agnew, Ms. O'Neill

M108A-108B. History of Biological Sciences. (Same as History M106E-106F.) Three hours per week in the fall and winter quarters. Prerequisite: upper division standing. M108A: Biological sciences from ancient times to the early nineteenth century. M108B: Biological sciences from the early nineteenth century to the mid-twentieth century. Mr. Frank

110. Medicine and Society in 20th Century America. Three hours per week in the spring quarter. Prerequisite: consent of instructor. Preference given to Health Sciences students. Reading and conference course on social aspects of the growth of medical care, education, and research in the United States since the late nineteenth century. Mr. Frank

M197. The Biomedical Sciences in the 19th Century. (Same as History M106G.) Three hours per week in the spring quarter. Readings and discussions. Prerequisite: consent of instructor. Topics in the growth of the biomedical sciences and their institutions in Europe and America, from the French Revolution to approximately 1900. Mr. Frank

Graduate Courses

240A-240B. History of Medical Sciences. (½ course each) One hour per week in the fall and winter quarters. Survey of the development of scientific and medical thought from ancient times to the present. The Staff

241A-241B. History of Clinical Sciences. (½ course each) One hour per week in the fall and winter quarters. Survey of the development of the clinical specialties and comparison of medical practice in western civilization with that developed in other parts of the world. Mr. Agnew

242. History of Pathology. (¼ course) One hour per week in the fall quarter. Survey of the history of pathology and related sciences from antiquity to the 20th century, tracing the development of pathological theory, practice, organization and education and comparing them to current practice. Mr. Agnew

243. History of Surgery. (¼ course) One hour per week in the winter quarter. Survey of the history of surgery and related sciences from antiquity to the 20th century, tracing the development of surgical theory, practice, organization and education and comparing them to current practice. Mr. Agnew

244. History of American Medicine. (¼ course) One hour per week in the spring quarter. Survey of the history of medicine in the United States from the colonial period to the present. Mr. Agnew

246. History of Neurophysiology. (½ course) Eight one-hour lectures in the winter quarter, covering the development of experimental neurophysiology from its scientific roots in the 17th century, through the recognition in the 18th century of the excitability of the nervous system, to the use of this characteristic for revealing the functions of spinal cord and brain. Ms. Brazier, Ms. Lomax

250. History of Medical Psychology. (½ course) One hour per week in the winter quarter. An examination of the themes underlying modern mental health theories. Beginning with a review of contemporary thinking, the lectures focus upon the various factors shaping present concepts of mental disorders, and provide a framework for the understanding of current issues. Ms. Lomax, Ms. O'Neill

Individual Study and Research

596. Directed Individual Studies in Medical History. Investigation of subjects in medical history selected by students with the advice and direction of the instructor in the fall, winter and spring quarters. Individual reports and conferences. The Staff

599. Research for and Preparation of the Doctoral Dissertation. (1 to 2 courses) Investigation of materials relative to the doctoral dissertation, their evaluation and written presentation. The Staff

ANESTHESIOLOGY

Robert O. Bauer, M.D., *Professor of Anesthesiology and Pharmacology.*
J. Weldon Bellville, M.D., *Professor of Anesthesiology.*
Verne L. Brechner, M.D., *Professor of Anesthesiology.*
Walter Comer, M.D., *Adjunct Professor of Anesthesiology.*
Edward Deland, Ph.D., *Adjunct Professor of Anesthesiology.*
Werner E. Flacke, M.D., *Professor of Anesthesiology in Residence.*
Ronald L. Katz, M.D., *Professor of Anesthesiology (Chairman of the Department).*
Lawrence Kruger, Ph.D., *Professor of Anesthesiology and Anatomy.*
Richard Patterson, M.D., *Professor of Anesthesiology.*
Eduardo Rubinstein, M.D., Ph.D., *Professor of Anesthesiology and Physiology in Residence.*
Herman Schwartz, M.D., *Adjunct Professor of Anesthesiology.*
Stuart F. Sullivan, M.D., *Professor of Anesthesiology (Executive Vice Chairman of the Department).*
Leonard F. Walts, M.D., *Professor of Anesthesiology.*
John F. Viljoen, M.D., *Adjunct Professor of Anesthesiology (Vice Chairman of the Department).*
John B. Dillon, M.D., *Emeritus Professor of Anesthesiology.*
Joan W. Flacke, M.D., *Adjunct Associate Professor of Anesthesiology.*
Malcolm G. Gilbert, M.D., *Adjunct Associate Professor of Anesthesiology.*
Ching-Muh Lee, M.D., *Associate Professor of Anesthesiology.*
Maurice Lippman, M.D., *Adjunct Associate Professor of Anesthesiology.*
Edward J. Mahoney, M.D., *Adjunct Associate Professor of Anesthesiology (Acting Chairman of the Department).*
Martin S. Mok, M.D., *Adjunct Associate Professor of Anesthesiology.*
Robert C. Reynolds, M.D., Ph.D., *Associate Professor of Anesthesiology.*
Thomas J. Anderson, *Adjunct Assistant Professor of Anesthesiology.*
David E. Bresler, Ph.D., *Adjunct Assistant Professor of Anesthesiology, Psychology and Dentistry.*
Joseph Cadranel, M.D., *Assistant Clinical Professor of Anesthesiology.*
Selma H. Calmes, M.D., *Assistant Professor of Anesthesiology in Residence.*
Marcos Canas, M.D., *Adjunct Assistant Professor of Anesthesiology.*
Chaoul Chami, M.D., *Adjunct Assistant Professor of Anesthesiology.*
Kenneth A. Conklin, M.D., Ph.D., *Assistant Professor of Anesthesiology.*
James T. Conner, M.D., *Assistant Professor of Anesthesiology.*
George G. Doykos, M.D., *Adjunct Assistant Professor of Anesthesiology.*
Theresa Ferrer-Brechner, M.D., *Assistant Professor of Anesthesiology.*
George P. Herr, M.D., *Assistant Professor of Anesthesiology.*
Kumiko Iwamoto, M.D., *Assistant Professor of Anesthesiology.*
Robert D. Kaufman, M.D., *Assistant Professor of Anesthesiology.*
Richard J. Kroening, M.D., *Adjunct Assistant Professor of Anesthesiology and Lecturer in Dentistry.*
Arnold Lee, *Adjunct Assistant Professor of Anesthesiology.*
Jordan D. Miller, M.D., *Assistant Professor of Anesthesiology.*
Stanley Schneider, M.D., *Assistant Clinical Professor of Anesthesiology.*
Susan S. Sheridan, M.D., *Adjunct Assistant Professor of Anesthesiology.*
Janice Silverton, M.D., *Adjunct Assistant Professor of Anesthesiology.*
Bruce Skolnick, Ph.D., *Assistant Professor of Anesthesiology.*
Young-Zin Sohn, M.D., *Adjunct Assistant Professor of Anesthesiology.*
Frank A. Takacs, M.D., *Adjunct Assistant Professor of Anesthesiology.*
Susan Ward, Ph.D., *Assistant Professor of Anesthesiology in Residence.*

•

Joseph Barber, Ph.D., *Psychologist in Acupuncture.*
John DeAngelis, M.D., *Clinical Instructor of Anesthesiology.*
Vladimir Golovchinsky, M.D., *Assistant Researcher in Anesthesiology.*
Errol Hackner, M.D., *Clinical Instructor of Anesthesiology.*
Leah E. Katz, CRNA, B.S.N., M.A., *Lecturer in Anesthesiology.*
Felice Miller, Ph.D., *Clinical Instructor of Anesthesiology.*
Hon Chung Poon, M.D., *Specialist in Acupuncture.*
Yam Ying Tsai, M.D., *Clinical Instructor of Anesthesiology*
Ronald Wender, M.D., *Clinical Instructor of Anesthesiology.*

210A. Chemistry and Physics of Nurse Anesthesia I. (½ course) Lecture, two hours; discussion, one hour. A study of the principles of chemistry and physics as applied specifically to the practice of anesthesia. Mr. Deland

210B. Chemistry and Physics of Nurse Anesthesia II. (½ course) Lecture, two hours; discussion, one hour. Prerequisite: Chemistry and Physics of Nurse Anesthesia I. A continuation of the study of the principles of chemistry and physics as applied specifically to the practice of anesthesia. Mr. Deland

210C. Chemistry and Physics of Nurse Anesthesia III. (½ course) Lecture, two hours; discussion, one hour. Prerequisite: Chemistry and Physics of Nurse Anesthesia II. A continuation of the study of chemistry and physics as related to anesthesia management with specific emphasis on biochemistry as related to acid-base balance and theories of narcosis. Mr. Deland

215A. Pharmacology of Nurse Anesthesia I. (¼ course) Lecture, four hours; discussion, one to two hours. Introduction to basic pharmacological principles as applied to administration of anesthesia. A study of uptake and distribution, mechanism of action, fate and toxicology as related to anesthetic agents. Mr. Flacke

221. Cardiovascular Anatomy and Physiology for Nurse Anesthetists. (¼ course) Lecture, four hours; discussion, one hour. An integrated study of the anatomy and physiology of the C-V system as related to the management of anesthesia administration. Ms. Katz, Mr. Skolnick

223. Anatomy and Physiology of the Endocrine and Excretory System for Nurse Anesthetists. (¼ course) Lecture, four hours; discussion, one to two hours. An integrated study of the endocrine and excretory systems as relevant to the management of anesthesia administration. Ms. Peter, Mr. Skolnick

225. Anatomy and Physiology of the Nervous System for Nurse Anesthetists. (¼ course) Lecture, four hours; discussion, one to two hours. An integrated study of the anatomy and physiology of the nervous system as it related to the management of anesthesia administration. Mr. Lu, Mr. Mommaerts

290. Anesthesia Seminar for Nurse Anesthetists. (½ course) Discussion, two to three hours. Discussion of special problems in anesthesia of interest to the student. Mr. Katz and the Staff

400A. Basic Clinical Anesthesia for Nurse Anesthetists I. (½ course) Lecture, three hours; laboratory, thirty hours. Prerequisite: Fundamentals of Anesthesia Practice for Nurse Anesthetists. Correlation of techniques of anesthesia administration with basic science knowledge as applied in the clincal area with supervised practice. Graded S/U. The Staff

400B. Basic Clinical Anesthesia for Nurse Anesthetists II. (½ course) Lecture, two hours; laboratory, thirty hours. Prerequisite: Basic Clinical Anesthesia for Nurse Anesthetists I. A continuation of the practice of techniques of anesthesia administration as applied in the clinical area with supervised practice. Graded S/U.

400C. Basic Clinical Anesthesia for Nurse Anesthetists III. (½ course) Lecture, two hours; laboratory, thirty hours. Prerequisite: Basic Clinical Anesthesia for Nurse Anesthetists II. A continuation of techniques of anesthesia administration as applied in the clinical area with supervised practice. Graded S/U. The Staff

400D. Clinical Anesthesia for Nurse Anesthetists IV. (½ course) Lecture, two hours; laboratory, thirty hours. Prerequisite: Basic Clinical Anesthesia for Nurse Anesthetists III. A practice of refinement of anesthesia techniques with emphasis on specialized areas of anesthesia administration with supervised practice. Graded S/U. The Staff

NOTE: For k[illegible]

400E. Clinical Anesthesia for Nurse Anesthetists V. (½ course) Lecture, two ours; laboratory, thirty hours. Prerequisite: Clinical Anesthesia for Nurse Anesthetists IV. A practice of refinements of anesthesia techniques with emphasis on specialized areas of anesthesia administration with supervised practice. Graded S/U. The Staff

400F. Clinical Anesthesia for Nurse Anesthetists VI. (½ course) Lecture, two hours; Laboratory, thirty hours. Prerequisite: Clinical Anesthesia for Nurse Anesthetists V. A practice of refinements of anesthesia techniques with emphasis on specialized areas of anesthesia administration with supervised practice. Graded S/U. The Staff

400G. Clinical Anesthesia for Nurse Anesthetists VII. (½ course) Lecture, two hours; laboratory, thirty hours. Prerequisite: Clinical Anesthesia for Nurse Anesthetists VI. A practice of refinements of anesthesia techniques with emphasis on specialized areas of anesthesia administration with supervised practice. Graded S/U. The Staff

401. Orientation to Nurse Anesthesia. (½ course) Lecture, two hours; discussion one-half to one hour. Orientation to history, ethics and legal aspects of nurse anesthesia. Psychology related to patient undergoing surgery and anesthesia. Ms. Katz

402. Fundamentals of Anesthesia Practice for Nurse Anesthetists. (1-½ courses) Lecture, six hours; discussion, one to two hours. Introduction to basic principles of anesthesia administration including pre-anesthetic assessment, physical examination, techniques and procedures and anesthesia for specialized techniques and surgery. Ms. Katz

597. Preparation for the Master's Oral Qualifying Examination. (½ course) Prerequisite: consent of instructor. Opportunity to pursue comprehensive study in anesthesiology and related areas on an individual basis with the opportunity for discussion of the material with the instructor. Mr. Katz

598A. Research in Anesthesia I. (½ course) Prerequisite: consent of instructor. Opportunity is presented to pursue anesthesia research outlets for thesis preparation. Independent research of quality suitable for publication is required. This may be elected instead of the oral comprehensive examination for completion of the Master's Program. Mr. Katz, Ms. Katz

598B. Research in Anesthesia II. (½ course) Prerequisite: Research in Anesthesia I. Opportunity is presented to pursue anesthesia research outlets for thesis preparation. Independent research of quality suitable for publication is required. This may be elected instead of the oral comprehensive examination for completion of the Master's Program. May be repeated two times for credit. Mr. Katz, Ms. Katz

ANTHROPOLOGY

(Department Office, 341 Haines Hall)

Walter R. Goldschmidt, Ph.D., *Professor of Anthropology.*
James N. Hill, Ph.D., *Professor of Anthropology.*
Jacques Maquet, Ph.D., *Professor of Anthropology (Chairman of the Department).*
Clement W. Meighan, Ph.D., *Professor of Anthropology.*
Michael Moerman, Ph.D., *Professor of Anthropology.*
Sally F. Moore, Ph.D., *Professor of Anthropology.*
Henry B. Nicholson, Ph.D., *Professor of Anthropology.*
Wendell H. Oswalt, Ph.D., *Professor of Anthropology.*
Hiroshi Wagatsuma, Ph.D., *Professor of Anthropology.*
Johannes Wilbert, Ph.D., *Professor of Anthropology.*
Bobby J. Williams, Ph.D., *Professor of Anthropology.*
Ralph L. Beals, Ph.D., *Emeritus Professor of Anthropology.*
Joseph B. Birdsell, Ph.D., *Emeritus Professor of Anthropology.*
Hilda Kuper, Ph.D., *Emeritus Professor of Anthropology.*
William A. Lessa, Ph.D., *Emeritus Professor of Anthropology.*
Christopher Donnan, Ph.D., *Associate Professor of Anthropology.*
Allen W. Johnson, Ph.D., *Associate Professor of Anthropology.*
Donald G. Lindburg, Ph.D., *Associate Professor of Anthropology.*
Claudia Mitchell-Kernan, Ph.D., *Associate Professor of Anthropology.*
Philip L. Newman, Ph.D., *Associate Professor of Anthropology.*
Dwight Read, Ph.D., *Associate Professor of Anthropology.*
James R. Sackett, Ph.D., *Associate Professor of Anthropology.*
Robert Byles, Ph.D., *Assistant Professor of Anthropology.*
Timothy Earle, Ph.D., *Assistant Professor of Anthropology.*
Gail E. Kennedy, Ph.D., *Assistant Professor of Anthropology.*
Paul Kroskrity, Ph.D., *Assistant Professor of Anthropology.*
Eugene L. Mendonsa, Ph.D., *Assistant Professor of Anthropology.*
Robert J. Russell, Ph.D., *Assistant Professor of Anthropology.*
Carlos G. Velez, Ph.D., *Assistant Professor of Anthropology.*

•

C. Rainer Berger, Ph.D., *Professor of Anthropology, Geography and Geophysics.*
William O. Bright, Ph.D., *Professor of Linguistics and Anthropology.*
Pamela J. Brink, Ph.D., *Associate Professor, School of Nursing and Anthropology.*
Bernard G. Campbell, Ph.D., *Adjunct Professor of Anthropology.*
Carl William Clewlow, Jr., Ph.D., *Lecturer in Anthropology.*
Robert B. Edgerton, Ph.D., *Professor of Anthropology and Psychiatry.*
Marija Gimbutas, Ph.D., *Professor of European Archaeology.*
John G. Kennedy, Ph.D., *Associate Professor of Psychiatry and Anthropology in Residence.*
L.L. Langness, Ph.D., *Professor of Anthropology and Psychiatry in Residence.*
Nancy Levine, Ph.D., *Lecturer in Anthropology.*
Douglas Price-Williams, Ph.D., *Professor of Anthropology and Psychiatry in Residence.*
Ralph H. Turner, Ph.D., *Professor of Sociology and Anthropology.*
Thomas S. Weisner, Ph.D., *Assistant Professor of Anthropology and Psychiatry.*

Undergraduate Program

The undergraduate program in anthropology is intended to convey an informed appreciation of the varieties of human culture, development and experience.

The faculty represents interests in archaeology, physical anthropology and sociocultural anthropology, and these traditional divisions are crosscut by interests in ecology and social adaptation, individual behavior, and social organization in relation to cognition and communication.

In order to take full advantage of the departmental program, the student is urged to plan his program around his own interests with the help of a counselor, to include not only required courses, but also independent studies and challenging and useful courses in related fields.

The department has a regular faculty advisor to aid students in dealing with routine requirements. In addition, undergraduates are encouraged to make the personal acquaintance of any faculty members whose work is of interest to them for specialized guidance. Undergraduate students may also consult representatives of the Anthropology Undergraduate Student Association for additional guidance.

The undergraduate and graduate student associations are integral to the departmental program and organization. Through them students have the opportunity to take a direct part in departmental administration, select speakers and programs, and produce publications including student evaluations of all courses taught in the department. Undergraduate and graduate students are encouraged to acquaint themselves with their respective organizations and with the departmental library, museum, reading and typing rooms, and the Archaeological Survey program.

Preparation for the Major

*Required:*Anthropology 1A-1B, 5A, 5C. All courses taken in preparation for the major must be taken on a letter grade basis.

Foreign Language

The department requires a demonstration of proficiency in one foreign language to insure that its graduates have the communication skills and cultural insights offered by such proficiency. Any spoken language is acceptable as is any extinct language with a substantial body of literature. Proficiency is equated with the skill level to be attained through course five in a language. Specifically, this requirement may be met in one of two ways. (1) By completion of the fifth quarter of one foreign language or (2) by a demonstration of foreign language proficiency at level 5. Courses taken to satisfy the foreign language requirement may be taken on a Pass/Not Pass basis and may be applied toward satisfaction of the College of Letters and Science breadth requirements. For additional information, consult the department counselor.

The Major

Required:(1) ten upper division courses or their equivalent including at least one course from 6 of the 8 groups listed in the catalog under Anthropology; and (2) four upper division courses from one or more of the following departments: economics, geography, history linguistics, political science, psychology, sociology. Two of the four courses required outside of the department may be upper division CED courses. (Courses from other departments related to the student's specialization may be applied by petition.) All of the courses taken to satisfy major requirements must be taken on a letter grade basis.

Students intending to continue for a graduate degree are advised to take Anthropology 182A-182B, at least one course in field training (Group VII) and Anthropology 173A-173B or its equivalent.

Students must also meet the requirements of the University and the College of Letters and Science for graduation.

Graduate Requirements

All students should obtain a detailed statement of the graduate program from the graduate secretary, Department of Anthropology, 341 Haines Hall.

The department offers the M.A. and Ph.D. degrees. For the Ph.D. degree, all students are required to obtain research experience and a thorough background in both substantive and methodological areas. The department offers specialized training in archaeology, ethnology, linguistics and physical anthropology, and encourages the definition of interests which combine various aspects of these subfields with each other or with areas outside anthropology.

Admission

In addition to meeting the general graduate requirements listed elsewhere in this catalog, students are admitted to the department by an Admissions Committee. Graduate enrollment is limited and candidates will be chosen on the following bases: (1) prior scholastic performance; (2) ratings and recommendations by professors and other individuals; (3) a term paper or other research paper; and (4) scores on the Graduate Record Examination. Students may enter the program only in the Fall Quarter. Candidates are normally admitted for the Ph.D. only.

Graduate Program and Advising

On entering the graduate program, each student will be assigned an adviser. His function will be to acquaint the student with the department and to assist him in devising an initial plan of study. By the beginning of the second quarter, the student will have formed a two-man advisory committee. This committee will assist the student in formulating a long-term plan of study developed around the student's interests which provides for those courses, seminars and research experiences that will best prepare him to implement and develop his interests. When it has been determined that the student is prepared for the Ph.D. qualifying examinations, his advisory committee will be extended to a five-man Ph.D. committee including two members from outside the department. This committee will administer the Ph.D. qualifying examinations, supervise the student's doctoral research, and administer the final oral examination after completion of the thesis.

Requirements for the M.A. and Ph.D. degrees

General.A dossier developed for each student will contain materials relevant to deciding whether a student is prepared to take his qualifying examination. This material will consist of a study plan and

stated objectives, all term papers, written evaluations of course and seminar work by the student's instructors, annual written evaluations by the advisory committee of progress toward stated objectives, and a research paper on a topic developed by the student in consultation with his committee. The research paper, and all other materials, will be reviewed by a third member appointed to the advisory committee in the quarter when the research paper is completed. The student's file will then be presented for full faculty review, such review normally taking place not later than the sixth quarter of residence. Students admitted to the department with an advanced degree from another department may prepare for the qualifying examinations, but may not take them until three quarters of residence have been completed.

Language Requirement. The student must pass the Graduate Language Examination (ETS) in one foreign language before the oral qualifying examination. Also, before taking the qualifying examination, he must pass an examination administered by his Ph.D. committee testing his knowledge of a corpus of substantive or theoretical literature relevant to his area of specialization in the same language.

M.A. Degree. The department does not admit candidates for the M.A. only; the M.A. degree is not required of candidates for the Ph.D. degree. However, graduate students preparing for the Ph.D. normally qualify and apply for the M.A. after satisfactory completion of a research paper and after faculty review. The research paper and the oral examination constitute a comprehensive examination.

Ph.D. Degree. Advancement to candidacy for the Ph.D. is dependent on passing qualifying examinations. In accordance with university regulations, the Ph.D. committee conducts both a written and an oral examination. The written examination, conducted by the departmental representatives on the committee, will be considered to be in the nature of a preparation for the oral examination. The character of the written examination will be determined by the committee, in consultation with the student, and need not consist of a closed book examination. The content of the oral examination, conducted by both departmental and non-departmental representatives on the committee, will also be determined by the committee. Upon successful completion of the Qualifying Examinations and Advancement to Candidacy, the student will proceed with dissertation research. The dissertation will be an original contribution to anthropology literature, normally, but not necessarily, based upon field work. Award of the Ph.D. degree is based on the dissertation and a final oral examination.

Lower Division Courses

1A-1B. The Principles of Human Evolution. Lecture, three hours; discussion, one hour. Course 1A is prerequisite to course 1B. Students cannot receive credit for both Anthropology 1A-1B and Anthropology 11. Human population biology in the conceptual framework of evolutionary processes. 1A emphasizes the genetic basis of evolution, population biology and diversity among living populations. 1B emphasizes comparative primate behavior, structural anatomy and the fossil record. These courses are required as preparation for the major. The Staff

5A-5C. Introduction to Cultural Anthropology.

5A. Principles of Cultural Anthropology. Lecture, three hours; discussion section, one hour. Course 5A is prerequisite to course 5C. Students cannot receive credit for both Anthropology 5A and Anthropology 22. The character of culture and nature of social behavior as developed through anthropological study of contemporary peoples. The Staff

5C. Culture History. Lecture, three hours; discussion section, one hour. The development of culture from its first beginnings to the advent of writing as developed through archaeological investigation. The Staff.

11. The Evolution of Man. Lecture, three hours; discussion, one hour. Students cannot receive credit for 11 and 1A-1B. This course does not satisfy major requirements. A one-quarter course on the evolution of man. Emphasis is on evolutionary processes and the evolutionary past of the human species. The Staff

M12. Human Genetics and Reproduction. (Same as Public Health M12.) Survey for general student of normal and abnormal development, and basic principles. Topics include genetics, human reproduction, problems of pregnancy and its outcome, birth defects, prenatal diagnosis, and genetic counseling. Emphasis is on introducing facts for current discussions of the "New Genetics" and scientific and ethical questions regarding reproduction and development. Mr. Sever

22. General Cultural Anthropology. Lecture, three hours; discussion section, ne hour. This course is designed for non-majors. Students cannot receive credit both for Anthropology 22 and 5A. An introduction to the cultural understanding of human behavior designed for students who do not plan further work in anthropology. Stress is placed on those concepts and theories that are applicable to the everyday life and professional activities in the modern world. Examples of institutions and individual behavior of modern America are counterpointed against studies of primitive life. The Staff

Upper Division Courses

Courses 1A-1B, 5A, 5C or upper division standing are prerequisite to all upper division courses, except as otherwise stated. All upper division courses with letter designations (A, B, etc.) may be taken independently except as otherwise stated.

GROUP I. ETHNOGRAPHY

This group contains courses of a descriptive nature where the intent is to survey the cultural patterns of an ethnic group either diachronically or synchronically.

102. World Ethnography. Diversity of cultural types and commonalities of cultural systems documented through print and film. The course will also be concerned with criteria of ethnographic adequacy in each medium. The Staff

Area Courses. (Anthropology 103A-Anthropology 110.) Prerequisite: courses 5A, 5C, 22 or 102. Each course is a survey of native peoples and cultures in designated areas of the world. The survey will include discussions of technological, social and ideational patterns among the ethnic groups of the area. Special ethnological and theoretical problems will be covered as appropriate. Outside reading and papers may be required.

103A-103C. Peoples of Asia.

103A. South Asia: Buddhist Civilization. A study of Buddhism as basis of one of the main cultural streams of South Asia; its evolution from a system of wisdom to a religion, a way of life, and a national polity; historical background including early antecedents in India. Mr. Maquet

103B. Southeast Asia. Mr. Moerman

103C. Japan (I) Introductory. Prerequisites: upper division standing or consent of instructor. An introduction into contemporary Japanese culture: family life, social organizations, religion, values and norms. Mr. Wagatsuma

103D. Japan (II) Advanced. Prerequisite: Japan I. An advanced level discussion of the selected subjects in contemporary Japan origins of people and language, problems of "modernization" and "Westernization", psychological characteristics of the people, social deviances. Mr. Wagatsuma

103E. Culture and Society in the Himalayas. Prerequisite: course 22 or consent of instructor. The course will provide an overview of culture and society among the diverse peoples of the Himalayas. Topics to be covered include: environment and economic adaptation, politics in traditional isolation and within the framework of recent national integration, kinship, forms of marriage and the status of women, religion and the social order in a Hindu-Buddhist culture contact zone and current problems of modernization. Ms. Levine

105A-105C. Peoples of Latin America.

105A. Peoples of South America. Mr. Wilbert

105B. Peoples of Middle America. The Staff

105C. Latin American Societies. The Staff

106A-106F. Peoples of North America.

106A. Peoples of California: Ethnography. Mr. Meighan

106B. Peoples of California: Prehistory. Mr. Meighan

106C. Peoples of North America. Mr. Oswalt

106D-106E. Archaeology of North America. Prerequisite: courses 5A-5C or course 22 or consent of the instructor. Course 106D is prerequisite to 106E. Prehistory of the North American Indians; the evolution of Indian societies from earliest times to (and including) contemporary Indians; approaches and methods of American Archaeology. Mr. Hill

106F. Eskimos. Prerequisites: upper division standing. This is a survey on historical, ethnographic, and contemporary Eskimo life stressing their importance in anthropological theory and practice. Particular emphasis is placed in Eskimo origins, technology, and modern administration. Mr. Oswalt

106G. The Comparative Ethnography of the Hispanic Peoples in North America. Prerequisites: course 5A or 22 or consent of instructor—primarily for upper division students. A comparative ethnography of the social and cultural adaptations of the Hispanic Peoples in North America including Mexican/Chicanos, Cubans, and Puerto Ricans, their respective social organization, economic and political institutions, sacred and secular belief systems, and expressive cultures. Each group is presented as adapting within culture complexes closely related to historical developments in the United States and thus considered as areal cultures. Linkages for each cultural group transcend national boundaries and national space so that direct and indirect historical interaction links all groups, making events in any part relevant to the Hispanic areal culture as a whole. Mr. Velez

106H-106I. Peoples of Pueblo Southwest. Prerequisites: one of the following: Anthropology 5A-5C, Anthropology 22, upper division standing or consent of instructor. Course 106H or consent of instructor is prerequisite to 106I. A survey of ethnographic and ethnohistorical research on the historic Pueblo Indians—Hopi, Zuni, Tanoan, and Keresan—and their immediate neighbors. 106H introduces the history, languages, social organization, and traditional cultural systems of the various groups. 106I focuses on selected problems in Pueblo ethnology and considers the Pueblo Southwest as an important locus for anthropological theory and method. Mr. Kroskrity

107A-107B. Introduction to African Societies and Modes of Thought.

107A. Simple Societies of Africa. Prerequisite: upper division standing or consent of instructor. A comparative analysis of African societies and systems of thought. Social, economic, kinship, political, religious and medical institutions in societies which, in the past, lacked centralized political institutions. Students will be introduced to the classic ethnographies and current research among these African peoples in the modern world. Mr. Mendonsa, Ms. Moore

107B. Complex Societies of Africa. Prerequisite: upper division standing or consent of instructor. A comparative analysis of African societies and systems of thought. Social, economic, kinship, political, religious and medical institutions in societies

NOTE: For key to symbols, see page 74

which had indigenous centralized political institutions e.g., chiefdoms, kingdoms, states. Students will be introduced to the classic ethnographies and current research among these peoples in modern Africa, including urban centers.
Mr. Mendonsa, Ms. Moore

108. Peoples of the Pacific. Mr. Newman

109. Old Stone Age Archaeology. (Formerly numbered 109A-109B.) Prerequisite: course 5C or consent of the instructor. The development of Palcolithic and Mesolithic cultures of Europe, Africa, and Asia, emphasizing the ordering and interpretation of archaeological data. Pleistocene geology and chronology, the relationship between human, cultural and biological evolution.
Mr. Sackett

110. Peoples of the Middle East: Arab Culture. Prerequisite: course 5A, consent of instructor. This course will delineate the area of "Arab Peoples" through an examination of their historical background, their language, and their belief system. It will attempt to uncover the structural principles shared by the Arab people of North Africa and Southwest Asia which underlie Arab culture.
The Staff

GROUP II. DEVELOPMENT OF MAN AND CULTURE

This group contains two kinds of courses in terms of method: Those courses primarily historical in orientation where the concern is to present sequences of change in the development of man and culture, and those courses concerned with general theories of change.

111A-111B. Fossil Man and His Culture. Course 111A is prerequisite to 111B. No credit will be allowed for courses 111A without course 111B. An introduction to paleoanthropology; the morphology, ecology and culture of fossil man in the light of the synthetic theory of evolution.
Ms. Kennedy, Mr. Sackett

112. Hunting and Gathering Societies. Prerequisite: course 5A. A survey will be made of hunting and gathering societies. Their distinctive features will be examined from both an ecological and cultural viewpoint. The possibility of developing a general framework for synthesizing these two viewpoints will be discussed. This synthesis will be used as a basis for illustrating the relevance of hunting and gathering societies to an understanding of complex societies. Mr. Read

113. Civilizations of Subsaharan Africa. Prerequisite: upper division standing or consent of instructor. A comprehensive overview of the socio-cultural world of subsaharan Africa. This world is interpreted as a broad cultural unit with its specific African configurations, and as a plurality of civilizations, each based on a particular association of an environment (dry savanna, grass-land, equatorial forest, highlands) with a dominant technique of acquisition/production (hunting/gathering, cereals growing, cattle-herding, commercial crops, industry). Mr. Maquet

119. Culture Stability and Culture Change. Problems of cultural and social change, including the impact of western civilization on native societies.
Mr. Mendonsa

122A. Comparative Society. Prerequisite: courses 5A-5C, or Sociology 1 or consent of the instructor. The general principles of the organization of society; the relation of these to the technological complexity and ecological conditions of the culture; the principles of evolutionary development of social systems. The Staff

122C. Technology and Environment. Significance of material culture in archaeology and ethnology; problems of invention and the acceptance of innovations; the ecological and sociological concomitants of technological systems; selected problems in material culture. The Staff

123. Origins of Old World Civilization. Prerequisite: course 5C or course 22. A survey of the prehistoric foundations and cultural development of primary civilizations in the Near East, Europe and Asia as revealed by archaeology; theories of cultural evolution and diffusion based upon archaeological discovery. Mr. Sackett

123C. Ancient Civilizations of Western Middle America (Nahuatl Sphere). Prerequisite: course 5A-5C or course 22. Pre-Hispanic and Conquest period native cultures of Western Middle America as revealed by archaeology and early colonial writings in Spanish and Indian languages. Toltec-Aztec and Mixteca civilizations and their predecessors, with emphasis on socio-political systems, economic patterns, religion, and esthetic and intellectual achievements. Mr. Nicholson

123D. Ancient Civilizations of Eastern Middle America (Maya Sphere). Prerequisite: courses 5A-5C or course 22, Pre-Hispanic and Conquest period native cultures of eastern Middle America as revealed by archaeology and early colonial writings in Spanish and Indian languages. Lowland and Highland Maya civilizations and their predecessors with emphasis on socio-political systems, economic patterns, religion, and esthetic and intellectual achievements. Mr. Nicholson

123E. Ancient Civilizations of Andean South America. Prerequisite: courses 5A-5C or course 22. Pre-Hispanic and Conquest period native cultures of Andean South America as revealed by archaeology and early Spanish writings. The Inca and their predecessors in Peru, with emphasis on socio-political systems, economic patterns, religion, and esthetic and intellectual achievements.
Mr. Donnan

GROUP III. BIOLOGY AND CULTURE

An examination of the biological factors in human variability, both behavioral and physical, and the operation of biological factors within a cultural setting.

130A-130B. The Genetics of Human Diversity. Course 130A is prerequisite to 130B. No credit will be allowed for course 130A without course 130B. A general survey of the techniques and problems of racial classification. Emphasis is on the genetic approach. The methods of modern classical genetics and population genetics are applied to human evolution. The Staff

131. Evolution and Biology of Human Behavior. A comparative survey of the behavior patterns of preliterate and Paleolithic peoples and those of non-human primates. The biological variables fundamental to human and prehuman behavior will be assessed with regard to theories on the evolution of human culture. The Staff

132. Comparative Morpho-Physiology of the Higher Primates. Lecture, two hours; laboratory, three hours. The comparative anatomy of monkeys, apes and man will be surveyed. The methods and data prerequisite to the interpretation of the primate fossil records will be discussed. The Staff

133A-133B. Primate Behavior Non-Human to Human. (2 courses) Prerequisites: upper division standing. Course 133A is prerequisite to 133B. Review of primate behavior as known from laboratory and field studies. Stresses theoretical issues and the evolution of casual processes, structure, and function of animal behavior with special reference to nonhuman primates. Human behavior will be discussed as the product of such evolutionary processes. This course is offered on an In Progress basis. Credit is given only after completion of the full 2-quarter sequence. The Staff

134. Biology, Society and Culture. Prerequisite: course 1B. An investigation of the interaction between human biology and human behavior. Particularly emphasized are the influences of human biological evolution on human cultural evolution and human cultural evolution on human biological evolution. Mr. Byles

135A. Primate Evolution. Prerequisite: upper division standing/consent of instructor. A survey of the primate paleontological and evolutionary record, encompassing prosimians, New and Old World monkeys and hominoids. Attendant aspects of paleoecology and behavior will be discussed.
Mr. Russell

GROUP IV. SOCIAL SYSTEMATICS

Courses which focus on the interpretation or explanation of some type of code, symbol system, or behavior pattern and where the central analytic constructs are symbols, personality processes or interactional dynamics, and where theory is concerned with the relationship between the individual and his interactional setting. Anthropology students may also fulfill Group IV requirements by taking Linguistics 100.

138. Symbolic Systems. Prerequisite: upper division standing or consent of instructor. An analysis of the anthropological research and theory on the cultural systems of thought, behavior, and communication expressed in a symbolic mode (as distinguished from the discursive, instrumental, and casual modes). Methods for the study of symbolic meanings, including the experiential approach.
Mr. Maquet

139. Comparative Minority Relations. Prerequisites: courses 5A-5C. Comparative study of minority relations, social discrimination and prejudice. The emphasis will be both on cross-cultural perspectives and on psycho-cultural analysis. The cases will be taken from the U.S., Japan, India, and other areas. The factors responsible for discrimination and the cultural-psychological consequences of class, caste or minority status of the individuals will be discussed. Mr. Velez

140. Comparative Religion. A survey of various methodologies in the comparative study of religious ideologies and action systems. These include the understanding of particular religions through descriptive and structural approaches, and the identification of social and psychological factors which may account for variation in religious systems cross-culturally. Mr. Newman

141. Social and Psychological Aspects of Myth and Ritual. This course is aimed at understanding the social and psychological significance of myth, ritual and symbolism, with particular attention given to rituals concerned with folk psychotherapies, possession and trace phenomena. Mr. Mendonsa

142. Comparative Study of Socialization. Introduction to ethnographic data on socialization and child training. Theories explaining cross-cultural variability in socialization practices. Current methods and research topics in the field.
Mr. Weisner

143. The Individual in Culture. Prerequisite: upper division anthropology, sociology, or psychology students. The course considers the balance for freedom and determinism for individuals and societies in the interrelation of personality, social structure and culture. It surveys the nature and limits of human plasticity; the variability and uniformity of personality within and between cultures; the relation of normal and abnormal, conformity and deviance. Mr. Edgerton

144. Aesthetic Anthropology. Lecture, three hours. Prerequisite: upper division standing. Elaboration of a crosscultural notion of visual aesthetic phenomena that meets the requirements of anthropological research. Aesthetic phenomena as cultural: their integration in a cultural system; their relationships with other elements in the interplay of social forces. Mr. Maquet

145A. Introduction to Psychological Anthropology. Prerequisites: upper division standing or consent of instructor. 145A is prerequisite to 145B. An historical approach to culture-and-personality studies and psychological anthropology. These sub-disciplines will be described and analyzed as they relate to the broader history of anthropology and to developments in other fields, especially sociology, psychology, and psy-

choanalysis. The work of Durkheim, Benedict, Mead, Sapir, Malinowski, Roheim, Freud, Kardiner, Whiting, and Bateson will be discussed.
The Staff

145B. Introduction to Psychological Anthropology. Prerequisites: course 145A. A survey and critical analysis of the theories of methods in use in contemporary psychological anthropology. These methods and theories are examined as they are employed in the crosscultural study of the following topics: socialization and development, pathology and deviance, fantasy, religion and altered states of consciousness, cognition, perception and motivation, communication and language, psychobiology and evolution. Finally, theories and methods in psychological anthropology are compared with developments in socio-cultural anthropology as a whole. The Staff

M146. Language in Culture. (Same as Linguistics M146.) Prerequisites: Linguistics 1 or Anthropology 177A-177B. The study of language as an aspect of culture; the relation of habitual thought and behavior to language; the problem of meaning. For course M146, graduate students in anthropology who propose to specialize in linguistics must take Linguistics 100 plus graduate courses in linguistics chosen from Linguistics 200A-205B and 210A-210B in consultation with an adviser; or they may take the M.A. in linguistics together with the Ph.D. in anthropology.
Mr. Kroskrity

148. Personality and Social Systems. Prerequisite: upper division standing or consent of instructor. The course explores the relationships between individual and social-cultural systems. Major topics: (the study of personality in culture); cultural influences on motor behavior and psychological reaction patterns; cultural influences on cognition, perception, and thought process; socialization in Culture I (child rearing); socialization in Culture II (moral development and values); expressive symbolic behavior (ritual, myth, art, folklore, dreams, projective tests); social deviance (anti-social behavior, mental illness, suicide).
Mr. Wagatsuma

149A-149B. Human Social Ethology. Prerequisite: Permission (consent of instructor). Two quarter course. Grade of IP for first quarter. Each student will videotape a scene of naturally occurring human interaction to be analyzed (in lab. sessions) by the class and instructor for the interactive tasks, resources, and accomplishments displayed. Students will be able to set individual hours of laboratory participation within the time-block set for the class. Mr. Moerman

GROUP V. SOCIAL SYSTEMATICS II

Courses which focus on the explanation of some type of institution or social system, where the central analytic constructs are groups, roles, norms, and societies, and where theory is concerned with the development and maintenance of human groups or networks.

150A-150B. Social Anthropology.

150A. History of Social Anthropology. Prerequisites: course 5A-5C or course 22 or Sociology 1 or 101 and upper division standing in Anthropology or Sociology. A systematic survey of the development of social anthropology in France and Britain from the Enlightenment to the present. Reviews major early concepts of French Sociology and British structuralist-functionalism and current concerns in social theory.
Mr. Mendonsa, Ms. Moore

150B. Social Organization. Prerequisites: course 5A-5C or course 22 or Sociology 1 or 101 and upper division standing in Anthropology and Sociology. 150A would also be advisable. Formal presentation of the methods, aims and conceptual framework of social anthropology. Analysis of thought and behavior within systems of social relationships. Emphasis on structural-functional approach and the process of social change.
Mr. Mendonsa, Ms. Moore

151. Kinship and Social Organization. Prerequisite: Anthropology major, upper division. Kinship is surveyed as a systematic study in anthropology with a focus on the basic theoretical issues. Kinship analysis is presented as a tool in research. The Staff

152. Traditional Political Systems. Prerequisite: course 122A or Sociology 101 or consent of the instructor. Political organization in pre-industrial societies of varying degrees of complexity. Law and the maintenance of order; corporate groups; ideology. The relations of political to other institutions of society. The Staff

153A-153B. Production and Exchange in Traditional Societies. A review of economic and ecological approaches to studying organization of production and exchange. Economic life is viewed from three perspectives: adaptation, decision-making and social structure. Comparative theories are discussed in the content of ethnographic evidence from a wide variety of cultural systems. 153A: Nonstratified Societies; 153B: Stratified Societies.
Mr. Earle, Mr. Johnson

155. Illness in Non-Western Societies. Prerequisites: course 5A-5C or course 22 or Sociology 1 or 101 and upper division standing, or consent of instructor. An analysis of the cultural modes of thought and social structures associated with illness in non-western societies. The emphasis will be upon the social roles involved in the diagnosis and curing. Mr. Mendonsa

157. Intentional Communities. Prerequisite: upper division standing or consent of instructor. Communes and monasteries, ashram and kibbutz are voluntarily joined societal units, offering complete life-styles perceived as alternatives to the mainstream cultures, and stressing the affective involvement of the members. Questions such as the following will be discussed in a comparative perspective: institutional goals stated in the community's "charter"; system of acquisition or production; internal organization; ideational configurations; individual experience; sociological and psychological functions; criteria of success and failure; subculture and counterculture.
Mr. Maquet

M158. Health in Culture and Society. (Same as Nursing M168.) Prerequisite: upper division standing. An examination of the theories and methods of medical anthropology in relation to cross-cultural health systems, role networks, attitude and belief systems of the participants. Emphasis will be placed upon interaction networks in health care systems.
Ms. Brink

M159. Social Networks and Corporate Groups. (Same as Law M151.) Prerequisite: upper division standing or consent of instructor. Two approaches to the analysis of social organization are examined; their uses and limitations in the study of modern societies, in the interpretation of ethnographic materials, and in analyzing processual sequences. Social, political, economic implications explored. Uses in field work discussed. Students will have an opportunity to complete small field projects, and will reanalyze library materials. Ms. Moore

GROUP VI. CONTEMPORARY PROBLEMS

This group includes those courses (taught from any point of view and with any subject matter) which are concerned with application of anthropological techniques and methods to problems of contemporary interest in our own society or which arise as a product of the contact between our society and others.

160. Urban Anthropology. Prerequisites: Open to upper-division majors in social sciences, and others by consent of the instructor. A survey of urbanization throughout the world, with emphasis on urban adaptation of rural migrants. Special focus on the problems of rural-urban migration of ethnic minority groups and subsequent adaptation of them within the United States explored in terms of the methods and perspectives of anthropology.
The Staff

161. Development Anthropology. Prerequisites: courses 5A-5C and upper division standing or consent of the instructor. Comparative study of the peasantization of tribal peoples, the proletarization of peasants, and the urbanization of ruralities. Particular emphasis on the relation between national and international, and localized sociocultural systems; the theory of social movements. Alternative theoretical constructs will be critically discussed.
Mr. Mendonsa

162. Contemporary American Indian Problems. Contemporary problems of the American Indian both on and off the reservation. Topics will include self-determination, land claims, activism, urban Indians, and role of the Bureau of Indian Affairs.
The Staff

163. Women in Culture and Society. Prerequisite: course 5A or 22. A systematic approach to the study of sex roles from an anthropological perspective. A critical review of relevant theoretical issues supported by ethnographic material from traditional cultures and contemporary American culture.
The Staff

M164. The Afro-American Experience in the United States. (Same as Afro-American Studies M164.) Prerequisite: consent of instructor. This course aims to promote understanding of contemporary sociocultural forms among Afro-Americans in the United States by presenting a comparative and diachronic perspective on the Afro-American experience in the new world. We will be concerned with the utilization of Anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among Black Americans. Ms. Mitchell–Kernan

GROUP VII. TECHNIQUES AND METHODS

Techniques are thought of as procedures in gathering or manipulating data; methods are thought of as concerned with problems of inference and validation. The following courses deal with one or both concerns. They are intended for majors and graduate students in anthropology. Anthropology students may also fulfill Group VII requirements by taking Linguistics 110 and Indo-European Studies 149.

170A-170B-170C. Field Training. Prerequisite: consent of instructor.

170A. Archaeology. Introduction to archaeological problems, theories, methods, and data analysis.
The Staff

170B. Ethnology. Training in ethnographic field methods. Execution of individual and group ethnographic field research projects. The Staff

170C. Physical Anthropology. Training in basic field methods; anthropometry, taxonomy, laboratory methods, and bio-statistics. The Staff

171A-171B-171C. Laboratory Methods in Physical Anthropology. Prerequisite: courses 1A-1B, restriction to majors only and graduate students; consent of instructor. Laboratory methodology and analysis of human variation on skeletal material (171A) and on living populations (171B) and bio-chemical methods (171C). The Staff

172. Methods and Techniques of Ethnohistory. Introduction to the problems and procedures of extracting cultural data from documentary sources and their interpretation and analysis. The relevant documentary sources of various New World regions will be selected as case histories to illustrate more concretely the problems and challenges in this major area of anthropological concern.
Mr. Nicholson

173A-173B. Research Design and Quantitative Procedures. Prerequisites: upper division standing. Course 173A is prerequisite to 173B. Course 173A may be taken without 173B. A two quarter course

NOTE: For key to symbols, see page 74

on research design and quantitative data analysis in anthropology. The first quarter focuses on the application of the scientific method to anthropology, on the techniques of quantitative field research, and on the conceptual framework underlying statistical analysis of quantified data. The second quarter emphasizes research design and statistical hypothesis testing and will include student data collection and processing.
Mr. Johnson, Mr. Read

174. Laboratory Methods in Technology and Invention. Prerequisite: course 122C and consent of the instructor. Intensive experimentation in the technology of nonliterate people. Mr. Donnan

175A. Strategy of Archaeology. Prerequisite: course 5C or consent of instructor. An introduction to problem formulation, theory and method in archaeology, with an emphasis on the development of research designs. The focus is on how archaeological research is conceived and planned, with consideration of differing viewpoints and their usefulness. A scientific approach is taken and consideration is given to the relevance of archaeology to explaining variability and change in the adaptations of human populations. Mr. Hill

175B. Archaeological Research Techniques. Prerequisite: course 5C or consent of instructor. An introduction to the techniques of discovery and analysis that archaeologists have found useful in research. Special attention is given to sampling techniques in survey and excavation, the techniques of survey and excavation, classification and typology, problems in dating, locational analysis, the description of settlement systems, and the techniques for measuring parameters of prehistoric demography, diet, specialization, exchange and warfare. Attention is also given to techniques for describing and explaining change. Mr. Hill

M175C. Dating Techniques in Environmental Sciences and Archaeology. (Same as Geography M178.) Prerequisite: consent of the instructor. Introduction to scientific dating methods such as radiocarbon dating, radiation damage methods, biological dating techniques and magnetic dating, and applications in environmental sciences, archaeology, and physical anthropology.
Mr. Berger

175E. Laboratory Analysis in Archaeology. Lecture, two hours; laboratory, four hours. Prerequisite: consent of the instructor. Description and classification of archaeological collections cataloging, typology, documentation. Preparation of archaeological reports for publication.
Mr. Meighan

M176. A Laboratory for Naturalistic Observations: Developing Skills and Techniques. (Same as Psychiatry M112 and Psychology M155.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Group and individual projects will be included. Some of the uses of observations and their implications for research in the social sciences will also be discussed.
Mr. Gallimore, Mr. Weisner

177A. Field Methods in Linguistic Anthropology: Practical Phonetics. Practice in elicitation from informants for the purposes of analysis of phonological systems and development of practical transcription, as a preliminary to learning to speak the native language and to the recording of ethnographic materials in native language. No previous experience in linguistics is assumed.
Mr. Kroskrity

177B. Field Methods in Linguistics Anthropology: Descriptive Semantics. Prerequisite: course 177A, or equivalent experience. The acquisition of techniques for conducting queries in the target language. The query techniques are intended to facilitate insight into semantic structure through examination of lexical and morphological classes. Morphological, syntactic, and lexical phenomena that occur in languages in relation to meaning. Use of eliciting procedures as supplemental, to other investigative techniques. Practice with informants.
Mr. Kroskrity

178A. Museum Studies. Prerequisite: consent of instructor. Method and theory of museum operation. Acquisition, accession, storage, photography, conservation and exhibition are discussed and demonstrated. Museum research, publication, and teaching as well as museum administration and funding are analyzed. Lectures and demonstrations are structured to illustrate how the various aspects of museum operation are interrelated.
Mr. Donnan and the Museum Staff

178B. Museum Studies. Prerequisites: course 178A and consent of instructor. Two areas of museum operation are selected by the students from those discussed and demonstrated in Anthropology 178A. The student is then required to develop expertise in these areas through a combination of library research and a series of assignments carried out in the museum.
Mr. Donnan and the Museum Staff

178C. Museum Studies. Prerequisites: course 178A-178B and consent of instructor. One area of museum operation is selected by the student from those demonstrated in Anthropology 178A. The student is then required to develop expertise in this area through a combination of library research and a series of assignments carried out in the museum.
Mr. Donnan and the Museum Staff

179. Ethnography on Film. Intensive examination of filmed and written ethnographies of a wide range of the worlds peoples with the purposes of: a) comparing visual with written data and evidences and b) developing criteria for adequate written and film ethnography. Mr. Moerman

180. The Ethnography of Communication: Introduction and Practicum. Prerequisites: upper division standing or consent of instructor. The course has two inter-related objectives: 1) to introduce students to the ethnography of communication—the description and analysis of situated communicative behavior—and the socio-cultural knowledge which it reflects and 2) to train students to recognize, describe, and analyse the relevant linguistic, proxemic and kinesic aspects of face to face interaction. Mr. Kroskrity

GROUP VIII. ANTHROPOLOGY AS A PROFESSION

This group contains historical surveys of anthropology or its subfields and courses concerned with professional preparation.

182A-182B. History of Anthropology. Prerequisite: upper division or Graduate Status. Permission of the instructor is required to take 182B without 182A. A systematic survey of the development of anthropology within the western academic tradition. Reviews major early concepts relevant to current anthropological issues and reviews institutional growth and development of the field.
Mr. Langness

183. History of Archaeology. The intellectual history of archaeology from the ancient world to the present. Although each of its major traditions is reviewed, particular emphasis is given to those branches of archaeology that have evolved during the last century within the discipline of anthropology. Mr. Sackett

184. History of Human Evolutionary Theory. The men, the events, and the spirit of the time which mark man's attempts to understand his origins and diversity. Mr. Williams

SPECIAL COURSES

199. Special Studies in Anthropology. (¼ to 2 courses) Prerequisite: consent of the instructor. Two courses of 199 may be applied to the ten courses required for the major. The Staff

Graduate Courses

Graduate students may take Linguistics 200F and 200G and receive credit towards the 36 units required for the M.A. degree. ANY COURSE WITHIN A GROUP LABELED "SELECTED TOPICS" ARE NONREPETITIVE IN CONTENT AND MAY BE REPEATED FOR CREDIT ON RECOMMENDATION OF THE GRADUATE ADVISER.

200-202. SEMINARS IN ANTHROPOLOGICAL LINGUISTICS

200. Anthropological Linguistics. (Formerly numbered 212.) Prerequisites: Linguistics 100 or its equivalent. The development of anthropological linguistics, modern linguistic theory and its application to the study of non-linguistic aspects of culture, including relationship of language to world view; comparative historical linguistics to pre-history, lexico-statistics, semantic analysis, linguistic acculturation, and socio- and ethno-linguistics. Mr. Kroskrity

M201A. Linguistic Anthropology I. (Formerly numbered M276A; same as Linguistics M246A.) Prerequisite: consent of instructor. Research in verbal interaction, emphasizing the use of conversational structures. Mr. Moerman

M201B. Linguistic Anthropology II. (Formerly numbered M276B; same as Linguistics M246B.) Prerequisite: consent of instructor. This seminar aims to provide interested students basic information on Black American English, an important minority dialect in the United States. The social implications of minority dialects will be examined from the perspectives of their genesis, maintenance and social functions. The seminar also aims to acquaint students with problems and issues in the field of sociolinguistics through a case study approach. Ms. Mitchell—Kernan

M201C. Linguistic Anthropology III. (Formerly numbered M276C; same as Linguistics M246C.) Prerequisite: consent of instructor. Problems in the relations of language to culture. Mr. Kroskrity

202. Language Socialization. (Formerly numbered 249.) Prerequisite: consent of instructor. This seminar will examine language socialization, specifically the child's growing ability to produce situationally appropriate speech. The development of socio-linguistic selection rules in phonology, grammar and syntax will be examined and the child's mastery of discourse types and discourse rules will also be considered.
Ms. Mitchell—Kernan

203. Linguistic and Intra-cultural Variation. Prerequisite: consent of the instructor. The course addresses the problem of variation as it impinges on the disciplines of Anthropology and Linguistics. Among the objectives of the course are the following: to acknowledge the importance of speech variation in anthropological linguistic research, to critically assess a broad and representative sample of modern scholarship devoted to the study of intra- and inter- individual variation, and to evaluate the utility and potential applicability of recent linguistic models to anthropological linguistics and anthropological theory. Mr. Kroskrity

205-210. SEMINARS IN ARCHAEOLOGY

205. Problems in Southwestern Archaeology. (Formerly numbered 290.) A consideration of prehistoric cultural systems in the American Southwest, with emphasis on the description and explanation of organizational variability and change. Examination of the historical development of major theories, problems and methodologies.
Mr. Hill

M206A-206B. European Archaeology. (Formerly numbered M285A-285B; same as Indo-European Studies M250A-250B.) Prerequisite: consent of instructor. Credit is given only upon completion of

both quarters. The full sequence may be repeated for credit. Studies in ancient European archaeological materials, and their relationship to the Near East, Western Siberia, and Central Asia. Ms. Gimbutas

210A. Analytical Methods in Archaeological Studies. (Formerly numbered 230A.) Prerequisites: One quarter of statistics and consent of instructor. This course will cover data analysis procedures in archaeology. The emphasis will be on the conceptual framework for the analysis of archaeological data. It will begin at the level of the attribute and end at the level of the region. Mr. Read

210B. Analytical Methods in Archaeological Studies. (Formerly numbered 230B.) Prerequisite: consent of instructor. Anthropology 210A is not a prerequisite for this course. This course surveys the analytical methods used in archaeology to study prehistoric settlement systems using survey data. Specific issues addressed include settlement distribution with respect to natural resources, settlement hierarchy patterns of exchange, warfare, and population movements. Mr. Earle

214E-214J. SELECTED TOPICS IN ARCHAEOLOGY

214E. Prehistoric Nonagricultural Societies. (Formerly numbered 287.) Prerequisite: consent of instructor. Regional studies in the development of early human culture. Mr. Meighan

214F. Problems in Old World Archaeology. (Formerly numbered 288.) Prerequisite: consent of instructor. Mr. Sackett

214G. Prehistoric Civilizations of the New World. (Formerly numbered 289.) Prerequisite: consent of instructor. Mr. Donnan, Mr. Nicholson

214H. Historical Reconstruction and Archaeology. (Formerly numbered 286.) Prerequisite: consent of instructor. Interpretation of historical development through archaeological research. Application of ethnohistory to archaeological problems. Mr. Meighan, Mr. Nicholson

M214I. Dating Techniques in Environmental Sciences and Archaeology. (Formerly numbered M296; same as Geography M278.) Prerequisite: consent of instructor. A colloquium devoted to topics in dating techniques in environmental sciences, archaeology, and physical anthropology as well as laboratory instruction and experimental work. May be repeated for credit. Mr. Berger

214J. Field Training in Archaeology. (Formerly numbered S297.) Prerequisite: Previous experience in archaeology. Advanced training in archaeological excavation techniques, including organization of projects, supervision of field crews, methodology of field recording and preliminary analysis of field data. The Staff

220-222C. SEMINARS IN PHYSICAL ANTHROPOLOGY

220. Current Problems in Physical Anthropology. (Formerly numbered 240.) A detailed examination of present, on-going research by physical anthropologists in order to determine the direction and place of physical anthropology in the general discipline of anthropology. The Staff

221A-221B. The Fossil Evidence for Human Evolution. (Formerly numbered 251A-251B.) Prerequisite: consent of instructor. Course 221A is prerequisite to 221B. No credit will be allowed for course 221A without course 221B. An examination and analysis of the fossile evidence for man's evolution. Ms. Kennedy

222A. Population Genetics of Man. (Formerly numbered 246A.) An introductory course in statistics. The study of population concepts, probability, the conditions of gene frequency equilibria and factors causing gene frequency change. Mr. Williams

222B. Probability Models and Statistical Methods in Genetics. (Formerly numbered M246B; same as Biomathematics M246.) Prerequisites: graduate standing, two quarters of statistics, Mathematics 3A, Anthropology 222A. An introduction to probability models and statistical methods in genetics. Maximum likelihood methods for estimating genetic parameters will be introduced and discussed in detail. This course is a prerequisite for Anthropology M222C. Mr. Read

M222C. Modeling in Genetic Analysis. (Formerly numbered M246C; same as Biomathematics M207.) Prerequisites: graduate standing, course M222B, or consent of instructor. Basic concepts of human genetics with emphasis on methods of computer-oriented genetic analysis. Topics include segregation analysis, genetic linkage, polygenic (quantitative) models, and population structure. Ms. Spence

229E-229F. SELECTED TOPICS IN PHYSICAL ANTHROPOLOGY

229E. Population Genetics. (Formerly numbered 281.) Prerequisite: consent of instructor. A consideration of some of the special methods of the genetics of human populations and their current application in research. Mr. Williams

229F. Physical Anthropology Colloquium. (Formerly numbered 284.) To be graded on an S/U basis only. Selected topics on the status of current research in biological anthropology. The Staff

230A-230B — M267C. SEMINARS IN SOCIO-CULTURAL ANTHROPOLOGY

230A-230B. Anthropological Theory. (Formerly numbered 219A-219B.) Prerequisite: Anthropology graduate students or consent of instructor. This course examines the range of theories that anthropologists have employed in describing and explaining variability in sociocultural phenomena. The organization of particular theories, as well as issues that separate divergent theories, will be explored. Emphasis will be placed on up-to-date examples of different theoretical perspectives. Major perspectives to be considered include the following: Evolutionism, Cultural Ecology, British Functionalism, French Functionalism, Structuralism, Cultural and Personality, Psychological Anthropology (Freudian, Neo-Freudian, Non-Freudian), Behavioral Anthropology, Cognitive Anthropology and Ethnosemantics. Ms. Moore

231. Social Anthropology. (Formerly numbered 220.) Intensive examination of current theoretical views and literature. Ms. Moore, Mr. Mendonsa

232. Structural Anthropology. (Formerly numbered 210.) Prerequisite: consent of instructor. Background in theoretical linguistics. Critical examination of structuralism, its relationship to earlier anthropological approaches, its affinity with theoretical linguistics, its contribution to current anthropological theory, and its utility as a powerful analytic framework in the field situation. The Staff

234. Explanation of Societal Change. (Formerly numbered 215.) Prerequisite: consent of instructor. Examination of the processes of societal evolution, emphasizing the usefulness of a variety of explanatory models drawn from General Systems Theory, Ecology, Anthropology, and other sources. The development and testing of appropriate evolutionary theory, including the use of simulation techniques. Mr. Hill

235. Social Movements and Social Crisis. (Formerly numbered 221.) Prerequisite: consent of instructor. The emergence of social movements of different types, whether millennial, nationalist, reformist, political, etc., particularly as in situations of social conflict and crisis. Movements of rebellion and revolution examined in the light of anthropological and sociological theory focusing on a broad range of problems. Mr. Mendonsa

236. Urban Anthropology. (Formerly numbered 271.) Prerequisite: course 160 or consent of instructor. The Staff

237. Special Topics in Social Process. (Formerly numbered 279.) Prerequisite: consent of instructor. Selected aspects of the literature on cultural and social process. The significance of repeated and/or cumulative sequences of events in a variety of social and cultural contexts. Processual approaches compared with normative concepts and ideal models. Ms. Moore

241. The Cultural Context of Health Care. (Formerly numbered 216.) Prerequisite: consent of instructor. Concepts and treatment of illness and disease in cross-cultural perspectives, with an emphasis on research problems and methods. The course introduces the anthropological approach to health-related research, then explores the intersections of anthropology and problem areas in public health and psychiatry (such as epidemiology, fertility regulation, socialization, and developmental disabilities). Mr. Johnson

M243. Anthropological Approaches to Law. (Formerly numbered M223; same as Law M152.) Prerequisite: consent of instructor only. Law and politics in non-industrial societies considered with an eye to analogous processes in industrial society. The articulation of local and larger scale organization. Formal organization and explicit rules compared with operating realities. Arenas of regulation, competition,, dispute and negotiation examined. Works of law by anthropologists reviewed. Ms. Moore

M244. Transcultural Psychiatry. (Formerly numbered M201; same as Psychiatry M222.) Prerequisite: consent of instructor. Consideration of psychiatric topics in cross-cultural perspective, such as studies of drug use, deviance, suicide, homicide, behavioral disorders, "culture specific" syndromes, non-Western psychiatries, and the question of "sick" societies. Mr. Kennedy

245. Cultural Modes of Thought. (Formerly numbered 248.) Prerequisite: consent of instructor. An examination of the influences of culture on learning, perception, thinking and intelligence. The course to cover the fields of cross-cultural psychology in addition to cognitive anthropology. The focus is on learning and thinking in non-Western cultures but would include problems of education in ethnic areas within the U.S. Mr. Price—Williams

246. Comparative Studies of Socialization. (Formerly numbered 278.) Selected topics in the cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research. Mr. Weisner

M247A. Ethnographic Film. (Formerly numbered M294A; same as Theater Arts M209C.) Prerequisites: graduate standing and consent of instructor. The ethnographic film as a form of realist cinema and its relations to cultural anthropology. Mr. Hawkins, Mr. Moerman

250. Indians of South America. (Formerly numbered 207.) Survey of the literature and problems of the Indians of South America. Concurrently scheduled with Latin American Studies 250A. Mr. Wilbert

251. Cultural Ecology of Lowland South America. (Formerly numbered 253.) Prerequisite: consent of instructor. Seminar on traditional adaptations to the lowland environment, with special emphasis on the tropical forest. Explanatory principles accounting for cultural differences are explored and special attention is given to effects of modern change on the people and their environment. Mr. Johnson

M252. South American Folklore and Mythology Studies. (Formerly numbered M257.) Prerequisites: course 105A or consent of instructor. An examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these people. Mr. Wilbert

253. Asian-Americans: Personality and Identity. (Formerly numbered 209.) Prerequisite: graduate standing. This seminar will examine the effects of class, caste and race on the Asian American per-

NOTE: For key to symbols, see page 74

sonality within the framework of anthropological theories. Mr. Wagatsuma

254. African Cultures. (Formerly numbered 208.) Survey of literature and problems of African culture. Mr. Mendonsa, Ms. Moore

255. Cultures of the Middle East. (Formerly numbered 214.) Prerequisite: course 110 or consent of instructor. Survey literature and problems of the various cultures of the Middle East. The Staff

M260. A Laboratory for Naturalistic Observations: Developing Skills and Techniques. (Formerly numbered M213; same as Psychiatry M235.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Some of the uses of observations and their implications for research in the social sciences will also be discussed. Students will be expected to integrate observational work into their current research interests.
Mr. Gallimore, Mr. Weisner

261A-261B. Research Methods and Procedures. (Formerly numbered 222A-222B-222C.) An integrated review of the research methods in anthropological inquiry focusing on problem formulation, methods of setting up testable hypotheses, the kinds of data available for anthropological explanation, statistical and nonstatistical means of "explanation" in anthropology. Each part may be taken independently.
Mr. Johnson

262A. Methods in Psychological Anthropology. (Formerly numbered 274A.) Prerequisite: consent of instructor. Methods for studying personality, motivation, socialization in field work. Includes naturalistic observation, interviewing, unobtrusive measures, participant observation, and excludes standardized testing procedures. Field exercises using various methods are integral to the seminar.
Mr. Weisner

262B. Methods in Psychological Anthropology. (Formerly numbered 274B.) Prerequisite: consent of instructor. Adequate background in psychology in field of personality, clinical psychology and psychological testing. This course deals with diverse standardized tests applicable in cross-cultural research. It covers the methods of study of aspects of personality, perception, cognition, and mental health as applicable to non-Western and particularly primitive cultures. Mr. Edgerton

263. Analysis of Field Data. (Formerly numbered 291.) Prerequisite: course 265 or other field training course. Supervised analysis of ethnographic materials by students who have participated in a related field training course. Students will work with their own as well as general project data in the preparation of articles for professional journals.
The Staff

265. Selected Topics in Field Training in Ethnography. (Formerly numbered 293A.) Prerequisite: consent of instructor. Supervised collection of ethnographic information in the field. Students will spend full time in the field for most of the period.
The Staff

266. Practicum in a Field Language. (Formerly numbered 293B.) Prerequisite: consent of instructor. Intensive training in an indigenous language as preparation for work in the field. The Staff

M267B-267C. Ethnographic Film Direction. (Formerly numbered M294B-294C; same as Theater Arts M265A-265B.) Prerequisite: course 209C, graduate standing and consent of instructor. Advanced study of problems in the production of ethnographic films. M267B is offered in the winter quarter and M267C is offered in the spring quarter.
Mr. Hawkins, Mr. Moerman

269E-270E. SELECTED TOPICS IN SOCIO-CULTURAL ANTHROPOLOGY

269E. Cultural Anthropology. (Formerly numbered 263.) Prerequisite: consent of instructor.
Mr. Goldschmidt

269F. Ethnology. (Formerly numbered 261.) Prerequisite: consent of instructor. Mr. Wilbert

269G. Social Anthropology. (Formerly numbered 262.) Prerequisite: consent of instructor.
Mr. Mendonsa, Ms. Moore

269H. Cultural Ecology. (Formerly numbered 264.) Prerequisite: consent of instructor. The Staff

269I-269J. The Individual in Culture. (Formerly numbered 272A-272B.) Prerequisite: consent of instructor. Course 269I is prerequisite to 269J. Credit to be given only at the completion of 269J.
Mr. Edgerton

M269K. Culture and Personality. (Formerly numbered 273; same as Psychiatry M272.) Prerequisite: consent of instructor. The course will deal with theories of the relationship of personality to the context of cultural life; cultural aspects of individual growth and development and methodological problems in the study of cultural effects of individual character and personality. May be repeated for credit. The Staff

269L. Economic Anthropology. (Formerly numbered 269.) Prerequisite: consent of instructor.
The Staff

269M. Kinship. (Formerly numbered 267.) Prerequisite: consent of instructor. Mr. Mendonsa

M269N. Medical Anthropology. (Formerly numbered M217; same as Nursing M217.) Prerequisites: course M158 or consent of instructor. Any of the topics covered in upper division course M158, will be selected each quarter, for intensive literature review and independent projects. The course may be repeated for credit. Ms. Brink

269O. Comparative Minority Relations. (Formerly numbered 211.) Prerequisite: consent of instructor. An analysis of the major theoretical and methodological issues in the study of minority relations from a comparative perspective. Consensus, conflict, and pluralistic constructs will be analyzed and their strengths as explanatory devices investigated as they pertain to dependent populations in North America, Latin America, Southern Africa, India, Asis, and the Euro-Slavic continent.
Mr. Velez

269P. Symbolic Anthropology. (Formerly numbered 260.) Prerequisite: consent of instructor or course 144. Nature of symbolic relations (as distinguished from other referential ones), significance of symbolic systems (in terms of action, cognition, affectivity, contemplation), symbolic and isomorphic logic (as opposed to the casual one) are among the questions to be selected for analysis and discussion in this course. Mr. Maquet

269Q. Myth and Ritual. (Formerly numbered 266.) Prerequisite: consent of instructor. The Staff

269R. Aesthetic Anthropology. (Formerly numbered 250.) Prerequisites: course 144 or consent of instructor. Selected questions concerning the visual aesthetic phenomena in their relationships with the socio-cultural context will be examined in depth.
Mr. Maquet

269S. Comparative Studies of Intentional Communities. (Formerly numbered 277.) Prerequisite: course 157 or consent of instructor. Questions concerning the ideational, societal, and individual significance of intentional communities will be selected and discussed in depth with reference to particular collectivities. Mr. Maquet

269T. Comparative Political Institutions. (Formerly numbered 268.) Prerequisite: consent of instructor. Ms. Moore

269U. African Cultures. (Formerly numbered 258.) Prerequisite: consent of instructor.
Mr. Mendonsa, Ms. Moore

269V. Arctic Cultures. (Formerly numbered 256.) Prerequisite: consent of instructor. Mr. Oswalt

269W. Culture and Personality of Japan. (Formerly numbered 206.) Prerequisites: course 103C or consent of the instructor. Specific topics pertaining to the study of socialization patterns, role behavior, psychological characteristics, social deviance or psychopathology of the Japanese will be selected and discussed. Each student will be required to select a topic and carry out the library research, while consulting with the instructor and participating in the group discussion. Mr. Wagatsuma

269X. Cultures of the Middle East. (Formerly numbered 265.) Prerequisites: course 110 or consent of instructor. The Staff

269Y. Cultures of the Pacific Islands. (Formerly numbered 254.) Prerequisite: consent of instructor.
Mr. Newman

269Z. Ethnography of the Mexican/Chicano People in North America. Prerequisites: graduate standing or consent of instructor. It is recommended that students have taken the Comparative Ethnography of the Hispanic Peoples in North America but it is not imperative. A graduate research course on topics in the ethnography of the Mexican/Chicano people in North America. Topics may include the following: Social organization, economic and political systems, belief and value systems, linguistic and expressive adaptations, and individuals and their cultural contexts. Topics will vary according to interest and the instructor will announce the topic(s) prior to the beginning of the quarter. Mr. Velez

M270E. Legal Anthropology. (Same as Law M352.) Prerequisites: Anthropology M223 (Law M152) Anthropological Approaches to Law or consent of instructor. An intensive examination of a particular aspect of law. Ms. Moore

270F. Social Interaction. Prerequisite: consent of instructor. The course will focus on issues for ethnographic theory and practice raised by developments in anthropological, sociological, psychological, linguistic, and ethological contributions to our understanding of the organization of face-to-face behavior. Mr. Moerman

290-294. SEMINARS IN GENERAL ANTHROPOLOGY

290A-290B-290C. Departmental Faculty Seminar. (Formerly numbered 200A-200B-200C.) Prerequisites: graduate status, or permission of instructor. Each weekly three hour meeting will be devoted to the current research of a different faculty member. The Staff

291. The Roots of Human Behavior. (Formerly numbered 299.) Prerequisite: consent of instructor. An examination of the behavior of living nonhuman primates and of the evolution and biological basis of human behavior. The Staff

292. Mathematical Models in Anthropology. (Formerly numbered 275.) Prerequisite: permission of the instructor. Several approaches to developing mathematical models and their use will be considered. In particular, Markovian chains will be introduced and models based on them will be used to test various hypotheses about social organization. Optimization theory will be considered as a basis for constructing theoretical models.
Mr. Read

293. Evolutionary Approaches in Anthropology. (Formerly numbered 244.) Prerequisite: graduate standing. Evolutionary approaches to explanation in biological anthropology and cultural anthropology. Relations between materialist perspectives and evolutionary theory. The influence of evolutionary biology on anthropology. The status of evolutionary studies in cultural anthropology. Mr. Williams

294. The Profession of Anthropology. (Formerly numbered 283.) Prerequisite: consent of instructor. An examination of the discipline as a profession; its historic growth, its organization, changing patterns of employment, ethical problems peculiar to the discipline, special demands and requisites for professional performance. Senior majors admitted by special permission. Mr. Goldschmidt

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is

used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Individual Studies for Graduate Students. (¼ to 2 courses)

597. Preparation for the Doctoral Qualifying Examination. (½ to 3 courses)

599. Research for Dissertation. (½ to 3 courses) Ph.D. dissertation research or writing. Student will have completed qualifying examination and ordinarily will take no other course work.

The Staff

APPLIED LINGUISTICS (INTERDEPARTMENTAL)

(Program Office, 3306 Rolfe Hall)

Ph.D. in Applied Linguistics

The doctoral program in applied linguistics is administered by an interdepartmental committee of six members, three from the Department of Linguistics and three from the ESL (English as a Second Language) Section of the Department of English. The courses around which the program is built are taught by all members of the ESL and Linguistics faculties as well as certain members of related departments such as Anthropology, Education, Psychology, Sociology and various foreign languages.

The goal of the program is to prepare students to apply relevant elements of linguistics, psycholinguistics, and sociolinguistics to the solution of practical problems of language use and language teaching. This is to be achieved by providing them with the broad background of information and the investigatory skills needed for teaching at the university level, for program planning, and for effective research.

Four areas of specialization are available: language analysis, language education, language acquisition, and language use. The specialization in *language analysis* is designed to prepare researchers to present to students significant data on languages the researchers know well; to construct school grammars, dialect atlases, descriptive phonologies, contrastive analyses, etc.; and to carry out similar empirically oriented pursuits. The specialization in *language education* concerns various forms of language instruction: English as a second or foreign language, the teaching of other languages, and language in bilingual/bicultural or bidialectal education. It is designed to prepare graduates competent to serve in the areas of curriculum development, language consultation, language testing, materials preparation, and teacher training. The specialization in *language acquisition* involves psycholinguistics. It refers to both child-language acquisition and second-language acquisition. It is intended to equip students to conduct research on language learning in clinics, laboratories, classrooms, and also in informal natural settings. The specialization in *language use* relates generally to sociolinguistics, and specifically to language planning, language policy in the United States and abroad, as well as to the analysis of discourse. It is aimed at the development of competence in such areas as educational consultation, program planning and evaluation, language surveys, and literacy campaigns.

Admission to the Program

The basic requirement for admission is the completion of the UCLA master's degree in Teaching English as a Second Language or in Linguistics, or else the equivalent of one of these. Applicants with a graduate degree in TESL, Linguistics, Applied Linguistics, Psycholinguistics, or Sociolinguistics from another recognized institution may be admitted provided they then make up the courses in one or the other of the two UCLA M.A. programs whose equivalents they have not yet taken. Students with graduate degrees in other related disciplines (such as a foreign language, English, education, psychology, sociology, or anthropology) may need to make up a large number of course deficiencies. Unless much of their previous work can be shown to be particularly applicable to one of the four areas of specialization, it will be advisable for them to complete the UCLA M.A. in Linguistics or TESL before seeking admission to the Ph.D. program.

Other criteria that will be taken into consideration in admitting students include their graduate and undergraduate grade-point averages, their relevant professional experience, their command of foreign languages, the quality of their M.A. thesis, and any language-related publications they may have written. Beginning with the Fall of 1980, applicants whose mother tongue is English should take the Aptitude Test of the Graduate Record Examination and have the grade sent to the UCLA Graduate Admissions Office for inclusion in their dossiers. Information regarding the procedures to be followed in applying for admission is available from the Program Office.

Applications for admission for the Fall Quarter in September should reach the Graduate Admissions Office by the preceding February 15. Supporting materials should reach the Program Office by April 1.

To insure their admission, Ph.D. aspirants must enroll at UCLA in the quarter for which they were admitted. If they cannot do so, it will be necessary for them to reapply for a subsequent quarter, and there is no assurance that they will be given preference at that time over other applicants who may be judged to be better qualified.

Requirements for the Ph.D. Degree

In addition to fulfilling the general University requirements for the doctorate, candidates for the Ph.D. in Applied Linguistics must meet the program requirements listed below.

Basic Preparation. Any of the following courses not already taken must be completed as early as possible and before advancement to candidacy for the degree: Linguistics 120A (Linguistic Analysis: Phonology), 120B (Linguistic Analysis: Grammar), 165A (Linguistic Theory: Phonology), and 165B (Linguistic Theory: Grammar); English 370K (The Teaching of English as a Second Language), 250K (Contrastive Analysis and Error Analysis in the ESL Context), and 380K (Supervised Teaching: English as a Second Language or Dialect). English 370K, which is organized as a general orientation to the ESL Section, must be taken at UCLA. If a student can establish that he has taken courses equivalent to any of the remaining courses at another institution, he will not be required to take them at UCLA. If he has at least one year of experience in teaching ESL, he can be exempted from English 380K.

Foreign languages. Before advancement to candidacy for the degree, students must demonstrate a knowledge of two foreign languages at the effective level. For one language, an effective *reading knowledge* is required. For the other language, effective *oral proficiency* may, at the option of the student, be demonstrated instead of a reading knowledge. The languages chosen should be especially relevant to the student's intended dissertation topic or professional plans. A student whose mother tongue is a language other than English is exempted from this foreign-language requirement. Language-proficiency examinations for the Ph.D. in Applied Linguistics are administered by a special ad-hoc committee. Information regarding the nature and administration of the examinations is available from the Program Office.

Units and Courses. All candidates must take at least 32 units of graduate-level course work (in the 200 or 500 series). These 32 units may not include courses taken while completing the M.A., courses listed above as basic preparation, Linguistics 275, English 400K, or Applied Linguistics 599. No more than eight of the 32 units may be in 596 individual-study courses, and these should be in Applied Linguistics 596 if possible.

The 32 units (eight courses) must include at least two courses in each of the specializations of language analysis and language education as well as two courses in either language acquisition or language use. An additional two courses are required in the specialization in which the candidate chooses to do his dissertation research. Thus a student who opted for a dissertation in language acquisition would take a minimum of four courses in that area, plus two in language analysis and two in language education.

Appropriate graduate courses taken at UCLA after completion of the M.A. but before admission to the doctoral program may be counted toward fulfillment of the 8-course requirement for the Ph.D. Credit may be transferred for up to two courses taken at another institution, but only for graduate-level courses taken after completion of the M.A. and preferably taken within the framework of UCLA's course Applied Linguistics 501.

Within the limits imposed by the Graduate Division, undergraduate courses taken as prerequisites to needed graduate courses, unrequired undergraduate courses, reading courses in a foreign language, graduate courses taken in addition to the required 32 units, Applied Linguistics 501 and 599, English 400K, and Linguistics 275 may be taken on a Satisfactory/Unsatisfactory basis. All other courses must be taken for letter grades.

Examinations. In lieu of a *written qualifying examination*, the student will submit two original research papers of publishable quality in different areas of specialization. These may be revised or extended seminar papers but must be prepared after admission to the Ph.D. program. (If the student at the time of his admission has already published papers of the required quality, he may petition to have *one* of these accepted in partial fulfillment of this requirement.) The topics of these papers are to be chosen by the student, in consultation with appropriate faculty members and with the approval of the Ph.D. Program Advisor (chairman of the interdepartmental committee that administers the program). Each of the finished papers is evaluated by two faculty members chosen by the student in consultation with the Ph.D. Program Advisor. Any paper or papers judged unsatisfactory by either of the two readers must be revised to that reader's satisfaction. For each paper one of the two readers may be from outside Linguistics and ESL, and one of the two must be willing to serve on the student's doctoral committee.

At this point the doctoral committee for the student is nominated by the Ph.D. Program Advisor after consultation with the student, and is then appointed by the Dean of the Graduate Division. The doctoral committee will include a minimum of five members, two of whom hold no appointment in Linguistics or ESL. Upon appointment, the chairman of the doctoral committee becomes the student's chief source of guidance. The doctoral committee administers to the student an *oral candidacy examination*, the focus of which will be a prospectus of his dissertation which the student must submit to the committee prior to the examination. The committee also has the responsibility for determining the adequacy of the student's preparation for writing the dissertation. If prospectus and preparation are judged adequate, the choice of the dissertation topic is thereby approved and the student becomes eligible for advancement to doctoral candidacy. In case of failure, the doctoral committee determines whether or not the candidate may be reexamined and if further courses must be taken before the reexamination.

Dissertation. All candidates are required to prepare a dissertation as a demonstration of their ability to carry out original research under the guidance of their doctoral committee. A minimum of three members of the doctoral committee, suggested by the committee chairman and approved by all committee members at the time of the oral candidacy examination, must read each dissertation and certify that it satisfies the research requirements of the Ph.D. These three readers must include at least two faculty members from ESL or Linguistics and at least one member from another department.

NOTE: For key to symbols, see page 74

As the dissertation nears completion, all candidates must make a *public report* on the results of their research. This may be done, at the candidate's choice, at a meeting of the colloquium of either the Department of Linguistics or the ESL Section. Each candidate must, therefore, enroll in either English 400K or Linguistics 275 during the appropriate quarter. All members of the doctoral committee who will read the dissertation will attend the colloquium session at which the public report is made and will then determine whether or not the candidate will be required to pass a *final oral examination.* Only by a unanimous vote of the readers can the final oral be waived. The Graduate Division requires that, if a final oral examination is held, all members of the doctoral committee must attend and vote. Even if no final oral examination is held, the readers of the dissertation must still determine in the usual way whether or not the dissertation is finally approved after it has been completed.

Normal Progress Toward the Degree

From first enrollment in doctoral program to advancement to candidacy: two to three years. From first enrollment to completion of degree: three to five years. The outside limit for the Ph.D from start to finish, including leaves or interruptions of any kind, is seven calendar years from first enrollment. If a student has not been awarded the degree by the end of seven years, it will be the responsibility of the Program Advisor to request that the Dean of the Graduate Division disqualify that student from further participation in the Program. The disqualification of a student for other reasons may be requested if a majority of his doctoral committee so votes. Disqualification for any reason may be appealed to the interdepartmental committee which administers the program.

Financial Aid

For enrollees in the doctoral program a limited amount of financial support is available in the form of scholarships, tuition waivers, and teaching assistantships. Application forms can be obtained from the Fellowships and Assistantships Section of the Graduate Division.

Approved Courses

This is a partial listing of the courses that are acceptable in fullfillment of the 8-course requirement for the doctoral degree. Other courses may be approved by the Ph.D. Program Advisor. For some of the listed courses there may be undergraduate prerequisites which will not count for credit toward the doctorate. The list will be periodically reviewed by the interdepartmental committee which administers the program.

Language Analysis

English 215. The Structure of Present-Day English.

241. Studies in the Structure of the English Language.

Linguistics 201. Phonological Theory.

204. Experimental Bases of Linguistics.

206. Syntactic Theory.

210A-B. Field Methods.

220. Linguistic Areas (such as Africa, Southeast Asia, and Aboriginal North America).

225. Linguistic Structures (such as Germanic, Japanese, and Malayo-Polynesian).

251A-B. Topics in Phonetics and Phonology.

252A-B. Topics in Syntax and Semantics.

253A-B. Topics in Linguistic Variation (when content is relevant).

254. Topics in Linguistics.

Spanish 256A. Studies in Linguistics.

Language Education

Education 204A. Topics and Issues in International and Comparative Education.

204D. Minority Education in Cross-Cultural Perspective.

210A, Basic Concepts in Educational Research; 210B, Experimental Design in Educational Research; 210C, Experimental Design; Advanced Topics; 210D, Experimental Design: Multivariate Analysis (All these courses are highly recommended for statistic1 work, but only two of them will be counted toward fulfillment of the 8-course requirement.)

211A. The Measurement of Educational Achievement and Aptitude.

211B. Measurement in Education: Underlying Theory.

262B. Seminar: Reading.

262D. Seminar: Language Arts and English.

262F. Seminar: Research Topics in Bilingual Multicultural Education.

264. Seminar: Teacher Education.

English 210K. Role of ESL in Bilingual Education.

215. The Structure of Present-Day English.

251K. Bilingual Comparative Studies.

261K. Language Testing for Teachers of English as a Second Language.

270K. Language Policy in Developing Countries.

272. Current Issues in the Teaching of English.

272K. Current Issues in Applied Linguistics.

274. Teaching English to Minority Groups.

Language Acquisition

Education 212A. Learning and Education.

212B. Motivation and Affect in the Educative Process.

212C. Cognition and Creativity in Education.

217D. Language Development and Education.

English 260K. Psycholinguistics and Language Teaching.

262K. Second Language Acquisition.

Linguistics 254. Topics in Linguistics.

Psychiatry 257A-B-C. Diagnostics and Therapeutics of Language Disabilities.

Psychology 240. Developmental Psychology.

260A-B. Proseminar in Cognitive Psychology.

263. Psycholinguistics.

Language Use

Anthropology 200. Anthropological Linguistics.

202. Language Socialization.

245. Cultural Modes of Thought.

M201A-B-C. Linguistic Anthropology.

Education 200B. Survey Research Methods in Education.

204G. Planning Educational Language Policy Internationally.

English 210K. Role of ESL in Bilingual Education.

242. Language and Literature.

270K. Language Policy in Developing Countries.

271. Studies in African Literature in English.

273. Studies in Afro-American Literature.

274. Teaching English to Minority Groups.

275. Stylistics and the Teaching of English.

Linguistics 251. Topics in Phonetics and Phonology: English Metrics.

252. Topics in Syntax and Semantics.

254. Topics in Linguistics.

Sociology 216A-B. Survey Research Methods.

217A-B. Ethnographic Field Work.

238A-B. Field Work in Minority Communities.

266. Selected Problems in the Analysis of Conversation.

267. Selected Problems in Communication.

Spanish 209. Dialectology.

256B. Studies in Dialectology.

Graduate Courses

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of Ph.D. Program Advisor and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Study. (1 to 2 courses) Prerequisite: admission to doctoral program. Independent study in an area of Applied Linguistics. May be repeated for credit. Up to eight units of 596 credit applicable to course requirements for Ph.D. in Applied Linguistics.

599. Research for and Preparation of the Doctoral Dissertation. (1 to 4 courses) Prerequisite: advancement to candidacy for the Ph.D. degree. Required of all doctoral candidates each quarter they are registered and engaged in dissertation preparation. May be repeated for credit, but may not be applied towards fulfillment of Ph.D. course requirements. To be graded S/U.

ARCHAEOLOGY (INTERDEPARTMENTAL)

Alexander Badawy, Ph.D., *Professor of Art.*
C. Rainer Berger, Ph.D., *Professor of Geography and Geophysics.*
Giorgio Buccellati, Ph.D., *Professor of Ancient Near East (Department of Near Eastern Languages and Cultures) and History.*
Marija Gimbutas, Ph.D., *Professor of European Archaeology (Department of Slavic Languages).*
James N. Hill, Ph.D., *Professor of Anthropology.*
Clement W. Meighan, Ph.D., *Professor of Anthropology.*
Henry B. Nicholson, Ph.D., *Professor of Anthropology.*
Wendell H. Oswalt, Ph.D., *Professor of Anthropology.*
Merrick Posnansky, *Professor of African History and Archaeology (Department of History).*
J. LeRoy Davidson, Ph.D., *Emeritus Professor of Art.*
Katharina Otto-Dorn, Ph.D.,*Emeritus Professor of Islamic Art.*
Richard C. Rudolph, Ph.D., *Emeritus Professor of Oriental Languages.*
Hung-hsiang Chou, Ph.D., *Associate Professor of Oriental Languages.*
Christopher B. Donnan, Ph.D., *Associate Professor of Anthropology.*
Susan B. Downey, Ph.D., *Associate Professor of Art.*
Steven Lattimore, Ph.D., *Associate Professor of Classics and Classical Archaeology.*
Dwight Read, Ph.D., *Associate Professor of Anthropology.*
James R. Sackett, Ph.D., *Associate Professor of Anthropology.*
Elizabeth Carter, Ph.D., *Assistant Professor of Near Eastern Archaeology (Department of Near Eastern Languages and Cultures).*
Timothy Earle, Ph.D., *Assistant Professor of Anthropology.*
Gail Kennedy, Ph.D., *Assistant Professor of Anthropology.*

•

Paul A. Clement, Ph.D., *Emeritus Professor of Classics and Classical Archaeology.*
Jay D. Frierman, M.A., *Lecturer in Near Eastern Archaeology (Department of Near Eastern Languages and Cultures).*
Bernard D. Frischer, Ph.D., *Assistant Professor of Classics.*
Cecelia F. Klein, Ph.D., *Assistant Professor of Art.*
Deborah Klimburg-Salter, Ph.D., *Assistant Professor of Art.*
Kan Lao, Academician, *Emeritus Professor of Oriental Languages.*
Willard F. Libby, Ph.D., *Emeritus Professor of Geophysics.*
Martin Powers, Ph.D., *Acting Assistant Professor of Art.*
Arnold Rubin, Ph.D., *Associate Professor of Art.*
Stanislav Segert, Ph.D., *Professor of Biblical Studies and Northwest Semitics (Department of Near Eastern Languages and Cultures).*

An interdepartmental committee administers graduate degree programs leading to the M.A. and Ph.D. in Archaeology, in addition to the individual departmental programs in which archaeological specialization is possible. There is no undergraduate program in Archaeology leading to a B.A. degree.

As outlined in the Program's "Guidelines" brochure, (which will be sent to applicants upon request), the interdepartmental degree requires a planned program of graduate study in two or more departments. The Archaeology Program has two tracks, one of which the applicant must select as part of the application for admission:

(1) Interdisciplinary, in which students take half of their courses in departments *not* offering archaeology; (2) Interdepartmental, in which students may take all of their courses in departments offering archaeology. It is estimated that roughly half of the students admitted will be on each track, although no firm ratio is to be established. Those students whose courses of study will be largely within a single department (in such fields as ancient history, anthropology, art history, classics, Indo-European studies, Near Eastern languages and cultures, and Oriental languages) should refer to the separate degree program offered by the appropriate department. The graduate advisers for the Archaeology Program and for the various departments will provide counseling to ensure that each applicant selects the department or program (and degree objective) best suited to his/her interests.

Active archaeological research is underway in various parts of the world, and field training in archaeology is offered. There are opportunities for participation in a variety of laboratory and field researches in both the Old and New Worlds. Guidance for students interested in Contract Archaeology is available (see statement following the course listings).

Graduate Adviser: James N. Hill

Admission to Graduate Status

For general requirements, see the Graduate Division section. Any undergraduate major will be considered for admission into the program. The minimum Grade Point Average required for admission is 3.0. A Graduate Record Examination (Aptitude Test) Report is mandatory. The following application materials must be submitted *directly* to the Chairman of the Archaeology Program: an acceptable Plan of Study (including a statement of the applicant's objectives, an outline of projected course work and a general indication of an M.A. paper or dissertation topic); three letters of recommendation; a research paper preferably but not necessarily relevant to archaeology, or comparable evidence of scholarly work. Applicants are accepted for admission for the Fall Quarter only.

Requirements for the M.A. degree in Archaeology

1. Nine 4 unit courses (taken for a letter grade) are required, distributed as follows: 1 Archaeology 200, 2 Archaeology 596, 3 elective upper division courses (100 series) (no 199 may be included); 3 elective graduate courses in the 200 series. No more than any 3 of the 9 courses may be offered by the same department.

2. Core Examination: During the 4th quarter of residence, students will take a comprehensive core examination (6 hours) based on a list of readings (approximately 30 volumes) submitted by faculty members and designed to ensure that students master that body of knowledge considered to be of importance in the education of any professional archaeologist. The examination may be repeated one time.

3. Proficiency in one foreign language (for which there is a relevant scholarly literature) must be demonstrated by the end of the sixth quarter, unless an earlier deadline is imposed by the student's adviser. Additional language skills may be required depending on the field of specialization; this will be decided by the student's committee.

4. Field Work: All students receiving the M.A. in archaeology must demonstrate practical knowledge of methods and techniques used in archaeological field work, and must be able to relate this knowledge to relevant theoretical and general methodological concerns. This requirement may be met in several ways; the general standard is that no graduate degrees will be awarded to archaeologists until they have field experience and are competent to conduct field research in archaeology.

5. By the end of the third week of the 7th quarter the student must submit an acceptable M.A. paper to the Chairperson of the Archaeology Program. In addition, all requirements of the Graduate Division (residence, unit patterns, etc.) must be met. Consult the Graduate Division brochure, Standards and Procedures for Graduate Study at UCLA I.

6. There is a *ceiling* of 7 quarters for the completion of all work for the M.A. degree.

Requirements for the Ph.D. degree in Archaeology

1. M.A. degree from an appropriate program (which may or may not involve archaeological training).

2. Proficiency in at least one foreign language, as determined by the student's committee.

3. Field work requirement (as in M.A. Program, item #4 above, unless it has already been satisfied).

4. Written qualifying examination—by the fourth quarter in the doctoral program the student must pass a written qualifying examination in at least the following three fields: a) Topical or problem specialization; b) Analytical Theory, Method and Technique; c) Regional culture history.

5. Oral qualifying examination—to be passed by the 6th quarter of the doctoral program.

6. A doctoral dissertation which will embody the results of original research and constitute a contribution to knowledge.

7. Time limit—there is a ceiling of 14 quarters (4-2/3 calendar years) for completion of all work towards the Ph.D. degree, including the dissertation.

COURSE LISTINGS

Of all the courses listed, only Archaeology 200 is required. Other courses are listed simply to provide prospective applicants with information regarding course offerings in the Archaeology Program itself, and in the various departments that offer archaeology or archaeology-related courses. It is not feasible, to list the many courses offered by other departments or disciplines at U.C.L.A., even though many such courses will be relevant to individual programs of study.

Graduate Courses

Prerequisite for all courses: consent of the instructor. All courses may be repeated for credit upon recommendation of adviser. Of the following graduate courses only Archaeology 200 is required.

200. Archaeology Colloquium. (¼ to 1 course) Seminar, two hours. Prerequisite: Archaeology major or consent of instructor. The development of archaeology as a discipline. Major intellectual trends and current issues in archaeology. Scientific and humanistic viewpoints presented by archaeologists from different academic departments. May be taken repeatedly for credit; however, M.A. candidates may apply this course only twice toward the fulfillment of the departmental M.A. requirements. The Staff

259. Field Work in Archaeology. (½ to 2 courses) Participation in archaeological field excavations or museum research under supervision of staff archaeologists. A minimum of one month of field time away from the campus is required. The Staff

Individual Study and Research

596. Individual Studies for Graduate Students. (½ to 2 courses) Hours to be arranged. Prerequisite: consent of the instructor. The Staff

597. Preparation for Doctoral Qualifying Examinations. (½ to 2 courses) Prerequisite: completion of formal course work and passing of language examinations before enrollment. Graded S/U. The Staff

598. M.A. Thesis Preparation. (½ to 2 courses) Prerequisite: consent of the instructor. Graded S/U. The Staff

599. Dissertation Research and Preparation. (½ to 2 courses) Prerequisite: consent of the instructor. Graded S/U. The Staff

Related Courses in Other Departments

Most archaeology courses are taught in the various departments. The following is a listing of such courses, by topic and department. They are listed here for reference; students should consult the departmental course lists for full descriptions and prerequisites. No attempt is made to list relevant courses in other disciplines.

METHODOLOGY AND HISTORY

Anthropology 111A-111B. Fossil Man and His Culture.

112. Hunting and Gathering Societies.

122C. Technology and Environment.

156. Cultural Ecology.

170A. Field Training.

171A. Lab Methods in Physical Anthropology.

172. Methods and Techniques of Ethnohistory.

173A-173B. Research Design and Quantitative Procedures.

174. Laboratory Methods in Technology and Invention.

175A. Strategy of Archaeology.

175B. Archaeological Research Techniques.

M175C. Dating Techniques in Environmental Sciences and Archaeology (same as Geography M178).

175E. Laboratory Analysis in Archaeology.

178A-178B-178C. Museum Studies.

183. History of Archaeology.

210A-210B. Analytical Methods in Archaeological Studies.

214H. Selected Topics in Historical Reconstruction and Archaeology.

M214I. Selected Topics in Dating Techniques in Environmental Sciences and Archaeology (same as Geography M278).

214J. Selected Topics in Field Training in Archaeology.

221A-221B. The Fossil Evidence for Human Evolution.

234. Explanation of Societal Change.

261B. Research Methods and Procedures.

263. Analysis of Field Data.

269H. Selected Topics in Cultural Ecology.

292. Mathematical Models in Anthropology.

Art 265. Field Work in Archaeology.

Engineering 149C. Properties of Art Ceramic Materials.

149E. Ceramic Materials in History and Archaeology.

Near Eastern Languages and Cultures: Ancient Near East 261. Practical Field Archaeology.

NEW WORLD

Anthropology 106B. Peoples of California: Prehistory.

106C. Peoples of North America.

106D-106E. Archaeology of North America.

123C. Ancient Civilizations of Western Middle America. (Nahuatl Sphere)

123D. Ancient Civilizations of Eastern Middle America. (Maya Sphere)

123E. Ancient Civilizations of Andean South America.

205. Problems in Southwestern Archaeology.

214E. Selected Topics in Prehistoric Nonagricultural Societies.

214G. Selected Topics in Prehistoric Civilizations of the New World.

269V. Arctic Cultures.

Art 117A. Advanced Studies in Pre-Columbian Art: Mexico.

NOTE: For key to symbols, see page 74

117B. Advanced Studies in Pre-Columbian Art: Central America.

117C. Advanced Studies in Pre-Columbian Art: The Andes.

118A. The Arts of Oceania.

118B. The Arts of Pre-Columbian America.

118D. The Arts of Native North America.

217. Topics in Oceanic Art.

218. Topics in Pre-Columbian Art.

219. Topics in Native North American Art.

220. The Arts of Africa, Oceania and Pre-Columbian America.

OLD WORLD – EUROPE

Anthropology 109. Old Stone Age Archaeology.

M206A-206B. Seminar in European Archaeology. See Indo-European Studies M250A-250B.

214F. Selected Topics in Problems in Old World Archaeology.

Art 103A. Greek Art.

103B. Hellenistic Art.

103C. Roman Art.

103D. Etruscan Art.

103E. Late Roman Art.

221. Topics in Classical Art.

222A-222B. Graeco-Roman Art.

223. Classical Art.

Classics 151A. Classical Archaeology: Graeco-Roman Architecture.

151B. Classical Archaeology: Graeco-Roman Sculpture.

151C. Classical Archaeology: Graeco-Roman Painting.

251A-251D. Seminar in Classical Archaeology.

252. Topography and Monuments of Athens.

253. Topography and Monuments of Rome.

Indo-European Studies 131. European Archaeology: Proto-Civilizations of Europe.

132. European Archaeology: The Bronze Age.

M250A-250B. Seminar in European Archaeology. (Same as Anthropology M206A-206B).

OLD WORLD – NEAR EAST

Anthropology 123. Origins of Old World Civilization.

Art 101A-101B-101C. Egyptian Art and Archaeology.

102. Art of the Ancient Near East.

210. Egyptian Art.

211. Topics in Egyptian Art.

History 105A-105B. History of Ancient Mesopotamia and Syria.

124C. Religions of the Ancient Near East.

140A-140B. History of Ancient Mesopotamia and Syria.

193D. Religions of the Ancient Near East.

200. Advanced Historiography.

201. Topics in History.

203. History of Ancient Egypt in the Late Period.

240J. Near Eastern History.

Near Eastern Languages and Cultures: Ancient Near East 160A-160B. Introduction to Near Eastern Archaeology.

161A-161B-161C. Archaeology of Pre- and Proto-Historic Mesopotamia.

162. Archaeology of Palestine.

163. Archaeology of Iran.

164A-164B-164C. Archaeology of the Historic Periods in Mesopotamia.

220. Seminar in Ancient Egypt.

250. Seminar in Ancient Mesopotamia.

250x. Seminar in Ancient Mesopotamia.

260. Seminar in Ancient Near Eastern Archaeology.

262. Seminar in Object Archaeology.

OLD WORLD – ISLAM

Art 104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages.

212. Problems in Islamic Art.

213. Problems in Islamic Art.

OLD WORLD – AFRICA

Art 118C. The Arts of Sub-Saharan Africa.

119A. Advanced Studies in African Art: Western Africa.

119B. Advanced Studies in African Art: Central Africa.

216. Topics in African Art.

220. The Arts of Africa, Oceania, and Pre-Columbian America.

History 125A. History of Africa.

175A. Topics in African History.

197. Undergraduate Seminar.

201. Topics in History.

240. Africa and The Indian Ocean

240N. Archaeological Background to West African History.

276. African Archaeology-Field Techniques.

277. African Archaeology-Data Analysis.

OLD WORLD – INDIA AND THE FAR EAST

Art 114A. The Early Art of India.

114B. Chinese Art.

114C. Japanese Art.

115A. Advanced Indian Art.

115B. Advanced Chinese Art.

115C. Advanced Japanese Art.

259. Topics in Asian Art.

260. Asian Art.

Oriental Languages 170A-170B. Archaeology in Early and Modern China.

270. Seminar: Selected Topics in Chinese Archaeology.

275. Seminar: Selected Topics in Chinese Cultural History.

OTHER RELATED PROGRAMS

Related courses (not listed individually) include regional geography, ancient history and regional history, ethnography, folklore and history of technology. Also recommended are the appropriate modern and ancient languages for the student's area of study.

Students are encouraged to examine the course listings of any and all departments whose offerings may contribute to a truly interdisciplinary course of study.

CONTRACT ARCHAEOLOGY

While the importance of Contract (Public) Archaeology is recognized, UCLA currently offers no formal courses in this subject. Archaeology students whose interests include this field (as well as other disciplines which intersect archaeology) are encouraged to apply. Efforts will be made to develop a specially tailored program including the rudiments of Contract Archaeology.

ARCHITECTURE AND URBAN PLANNING

(Department Office, 1317 Architecture Building)

Marvin Adelson, Ph.D., *Professor of Architecture/Urban Design.*
Samuel Aroni, Ph.D., *Professor of Architecture/Urban Design.*
Leland S. Burns, Ph.D., *Professor of Planning.*
John Friedmann, Ph.D., *Professor of Planning.*
Peter Kamnitzer, M.Arch., M.S., *Professor of Planning.*
Peter Marris, B.A., *Professor of Planning.*
Murray A. Milne, M.Arch., *Professor of Architecture/Urban Design.*
Charles Moore, Ph.D., *Professor of Architecture/Urban Design.*
Harvey S. Perloff, Ph.D., *Professor of Planning (Chairman of Department).*
Edward W. Soja, Ph.D., *Professor of Planning.*
David Stea, Ph.D., *Professor of Architecture/Urban Design and Planning.*
Thomas R. Vreeland, Jr., M.Arch., *Professor of Architecture/Urban Design.*
Martin Wachs, Ph.D., *Professor of Planning.*
J. Eugene Grigsby, III, Ph.D., *Associate Professor of Planning.*
Dolores Hayden, M.Arch., *Associate Professor of Planning.*
Frank E. Kupper, M.Arch., *Associate Professor of Architecture/Urban Design.*
Jurg Lang, Dipl.Arch., ETH, *Associate Professor of Architecture/Urban Design.*
William Mitchell, M.E.D., *Associate Professor of Architecture/Urban Design.*
George Rand, Ph.D., *Associate Professor of Architecture/Urban Design.*
Helmut Schulitz, M.Arch., *Associate Professor of Architecture/Urban Design.*
Donald Shoup, Ph.D., *Associate Professor of Planning.*
W. David Conn, M.A., D.Phil., *Assistant Professor of Planning.*
Ruthann Corwin, Ph.D., *Assistant Professor of Planning.*
Allan Heskin, Ph.D., LL.B., *Assistant Professor of Planning.*
Karen Hill Scott, Ed.D., *Assistant Professor of Planning.*

•

Berge Aran, Ph.D., *Lecturer in Architecture/Urban Design.*
Michael Bobrow, B.Arch., *Lecturer in Architecture/Urban Design.*
John C. Bollens, Ph.D., *Professor of Political Science.*
Bonham Campbell, E.E., *Associate Professor of Engineering and Applied Sciences.*
William A.V. Clark, Ph.D., *Professor of Geography.*
Edgardo Contini, Dottore in Ingegneria, *Adjunct Professor of Architecture/Urban Design and Planning.*
Ernest Engelbert, M.P.A., Ph.D., *Professor of Political Science.*
Leobardo Estrada, Ph.D., *Visiting Associate Professor of Planning.*
Robert C. Fried., Ph.D., *Professor of Political Science.*
Ronald Filson, M.Arch., *Adjunct Assistant Professor in Architecture/Urban Design.*
Baruch Givoni, Ph.D., *Visiting Professor of Architecture/Urban Design.*
Donald G. Hagman, LL.B., L.M., *Professor of Law.*
Bruce Herrick, Ph.D., *Associate Professor of Economics.*
Thomas S. Hines, Ph.D., *Associate Professor of History.*
Craig Hodgetts, M.Arch., *Lecturer in Architecture/Urban Design.*
Charles Jencks, Ph.D., *Lecturer in Architecture/Urban Design.*
Robin Liggett, Ph.D., *Lecturer in Architecture and Urban Planning.*
Robert Mangurian, B.Arch., *Lecturer in Architecture/Urban Design.*
Henry W. McGee, Jr., J.D., LL.M., *Professor of Law.*
Paul M. Merifield, Ph.D., *Lecturer in Geology.*
Donald Mills, B.Arch., *Lecturer in Architecture/Urban Design.*
Frank G. Mittelbach, M.A., *Professor of Management.*
Anthony R. Orme, Ph.D., *Professor of Geography.*
Richard Schoen, M.Arch., *Acting Associate Professor in Architecture/Urban Design.*
Gary T. Schwartz, J.D., *Professor of Law.*
David Sears, Ph.D., *Professor of Political Science.*
Murray Silverstein, B.Arch., *Visiting Lecturer in Architecture/Urban Design.*
Norma Sklarek, B.Arch., *Lecturer in Architecture/Urban Design.*

PROJECTS IN ARCHITECTURE AND URBAN DESIGN

401. Projects in Architecture. Laboratory, three hours. Prerequisite: consent of instructor. A number of different projects in relevant problem areas will be offered by faculty members from which the student may choose. May be repeated for credit.
The Staff

402. Projects in Urban Design. Laboratory, three hours. Prerequisite: consent of instructor. A number of different projects in relevant problem areas will be offered by faculty members from which the student may choose. May be repeated for credit.
The Staff

403. Project Studio With Specific Topic. (½ to 1 course) Laboratory, four to eight hours. Prerequisite: previous courses of particular sequence or consent of instructor. May be repeated for credit.

403A. Projects in Systems Building.

403B. Projects in Energy Conserving Design.

403C. Projects in Man-Environment Relations.

403D. Projects in Educational Facilities.

403E. Projects in Health Facilities.

403F. Projects in History.

403G. Projects in Design Methodology.

403H. Projects with Specific Topic: Projects in Computer Aided Design. (½ to 1 course) Prerequisite: previous course(s) in particular sequence or consent of instructor. May be repeated for credit. The Staff

411. Introductory Design Studio. Laboratory, eight hours. Prerequisite: consent of instructor. Architectural composition is initially studied in terms of its separate elements. After each is studied by means of a manipulative exercise which allows for experimentation of its intrinsic possibilities, the student then undertakes a series of closely controlled exercises dealing with combining the elements. The latter part of the course is spent in the design of a small building, in which previously acquired knowledge is synthesized into a single design. The Staff

412. Building Design Studio. Laboratory, eight hours. Prerequisite: course 411 or consent of instructor. The design of the project starts with the exploration of the architectural program in relation to the design process and particularly the implications of the program on architectural forms and concepts. In a second phase structural elements are introduced to fulfill the program requirements and to support and further develop the intended forms and concepts. The Staff

413. Building Design with Landscape Studio. Laboratory, eight hours. Prerequisites: courses 411, 412 or consent of instructor. Building Design and Site Planning in relation to water, land forms and plants in natural landscape, with special attention to natural light, heat and ventilation. The Staff

414. Major Building Design. Laboratory, eight hours. Prerequisites: second year standing. Design projects which enable students to concentrate on specifically architectural issues, with emphasis either on treatment in breadth of large scale projects, or exploration in depth and detail of smaller scale projects. Students will learn to integrate structure, environmental controls, physical context and the cultural environment in design of buildings, and to present their ideas in graphic or model form. The Staff

415. Major Building Design II. Laboratory, eight hours. Prerequisites: completion of 414, Major Building Design I. Design projects which enable students to concentrate on specifically architectural issues, with emphasis either on treatment in breadth of large scale projects, or exploration in depth and detail of smaller scale projects. Students will learn to integrate structure, mechanical systems, physical context, and the cultural environment in design of buildings, and to present their ideas in graphic or model form. Special emphasis will be placed upon integration of environmental control systems. The Staff

416. Comprehensive Design Studio. Laboratory, eight hours. Prerequisite: completion of required course work up to second quarter, third year. Consent of instructor. Course will complete regular required sequence of design work, preparing students for the third year thesis preparation. Comprehensive design projects will be structured to test students on integration of structural aspects, mechanical systems, site planning, and climatic considerations within their design solutions.

421. Architectural Drawing. Discussion, three hours; laboratory, three hours. Description of architectural drawing techniques and skills, including: sketching, diagramming, freehand drawing, drafting techniques, introduction to axonometric projection and perspective. The Staff

422. Advanced Architectural Design. (½ to 1 course) Discussion, three hours; laboratory, three hours. Prerequisite: course 421, or consent of instructor. The course continues with an emphasis on the exploration of the interrelationship between drawing and design. More advanced design strategies and modes of graphic exploration and presentation are developed. The Staff

METHODOLOGY AND COMPUTER AIDED DESIGN

224. Methodology: Design Theory. Lecture, three hours. A survey of the literature on systematic methods and design including problem-solving, information handling, artificial intelligence, and decision-making in the design process. The Staff

225A. Information Systems. Discussion, three hours. Prerequisite: consent of instructor. Information processing models of design. The relations between information flows and organizational structure. New techniques for information handling in design: storage and retrieval systems, automated document production, computer-assisted design techniques. Mr. Hamer, Mr. Mitchell

227A. Computer Graphics. Discussion, three hours. Prerequisite: consent of instructor. Assuming a basic familiarity with computer programming, the course provides an introduction to the theory, techniques, and applications of computer graphics in architecture. It consists of a series of lecture/seminars on technical topics, plus intensive practical work conducted on two storage-tube graphics terminals. Mr. Mitchell

227B. Computer Aided Design. Discussion, three hours. Prerequisite: consent of instructor. An examination of existing computer-based systems for aiding decision-making. Topics will include artificial intelligence, self-organizing systems, and hardware capabilities and limitations. An attempt will be made to develop and test components of a computer design partner. Mr. Hamer, Mr. Milne

228A. Mathematical Models in Architectural Design. Lecture, three hours. Prerequisite: consent of instructor. An introduction to concepts and techniques of mathematical modeling in architecture. Basic mathematics needed to develop models. The formal description of built form: date structures. Practical case studies and exercises dealing with the use of mathematical models in architectural design. Ms. Liggett, Mr. Mitchell

228B. Research in Design Methods. Lecture, three hours. Prerequisite: consent of instructor. Developmental work in a specific method of design. Theoretical and operational problems of a design method: degree of systemization, man-machine relationships areas of application, problems of translation and compatibility with other methods. The Staff

ENVIRONMENTAL TECHNOLOGY

431. Structures I. Lecture, three hours. Prerequisite: basic algebra, geometry, trigonometry and consent of instructor. Introduction to structural behavior and structural statics. Operations with forces and vectors, both algebraically and graphically. Equilibrium of force systems; polygon of forces and funicular polygon. Internal actions: axial force and bending moment. Reactions, stability and statical determinacy. Determinate frames. Plane trusses: analysis and design. Mr. Aroni

432. Structures II. Lecture, three hours. Prerequisite: completion of Structures I, consent of instructor. Mechanics of structures and structural elements. Elastic materials: stress, strain and stress-strain relations. Theory of bending: curvature, stress and strain distributions, centroid, moments of inertia, resisting and plastic moments. Design of beams for bending, shear and deflections. Torsion members. Instability and design of columns. Design for combined bending and compression. Tensile structures; cables, pneumatic structures. Slabs and plates; shells and folded plates. Mr. Aroni

433. Structures III. Lecture, three hours. Prerequisite: Structures II, consent of instructor. Introduction to statically indeterminate analysis. Structural materials and loads. Wind loads: distribution with height, design for comfort, structure behavior under lateral loads. Steel construction and concepts for high rise structures. Structural case studies in timber and steel. Introduction to earthquakes: seismology, magnitude, intensity, history. Seismic instrumentation. Case studies of recent earthquakes and damage. Earthquake design concepts and seismic code requirements. Mr. Aroni

434. Structures IV. Lecture, three hours. Prerequisites: Structures I, II, III, consent of instructor. Considerations of concrete structures. Materials of construction: cement aggregates, concrete mix design. Construction methods and structural systems. Reinforced concrete theory: elastic and ultimate strength analysis and design of beams, columns and slabs. Case studies of concrete structures. Economics of high rise concrete apartment buildings. Mr. Aroni

436. Construction Documents. Laboratory, eight hours. This course considers the relationship of the design processes from schematic design through the production of all of the documents for the construction contract. A simple structure will be designed and the design development will be carried through working drawings and an outline form of specifications. Mr. Schoen

437. Building Construction. Lecture, four hours. Introduction to the first principles of structure and building construction. Building elements are not only explored for their structural qualities and possibilities of their production and assembly, but also concerning their formal and functional properties, and particularly their application and role within a building. The Staff

438. Systems Building. Discussion, four hours. Prerequisite: consent of instructor. Survey of past and present developments in Europe, the USSR and the USA. Impacts, demands, socio-economic and legal constraints, user needs, performance specifications. Systems engineering and design. Measurement regulation, modular coordination, closed systems, open systems, design of systems, subsystems, components, elements and materials. Mr. Schulitz

439. Methods in Building Systems Development. Base for open building systems: reference system, component compatibility, measurement regulation, modular coordination. In-depth study of past and present research and developments, such as SCSD, SAR. Mr. Schulitz

441. Environmental Control Systems. Lecture, three hours. Prerequisite: consent of instructor. The design of the mechanical systems necessary for the functioning of large buildings: air handling, fire and life safety, plumbing, vertical and horizontal circulation, communication and electrical power distribution, analysis of the interaction of these systems and their integrated effects on the architectural form of a building. Mr. Milne

442. Building Climatology. Lecture, three hours. Prerequisities: basic physics, completion of first year M.Arch. I, consent of instructor. The design of buildings which specifically respond to the local climate; utilization of natural energies, human thermal comfort; sun motion and sun control devices; use of plant materials and land form to modify microclimate. Mr. Milne

443. Heat and the Thermal Environment. Lecture, four hours. Prerequisities: Structures II, Environmental Control Systems or consent of instructor. Explores the extent to which the physical form of a building controls the thermal environment of its occupants; the design of naturally and artificially heated and cooled environments; parameters of human thermal comfort; advanced concepts in building climatology. Mr. Givoni

444. Light and the Visual Environment. Lecture, four hours. Prerequisites: Structures II, or consent

NOTE: For key to symbols, see page 74

of instructor. Explores the extent to which the physical form of a building controls the luminous environment of its occupants; the design of naturally and artificially illuminated environments; parameters of human visual comfort. Mr. Milne

445. Sound and the Auditory Environment. Lecture, four hours. Prerequisite: Structures II, or consent of instructor. Explores the extent to which the physical form of a building controls the acoustic environment of its occupants; the design of spaces for auditory privacy and for auditory enhancement: parameters of human audition. Mr. Milne

446. Introduction to Energy Conserving Design. Prerequisites: M.Arch. I students must have taken Building Climatology or equivalent. Others: consent of instructor. A professional practice-oriented view of introductory energy flow and thermal comfort concepts. Review of existing and developing Energy Conserving Design and Management "active" and "passive" techniques. Application of solar technology to architectural design within the ECD/M context. Explanation of historical as well as current and proposed energy/resource consuming, climate responsive buildings and cities. May be repeated for credit. Mr. Schoen

SOCIO-PHYSICAL RESEARCH AND DESIGN

180. Visual Thinking. Review of concepts of perception and conception (e.g., imagery, reasoning, memory, representation, communication) as they apply to the design process; special emphasis on the role of visual and schematic thinking in design problem-solving. Training of visual skills. The Staff

192. Housing and Settlement Patterns. Patterns of spatial organization in housing and small settlements in a range of cultures. Interaction between spatial patterns and prevailing social attitudes toward the individual, the family, land ownership and toward authority, aggression, and communalism. Mr. Rand, Mr. Vreeland

258. Research in Man-Environment Relations. (½ to 2 courses) Selected topics for research in social and behavioral relations to the environment. This course is intended to provide a teaching space for visiting teachers in the social and behavioral sciences. It may be repeated since its contents are not set and differ each time it is offered. The Staff

292. Social Building Theory. Prerequisite: consent of instructor. Review of basic literature on application of social science theory and data to the design and development of socio-technical systems. Mr. Rand

293. Experiencing the Environment. Prerequisite: consent of instructor. Introduction to experience of the environment and its representation in graphic and visual forms. Focus on metaphoric thinking and personal discovery of the meaning and significance of the environment.

294. Environmental Psychology and Sociology. Prerequisite: consent of instructor. Environmentally based and interpreted approach to psychological states and individual and social behavior. Territorality, density, stress and adaptation, environmental cognition, aesthetics and preferences are considered. Mr. Rand

295. Cognitive Processes of Design. Lecture, three hours. Review of concepts of perception and conception (e.g., imagery, reasoning, memory, representation, communication) as they apply to the design process. Special emphasis on the role of visual and schematic thinking in design problem-solving. The Staff

296. Social Analysis of Buildings and Settings. Prerequisite: consent of instructor. The class will conduct a ten week evaluation of a building in Los Angeles, designed and built within the past five years, where the architect, builder, initiator or other parties involved in the inception process are available for cooperative review of the facility. The structure of the course involves a review of evaluation theory in the first three weeks, and a series of exercises performed on a single building, looking at its effectiveness and character through a variety of approaches to evaluation. The class will produce a comprehensive evaluation using multiple-methods for each building evaluated. Mr. Adelson, Mr. Silverstein

297. Group Process in Design. Prerequisite: consent of instructor. This course aims to equip students with the knowledge and skills needed to work effectively in design processes with other professionals and with client and user groups in organizational and other settings where interaction is important in determining design outcomes.

298. Social Meaning of Space. Discussion, three hours. Traces the evolution of the concept of space from its origins in ritual and primitive social organizations. Concentrates on the child's evolving conception of space, literature on perceptual development and studies of adaption to the spatial order of the man-made environment. Mr. Rand

299. Application of Behavioral Research to the Design Process. Lecture, three hours. Prerequisite: course 258 or consent of instructor. Application of behavioral research to the design process. This course attempts to begin the difficult task of bridging the gap between research and design by building upon the ideas and techniques generated in SAUP 258 and applying them to research in a field situation and the translation of the results of this research into a preliminary design solution in a selected community. Emphasis will be placed upon problem definition, the generation of meaningful research questions and understandable results, iterative approaches to the research/design interface, and novel ways of presenting design ideas. May be repeated for credit. The Staff

ARCHITECTURAL AND URBAN ANALYSIS

210. Health Care Facilities. Studies the context of health care delivery and the impact on the process of planning health care facilities. Student work is a case study of an existing Southern California hospital. Studies in detail the process of the design of hospitals and the operational requirements of individual departments of the hospital. May be repeated for credit. Mr. Bobrow

218A-218B. Urban Structure: Analysis and Modeling. Discussion, three hours. Prerequisite: consent of instructor. Generation of conceptual frameworks on the urban structure based on empirical data, urban theories, and mathematical models. Individual and group research on selected aspects of urban systems. Application of models in decision-making, particularly in urban design projects. Mr. Lang

238. Research in Architectural and Urban Analysis. Discussion, three hours. Prerequisite: consent of instructor. Selected topics in architectural and urban systems. Documentation and project work; field work. The Staff

255. Urban Morphology: Definitions and Consequences. Lecture, three hours. An analysis of urban spatial form and its socio-economic and behavioral bases and consequences. Special emphasis is placed on ecological approaches (e.g., social area analysis, urban growth models, factorial ecology) and behavioral analysis (cognitive mapping, urban imagery, attitudes toward human and material resources). Mr. Stea

271. Elements of Urban Design. Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. A multidisciplinary approach leading to an understanding of the political, socio-economic and technological framework of urban systems and its dynamic interrelations. Mr. Lang, Mr. Schulitz

275. Urban Form. Discussion, four hours. Seminar on recent and historical urban design projects, elucidating the planning objectives, structuring principles, operational characteristics, physical components, and environmental consequences of each project. Development of a definitional framework, analytical criteria, and practical direction in the examination of urban form. The Staff

279A. Housing for Developing Countries. Discussion, three hours. Considerations of socio-cultural, economic, and political factors, materials, structural systems, shelter accessories and manufacturing technologies, related to the priorities of developing countries in housing policies and the planning and design of shelter. Mr. Aroni

289. Special Topics in Architecture and Urban Design. (½ to 1 course) Prerequisite: consent of instructor. Selected academic topics initiated by students, student teams or faculty and directed by a member of the faculty. May be repeated for credit.

290. Design Seminar in Educational Systems and Facilities. Laboratory, six hours. Explores education as an environmental system, including goals, institutional structure, functions, technology, interactions with other social systems, and possible innovations. Examines implications for design of educational structures, facilities, equipment, and arrangements. Requires design and critique of alternative physical or functional features. May be repeated for credit. Mr. Vreeland

ENVIRONMENTAL MANAGEMENT

194. Architecture and Environment. The study of the design of the total environment—natural and man-made, as the result of spatial laws, natural forces, functional necessity and the passage of time (evolution). The emphasis will be on the natural environment and its relation to the built environment. Ms. Dry

203A-203B. Decision-Making in Planning and Design. Lecture, three hours. Statistical decision theory and alternative design solutions for coping with different degrees of future uncertainty in planning; nature of models for rational behavior in presence of conflicts of interest; individual and group decision-making under uncertainty. Mr. Adelson

204. Imaging the Future. Lecture, three hours. Introduction to social and technological forecasting, including: nature and limitations of forecasting; ideology and values in forecasting, review of integrative forecasting techniques, and the role of forecasting in environmental planning, design and management processes. Mr. Adelson

291. Architectural Programming and Theory. Discussion, four hours. The first part of the course explores concepts and methods of architectural programming and its interrelation to the design process; planning of the design process; various techniques for the determination of program contents, basic conditions, resources and constraints; the identification of solution types for given situations. In the second part of the course, the theoretical background is applied in the development of a program for the thesis. The Staff

460. Architectural Management. Lecture, three hours. Problems of land development and real estate. The professions of architecture and planning: traditional and innovative organizational forms. Manufacture, distribution, transport, and on-site construction/assembly. Controls and resources: government programs and restrictions; financing and administration; costs estimation; materials and labor availability. The Staff

461. Professional Organization and Practice. Lecture, three hours. The profession of architecture: historical development, relation to other professions and disciplines, the changing role of the architect. Architecture and professional societies: The American Institute of Architects, state and national registration boards, educational accreditation. Legal and ethical questions relating to the practice of architecture. Emerging forms of architectural practice. Mr. Filson

THEORY, HISTORY AND CRITICISM

189. Pre-Modern and Post Modern Architecture. Consideration of nineteenth century revivalism

and the response of architects to a growing historical awareness. Issues of electicism within the Beaux Arts and Art Nouveau movements will be studied. These same themes will be re-considered in terms of the post modern era. Mr. Jencks

191. Modern Architecture. (½ or 1 course) A brief history of modern architecture in Europe in the first half of this century. Starting with Behrens and the German Werkbund, the course explores De Stijl in Holland, Purism in France, Constructivism in Russia, Futurism and Rationalism in Italy, the Berlin School, and the Bauhaus in Germany. Mr. Jencks, Mr. Moore

201A. Architectural Theory. (½ to 1 course) Lecture, three hours. Varying present-day and historical descriptive and normative frameworks for the discussion of architecture and its relation to other aspects of the environment. The effects of literary, art, and other forms of criticism on architectural theory. Epochs and styles, ideologies and social settings for architecture. The Staff

282A. Image and Cultural Symbolization. Lecture, three hours. This course will demonstrate how modern architecture is a language that sometimes fails to communicate its intended messages. It will treat the division between elitist and popular architecture and suggest means of designing to overcome this division; basically by using multiple "codes" of architectural meaning. Students will be expected to either analyze a building semiotically, or design a building using the various "codes." Mr. Jencks

285. Architecture Case Study. Discussion, three hours. Prerequisite: consent of instructor. Through a set of structured studio assignments and lectures, students are made aware of the underlying functional formal structural and spatial organization principles of significant buildings and building typologies. The Staff

286. History of Specific Building Types. Lecture, three hours. Consideration of socio-economic and historical factors involved in the development of a specific building type, i.e., theaters, schools, museums and hospitals. May be repeated for credit. Mr. Aran

287. Ancient and Islamic Architecture in the Mediterranian Area. Prerequisite: consent of instructor. The aim of this course is to study the influence of the physical and social environments on building activity throughout the history of societies around the Mediterranean. Special consideration is given to architectural development in Greece. Mr. Aran

288. Architectural History: Medieval Period. Prerequisite: consent of instructor. A survey of European architecture from the year one thousand with selected buildings and environments considered in terms of the cultural contexts. Mr. Aran

PLANNING THEORY

197. Planning for Minority Communities. Lecture, three hours. This course will introduce the student to inner city policy issues on three separate levels: (1) each student will develop a comprehensive inner city urban program using materials from the Altenatives Inner City Future Exercise, (2) each student is expected to identify the value assumptions and theories of social justice implicit or explicit in alternative intervention programs, and (3) each student is expected to participate in class discussions which emphasize minority issues which affect implementation. Mr. Estrada

200. The Good Society. Lecture, three hours. Prerequisite: consent of instructor. An exploration of certain value premises of contemporary social planning and social practice. The seminar will cover such topics as models of man-in-society; dialogue as a basic form of social relation; territorially and non-territorially integrated societies; the social learning paradigm; optimal conditions for social learning; and problems of interface between social planning, backed by the coercive power of the State, and social practice of the Good Society. Enrollment will be limited to 12 students. Mr. Friedmann

201B. Introduction to Planning Theory. The course provides a broad overview of the history of planning theory and focusses on current theories concerning the linkage of a scientific-technical intelligence to organized social actions. May be taken by upper-division, undergraduate students with consent of instructor. Mr. Friedmann

201C. Colloquium in Planning Theory. Prerequisite: enrollment limited to Ph.D. students. An in-depth and critical examination of major issues in Planning Theory. Faculty and students jointly select topics of importance for discussion. This course is graded S/U. Mr. Friedman

209. Special Topics in Planning Theory. (½ to 2 courses) Lecture, three hours. Seminar on topics in planning theory selected by the faculty. May be repeated for credit. The Staff

212. Planning Theory: Time and the Future. Analyzes how time is, and can be, used as a factor in urban decisions and actions. Focuses on concepts and methods for dealing with the middle- and longer-range future, including asset accounting, time- and goal-oriented systems analysis, and different approaches to "planning for a better future". Mr. Perloff

223A. Professional Development Series (A). Lecture, three hours. A lecture-seminar-project course offering an introduction to the planning profession and, more specifically, to the Urban Planning Program at UCLA. An overview of the forces that shaped its practice over time and an exploration of various professional roles for planners. Planning education will be viewed as a response to changing needs and as a catalyst for emerging roles for professional planners. Several short projects are designed to expose students to real world planning problems and to the various viewpoints and methods that the Areas of Policy Concentration specialties would bring to bear. 223A is generally taken Fall Quarter of the first year as an introduction to 223B and 223C. Mr. Heskin

PLANNING METHODS

206A. Uses of Urban Data. Lecture, three hours. This course will cover various kinds of data which can be used and/or are used in planning studies. Heavy emphasis will be placed on census data and mapping techniques. Course will explore uses of school data, employment data, utility building, etc., in preparation of impact analyses, evaluation reports, and updating census. Generally taken in first year. Mr. Grigsby

207. Public Resource Allocation. Lecture, three hours. Prerequisite: a previous course in introductory micro-economics. Over-view of welfare economics and its application to planning. Discussion of the operation of private markets with an emphasis on private market imperfections, including natural monopolies, externalities, and collective goods, and the implications for public action. Discussion of public policy objectives and criteria for project appraisal. Introduction to economics of political organization. Brief review of alternative economic systems. Mr. Conn, Mr. Shoup, and the Staff

208A-208B. Seminar in Advanced Research Methods. (1 course, ½ course) Prerequisite: consent of instructor; students are, in addition, required to participate in an independent study course (from 2-4 units) in order to prepare dissertation topics to be discussed in 208B. The 208A course, offered Fall, will consist of (1) lecture-discussions on research method; (2) lecture-discussions by visitors, most of whom are from the Urban Planning faculty, leading to the identification of dissertation topics; and (3) potential topics developed by each student. The 208B course, offered in Spring, will consist of the presentation and discussion of dissertation topics, developed in detail (with bibliographies, etc.). The intercourse during Winter quarter is intended for the development of that topic, in close collaboration with a potential dissertation advisor, through enrollment in an independent study course. This course is required of Ph.D. students; open to M.A. students interested in research. This course is graded S/U and may be repeated for credit. Mr. Burns

213. Social Indicators and Reports for Metropolitan Regions. Discussion, three hours. Prerequisite: second year standing. Research seminar concerned with the development of social indicators for evaluating and reporting the performance of complex urban systems. Mr. Grigsby, Mr. Perloff

M215A. Advanced Quantitative Analysis. (Same as Geography M270.) Lecture, two hours; laboratory, two hours. Prerequisites: Geography 171 or equivalent or consent of instructor. Advanced topics in the utilization of mathematical and statistical techniques for geographic research. Emphasis on linear models, factor analysis and grouping procedures as applied to geographic data bases. Mr. Clark

M215B. Spatial Statistics. (Same as Geography M272.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: Mathematics 50 or Geography 171 and consent of instructor. Specific techniques useful in the analysis of spatial distributions including both point and areal patterns; and emphasizing spatial descriptive statistics, probability models of spatial distributions, and statistical surfaces. Mr. Clark

220A. Quantitative Methods: Basic Analytical Concepts. Prerequisite: college algebra. Introduction to specific topics in mathematics most useful for planners. Topics include: review of the vocabulary of mathematics with emphasis on planning model formulation; analysis of linear and nonlinear functions focussing on growth curves and mathematics of finance; matrix algebra and linear optimization; applications of basic calculus to planning models focussing on problems of optimization. Ms. Liggett

220B. Quantitative Methods: Urban Data. (½ to 1 course) An introduction to statistical concepts and methods with applications in urban planning. Topics to be covered include elements of probability theory, probability distribution, sampling, estimation methods, hypothesis testing, analysis of variance, correlation and regression. The course will also include introduction to the use of the computer as a tool in statistical analysis. (Students with a statistics background may enroll in 220B for 2 units in order to obtain an introduction to computer techniques. Ms. Liggett

220C. Quantitative Methods: Models. Lecture, three hours. Prerequisites: course 220A-220B or consent of instructor. An introduction to math-statistical modelling methods with emphasis on urban growth and spatial allocation models. Mr. Shoup, Mr. Wachs

221A. Evaluation Research. Prerequisite: course 220B or equivalent. This course focuses on the conceptual approach, methods and problems encountered in conducting evaluative research. Topics covered will begin with the purposes of evaluations, follow through with steps involved in the evaluative process, and conclude with some discussion on the uses and future of evaluation in planning. Case studies will be used as examples. Students will develop an evaluation design for a social action program as a class project. Ms. Hill Scott

221B. Project Evaluation Methods. Prerequisite: Economics 200. Major topics include benefit-cost analysis; goals-achievement matrices (and variants); panels of experts (Delphi, etc.); citizen participation in policy evaluation; sensitivity analysis; brief exposure to complementary approaches (cross-impact matrices, graphics, advocacy, domains analysis, systems analysis, PPBS variants, goals programming, logical frameworks). Mr. Conn, Mr. Shoup

229. Special Topics in Planning Methods. (½ to 2 courses) Lecture, three hours. Seminar on topics in

NOTE: For key to symbols, see page 74

planning methodology selected by the faculty. May be repeated for credit. The Staff

PROJECTS IN PLANNING

M202C. Seminar—Urban Affairs. (¾ course) (Same as Law M526.) The purpose of the course is to explore in a concrete case setting the application of legal tools to the solution of planning and land use problems. Real situations are selected in which significant planning problems exist that appear to be amenable to solution by careful analysis and application of legal tools. A number of case studies are selected so that students may choose one issue which directly interests them. For each case a specific client works with the class in presenting to it the problem that client is facing, and remains available through the course of the project for consultation; the end product for each case is the presentation of a formal report. Clients include the City Planning Commission, the Environmental Quality Board, the Housing Authority, and others. Letter grade for M202C. Mr. Hagman

217A-217B. Comprehensive Planning Project. Prerequisite: second year standing. The comprehensive project is offered by at least two faculty members representing different Areas of Policy Concentration in the Urban Planning Program and brings together students of varying backgrounds and interests in joint solution of a problem in urban planning and development. Each project counts the equivalent of 8 units, total, and will span two quarters. Because of the time required for the completion of project work, it is expected that students enrolled in a project will choose the Comprehensive Examination Plan option in place of the Master's thesis. Credit on completion of 217B. The Staff

223B-223C. Professional Development Series (B) (C). Prerequisite: 223A highly recommended. A two quarter sequence concerned with problems of professional practice. Students must be working in a field setting to enroll in the course. A job fair will be held at the beginning of the Winter Quarter to place students in field settings. Students who wish to arrange their own placement and join the class may do so with the permission of the instructor. 223B focuses on developing methods which integrate theory and practice through readings and individual and collective analyses of each student's experience. 223C continues the processes of 223B with the addition of a larger look at the planning profession by bringing noted professional to the classroom to dialogue with the students. 223A is highly recommended as a prerequisite but not required. Students may wish to combine either 223B or 223C with one quarter of 496F or 490 to meet their field work requirement. The Staff

PLANNING, LAW AND POLITICS

M202A. Public Control of Land Development. (¾ or 1 course) (Same as Law M286.) Analysis of the legal and administrative aspects of the regulation of land use and development, and the problems and techniques of urban planning; dwelling legislation, building codes, zoning, subdivision controls, public acquisition of land, tax controls, and urban development. Mr. Hagman

M202B. Governance: State, Regional and Local. (Same as Law M285.) Legal problems involving local and governmental entities; sources and extent of powers and duties with respect to personnel, finance, public works, community development, and related topics. Mr. Hagman

M205C. Urban Government. (Same as Political Science M229.) Discussion, four hours. An analysis of the policies, processes, interrelations and organization of governments in heavily populated areas. May be concurrently scheduled with Political Science 197F, sec. 1. Mr. Bollens

211. Law and the Quality of Urban Life. Lecture, three hours. This course is an introduction to law as an urban system and is directed primarily toward those interested in social and advocacy planning. The course will be organized around a number of urban problems such as employment, housing, social welfare and land use and examine the law's role as a partial cause and cure of these problems. Although certain legal principles will be stressed, the course examines law as a changing process rather than a collection of principles. It is a goal of the course that the students develop a facility to interact with law and lawyers in a positive and forceful manner. Mr. Heskin

URBAN-REGIONAL DEVELOPMENT POLICY (APC)

M231. Urban Housing and Community Development. (Same as Law M287.) Lecture, three hours; discussion, one hour. The course will comprehensively consider the rebuilding and construction of American cities with the major emphasis upon the "housing process" – the way in which shelter and related facilities are created by the institutions which direct housing activities in urban areas. Students are encouraged to undertake research projects with an emphasis on field research in lieu of a substantial portion of the final examination. Mr. McGee

232. Spatial Planning: Regional and International Development. An examination of the theory and practice of spatial planning at the regional, national, and international scales, including an evaluation of regional growth strategies, national settlement policy, growth center concepts, and the normative-ideological issues involved in international development planning. Generally taken in first year. Mr. Soja

233. Spatial Organization and Urban Planning. An introduction to the concepts and methods of spatial analysis as they apply to problems of planning and urban design. The organization of space in human societies is examined at a variety of scales, from the role of personal space and distancing in interpersonal behavior to studies of income distribution and social justice in urban areas. The emphasis is on developing a greater sensitivity to the spatial perspective and its role as a framework for urban planning and policy decisions. Generally taken in first year. Mr. Soja

234. Seminar in Spatial Development Policy. Prerequisite: course 232 or some background in analytical human geography; or consent of instructor. An advanced course dealing with the analysis, measurement, and interpretation of spatial change in developing countries, particularly in East and West Africa. It combines an in-depth examination of spatial development theory (especially with regard to spatial diffusion and settlement systems models), comparative studies in the geography of development, and a detailed assessment of some current African regional development plans. Generally taken in the second year. Mr. Soja

235A-235B. Regional Approaches to National Development. Prerequisite: consent of instructor; 235A for 235B. An advanced research seminar for students enrolled in the doctoral program. The first quarter deals with theoretical aspects of urbanization in the context of national development. The second quarter addresses major policy issues. 235A receives a grade of IP. Credit received upon completion of 235B. Mr. Friedmann

236A-236B. Urban Regional Development Theory. Lecture, three hours. Prerequisites: 207 or equivalent to 236A; 236A prerequisite to 236B. Economic growth and development in urban and regional systems, and the resulting changes in spatial patterns. Special attention to associated planning problems. Generally taken in the first year. Mr. Burns, Mr. Shoup

237. Evolution of Regional Planning Doctrines: 1925 to the Present. Prerequisite: consent of instructor for students not majoring in Urban-Regional Development. A critical survey of major doctrines in regional planning from the mid-1920's to the present. (Recommended for students majoring in Urban-Regional Development. Because a general familiarity with the relevant literature is essential to comprehension of the material to be covered, students not majoring in this area are asked to obtain approval from the instructor prior to enrollment in the course.) Mr. Friedmann

239. Special Topics in Urban-Regional Development Policy. (½ to 2 courses) Lecture, three hours. Seminar on topics in urban and regional development policy selected by the faculty. May be repeated for credit. The Staff

PUBLIC SERVICE SYSTEMS (APC)

240. Advanced Seminar in Public Service Systems. Lecture, three hours. Prerequisites: course 242 or consent of instructor and second or third year standing. A seminar dealing with the general system within which services are supplied publicly or semi-publicly, the specific sectors comprising the system, and analytical techniques for evaluating the efficiency and effectiveness of services delivered to the public. Mr. Shoup

M241A. Urban Transportation Planning I. (Same as Engineering Systems M288A.) Lecture, three hours. Historical development or urban transportation planning and the current political and administrative frameworks for planning; the relationship between transportation systems and urban form, historical review of automobile and public transit systems; urban highway and transit planning programs; the financing of urban transportation; environmental and social impacts of transportation systems; current policy dilemmas; controlling the automobile, promoting mass transit, energy issues, needs of elderly and handicapped. Mr. Wachs

M241B. Urban Transportation Planning II. (Same as Engineering Systems M288B.) Lecture, four hours. Prerequisites or co-requisites: course M241A; 220A, 220B or equivalent. Economic and social basis for travel; basic data sources for examining urban travel and transportation; techniques of forecasting and analyzing travel; mathematical models of travel: trip generation, trip distribution, modal split, traffic assignment and route choice; uses of forecasts and approaches to transportation system and project evaluation. Mr. Wachs

M241C. Urban Planning III. (Same as Engineering Systems M288C.) Lecture, four hours. Prerequisites: or co-requisites: courses M241A-241B, 220A-220B-220C. Recent experience and case studies in transportation planning and policy: Planning a rail system and downtown people mover for Los Angeles; community dial-a-ride services; express buses on freeways; the Santa Monica Freeway Diamond Lane project; decision-making in the case of the Century Freeway; a Parking Management Program for Los Angeles; carpooling and vanpooling programs; field trips and guest speakers. Mr. Wachs

242. Analysis of Public Service Systems. Lecture, two hours; discussion, two hours. The application of systems analysis to problems of planning public service systems. Specific methods are presented for the definition and delimitation of systems, formulation of objectives, generation and evaluation of alternatives, and the application of analysis to decision-making and policy formulation. Case studies are drawn from various public service sectors. Mr. Shoup

245. Finance of Local Public Services. Lecture, three hours. Prerequisite: Economics 200 or consent of instructor. An examination of the major types of local government revenue sources (taxes, user charges, intergovernmental aid, borrowing). Discussion of revenue decision-making processes, intergovernmental relations, questions of equity, the role of revenue sharing, and social objectives attainable with revenue instruments. Mr. Shoup

246. Housing in Social and Economic Development Policy. Lecture, three hours. Prerequisites: Economics 200 or equivalent or consent of instructor. Seminar on the position of housing in national and regional development strategies with a focus

on policies for Third World nations. Topics include the nature of housing "need", market responses, evolution of housing policy, theory of intervention, alternative policies for increasing the housing supply. Numerous case studies. Mr. Burns

M248. Urban Transportation Law. (¾ course) (Same as Law M288.) Lecture, three hours. This course will begin with an exploration of the urgent policy questions facing the urban transportation decision-maker today. It will then focus on the existing governmental programs for urban transportation, on the policies they embody, and on the public institutions created to or charged with the duties of administering them. Mr. Schwartz

249. Special Topics in Public Service Systems. (½ to 2 courses) Lecture, three hours. Seminar on topics in planning for public service systems selected by the faculty. May be repeated for credit. The Staff

SOCIAL DEVELOPMENT POLICY (APC)

251. Planning for Multiple Publics. Lecture, three hours. Prerequisite: recommended background in statistics and research design. Course is designed to explore the planning needs of various social groups in urban settings. Students will be required to explore existing literature and research studies to determine appropriate mechanisms of planning for multiple publics. The course will have students analyze communities in the Los Angeles metropolitan area as a means of gaining insights into the practical, theoretical, and methodological problems of planning for multiple publics. Generally taken in the first year. Mr. Grigsby

252A. Human Lives in Development. Lecture, three hours. Covers the growth and development of the individual throughout the life cycle. In-depth attention given to various theories regarding human development, drawing implications for planning approaches. Emphasis is on psycho-social basis of individual development. Some proposed approaches are also offered for using human development information in social impact analysis. Ms. Hill Scott

252B. Social Policy in Human Development. Prerequisite: course 252A or consent of instructor. Seminar that explores the use of lifestyle and life cycle information in the planning process. Multi-disciplinary background reading on exemplary planning studies that have attempted to consider behavioral needs and potentialities during the planning process are analyzed. Case examples of the converse approach to planning and its consequences for society are also discussed. Ms. Hill Scott

253. Social Theory for Planners. Lecture, three hours. Prerequisite: some prior knowledge of sociological theory would be useful but not essential. The course relates the sociological tradition to issues of change, the role of the state, and the relationship between knowledge and values as they affect planning. The founding fathers of modern sociology (Marx, Durkheim, Weber) were preoccupied with the profound changes which European society had undergone through the industrial revolution. They sought to define and explain these changes, continually contrasting the supposedly cohesive communities of the past with fragmented, impersonal industrial society. The Marxist tradition emphasized the inherent instability of industrial capitalism, arguing that stable societies can only evolve from the working out of class conflict and the transformation of capitalism. The main emphasis of recent American sociology has been upon the sources of stability—the way in which a consensus of values is incorporated and legal-rational institutions develop. From all this comes a legacy of preoccupation with bureaucracy, roles, norms, the interaction of social classes, and the contrast between traditional (rural, cohesive) and modern (urban, atomistic) societies. The course will concentrate on the insights and crucial issues which have arisen from it, as they relate to the concerns of planning and social policy. Contemporary developments in urban sociology will also be discussed. Mr. Marris

254. Research Methods in Social Development Policy. Prerequisite: recommended 220B or equivalent. Course reviews basic methods commonly used in planning or in applied social research. However, the emphasis is on the research process as a whole rather than specific techniques of design. Topics will include: conceptualizing the research problem; developing a research plan; sampling, instrumentation, and data collection; and time management of a research study. Mr. Estrada, Ms. Hill Scott

256. Social Impact Analysis. Lecture, three hours. Prerequisites: recommended: 220A-220B-220C, a course in advanced statistics, a course in survey research and methodology; or consent of instructor. This course will explore ways of creating methods for assessing and determining social impacts on communities. Intent will be to develop both methodologies and policy formulation for assisting in community development. Enrollment limited. Generally taken in second year. Mr. Grigsby

257. Loss and Change. The course explores underlying patterns of response to change, and how those are reflected in social movements and institutions—communities displaced by slum clearance, organizations struggling to assimilate new relationships, tribal societies undergoing modernization, scientists faced with revolutions in theory—trying to show how the process of change generates some fundamentally similar patterns of reaction and assimilation in both individuals, groups, and even whole societies. Implications of the argument for the management and planning of change will be discussed. Mr. Marris

259. Special Topics in Social Development Policy. (½ to 2 courses) Lecture, three hours. Seminar on topics in social development policy selected by the faculty. May be repeated for credit. The Staff

ENVIRONMENTAL PLANNING AND MANAGEMENT (APC)

M195. Engineering and Environmental Geology. (Same as Earth and Space Sciences M139.) Lecture, two and one-half hours. Prerequisites: Geology 1 or 100; 111A recommended. Principles and practice of soil mechanics and foundation engineering in light of geologic conditions, recognition, prediction and control or abatement of subsidence, landslides, earthquakes, and other geologic aspects of urban planning and subsurface disposal of liquids and solid wastes. Mr. Merifield

M196. Geomorphology. (Same as Geography M102.) Lecture, three hours; reading period, one hour. Prerequisites: Geography 1 or equivalent, or junior standing, or consent of instructor. A study of the processes responsible for shaping the world's landforms with emphasis on the relationship between the energy and materials involved and the magnitude and organization of the surface forms produced. Mr. Orme

260. Advanced Seminar in Environmental Planning and Management. (½ to 1 course) Discussion, three hours. Prerequisites: consent of instructor. Discussion and organized individual and group research. Exploration of broad issues related to environmental planning of special interest to students. Generally intended for second year students specializing in Environmental Planning and Management. May be repeated for credit. Mr. Conn,

261A. Introduction to Environmental Analysis. Lecture, three hours. Discussion of basic ecological principles relevant to environmental planning, including characteristics of ecosystems, energy transfer, biogeochemical cycles, dominance and niche theory, diversity and stability, species-area relations, etc. Attention will be drawn to man's historical role in modifying ecosystems. Generally taken during first year. Ms. Corwin

261B. Environmental Management. Lecture, three hours. Prerequisites: course 261A or consent of instructor. Application of ecological principles to the analysis of environmental impacts and the management of natural and urban/regional resources. Ms. Corwin

262. Residuals Management. (½ to 1 course) Lecture, three hours. Prerequisites: Economics 200 or 221B or consent of instructor. Advanced seminar covering a selected topic (to be specified each time that the course is offered) in the management of atmospheric emissions or solid wastes or nuclear radiation, etc. Intended for, although not restricted to, students specializing in Environmental Planning and Management, and generally taken during the second year. May be repeated for credit. Mr. Conn and Staff

263. Natural Resource Conservation. Lecture, three hours. This seminar explores, through presentations, readings, and discussion, the meaning of resource conservation, its desirability, and ways of achieving it. The focus is generally on minerals, although other resources (e.g., water, timber, wilderness) may also be considered. Mr. Conn

M264A. Environmental Law and Policy. (¾ course) (Same as Law M290.) The course first examines, from perspectives meaningful to legal institutions, the nature of environmental problems. It then considers the means by which law has responded, and can and should respond, to problems of environmental quality. Both common law and legislative and administrative measures are considered. The course uses the air pollution problem as the primary vehicle for study. The Staff

266. Seminar on Land-Use Planning. Lecture, three hours. Prerequisites: Economics 200, 236A, 261A, 221B, or consent of instructor. A seminar-discussion course that builds on the basic planning concepts and knowledge discussed in other planning courses. The topics of discussion include the current practice of land-use planning, issues and problems, land-use planning as a tool for environmental protection and enhancement, and evolving policy. The Staff

269. Special Topics in Environmental Planning and Management. (½ to 2 courses) Lecture, three hours. Seminar topics in environmental planning and management selected by the faculty. May be repeated for credit. The Staff

URBAN DESIGN (APC)

219. Special Topics in Urban Design. (½ to 2 courses) Lecture, three hours. Seminar on topics in urban design selected by the faculty. May be repeated for credit. The Staff

274. Introduction to Urban Design. Lecture, three hours. Over-view of trends in urban design. Attempt at redefinition of the field from the perspective of the planner. Exploration of those theories, methods, and skills taught at SAUP and other departments which are potentially applicable to urban design. A seminar utilizing brainstorming, reading, guest lectures and discussions. The course is expected to aid in the continuing clarification of the planner's contribution to and role in urban design. Generally taken in the first year. Mr. Kamnitzer, Mr. Stea

276A-276B. Planning Workshop. (1 to 2 courses each) Lecture, three hours; laboratory, two hours. Prerequisites: 421 or 422 or Art 153A-153B or demonstrated background in architectural design or consent of instructor. Planning projects with a focus on physical planning. Emphasis on SYNTHESIS combined with iterative evaluation of the emerging solutions. Projects may be reality bound, hypothetical, or in the form of exploring the impact of non-physical forces on the physical environment. Development of presentation skills, both graphic and verbal, is an essential component of this workshop. Mr. Kamnitzer

277A-277B-277C. Urban Design Research Seminar. (½ course each) Lecture, three hours. Prerequisite: course 274. Built on AUP 274, this research seminar continues through three subsequent quarters to search for the "design content" of planning theories, methods and skills. Students will report on content of planning courses as they advance through the program and will jointly search for optimal applications of the learning acquired to the field of urban design. 277A generally taken in the

NOTE: For key to symbols, see page 74

first year. 277B and 277C generally taken in the second year. Mr. Kamnitzer, Mr. Stea

INDEPENDENT STUDY

199. Special Studies. (½ to 2 courses) Prerequisite: consent of instructor. Independent research or investigation on a selected topic to be arranged with a faculty member. May be repeated for credit. The Staff

494. Supervised Independent Teaching. (½ to 2 courses) Supervised individual teaching experience. This course is graded S/U and may be repeated for credit. The Staff

495P. Teaching Clinic in Urban Planning. (½ course) Discussion, two hours. Supervised teaching clinic. Will include discussion of teaching experiences, teaching methods, procedures, etc. Guest lecturers from other departments on campus will be invited to participate in the course. This course is required of all Teaching Associates in the Urban Planning Program and will be an integral part of our teaching associate program. May be repeated once for credit. This course is graded S/U. Mr. Wachs and Staff

496. Special Projects in Architecture. (½ to 2 courses) Prerequisite: consent of instructor. Projects initiated by either individual students or students teams, and directed by a member of the faculty. May be repeated for credit.

496F. Field Projects. (½ to 2 courses) To be graded S/U only; may be repeated for credit. The Staff

497. Special Projects in Urban Design. (½ to 2 courses) Prerequisite: consent of instructor. Projects initiated by either individual students or student teams, and directed by a member of the faculty. May be repeated for credit. The Staff

501. Cooperative Program. (½ to 2 courses) Prerequisites: approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

596A. Directed Individual Research and Study in Architecture and Urban Design. (½ to 2 courses) May be repeated for credit. The Staff

596P. Research in Planning. (½ to 2 courses) May be repeated for credit. The Staff

597P. Preparation for the Comprehensive Examination for the Master's Degree or Qualifying Examinations for the Ph.D. Degree. (½ to 2 courses) May be repeated for credit. Graded S/U. The Staff

598A. Preparation in Architecture/Urban Design for the Master's Thesis. (½ to 2 courses) Prerequisite: consent of instructor. May be repeated for credit. The Staff

598P. Preparation for Master's Thesis in Urban Planning. (½ to 2 courses) May be repeated for credit. Graded S/U. The Staff

599P. Doctoral Dissertation Research in Planning. (½ to 2 courses) May be repeated for credit. Graded S/U. The Staff

INTERPROGRAM COURSES

187. Planning and Designing our Cities. An introduction to urban planning and urban design with an emphasis on methods and tools used in practice. Starting with an overview of the planning field, the course addresses itself to physical planning for redevelopment, for projects in expanding areas and for new towns. Lectures (with illustrated examples), field visits and presentation of the students' own projects create the framework for expanding our understanding of the urban planning and design process. Mr. Kamnitzer

190. Man and Environment: An Introduction to Architecture and Urban Planning. This course aims to introduce students to the kinds of problems that arise in creating and maintaining an environment for urban activities, and the approaches and methods of architecture and urban planning in helping to cope with such problems. The students are exposed to the complexities involved in giving expression to human needs and desires in the provision of shelters and movement systems; to the possibilities and limitations of technology and building forms; and the issues involved in relating the man-made to the natural environment. The students are encouraged to comprehend the major urban issues both as citizens and as potential technical experts. Mr. Perloff

226A. Computer Applications in Architecture and Urban Planning (Introductory). Lecture, three hours. Introduction to electronic computers and the FORTRAN IV programming language, with emphasis on writing and executing programs specifically applicable to architecture, urban design and planning. The course will also provide an introduction to computer mapping techniques. No prerequisite or prior knowledge of computing is required. Ms. Liggett

226B. Computer Applications in Architecture and Urban Planning (Advanced). Lecture, three hours. Prerequisite: course 226A or equivalent. Seminar on advanced computing techniques and modeling as applied to architecture and urban planning. This course will introduce the PC1 programming language but will assume students have previous computing experience in another language. Ms. Liggett

278. Research Methods in Man-Environment Relations. (½ to 1 course) Lecture, three hours; discussion, two hours. A survey of a variety of research methods applicable to problems on the man-environment interface, including both those now frequently employed (e.g., survey research) and others not so well known (e.g., ecological psychology, ethnomethodology, etc.). Emphasis will be placed on understanding the *nature* of research, upon the application, advantages and disadvantages, of the various methods rather than upon the learning of techniques. The course will start with a review of certain concepts basic to the philosophy of science, emphasize practice in the application of research methods to selected exercises and a specific field situation, and conclude with some commentary upon the nature and future of statistical methods in the study of man-environment relations. Mr. Stea

490. Urban Innovations Group Workshop. (1 to 2 courses) Laboratory. Prerequisite: consent of Workshop Staff. Applied research and development work in the Urban Innovations Group workshop under the supervision of the workshop staff. Client-oriented projects concerned with significant urban, social or technical problems of the physical environment. May be repeated for credit. The Staff

ART

(Department Office, 1300 Dickson Art Center)

Samuel Amato, B.F.A., *Professor of Art.*
Alexander Badawy, B.Arch., D.I.A., Ph.D., *Professor of Art.*
E. Maurice Bloch, Ph.D., *Professor of Art and Curator of Prints.*
Albert Boime, Ph.D., *Professor of Art.*
William J. Brice, *Professor of Art.*
Raymond B. Brown, M.A., *Professor of Art.*
Jack B. Carter, M.A., *Professor of Art.*
Susan B. Downey, Ph.D., *Professor of Art.*
Elliot J. Elgart, M.F.A., *Professor of Art.*
Robert F. Heinecken, M.A., *Professor of Art.*
Thomas Jennings, M.A., *Professor of Art.*
J. Bernard Kester, M.A., *Professor of Art.*
Velizar Mihich (Vasa), *Professor of Art.*
Lee Mullican, *Professor of Art.*
John A. Neuhart, *Professor of Art.*
Gordon M. Nunes, M.A., *Professor of Art.*
Carlo Pedretti, M.A., *Professor of Art.*
Jan Stussy, M.F.A., *Professor of Art.*
Otto-Karl Werckmeister, Ph.D., *Professor of Art.*
Laura F. Andreson, M.A., *Emeritus Professor of Art.*
Karl M. Birkmeyer, Ph.D., *Emeritus Professor of Art.*
Helen Clark Chandler, *Emeritus Professor of Art.*
J. LeRoy Davidson, Ph.D., *Emeritus Professor of Art.*
Annita Delano, *Emeritus Professor of Art.*
Archine V. Fetty, M.A., *Emeritus Professor of Art.*
Lester D. Longman, Ph.D., L.H.D., D.F.A., *Emeritus Professor of Art.*
Katharina Otto-Dorn, Ph.D., *Emeritus Professor of Art.*
Josephine P. Reps, *Emeritus Professor of Art.*
Frederick S. Wight, M.A., *Emeritus Professor of Art.*
Karl E. With, Ph.D., D.F.A., *Emeritus Professor of Art.*
Mitsuru Kataoka, M.A., *Associate Professor of Art.*
David M. Kunzle, Ph.D., *Associate Professor of Art.*
Donald F. McCallum, Ph.D., *Associate Professor of Art.*
Arnold Rubin, Ph.D., *Associate Professor of Art.*
Nathan Shapira, Dottore in Architettura, *Associate Professor of Art.*
James R. Valerio, M.F.A., *Associate Professor of Art.*
James W. Bassler, M.A., *Assistant Professor of Art.*
Cornelia K. Breitenbach, M.F.A., *Assistant Professor of Art.*
William C. Brown, M.A., *Assistant Professor of Art.*
Ioli Kalavrezou-Maxeiner, Ph.D., *Assistant Professor of Art.*
Cecelia F. Klein, Ph.D., *Assistant Professor of Art.*
Deborah Klimburg-Salter, Ph.D., *Assistant Professor of Art.*
Alice E. McCloskey, M.A., *Assistant Professor of Art.*
Adrian Saxe, B.F.A., *Assistant Professor of Art.*
Madeleine Sunkees, B.Ed., *Assistant Professor of Art, Emeritus.*

•

Benjamin B. Johnson, M.A., *Lecturer in Art.*
Martin J. Powers, M.A., *Acting Assistant Professor of Art.*
Donald Roberts, *Lecturer in Art.*
Robert Wark, Ph.D., *Lecturer in Art.*
Jean Weisz, M.A., *Lecturer in Art.*

It is recommended that each student majoring in art have each quarter's program approved by a departmental adviser.

The departmental major offered in the College of Fine Arts leads to the degree of Bachelor of Arts with the opportunity to specialize in one of three areas: (1) Art History, (2) Painting/Sculpture/Graphic Arts, (3) Design.

Preparation for the Major

Art History. Six courses selected from courses 50, 51, 52, 53, 54, 55 and 56.

Painting/Sculpture/Graphic Arts. Courses 10A, 10B, 20A, 20B, 25; and two courses selected from 50, 51, 52, 53, 54, 55, 56.

Design. Courses 31A, 31B, 32A, 32B, 34A, 34B; and three courses selected from 50, 51, 52, 53, 54, 55, 56.

The Major

Art History. (12 courses upper division art history required.)

I. A total of nine courses from the following nine areas: at least three courses in one area for the concentration, at least one course each in four of the remaining areas, and two additional courses from any of the nine areas.

1. 101A, 101B, 101C, 101D.
2. 103A, 103B, 103C, 103D, 103E.
3. 104B, 104C, 104D.
4. 105A, 105B, 105C, 105D, 105E.
5. 106A, 106B, 106C, 108A, 108B, 109A, 109B, 109C, 109D, 120A, 121A.
6. 110A, 110B, 110C, 110D, 120B, 120C, 121B.
7. 112A, 112B, 112C.
8. 114A, 114B, 114C, 114D, 115A, 115B, 115C.
9. 117A, 117B, 117C, 118A, 118B, 118C, 118D, 119A, 119B.

II. Three courses of art history electives which may include Classics 151ABC, Art 125, 197, 199 (design or studio courses do not apply as electives.)

In addition to the 12 courses (48 units) of upper division art history, three upper division courses from other departments related to the area of concentration are to be selected in consultation with a faculty adviser.

Three quarters of one foreign language, or the equivalent. The language should be in relation to the concentration area and is in addition to the foreign language which is part of the General College requirements.

Painting/Sculpture/Graphic Arts. A minimum of 14 upper division courses selected in consultation with a painting/sculpture/graphic arts adviser including one course each in courses 130, 132, 133, 135, 137, 140, 145 and 147; two courses selected from courses 101-122 and four courses of art electives.

Design. A minimum of 12 upper division courses selected in consultation with an adviser including eight courses from 161A-172B; at least one course from 192-193 and three courses of art electives.

Admission to Graduate Status

Painting/Sculpture/Graphic Arts or Design. In addition to meeting the requirements of the Graduate Division, the student will usually be expected to have a bachelor's degree in Art. Students whose preparation in Art is deficient as determined by the departmental adviser will be required to take additional work before proceeding with the graduate program.

Art History. In addition to the University minimum requirements, the student must have completed six full courses in the history of art, distributed over at least four of the following categories such that three fall within categories a. through d., and three within categories e. through g. a) Egypt, Ancient Near East, Classical; b) Medieval (Western European; Byzantine); c) Renaissance, Baroque, Prints and Drawings; d) Modern European, Modern American, Prints and Drawings; e) Chinese, Japanese; f) African, Oceanic, Native North American, Pre-Columbian; g) Islamic, Indian. No area may be offered in satisfaction of more than one requirement. Students whose preparation is deficient as determined by the Graduate Review Committee will be required to make up those courses during the first two quarters of residence and these courses will not count toward the degree. Instead of taking a course, the student may elect to substitute a competency examination in the deficient area.

Requirements for the Master's Degree

For the general University requirements, see the Graduate Division. The Art Department offers graduate study in three areas of specialization: (1) History of Art, (2) Painting/Sculpture/Graphic Arts, (3) Design. When applying for admission, the student is expected to designate the area of specialization.

Art History. The program for the Master of Arts Degree in art history follows the Thesis plan. Students are required to take a minimum of ten graduate and upper division courses, of which at least eight must be in art history, and of which at least six must be graduate courses (i.e. in the 200 and 500 series). At least four of these, including course 201 (Historiography of Art), must be in the 200 series, and no more than two may be "directed studies" (596) projects. The M.A. degree requires the completion of a major and two minors. Students intending to major in areas included in categories e. through g. (above) will choose at least one minor from categories a. through d.; conversely, students intending to major in areas included in categories a. through d. will choose at least one minor from areas included in categories e. through g. The program for the degree is worked out under the guidance of the advisors in the student's major and minor areas. Reading knowledge of French and German is required of all students except those intending to major in Chinese or Japanese or Pre-Columbian art. The first language examination must be passed by the end of the second quarter of residence study, and the second by the end of the fourth quarter of residence study. Students intending to major in Chinese or Japanese art history who are not native speakers of the relevant language will substitute either Chinese or Japanese for either French or German. Students intending to major in Pre-Columbian art history must substitute Spanish for French. Those majoring in Indian art history must substitute, for either French or German, an appropriate classical research language of India. Upon completion of all coursework and language requirements, the student forms the Thesis Committee, which consists of the student's major advisor and two other UCLA faculty members, one of whom must be a member of the art history faculty. At this time, the student selects, in consultation with and with the consent of the Thesis committee a thesis topic in his/her major field. The thesis should not exceed fifty pages in length and must be researched and written in consultation with the Thesis Committee and with the major advisor in particular.

Painting/Sculpture/Graphic Arts or Design. The Master of Arts program with these specializations follows the Comprehensive Examination Plan, a minimum of nine courses of graduate work including a minimum of five courses in the 200 series in the field of specialization. The final comprehensive examination is oral and is given within the context of the candidate's creative work. Those majoring in painting/sculpture/graphic arts may concentrate on painting, sculpture, printmaking or photography in their advanced project. Majors in design may emphasize communication imagery, image transfer, electronic imagery, costume, ceramics, glass, design and structure, fiber structures, textiles, landscape design, industrial design or exhibition design. All candidates are expected to have a general knowledge of the history and theory of art. The specific program for the Master of Arts degree is determined in consultation with a faculty member.

Master of Fine Arts Degree in Painting/Sculpture/Graphic Arts or Design

The program requires a minimum of 18 courses, with at least ten courses in the 200 series. Candidates must have completed, whether as undergraduates or graduate students, a minimum of ten courses in art history. The painting/sculpture/graphic arts candidate must complete a minimum of 11 courses in the field of specialization (including 10 courses in the 200 series), which includes course work supervised by his graduate committee. Candidates in design must complete a minimum of 13 courses in the field of specialization (including 13 courses in the 200 series), which includes course work supervised by the graduate committee. Students who have an M.A. degree may be accepted as candidates for the M.F.A., but the M.A. degree is not a prerequisite. The M.F.A. is the highest degree for prospective professional artists. Three years of graduate work will normally be required to complete the requirements in terms of quality of creative work. Additional information concerning programs is available through the Art Department.

Doctor of Philosophy Degree in Art History

The M.A. in art history is required for admission to the Ph.D. program. An M.A. in art history from another institution may be accepted as equivalent to that from UCLA or the holder may be accepted into the program at a stage determined by the Graduate Review Committee. All incoming Ph.D. students must show evidence of having taken and passed with a grade B or better at least two courses (upper division and/or graduate) in areas not related to the proposed major, as outlined above in M.A. course requirements. A reading knowledge of French and German is requisite for admission at the Ph.D. level for those majoring in all areas except Asian and Pre-Columbian. Students majoring in Asian art history must demonstrate reading fluency in either French or German and an appropriate Asian language. Students majoring in Pre-Columbian art history must demonstrate reading ability in German and Spanish. Instruction in one9or/more additional languages, if considered necessary by the student's advisor(s), may be required. The Ph.D. requires demonstrated competence in a major and two minor areas. A program of study worked out with advisors in these three areas will comprise a minimum of four courses (at least one a graduate course) in (an) unrelated area or areas taken during the course of the M.A. and/or Ph.D. In all, a minimum total of eight graduate and upper division courses are required, of which at least three must be art history courses on the graduate (200 and 500) level. Of this total, students must take at least three, and may take up to five, extra-departmental upper division and/or graduate courses. Upon completion of course work and language study, the student takes the Ph.D. written comprehensive examination, which includes a six hour examination in the major field of study and a three hour examination in each of the two minor fields. Upon passing the written comprehensive examination, the student, in consultation with his/her major advisor, selects a dissertation topic; the members of his/her Doctoral Committee are then nominated. The student then proceeds, according to standard University policy, to the writing of the dissertation and, if required by his/her Committee, the defense of same.

Note: Check the Schedule of Classes for courses restricted to majors only.

Lower Division Courses

Painting/Sculpture/Graphic Arts courses are supervised by the following faculty, augmented by visiting staff: Amato, Brice, Elgart, Mullican, Nunes, Stussy and Valerio.

10A. Drawing. Studio, eight hours. Beginning course in drawing. Fundamentals of line, tone and composition as they relate to perception. Problems in sculptural form, chiaroscuro and spatial projection in a variety of drawing media. Analysis and investigation of traditional and contemporary artistic expression and concepts.

10B. Drawing. Studio, eight hours. Prerequisite: course 10A. Beginning course in figure drawing. Continuation of 10A. Application of drawing principles to human form with reference to anatomical structure. Analysis and investigation of traditional and contemporary artistic expression and concepts.

20A. Painting. Studio, eight hours. Prerequisites: 10A and 10B. Beginning course in painting. Preparation of painting surfaces and painting media. Problems in color, form and composition with stress on interpretation and expression. Analysis and investigation of traditional and contemporary artistic expression and concepts.

20B. Painting. Studio, eight hours. Prerequisite: course 20A. Continuation of 20A. Increased analysis and exploration of traditional and contemporary expression in both painting and non-object art forms.

25. Sculpture. Studio, eight hours. Beginning course in sculpture. Studio work in plaster, clay, concrete, wood, stone, metal and plastics. Lectures on technical and aesthetic principles of traditional and contemporary sculpture with emphasis on the student's individual direction. Illustrated with slides and film.

30A. Introduction to Design and Technology. Lecture, three hours; discussion, one hour. Understanding the design process with emphasis on development of visual awareness; a study of technological, economic, environmental, and cultural factors influencing the design of objects. Open to non-majors, and available to Art majors for credit.
The Design Staff

31A. Fundamentals of Design. Lecture, two hours; laboratory, four hours. Exploration of color in theory and practice. Development and articulation of sensory concepts. May be taken concurrently with 32A. Not open for credit for those who have had Art 150A. Mr. Vasa in charge

31B. Fundamentals of Design. Lecture, two hours; laboratory, four hours. Interrelation of three dimensional form concepts as a foundation for creativity; origination and solution of problems. May be taken concurrently with 32B. Not open for credit for those who have had Art 150B.
Mr. Vasa in charge

32A-32B. Visual Presentation. Demonstration, discussion and laboratory, eight hours. 32A is prerequisite to 32B. Translation of perception through delineation, drawing, and other descriptive media. May be taken concurrently with Art 31A-31B. Not open for credit for those who have had 153A or 153B respectively. Mr. Vasa in charge

34A-34B. History of Design. Lecture, three hours; discussion, one hour. 34A is prerequisite to 34B.

NOTE: For key to symbols, see page 74

Analysis of significant concepts of form in relation to social, technological, and historical developments. Not open for credit for those who have had 154A or 154B respectively. The Design Staff

50. Ancient Art. Lecture, three hours; quiz, one hour. Open to Freshmen and to students who have not had credit for former 1A or 100A. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic and Roman art and architecture. Ms. Downey

51. Medieval Art. Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1B or 100B. Early Christian, Byzantine, Islamic, Carolingian, Ottomian, Romanesque, and Gothic art and architecture. Ms. Kalavrezou–Maxeiner, Mr. Werckmeister

52. Renaissance Art. Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1B or 100B. Art and architecture from 1400 to 1600 in Italy, Flanders, Germany, France, and Spain. Ms. Weisz

53. Baroque Art. Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1C or 100C. Art and architecture from 1600 to 1800 in Italy, France, Netherlands, Germany, Spain, England and the United States. Ms. Weisz

54. Modern Art. Lecture, three hours; quiz, one hour. Open to Freshmen and students who have not had credit for former 1C or 100C. Art and architecture from 1800 to the present in Europe and the United States. Mr. Boime, Mr. Kunzle

55. Africa, Oceania, and Native America. Lecture, three hours; quiz, one hour. Comparative approach, emphasizing economic, cultural, and historical aspects of selected artistic traditions which developed outside the spheres of influence of the major European and Asiatic civilizations. Ms. Klein, Mr. Rubin

56. Asian Art. Lecture, three hours; discussion, one hour. A survey of the major artistic monuments of the Indo-Iranian, South-east and Central Asian and the East Asian cultures, concentrating upon formal and iconographical problems, as well as the social and political conditions under which artworks were patronized and produced. Ms. Klimburg–Salter, Mr. Powers

Upper Division Courses

HISTORY AND THEORY OF ART

101A. Egyptian Art and Archaeology. Lecture three hours. A study of architecture, sculpture, painting, and minor arts during the predynastic period and Old Kingdom. Mr. Badawy

101B. Egyptian Art and Archaeology. Lecture three hours. A study of architecture, sculpture, painting, and minor arts during the First Intermediate Period, Middle Kingdom, and Second Intermediate Period. Mr. Badawy

101C. Egyptian Art and Archaeology. Lecture three hours. A study of architecture, sculpture, painting, and minor arts during the Empire (or New Kingdom). Mr. Badawy

102. Art of the Ancient Near East. (Formerly numbered 101D.) A study of architecture, sculpture, painting, and minor arts in Mesopotamia, Asia Minor, North Syria, Phoenicia, Palestine, Persia and Cyprus from the origins to the 5th century B.C. Not open to students who have had credit for 101D. Mr. Badawy

103A. Greek Art. Lecture three hours. Prerequisite: course 50. A survey of the art and architecture of Greece from the archaic period through the 5th century B.C. Ms. Downey

103B. Hellenistic Art. Lecture, three hours. Prerequisites: courses 50 and 103A. The art and architecture of Greece from the fourth century B.C. through the first century B.C. Ms. Downey

103C. Roman Art. Lecture, three hours. Prerequisite: course 50. The art and architecture of Rome and its Empire from ca. 300 B.C. to A.D. 300. Ms. Downey

103D. Etruscan Art. Lecture, three hours. Prerequisite: course 50. The arts of the Italic peninsula from ca. 1000 B.C. to the end of the Roman Republic. Ms. Downey

103E. Late Roman Art. Lecture, three hours. Prerequisites: course 50, course 103C. The art of the Roman Empire from the second through the fourth centuries A.D. Ms. Downey, Ms. Kalavrezou–Maxeiner

104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages. Lecture, three hours. Prerequisites: course 104B for course 104C; course 104C for 104D.

105A. Early Christian Art. Lecture, three hours. Prerequisite: course 51 or consent of the instructor. The origins and development of the architecture, sculpture, and painting of early Christianity, to the Iconoclastic controversy. (Not open to students who have had credit for 105A.) Ms. Kalavrezou–Maxeiner

105B. Early Medieval Art. Lecture, three hours. Prerequisite: course 51 or consent of the instructor. Art and architecture of Western Europe from the Migration period until 1000 A.D. Mr. Werckmeister

105C. Romanesque Art. Prerequisite: course 51. Art and architecture of Western Europe in the 11th and 12th centuries. Mr. Werckmeister

105D. Gothic Art. Lecture, three hours. Prerequisite: course 51. Art and architecture of Europe in the 13th century. Mr. Werckmeister

105E. Byzantine Art. Lecture, three hours. Prerequisite: course 51 or consent of instructor. The theory and development of Byzantine Art from the Iconoclastic controversy to 1453, and the diffusion of Byzantine Art in Armenia, Georgia, the Caucasus, and Russia. Not open to students who have received credit for Art 105A prior to Spring 1972. Ms. Kalavrezou–Maxeiner

106A. Italian Art of the Trecento. Lecture, three hours. Prerequisite: course 52 or consent of instructor. Art and architecture of the 14th century.

106B. Italian Art of the Quattrocento. Lecture, three hours. Prerequisite: course 52. Art and architecture of the 15th century. Mr. Pedretti, Ms. Weisz

106C. Italian Art of the Cinquecento. Lecture three hours. Prerequisite: course 52. Art and architecture of the 16th century. Mr. Pedretti, Ms. Weisz

108A. Northern Renaissance Art. Lecture, three hours. Prerequisite: course 52. Painting and Sculpture in the Northern Renaissance.

108B. Northern Renaissance Art. Lecture, three hours. Prerequisite: course 108A. Painting and Sculpture in the Northern Renaissance.

109A. Baroque Art. Lecture, three hours. Prerequisite: course 53. Art and architecture of Italy and Spain, 16th to late 17th century. Mr. Pedretti, Ms. Weisz

109B. Baroque Art. Lecture, three hours. Prerequisite: course 109A. Art and architecture of Northern Europe, 16th to late 17th century. Mr. Kunzle

109C. European Art of the 18th Century. Lecture, three hours. Prerequisite: course 53. Painting, architecture and sculpture of the 18th century will be examined in the light of political and intellectual developments. Special emphasis will be given to the effect of the rise of democratic institutions, especially the French Revolution. Mr. Kunzle

109D. Art and Architecture of Georgian England. Lecture, three hours. Mr. Wark

110A. European Art of the 19th Century. Lecture, three hours. Prerequisite: course 54. Neoclassicism and Romanticism, with emphasis upon France – the development and influence of David, Ingres and Delacroix. Mr. Kunzle

110B. European Art of the 19th Century: Realism and Impressionism. Lecture, three hours. Prerequisite: course 54. An inquiry into the problem of realism with emphasis on French Art, but including developments in England and Germany. Mr. Kunzle

110C. European Art of the 19th and 20th Century: Post Impressionism to Surrealism. Lecture, three hours. Prerequisite: course 54. A study of the major developments in Modern Art, 1880's-1930, including Seurat, Cezanne, Gauguin, Van Gogh, Art Nouveau, Fauvism, German Expressionism. Mr. Boime, Mr. Kunzle

110D. Contemporary Art. Lecture, three hours. Prerequisite: course 54. European and American art since World War II. Mr. Kunzle

112A. American Art. Lecture, three hours. Architecture in the United States from the Colonial period to the 19th century. Mr. Bloch

112B. American Art. Lecture, three hours. Painting and sculpture in the United States from the Colonial period to the 19th century. Mr. Bloch

112C. American Art. Lecture, three hours. Art and architecture in the United States in the 20th century. Mr. Bloch

114A. The Early Art of India. Lecture, three hours. Prerequisite: not open to Freshmen. Survey of Indian Art from the Indus Valley cultures to the 10th century. Emphasis will be given to the Buddhist and Hindu backgrounds of the arts. Ms. Klimburg–Salter

114B. Chinese Art. Lecture, three hours. Not open to Freshmen. Survey of the arts of China from the Neolithic times to the 18th century. The various arts will be related to the developing historical background of the country. Mr. Powers

114C. Japanese Art. Lecture, three hours. Not open to Freshmen. Japanese art from its beginning in prehistory through the 19th century. Emphasis will be placed on the development of Buddhist art and its relationship with the culture. Mr. McCallum

114D. The Later Art of India. Lecture, three hours. Prerequisite: course 114A or consent of instructor. Survey of Indian Art from the 10th century to the 19th century. The decline of Buddhist Art, the last efflorescence of Hindu architecture, Muslim painting and architecture, and Rajput painting. Ms. Klimburg–Salter

115A. Advanced Indian Art. Lecture, three hours. Prerequisite: course 114A. Study in Indian sculpture and architecture. Ms. Klimburg–Salter

115B. Advanced Chinese Art. Lecture, three hours. Prerequisite: course 114B. Study in Chinese painting and sculpture. Mr. Powers

115C. Advanced Japanese Art. Lecture, three hours. Prerequisite: course 114C. Study in Japanese painting and sculpture. Mr. McCallum

117A. Advanced Studies in Pre-Columbian Art: Mexico. Lecture, three hours. Prerequisite: course 118B or consent of the instructor. A study of the art of selected cultures of northern Mesoamerica from ca. 1200 B.C. to the Conquest, with an emphasis on historical and iconographic problems. Ms. Klein

117B. Advanced Studies in Pre-Columbian Art: Central America. Lecture, three hours. Prerequisite: course 118B or consent of the instructor. A study of the art of selected cultures of southern Mesoamerica and the remainder of Central America, from ca. 2000 B.C. to the Conquest, with particular emphasis on the history and iconography of the art of the Maya. Ms. Klein

117C. Advanced Studies in Pre-Columbian Art: The Andes. Lecture, three hours. Prerequisite: course 118B or consent of the instructor. A study of the art of selected cultures of Colombia, Ecuador, Peru, and Bolivia, from ca. 4000 B.C. to the Conquest, with particular emphasis on the history and iconography of the art of Peru. Ms. Klein

118A. The Arts of Oceania. Lecture, three hours. Prerequisite: course 55 or consent of the instructor. Survey of the arts of the major island groupings of

the Pacific, emphasizing style-regions and broad historical relationships. Ms. Klein, Mr. Rubin

118B. The Arts of Pre-Columbian America. Lecture, three hours. Prerequisite: course 55 or consent of the instructor. Survey of the sequence of cultures which developed in the area between (and including) Mexico and Peru, from ca. 1000 B.C. until the conquest. Ms. Klein

118C. The Arts of Sub-Saharan Africa. Lecture, three hours. Prerequisite: course 55 or consent of the instructor. The early arts of Nigeria and a selection of other traditions, emphasizing sculpture. Mr. Rubin

118D. The Arts of Native North America. Lecture, three hours. Prerequisite: course 55 or consent of the instructor. Survey of painting, sculpture, and other arts, from the Eskimo to the peoples of the Caribbean and the Southwestern United States. Ms. Klein, Mr. Rubin

119A. Advanced Studies in African Art: Western Africa. Lecture, three hours. Prerequisites: course 118C or consent of the instructor. Graduate students in Art History may receive credit toward M.A. and Ph.D. requirements. Consideration of the network of stylistic, historical, and cultural relationships existing among the peoples of the upper Niger River Valley and adjacent portions of the Western Guinea Coast. Mr. Rubin

119B. Advanced Studies in African Art: Central Africa. Lecture, three hours. Prerequisites: course 118C or consent of theinstructor. Graduate students in Art History may receive credit toward M.A. and Ph.D. requirements. Northern and eastern Nigeria, Cameroun, and the Ogowe River Basin. Mr. Rubin

120A. History of Prints. Lecture, three hours. Development of style and techniques of expression in the graphic arts, from the 15th century to the early 16th century. Mr. Bloch

120B. History of Prints. Lecture, three hours. Development of style and techniques of expression in the graphic arts from the 16th to the early 19th century. Mr. Bloch

120C. History of Prints. Lecture, three hours. Development of style and techniques of expression in the graphic arts of the latter 19th and 20th century. Mr. Bloch

121A. Critical and Historical Studies in Drawing. Lecture, three hours. Development of style and means of expression in drawing from late Middle Ages to the Early Renaissance. Mr. Bloch

121B. Critical and Historical Studies in Drawing. Lecture, three hours. Development of style and means of expression in drawing from Late Renaissance to the present. Mr. Bloch

122. History of Style and Ornament. Lecture, three hours. Development of stylistic ideas and motifs in the Western world and their expression in design media from the Renaissance to 1900. A study in connoisseurship. Mr. Bloch

125. Tutorial Conferences. Discussion, two hours. Prerequisites: courses 50, 51, 52, 53, and 54. Restricted to undergraduate art history majors. Discussion of selected art topics with emphasis on related readings in music, literature, history and philosophy. Oral reports. Course grading will be on Passed/Not Passed basis only. Art History Staff

PAINTING/SCULPTURE/GRAPHIC ARTS

Painting/Sculpture/Graphic Arts courses are supervised by the following faculty, augmented by visiting staff: painting, drawing and sculpture, Amato, Brice, Elgart, Mullican, Nunes, Stussy and Valerio; printmaking, Brown; photography, Heinecken.

130. Life Drawing. Studio, eight hours; five hours arranged. Prerequisites: courses 10A, 10B, or consent of instructor. Maximum three courses. Studies from the model.

132. Drawing. Studio, eight hours; five hours arranged. Prerequisite: consent of the instructor. Maximum two courses. Drawing as a terminal medium of artistic expression.

133. Painting. Studio, eight hours; five hours arranged. Prerequisites: courses 10A-10B, 20A-20B, or consent of the instructor. Maximum three courses. Varied media and subjects. Composition, interpretation, expression.

135. Life Painting. Studio, eight hours; five hours arranged. Prerequisite: course 133. Maximum three courses. Varied media. Composition, interpretation, expression.

137. New Forms and Concepts. Studio, eight hours; five hours arranged. Prerequisites: courses 10A, 10B, 20A, 20B or consent of instructor. May be repeated for a maximum of eight units. Varied forms and processes. Concept art, performance and investigation of a variety of media, including film and video.

140. Print Making. Studio, eight hours; five hours arranged. Prerequisites: courses 10A-10B, 20A-20B, 132, or consent of the instructor. Maximum three courses. Selected studies in engraving, etching, drypoint, aquatint, softground, lithography, woodcut, and mixed media. Traditional and experimental studies. Fine printing.

145. Sculpture. Studio, eight hours; five hours arranged. Prerequisites: courses 10A-10B, 25 or consent of the instructor. Maximum three courses. Modeling or carving. Clay, plaster, wood, stone, metals, and welding. Plaster casting.

147. Photography. Studio, eight hours; five hours arranged. Prerequisites: courses 10A-10B, 20A-20B, or consent of the instructor. Maximum three courses. Photography as a medium of artistic expressions.

DESIGN

I. Comparative Studies in Design

161A. Ceramics. Lecture, three hours; laboratory, to be arranged. The evolution of ceramic form through geographic, social, and technological influences. Mr. Saxe

161B. Clothing. Lecture, three hours; laboratory, to be arranged. Clothing and body ornamentation; symbolic significance and evolving forms within their social, cultural, and geographic context. Ms. McCloskey

161C. Graphics. Lecture, three hours; laboratory, to be arranged. Symbols, signs and images, within social, cultural and historical contexts. Mr. W. Brown, Mr. Jennings, Mr. Neuhart

161D. Glass. Lecture, three hours; laboratory, to be arranged. The evolution of glass form and technology through geographic and sociological influences.

161E. Industrialization. Lecture, three hours; laboratory, to be arranged. Industry, design, and society; their changing relationships.

161F. Landscape. Lecture, three hours; laboratory, to be arranged. The analysis of concepts affecting the aesthetic and ecological quality of the landscape. Mr. Roberts

161G. Shelter. Lecture; three hours; laboratory, to be arranged. An analysis of dwelling types and forms; the forces affecting them.

161H. Textiles. Lecture, three hours; laboratory, to be arranged. Concepts of construction, ornamentation, expression, and utility. Mr. Kester in charge

161J. Video Imagery. Lecture, three hours; laboratory, to be arranged. Electronic audiographs in relation to pictorial forms; non-derivative "process level" characteristics and content-level perception. Mr. Kataoka, Mr. Neuhart

161K. Historic Fashions. Lecture, three hours; discussion, two hours. Fashions and stylistic changes in western dress from the late Medieval period to the present time, studied in relationship to the social and cultural background of each era. Ms. McCloskey

II. Concept and Form in Design

162A. Ceramics. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Introduction to creative development of ceramic materials and processes. Mr. Saxe

162B. Ceramics. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 162A or equivalent. The interaction of ideas, structure, and process. May be repeated once. Mr. Saxe

163A. Clothing. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Introduction to the creative process in designing contemporary clothing. Ms. McCloskey

163B. Clothing. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 163A or equivalent. Further development of the design process, with emphasis on the symbolic aspect of clothing. May be repeated once. Ms. McCloskey

164A. Fiber Structure. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Design and technology of woven forms; essential elements, tools, and processes. Mr. Bassler, Mr. Kester

164B. Fiber Structures. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 164A or equivalent. The derivation of non-loom processes utilizing pliable elements. May be repeated once. Mr. Bassler, Mr. Kester

165A. Graphics. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. The development of letterforms, typography, and reproduction technology. Mr. W. Brown, Mr. Jennings, Mr. Neuhart

165B. Graphics. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 165A or equivalent. Empiric and systematic graphic concepts, including methods, symbols, and media technology. May be repeated once. Mr. W. Brown, Mr. Jennings, Mr. Neuhart

166A. Glass. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. The development of forms in glass; off-hand methods including blowing, molding, and coldworking.

166B. Glass. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B 166A or equivalent. Theories of glass forming; colorants, lustres, acids, and surface delineation. May be repeated once.

167A. Industrialized Materials. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. The influence of diverse media, structures, and systems on form development. Mr. Shapira

167B. Industrialized Materials. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 167A or equivalent. Theories of newly developed technological materials and processes as conceptual influences. May be repeated once. Mr. Shapira

168A. Landscape. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. The modification, conservation, and utilization of natural land elements. Mr. Roberts

168B. Landscape. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 168A or equivalent. The specific relationship of modified natural elements to human requirements. May be repeated once. Mr. Roberts

169A. Product. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. Theoretical evolution of form in industry; synthesis of function, aesthetics, mechanical, and material properties. Mr. Shapira

NOTE: For key to symbols, see page 74

169B. Product. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 169A or equivalent. Empiric resolution of form factors influencing concept interpretations for industry. May be repeated once. Mr. Shapira

170A. Shelter. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. The determination of criteria for designing spatial enclosures. Mr. Shapira

170B. Shelter. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 170A or equivalent. The definition of structure and space in relation to human needs. May be repeated once. Mr. Shapira

171A. Textiles. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, or equivalent. Surface modification through ornament. Ms. Breitenbach

171B. Textiles. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 171A or equivalent. Dyeing theories and processes; natural and synthetic colorants. May be repeated once. Mr. Bassler, Ms. Breitenbach

172A. Video Imagery. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B or equivalent. Introduction to electronic image-making; video-tape and "live" representation. Mr. Kataoka, Mr. Neuhart

172B. Video Imagery. Lecture, two hours; laboratory, four hours. Prerequisites: courses 31A-31B, 32A-32B, 34A-34B, 172A or equivalent. Electronic audiographic recording explored for its sensory potential; video-tape as record of process and content levels. May be repeated once. Mr. Kataoka, Mr. Neuhart

III. Proseminars in Design

192. Proseminar in Design: Resources. Proseminar, three hours. Prerequisite: consent of adviser. Investigation of resources for creativity as an introduction to research. Concurrent enrollment in one course in Concept and Form recommended. Enrollment through Design faculty advisers. Can be repeated once. Design Staff

193. Proseminar in Design: Senior Studies. Proseminar, three hours. Prerequisite: consent of adviser. Members of the faculty will examine specific problems relevant to Design theory and performance. Topics for investigation will be announced in advance. Open to senior and advanced students through Design faculty advisers. May be repeated for a maximum of three courses. Design Staff

PAINTING/SCULPTURE/GRAPHIC ARTS

195. Proseminar in Painting/Sculpture/Graphic Arts. Discussion, three hours. Prerequisites: courses 10A, 10B, 20A, 20B. Analysis and discussion in Painting, Sculpture, and Graphic Arts with variable topics such as the comparison and contrast of traditional and contemporary concepts and media, and relationships to other arts. May be repeated for a maximum of three courses. The Staff in Painting/Sculpture/Graphic Arts

Special Studies for All Majors

197. Honors Course. Hours to be arranged. Prerequisite: 3.0 overall, 3.5 in major, consent of instructor, junior or senior standing. Individual studies for majors. Maximum two courses. The Staff

199. Special Studies in Art. (½ to 2 courses) Hours to be arranged. Prerequisites: 3.0 in major, consent of instructor, senior standing. Individual studies for majors. Maximum, two courses. The Staff

Graduate Courses

Prerequisite for all courses: consent of the instructor. All courses may be repeated for credit upon recommendation of adviser. Not open to undergraduate students. See College of Fine Arts, Unit Requirement. Course 201 through 265: exact topics of both graduate lecture courses and seminars vary.

201. Historiography of Art History. Seminar, two hours. A critical study of the various approaches to art history through the centuries. The Staff in Art History

202. Methodology of Art History. (½ to 2 courses) Sections oriented to the development and refinement of specialized research skills appropriate to particular periods and areas in the history of art. The Staff in Art History

203. Museum Studies. Seminar, two hours. Course will focus on various aspects of museum activities: concepts and historical evolution of art museums and collecting; methodology of exhibitions; problems involved in acquisition and evaluation of works of art. The Staff in Art History

204. Restoration, Preservation and Conservation. Seminar, two hours. Course may not be repeated. Mr. Johnson

205. Studies in Prints. Seminar, two hours. Mr. Bloch

206. Studies in Drawings. Seminar, two hours. Mr. Bloch

207. Studies in Prints. Lecture, two to three hours. Mr. Bloch

208. Studies in Drawings. Lecture, two to three hours. Mr. Bloch

210. Egyptian Art. Seminar, two hours. Mr. Badawy

211. Topics in Egyptian Art. Lecture, two to three hours. Mr. Badawy

212. Problems in Islamic Art. Lecture, two to three hours.

213. Problems in Islamic Art. Seminar, two hours.

216. Topics in African Art. Lecture, two to three hours. Mr. Rubin

217. Topics in Oceanic Art. Lecture, two to three hours. Ms. Klein, Mr. Rubin

218. Topics in Pre-Columbian Art. Lecture, two to three hours. Ms. Klein

219. Topics in Native North American Art. Lecture, two to three hours. Ms. Klein, Mr. Rubin

220. The Arts of Africa, Oceania and Pre-Columbian America. Seminar, two hours. Ms. Klein, Mr. Rubin

221. Topics in Classical Art. Lecture, two to three hours. Ms. Downey

222A-222B. Greco-Roman Art. Seminar, two hours. A detailed study of the sculpture and architecture of Syria and Mesopotamia in the Greco-Roman Period. Credit and letter grade will be given only on completion of the full seminar sequence. Ms. Downey

223. Classical Art. Seminar, two hours. Ms. Downey

224. Topics in Medieval Art. Lecture, two to three hours. Ms. Kalavrezou–Maxeiner, Mr. Werckmeister

225. Medieval Art. Seminar, two hours. Ms. Kalavrezou–Maxeiner, Mr. Werckmeister

226A-226B. Medieval Art and Architecture. Seminar, two hours. Credit and letter grade will be given only on completion of the full seminar sequence. Ms. Kalavrezou–Maxeiner

230. Italian Renaissance Art. Seminar, two hours. Mr. Pedretti, Ms. Weisz

231. Leonardo and Renaissance Theory of Art. Seminar, two hours. Mr. Pedretti

232. Topics in Italian Renaissance Art. Lecture, two to three hours. Mr. Pedretti, Ms. Weisz

233. Topics in Northern Renaissance Art. Lecture, two to three hours.

235. Northern Renaissance Art. Seminar, two hours.

240. Baroque Art. Seminar, two hours.

241. Topics in Baroque Art. Lecture, two to three hours. Mr. Pedretti, Ms. Weisz

244. Topics in European Art from 1700-1900. Lecture, two to three hours. Mr. Wark

245. European Art from 1700 to 1900. Seminar, two hours.

246. Art and Architecture of Georgian England. Seminar, two hours. Mr. Wark

252. Topics in Modern Art. Lecture, two to three hours. Mr. Boime, Mr. Kunzle

253. Modern Art. Seminar, two hours. Mr. Boime, Mr. Kunzle, Mr. Werckmeister

254. Topics in American Art. Lecture, two to three hours. Mr. Bloch

255. American Art. Seminar, two hours. Mr. Bloch

259. Topics in Asian Art. Lecture, two to three hours. Ms. Klimburg–Salter, Mr. McCallum, Mr. Powers

260. Asian Art. Seminar, two hours. Ms. Klimburg–Salter, Mr. McCallum, Mr. Powers

265. Field Work in Archaeology. (½ to 2 courses) Participation in Archaeological excavations or other archaeological research under supervision of the staff. The Staff in Art History

271. Graduate Painting. (½ to 2 courses) Hours to be arranged.

272. Graduate Printmaking. (½ to 2 courses) Hours to be arranged.

273. Graduate Sculpture. (½ to 2 courses) Hours to be arranged.

274. Graduate Photography. (½ to 2 courses) Hours to be arranged.

279. Seminar in Art. Seminar, two hours. Painting, Sculpture, Graphic Arts. Other forms and systems. Studies in concept, experience, process. The Staff in Painting/Sculpture/Graphic Arts

280. Communication Imagery. (½ to 2 courses) Laboratory, two to four hours. Exploration of graphic processes in visual systems. Design theory and procedures related to typography, letter form, photography and the graphic film as they communicate visually. Mr. Neuhart

281. Image Transfer. (½ to 2 courses) Laboratory, two to four hours. Advanced experimental work in print processes. Employment of the fixed image, such as offset lithography, offset or letter press, screen printing and emulsion printing, through photo/mechanical means. Mr. Jennings

282. Electronic Imagery. (½ to 2 courses) Laboratory, two to four hours. Electronic imagery. The recognition of the fugitive image in creative and recording processes such as video and the computer generated image. Mr. Kataoka

283. Costume. (½ to 2 courses) Seminar, two hours; laboratory, two hours. Advanced formulation and development of design ideas for contemporary fashion, dance, drama or ritual. Research on the evolution of style and modes of expression in historical and modern costumes. Ms. McCloskey

284. Ceramics. (½ to 2 courses) Seminar, two hours; laboratory, two hours. Advanced research and application of ceramic theory and methodology. Emphasis on the development of a responsible personal aesthetic. Includes, but is not limited to, investigations of clay and glaze design technology, design for industry, clay as medium, and the historical importance of ceramics as a socially responsible discipline. Mr. Saxe

285. Glass. (½ to 2 courses) Laboratory, two to four hours. Formal investigation and research in glass methods and processes as a creative discipline.

287. Design and Structure. (½ to 2 courses) Laboratory, two to four hours. Exploration of form with emphasis on experimentation with materials and processes. Mr. Vasa

288. Fiber Structures. (½ to 2 courses) Laboratory, two to four hours. Advanced formative work in tra-

ditional and experimental processes of fabric construction utilizing fiber media.
Mr. Bassler, Mr. Kester

289. Textiles. (½ to 2 courses) Laboratory, two to four hours. Advanced experimental work with the elements of fabric design, including surface manipulation and methods of fabrication, which may include but are not limited to dye and printing processes. Ms. Breitenbach

290A-290B-290C. Design Seminar—A Collaborative View. Seminar, three hours.
The Design Staff

290A. Formalization Processes. Critical examination of theoretical concepts underlying the design process, including the initiation of an idea, its interpretation and execution by the designer.

290B. Design Programming. Critical examination of idea development into model or procedural form for execution and/or production by others.

290C. Visual Communication. Critical examination of imagery in its social context.

291. Landscape Design. (½ to 2 courses) Laboratory, two to four hours. Articulation of landscape elements, including conservation and planning. Mr. Roberts

292. Shelter. (½ to 2 courses) Development of individual projects to investigate concepts of Shelter. Exploration of traditional and contemporary forms, methods, and materials. Mr. Shapira

293. Interior Space Design. (½ to 2 courses) The concept and practice of designing interior spaces. Evaluation of visual and functional needs for interior spaces, (ranging from personal to social spaces) two and three dimensional projects involving color, light, surface, materials, equipment, furniture, etc. Mr. Kester, Mr. Shapira

294. Industrial Design. (½ to 2 courses) Laboratory, two to four hours. Development of design strategies and process methods for industrial production. Mr. Shapira

295. Exhibition Design. (½ to 2 courses) Laboratory, two to four hours. Interpretation and presentation of materials for exhibition.
Mr. Carter

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) Prerequisite: consent of the instructor.
The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

Related Courses in Another Department

Classics 251A. Seminar in Classical Archaeology: The Aegean Bronze Age.

251B. Seminar in Classical Archaeology: Graeco-Roman Architecture.

251C. Seminar in Classical Archaeology: Graeco-Roman Sculpture.

251D. Seminar in Classical Archaeology: Graeco-Roman Painting.

The Department of Art reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the permanent collection of its galleries such examples as may be selected.

UCLA FREDERICK S. WIGHT ART GALLERY

The UCLA Frederick S. Wight Art Gallery, adjacent to Dickson Art Center, presents a program of changing exhibitions of regional, national and international significance, including a range of historical, ethnic and contemporary forms of art. Included in this program are exhibitions by faculty and students of the Painting/Sculpture/Graphic Arts and Design areas, and exhibitions assembled from the extensive collections of the Museum of Cultural History, focusing on non-Western and folk art. The Grunwald Center for the Graphic Arts maintains a print study collection and presents a series of exhibitions related to the Art Department's program of advanced studies in the graphic arts and art history.

ASIAN AMERICAN STUDIES (Interdepartmental)

(Office, 3232 Campbell Hall)

Special Program in Asian American Studies

For details of the program in Asian American Studies at the Undergraduate level, see "Special Program in Asian American Studies" under Colleges of Letters and Science.

Master of Arts in Asian American Studies

The Master of Arts in Asian American Studies is administered by an interdepartmental committee. Members of the Committee are: Lucie C. Hirata (Sociology) Chair; Hans Baerwald (Political Science); Perry Link (Oriental Languages); John Hawkins (Education); David Farquhar (History); Hiroshi Wagatsuma (Anthropology); Charles Nakamura (Psychology).

The interdisciplinary Master of Arts Degree in Asian American Studies is designed to promote scholarly research of Asians in the United States through a variety of disciplinary perspectives. The program is intended to provide training to community-oriented professionals and to serve as a foundation for further specialization at the doctoral level. The program will normally require two years of study in a program planned by the individual and the Graduate Advisor. Research is being conducted on various Asian American groups from many disciplinary perspectives. There are a variety of opportunities for graduate students to participate.

Admission to the M.A. Program

In addition to the general requirements of Graduate Division, the applicant must have a demonstrated interest in Asian American Studies as well as a general background in the social sciences. Students must present a minimum of two full years of study in an Asian language at the university level or its equivalent to be awarded the Master's Degree in Asian American Studies. This requirement may be fulfilled prior to entering the program, but all candidates for the M.A. degree must pass a proficiency examination administered by the Asian American Studies Center and the Faculty Guidance Committee. All students who anticipate advancing to doctoral programs are encouraged to develop a thorough mastery of one or more Asian languages.

Requirements for the M.A. Degree in Asian American Studies

A. General Requirements: See the Graduate Division

B. Course of Study

1. A two-quarter seminar, Asian American Studies 200A-200B Critical Issues in Asian American Studies, is the only sequence in the program specifically required.

2. Candidates for the Master's Degree in Asian American Studies must have, in addition, satisfactorily completed nine courses two of which may be independent study courses (500 series). At least five of the nine courses must be graduate level courses (200 series) while the other four can be upper division undergraduate courses. Three out of the five graduate courses must be selected from the following:

a. History 240—Race and Labor in California

b. Sociology 261—Ethnic Minorities

c. Anthropology 253—Asian Americans: Personality and Identity

C. Thesis: Candidates for the Master's Degree in Asian American Studies will be required to submit a thesis which is the result of scholarly research and original thinking.

D. An oral examination will be given by the candidate's Master's Degree Committee to the candidate on the problem examined in the thesis. The candidate must receive a "pass" on both the thesis and the oral examination in order to receive the degree.

INTERDISCIPLINARY COURSES

Upper Division

100A-100B. Introduction to Asian American Studies. This survey sequence is an introduction to Asian American Studies. The first quarter of the course will deal with the history of Asians in America. The second quarter will examine Asian American communities today. The Staff

103. Asian Americans and the Law. The course will survey major Federal and California case and legislative law directed specifically against Asian Americans, from 1850 to World War II and relocation. Major subject areas are Japanese relocation orders, Anti-Asiatic labor legislation, legal prohibitions against Asians' right to testify, case law on Asian women, and equal educational opportunity for Asians. Mr. Iwasaki

197. Topics in Asian American Studies.

Graduate Courses

200A-200B. Critical Issues in Asian American Studies. (2 courses) Prerequisite: graduate standing. Consent of instructor. A two-quarter interdisciplinary seminar which attempts to (1) review systematically and critically the literature on Asian Americans, (2) identify gaps of knowledge and controversial issues in the field, and (3) develop plans of research and investigation that focus on these issues. Ms. Hirata, Mr. Wagatsuma

297. Topics in Asian American Studies.

The following courses pertaining to Asian American Studies are offered by the departments listed. With the approval of the committee, other related courses may be included in a student's program.

Anthropology 103A-103B-103C. Peoples of Asia.

106G. The Comparative Ethnography of the Hispanic Peoples in North America.

108. Peoples of the Pacific.

139. Comparative Minority Relations.

160. Urban Anthropology.

163. Women in Culture and Society.

164. The Afro-American Experience in the United States.

253. Asian Americans: Personality and Identity.

269O. Comparative Minority Relations.

269W. Culture and Personality of Japan.

269Y. Cultures of the Pacific Islands.

Architecture and Urban Planning 218A-218B. Urban Structure Analysis and Modeling.

255. Urban Morphology: Definitions and Consequences.

251. Planning for Multiple Publics.

253. Social Theory for Planning.

History 182. The Immigrant in America.

183. The United States and the Philippines.

185A-185B. American and Comparative Working Class Movements.

186A-186B. History of the Chicano Peoples.

188. History of California.

NOTE: For key to symbols, see page 74

189A-189B. American Urban History.

191. Modern China.

192. Asians in American History.

195C. Japanese History.

200H. Colloquium in U.S. History.

214. Social and Intellectual History of Recent Japan.

M215C. History of American Education.

230. Advanced Historiography: Interpretations of Race and Racism in America Historiography.

240. Race and Labor in California 1848-1945.

270A-270B. Seminar in Recent U.S. History.

273A-273B. Seminar in United States Social and/or Intellectual History.

274A-274B. Seminar in the History of the American West.

276A-276B. Seminar in American Diplomatic History.

277A-277B. Seminar in Afro-American History.

279A-279B-279C. Seminar in Chinese History.

281A-281B. Seminar in Modern Japanese History.

285A-285B. Seminar in United States Urban History.

288A-288B. Seminar in Working Class History.

289A-289B. Seminar in Chicano History.

290A-290B. Seminar in Social History of Women in the U.S.

292A-292B. Seminar in Native American History.

Political Science 135. International Relations of China.

136. International Relations of the Japan.

159. Chinese Government and Politics.

160. Japanese Government and Politics.

224H. Comparative Community Political Systems.

250C. Chinese and East Asian Studies.

250D. Japanese and Western Pacific Studies.

Psychology 175. Community Psychology.

176. Experimental Community Psychology.

228. Seminar in Political Psychology.

229A-229B. Issues in the Social Development of the Minority Child.

Sociology 124. Ethnic and Status Groups.

125. Urban Sociology.

129. White Racism.

134. Comparative Social Institutions of East Asia.

155. Intergroup Conflict and Prejudice.

234. Sociology of Community Organization.

238A-238B. Field Work in Minority Communities.

259. Social Structure and Economic Change: Historical and Comparative Perspectives.

260. Industry and Society.

261. Ethnic Minorities.

262. Selected Problems in Urban Sociology.

276. Selected Topics in the Sociology of East Asis.

291. Moral Solidarity in Communities.

ASTRONOMY

(Department Office, 8979 Mathematical Sciences Building)

George O. Abell, Ph.D., *Professor of Astronomy.*
Lawrence H. Aller, Ph.D., *Professor of Astronomy.*
Ferdinand Coroniti, Ph.D., *Professor of Physics and Astronomy.*
Harland W. Epps, Ph.D., *Professor of Astronomy.*
Miroslav Plavec, Ph.D., *Professor of Astronomy.*
Roger K. Ulrich, Ph.D., *Professor of Astronomy (Chairman of the Department).*
Daniel M. Popper, Ph.D., *Emeritus Professor of Astronomy.*
Holland C. Ford, Ph.D., *Associate Professor of Astronomy.*
Michael A. Jura, Ph.D., *Associate Professor of Astronomy.*
Jonathan I. Katz, Ph.D., *Associate Professor of Astronomy and IGPP.*
Bruce H. Margon, Ph.D., *Associate Professor of Astronomy.*

•

Steven A. Grandi, Ph.D., *Adjunct Assistant Professor of Astronomy.*
Donald E. Osterbrock, Ph.D., *Director of Lick Observatory.*

Classes for Non-Majors

Astronomy 3 and 4 are essentially nonmathematical courses open to the general university student. Astronomy 4 covers special topics to a somewhat greater depth and requires some preliminary elementary background in astronomy (e.g., Astronomy 3).

Students who have had at least two courses in high school algebra and one course in trigonometry, are strongly advised to take, instead of Astronomy 3, the parallel honors course Astronomy 3H. While the level of required mathematical skills in 3H is still elementary, the class is smaller and more challenging. Similarly, students who have already taken some college courses in physics and mathematics, should take Astronomy 4H instead of 4. In particular, declared or potential majors in astronomy or in physical and related sciences should take courses 3H and 4H, not 3 or 4.

Astronomy 101 is a general survey course recommended to science majors who wish to get a good general picture of astronomy and astrophysics in one course. Astronomy 4H is on about the same level, but has the form of a seminar focused on several selected topics, and is recommended mainly to lower division students who already have had an astronomy class.

Students of junior and senior standing in physics or related sciences are invited to choose any of the classes 103, 104, 106, 115, 117, 127, and 130.

Advising

Every student enrolled in the curriculum in astronomy is required each quarter to have a program approved by a departmental adviser.

Preparation for the Major

*Required:*Physics 8A-8E; Mathematics 31A, 31B, 31C, 32A, 32B, 32C; *Recommended:* Astronomy 3H, Chemistry 11A, Engineering 10F.

The Major

*Required:*Astronomy 103, 106, 115, 117, 127, 130; Physics 105A-105B; 110A-110B; 115A-115B; 131A. Mathematics: at least one upper division course chosen from 130 through 152, or alternatively, completion of Physics 131B. *Recommended:* Astronomy 4H, 101, 104, 180; Earth and Space Sciences 101; Physics 108, 112A, 112B, 124, 131B.

Honors Program in Astronomy

Senior majors in Astronomy with a 3.40 grade point average in all Astronomy, Mathematics, and Physics courses are eligible for the Honors Program in Astronomy. In addition to completing all courses required for the major, the honors student must complete two quarters of 199. To receive honors and highest honors at graduation, the grade point average must remain 3.40 or higher and the work in 199 must reflect original research and be accepted by the departmental honors committee.

Requirements for the Master's Degree

General Requirements. See Master's Degrees. The Department offers work under The Comprehensive Examination Plan. This examination is given annually in fields specified by the Department. The requirements for the master's degree should normally be completed at the end of one year, and must be completed not later than two years after beginning graduate studies.

The record of each graduate student admitted from another institution will be evaluated in consultation with the student to determine whether undergraduate courses in physics or astronomy are required to strengthen the student's background. The student should have undergraduate preparation equivalent to our undergraduate major, which consists of the courses: Astronomy 101, 103, 106, 115, 117, 127, 130, Physics 105A-105B, 110A-110B, 115A-115B, and 131A.

Requirements for the Degree of Doctor of Philosophy

General Requirements. See Doctoral degrees. The candidate must obtain a master's degree. (See the preceding section.) All astronomy Ph.D. candidates are further required to serve one year as a teaching assistant.

A graduate student's annual evaluation is based on: (1) course grades, (2) research projects realized in the C-parts of graduate course (see below under Graduate Courses), (3) annual comprehensive examinations which establish his general level of knowledge in the core courses offered during the previous academic year. While certain minimum requirements must be satisfied in each of these three fields, a credit point system permits the student to make up partly for deficiencies in one field by outstanding results in another. These requirements should normally be satisfied within 9 quarters, and not later than within 12 quarters. When starting his work on a thesis, the candidate will also be required to pass an oral qualifying examination, conducted by his doctoral committee, that will test his preparation to conduct a specialized research problem.

The Department of Astronomy operates an off-campus observatory at Ojai, California, which features a 24-inch reflecting telescope and a 10-inch Schmidt telescope that are available to students in their independent study and research programs in connection with courses 199, 596A and 599. In addition, the extensive facilities of the Lick Observatory may be utilized

Lower Division Courses

3. Astronomy: The Nature of the Universe. Lecture, three hours; discussion, one hour. Not open to students who have taken or are taking Astronomy 101. An essentially nonmathematical course for the general university student on the development of ideas in astronomy, and what has been learned of the nature of the universe, including recent discoveries and developments. The Staff

3H. Introductory Astronomy and Astrophysics. (Formerly numbered 8.) Lecture, three hours per week; discussion, one hour per week. Introduction to astronomy and astrophysics for freshmen who are seriously interested in science. Course requires the ability to understand mathematical and physical concepts, but high school algebra and trigonometry classes provide sufficient qualification. Particularly recommended to declared or potential majors in astronomy or in physical and mathematical sciences. Mr. Jura, Mr. Margon, Mr. Plavec

4. Topics in Modern Astronomy. Lecture, three hours; discussion, one hour. Prerequisite: course 3 or 3H, or the equivalent. For the general university student with previous introduction to astronomy. Selected topics (such as evolution of the solar system and stars, and cosmology) are treated in some depth, but without formal mathematics, emphasizing their significance and relationships to other sciences. The Staff

4H. Topics in Contemporary Astrophysics. (Formerly numbered 80.) Prerequisites: Astronomy 3 or 3H, Physics 8A, Math 31A-31B or equivalents; Physics 8B and Math 31C concurrent; or permission of the instructor. An honors course for students whose physics and mathematics background is insufficient for upper division courses, but have the ability to understand mathematical and physical concepts. Selected topics, such as cosmology, stellar evolution, or formation of the solar system, are treated in depth with moderate use of mathematics. Mr. Jura, Mr. Margon, Mr. Plavec

10. Practice in Observing. (½ course) Meets one evening a week for two and one-half hours. Prerequisite: knowledge of plane trigonometry and some previous or concurrent course in astronomy, or consent of the instructor. Practical work for begin-

ners, including telescopic observations and laboratory exercises cognate to an introductory course in astronomy. The Staff

Upper Division Courses

101. General Astronomy and Astrophysics. Meets four hours per week. Prerequisites: Physics 8A and Mathematics 31A-31B or their equivalents. Open to qualified sophomores as well as upper division students. Course 10 may be elected for observatory and laboratory work in connection with this course. A survey of the whole field of astronomy, designed primarily for students majoring in a physical science or mathematics. The Staff

103. Gravitational Astronomy. Meets four hours per week. Prerequisites: Physics 8A-8D; Mathematics 31A-31C and 32A-32B; Astronomy 101 or 3H recommended. Astronomical coordinates, transformations, precession, astronomical time keeping, celestial navigation. Two body orbit theory in the solar system, calculation of an ephemeris from orbital elements and an orbit from observations. Theory of least squares and data handling. Orbits of visual and spectroscopic binary stars; determination of stellar masses. Tidal, rotational, and relativistic perturbations of the gravitational potential. Mr. Abell, Mr. Epps

104. Astronomical Optics. Meets three hours per week. Prerequisite: Physics 105A. Geometrical optics, including ray tracing and optical aberrations commonly encountered in optical design. Interference, diffraction, dispersion, photoelectric emission and other aspects of physical optics with particular emphasis placed on practical application in astronomical investigation. Mr. Epps

106. Stars, Stellar Systems, and Cosmology. Meets three hours per week. Prerequisites: Physics 8A-8D; Mathematics 31A-31C and 32A-32B; recommended: Astronomy 3H or 101, 103. Properties of stars, stellar spectroscopy and photometry. The galaxy and external galaxies. Galactic and extragalactic distance scales. Introduction to cosmology. Mr. Abell, Mr. Ford, Mr. Plavec

115. Physical Foundations of Astrophysics. Lecture, four hours. Prerequiste: upper division standing in astronomy or physics, or consent of instructor. Spectroscopy and spectral lines in stellar spectra. Theory of radiation and continuous stellar spectra. Astrophysics of the gaseous state of matter, ionization and excitation, and local thermodynamic equilibrium. Interaction between matter and radiation. Mr. Coroniti, Mr. Epps, Mr. Jura

117. Stellar Atmospheres and Interstellar Matter. Meets three hours per week. Prerequisite: senior standing in astronomy or physics, or consent of instructor; Astronomy 115 or its equivalent. Introduction to radiative transfer, stellar atmospheres and their models. Curve of growth analysis and abundance determinations. Atmosphere of the Sun. Physical conditions in the interstellar medium and aspects of star formation. Mr. Aller, Mr. Jura

127. Stellar Interiors and Evolution. Meets three hours per week. Prerequisites: senior standing in astronomy or physics, or consent of instructor. Recommended: Astronomy 115. Physical conditions in stellar interiors. Energy production in stars. Stellar evolution from star formation through the normally observed stages to white dwarfs, neutron stars, and black holes. Novae, supernovae, other variable stars. Synthesis of chemical elements in stars. Mr. Plavec, Mr. Ulrich

130. High Energy Astrophysics. Meets three hours per week. Prerequisites: Senior standing in astronomy or physics, or consent of instructor. Theory and observation pertaining to astronomical sources of high energy radiation. Theory of synchrotron radiation, Compton scattering; interaction of matter with compact objects. Solar flares, X- and gamma ray sources, the Crab nebula, nuclei of peculiar galaxies, quasars. Mr. Katz, Mr. Margon

180. Senior Symposium on Topics in Modern Astronomy. Meets three hours per week. Prerequisite: senior standing in astronomy or physics or consent of the instructor. Lectures by instructors in astronomy and related fields to supplement the regular course sequence. Topics may include: radio, infrared, UV and X-ray astronomy, observational cosmology, variable stars, planetary physics, pulsars and quasars. Mr. Ulrich

199. Special Studies. (½ or 1 course) Prerequisite: senior standing in astronomy or physics, with an outstanding record, and consent of the instructor. Special studies with an individual faculty member. With prior approval, this course may be used to carry out a meritorious observing program at the UCLA Students' Observatory, or in special cases with the 24-inch reflector at the Department's Field Station in Ojai. The Staff

Graduate Courses

Prerequisite to all graduate courses is consent of the instructor. Graduate courses 204 through 230 are offered in alternate years. With the exception of the introductory graduate course 200, the regular graduate courses consist of three quarters according to the following scheme: level A (winter quarter, 4 units); a basic survey course presenting the minimum knowledge in the field expected for all students who wish to obtain the Ph.D. degree, but who do not necessarily plan to specialize in the field covered by the course; Level B (spring quarter, 6 units): advanced level for those considering the possibility of taking up a research project in the field. Level C (fall quarter, following academic year, 8 units): individual research projects supervised by the instructor in the form of a laboratory. The introductory courses are given in the winter quarters so that (1) full use may be made of the favorable fall weather for observational projects, (2) new graduate students may be acquainted with the program and with the department in the introductory course 200, which is offered every year. Course 240 is equivalent to the B courses.

200. *Introduction to Graduate Study of Astronomy.* Prerequisite: to be taken by all newly entering graduate students. Surveys the various fields of astronomy and astrophysics, gives first acquaintance with working methods, and with the department. Basic astronomical nomenclature is surveyed, and the background in physics and mathematics is outlined as required in graduate courses. Mr. Epps

201. Astrophysics of the Solar System. Prerequisite: graduate standing or permission of instructor. The sun, solar phenomena, and solar-terrestrial relationships. The interplanetary medium and astronomical plasma physics, comets, meteorites, meteors, satellites and planets, planetary atmospheres. Origin and evolution of the solar system. Mr. Aller, Mr. Ulrich

***[16]204A-204B-204C. Observational Astronomy. (1 course, 1½ courses, 2 courses)** Positional astronomy, data reduction, telescopes, photometric, spectroscopic and radio instruments and techniques. Includes laboratory. Mr. Epps, Mr. Ford

***[17]208A-208B-208C. The Interstellar Medium. (1 course, 1½ courses, 2 courses)** Dynamics and physics of interstellar gas and dust. Radio observations of the interstellar medium. Diffuse and planetary nebulae. Magnetic fields in space. Star formation. Topics in high energy astrophysics. Mr. Aller, Mr. Jura

***[17]217A-217B-217C. Stellar Photospheres. (1 course, 1½ courses, 2 courses)** Prerequisite: consent of the instructor. Physics of stellar photospheres and radiative transfer. The continuous and line spectra of stars. Chemical abundances in stars. Stars with extended and unstable atmospheres. Mr. Aller, Mr. Plavec, Mr. Ulrich

***[17]219A-219B-219C. Stellar Systems. (1 course, 1½ courses, 2 courses)** Statistical astronomy. Distance determination. Stellar motions and populations. Stellar dynamics. Structure of the Galaxy. Galaxies and clusters of galaxies. Distribution of matter in space. Cosmology. Mr. Abell, Mr. Ford

***[16]227A-227B-227C. Stellar Structure and Evolution. (1 course, 1½ courses, 2 courses)** Structure and evolution of the stars. Stellar energy sources and problems of nucleosynthesis. Theory of variable stars. Evolution of and mass exchange in binary stars. Final state of stellar evolution and degenerate stars. Supernova processes. Practical computation of stellar structure and evolution. Mr. Plavec, Mr. Ulrich

230A-230B-230C. High Energy Astrophysics. (1, 1½, 2 courses) Prerequisite: consent of the instructor. High energy radiation processes. Observational techniques of X- and Gamma-ray astronomy. Theory and observational results of X- and Gamma-ray sources, pulsars, radio galaxies, and quasars. Mr. Coroniti, Mr. Katz, Mr. Margon

240. Modern Problems in Astronomy and Astrophysics. Special topics offered by distinguished visiting professors. May be repeated for credit. Open to qualified graduate students in astronomy and in related fields (physics, meteorology, planetary and space physics).

250. Seminar on Current Astronomical Research. (½ course) The Staff

M266. Cosmic Ray Physics. (Same as Earth and Space Sciences M266.) Cosmic ray composition, origin, acceleration, propagation, interactions with interstellar matter, magnetic field and radiation field, role in interstellar heating, non-thermal galactic radio and galactic x- and gamma-radiation, interaction in the earth's atmosphere.

M285. Origin and Evolution of the Solar System. (Same as Earth and Space Sciences M285.) Dynamical problems of the solar system; chemical evidences from geochemistry, meteorites, and the solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes; formation of the planets and satellite systems. Content will vary from year to year. May be repeated for credit. Graded S/U. The Staff

Individual Study and Research

The following courses, 596A, 596L and 599, may be repeated by a student at the discretion of the Department.

596A. Directed Individual Studies. (½ to 2 courses) The Staff

596L. Advanced Study and Research at the Lick Observatory. (½ to 3 courses) Intended for graduate students who require observational experience as well as those working upon observational problems for their theses. The Staff

599. Doctoral Research and Writing. (2 to 3 courses)

ATMOSPHERIC SCIENCES

(Department Office, 7127 Mathematical Sciences Building)

Akio Arakawa, D.Sc., *Professor of Atmospheric Dynamics.*
James G. Edinger, Ph.D., *Professor of Meteorology.*
Yale Mintz, Ph.D., *Professor of Meteorology.*
Hans R. Pruppacher, Ph.D., *Professor of Atmospheric Physics.*
George L. Siscoe, Ph.D., *Professor of Atmospheric Physics.*
Richard M. Thorne, Ph.D., *Professor of Atmospheric Physics (Chairman of the Department).*
Sekharipuram V. Venkateswaran, Ph.D., *Professor of Atmospheric Physics.*
Morton G. Wurtele, Ph.D., *Professor of Atmospheric Dynamics.*
Michio Yanai, D.Sc., *Professor of Atmospheric Dynamics.*
Jorgen Holmboe, M.Sc., *Emeritus Professor of Meteorology.*
Morris Neiburger, Ph.D., *Emeritus Professor of Meteorology.*
Jacob G. Kuriyan, Ph.D., *Assistant Professor of Atmospheric Physics.*
Max J. Suarez, Ph.D., *Assistant Professor of Atmospheric Dynamics.*

Preparation for the Major

The required courses are: Course 10, 40A-40B, Physics 8A-8E; Mathematics 31A-31B-31C and 32A-32B-32C.

NOTE: For key to symbols, see page 74

The Major

The required courses are: Atmospheric Sciences 109A-109B; Physics 110A-110B, 112A, 131A-131B; two courses from Atmospheric Sciences 143, 144, 151, and two courses from 152, 153, 154. In addition, students preparing for graduate studies in Dynamic and Synoptic meteorology should take as electives the following courses: Mathematics 135A, 135B, 140A and 140B; students preparing for graduate studies in Dynamics and Microphysics of Clouds and Precipitation should take as electives the following courses: Physics 112B and 140 and Mathematics 140A, 135A and 135B; students preparing for graduate studies in Radiation, or Upper Atmospheric and Space Physics should take as electives the following courses: Physics 105A-105B, and 122.

Admission to Graduate Status

The Department recognizes the desirability of a wide variety of backgrounds of students concerned with study of the various aspects of the atmosphere. In addition to those holding bachelor's degrees in meteorology or atmospheric sciences, graduates with degrees in related disciplines — astronomy, chemistry, engineering, geophysics, mathematics and physics — are encouraged to apply for graduate status in the Department. Programs are arranged by consultation between the student and the Department's graduate advisers, and considerable flexibility is maintained so that maximum advantage may be taken of the candidate's previous education.

Requirements for the Master's Degree

For general requirements, see Graduate Division.

A bachelor's degree in one of the following: meteorology (atmospheric sciences), astronomy, chemistry, engineering, geophysics, physics or mathematics.

A study program, approved by the Departmental Graduate Advisers, to fill any deficiencies in the student's preparation for the general examination and to prepare the student in one of the fields of specialization: (1) Dynamic and Synoptic Meteorology, (2) Dynamics and Microphysics of Clouds and Precipitation, (3) Radiation, or (4) Upper Atmospheric and Space Physics.

Atmospheric Sciences 260 is required.

Knowledge of a foreign language is not required.

The Department grants the Master's degree either by the comprehensive examination plan or by the thesis plan. All students are required to attain a 3.0 or higher in one 150-series or graduate course in each of two fields other than their field of specialization. A student following the examination plan must pass an examination in his field of specialization. A student with an excellent academic record may petition the Department to follow the thesis plan.

Requirements for the Doctor's Degree

For the general requirements, see Graduate Division.

Knowledge of a foreign language is not required.

A student must pass the following examinations in no more than two attempts: (1) a written and, at the option of the Departmental Guidance Committee, an oral examination in his field of specialization and (2) an oral qualifying examination conducted by his Doctoral Committee.

After advancement to candidacy, the candidate must satifactorily complete a dissertation which represents an original contribution to knowledge, and must pass a final oral examination conducted by his Doctoral Committee.

Lower Division Courses

2. Air Pollution. Lecture, three hours; discussion, one hour. A course for all students interested in the causes and effects of high concentrations of pollution in the atmosphere. Topics covered will include the nature and sources of gaseous and particulate pollutants, their transport, dispersion, modification and removal, with emphasis on atmospheric processes on scales ranging from individual sources to global effects; interaction with the biosphere and the oceans; stratospheric pollution. Mr. Edinger

3. Introduction to the Atmospheric Environment. Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the breadth requirement of students majoring outside the Physical Sciences. The nature and causes of weather phenomena, including winds, clouds, rain, lightning, tornadoes and hurricanes, solar and terrestrial radiation; phenomena of the higher atmosphere; the ionosphere and the auroras; causes of air pollution; proposed methods and status of weather modification. This course is not open to students who have received credit for 3L.
Mr. Siscoe, Mr. Suarez, Mr. Venkateswaran

***13L. Introduction to the Atmospheric Environment.** Lecture, three hours; laboratory, two hours. Same as Meteorology 3, with laboratory sessions to illustrate and apply the material of the lectures. This course is not open to students who have received credit for 3.

10. Introduction to the Atmospheric Sciences. Lecture, three hours; discussion, two hours. Prerequisites: Mathematics 31A-31B-31C and Physics 8A, 8B or consent of the instructor. An introductory course in atmospheric processes designed for science and engineering students. Topics will include the evolution of planetary atmospheres, their present composition and structure; atmospheric radiation and thermodynamics; elementary atmospheric dynamics; climate change; planetary ionospheres. Mr. Kuriyan

12. Forecasting Seminar. (½ course) Objective forecasting of wind, temperature, and precipitation for Los Angeles as measured at UCLA, and for a major city east of the Rockies. Emphasis on developing forecasting experience and familiarity with the use of satellite and conventional observations, map analyses and numerical weather prediction guidance produced by National Meteorological Center. Forecasts are quantified and evaluated objectively. No previous experience required.
Mr. Emanuel

40A. Basic Meteorology I. Lecture, three hours; laboratory, six hours. Prerequisite: course 10. Terrestrial energy budget: general circulation; atmospheric motions; fronts and cyclones. Mesoscale dynamics, moist air thermodynamics, cumulus convection. Applications to weather forecasting and modification. (Meteorological instrumentation, observing techniques and the basic principles of map analysis will be covered in the laboratory). Mr. Emanuel

40B. Basic Meteorology II. Lecture, three hours; discussion, one hour. Prerequisite: course 40A. Atmospheric chemistry. Microstructure and formation of clouds and precipitation. Atmospheric electricity. Scattering and absorption of radiation in the atmosphere. Upper atmospheric phenomena, ionospheric layer formation, aurora, exosphere escape. The Earth's radiation belts and magnetosphere, and its interaction with the solar wind.
Mr. Wurtele

Upper Division Courses

M109A. Geophysical Fluid Dynamics. (Same as Earth and Space Sciences M109A.) Lecture, three hours; discussion two hours. Prerequisite: Mathematics 32C; Physics 8D. Together with 109B, an introduction to fluid dynamics as applied to geophysical problems. Kinematics. Equations of fluid motion. Irrotational flow. Circulation theorems. Vorticity and vortices. Acoustic and gravity waves. Viscous flow. Mr. Wurtele

109B. Geophysical Fluid Dynamics. Lecture, three hours; discussion, two hours. Prerequisite: course M109A or consent of the instructor. The Navier-Stokes equations. Rotating reference frames. Acoustic and gravity waves in a stratified atmosphere. Hydromagnetic waves. The quasi-static equilibrium. Planetary-scale oscillations. The quasi-geostrophic motion. Barotropic and baroclinic instabilities. Mr. Wurtele

141. Solar and Terrestrial Relations and the History of Man. Lecture, three hours. The terrestrial consequences of solar activity—aurora borealis and magnetic storms, and its effects on various aspects of human activity through history, from space age to stone age; e.g., its impact on satellites, communications, arctic explorations, literature, folklore, myths and religion will be covered. Emphasis will be on the phonomenology and the human response to it. Background in one of the following or consent of the instructor: history of science, folklore, mythology, environmental or physical sciences, archeology, anthropology.
Mr. Siscoe

***1143. Physical Oceanography.** Lecture, three hours; discussion or field trip, one hour. Prerequisite: course 40A. Physical structure of the oceans; observational techniques. Theory of waves, currents, swell and tides.

144. Micrometeorology and Air Pollution Meteorology. Lecture, three hours. Prerequisite: course 40A-40B or consent of the instructor. Wind and temperature structure in the surface layer; mesoscale weather and wind systems; turbulence and diffusion; evaporation; transport, diffusion and transformation of atmospheric contaminants.
Mr. Edinger

151. Dynamics of the Troposphere and Stratosphere. Lecture, three hours; dicussion two hours. Prerequisite: course 109B. The general circulation of the atmosphere. Global budgets of angular momentum, heat and water vapor. Interaction of the stratosphere with the troposphere. The planetary boundary layer. Moist convection. Frontal and mesoscale weather systems. Dynamics of the tropical atmosphere. Mr. Yanai

152. Physics of Clouds and Precipitation. Lecture, three hours; discussion, one hour. Prerequisite: Mathematics 32C and Physics 112A or Chemistry 110A or consent of instructor. The nature and structure of clouds and precipitation; phase changes of water in the atmosphere; condensation on nuclei; development of precipitation particles.
Mr. Pruppacher

153. Atmospheric Radiation. Lecture, three hours. Prerequisite: Physics 110B, or consent of the instructor. Thermal radiation from the sun and planets. Transfer of thermal radiation through planetary atmospheres. Radiation budget. Scattering of electromagnetic radiation by atoms, molecules, dust and aerosols. Remote sensing. Meteorological optics. Mr. Kuriyan

M154. Solar Terrestrial Physics. (Same as Earth and Space Sciences M154.) Lecture, three hours; discussion, one hour. Prerequisite or concurrent: Physics 110B. Particle and electromagnetic emissions from the sun under quiet and under disturbed conditions. The solar wind. The magnetospheres and the ionospheres of the earth and other planets. Geomagnetic phenomena. Aurora and airglow.
Mr. Venkateswaran

161A. Laboratory in Atmospheric Dynamics I. Prerequisite: course 109B. Analysis of surface and upper-level weather charts. Analysis of fronts. Graphical computation of vorticity, vorticity advection. Graphical determination of large-scale vertical motion. Discussion of cyclone development.
Mr. Yanai

161B. Laboratory in Atmospheric Dynamics II. Prerequisite: course 109B. Introduction to numerical weather prediction. Finite differencing. Numerical solution of boundary value problems. Linear and non-linear computational stability. Numerical integration of the barotropic vorticity equation. Mr. Suarez

165. Laboratory in Meteorological Observation. Prerequisite: junior standing and consent of the departmental undergraduate adviser. Theory and application of instrumentation in field and laboratory. The material covered will be partly determined by the students' interests. Mr. Edinger

199. Special Studies in Meteorology. (½ or 1 course) Prerequisite: consent of the instructor. Special individual study. The Staff

Graduate Courses

DYNAMIC AND SYNOPTIC METEOROLOGY

205. Instrumentation Laboratory. Measurement of atmospheric variables in the field and the laboratory. Electronic techniques applied to data acquisition and recording. The material covered may be determined by students interest. Mr. Edinger

206. Atmospheric Convection. Lecture, three hours. Basic theory of Rayleigh convection. Experiments and theory of buoyant bubbles and plumes. Thermodynamics of moist air. Conditional instability. Structure of cloud- and subcloud-layers. Cumulus dynamics. Meso- and cluster-scale organization of cumuliform clouds. Interaction of cumulus ensemble with the large-scale environment. Mr. Arakawa, Mr. Emanuel

***1208A. Atmospheric Turbulence.** Lecture, three hours. Kinematics of homogeneous and shear flow turbulence. Surface and planetary boundary layers including heat transfer and turbulent convection. Survey of field and laboratory observations and their interpretation by theory. Mr. Wurtele

***1208B. Atmospheric Diffusion and Air Pollution.** Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution control. Mr. Edinger

209A. Meteorological Fluid Dynamics I. Lecture, three hours. An introduction to the fluid dynamics of the atmosphere. The basic kinematics and governing equations and their applications to incompressible homogeneous fluid motions. Vortex dynamics and Helmholtz instability. Inertia-gravity waves and geostrophic adjustment. Frontal wave instability. The Navier-Stokes equations. Viscous boundary layers. Mr. Arakawa

209B. Meteorological Fluid Dynamics II. Lecture, three hours. Prerequisites: course 209A or consent of instructor. Oscillations of a compressible, stratified and rotating atmosphere, with and without sphericity. Scale analysis and dynamics of quasi-geostrophic motion. Quasi-geostrophic wave instability. Vertical propagation of wave energy. Mr. Arakawa

210. Dynamics of Planetary Circulations. Lecture, three hours. Prerequisite: course 209B. Interaction between waves and mean zonal and meridional circulations. Vacillation. Regimes of thermally forced planetary circulations and their stability. Frontogenesis. Quasi-geostrophic turbulence. Forced planetary waves. The Staff

212A. Numerical Methods in Geophysical Fluid Dynamics. Lecture: three hours. Prerequisite: course 209A or consent of instructor. Basic numerical methods for initial-boundary value problems in fluid dynamics, with an emphasis on applications to atmospheric and oceanographic problems. Finite difference methods and truncation error. Linear and nonlinear computational instability. Computational modes and computational boundary conditions. Spectral methods. Mr. Suarez

***1212B. Numerical Modeling of the Atmosphere.** Lecture, three hours. Prerequisites: courses 209B and 212A. Physical and computational design of numerical weather prediction and climate simulation models. The basic dynamical models. Vertical, horizontal and time differencing. Parameterizations of sub-grid scale processes.

214A-*1214B. Climatology. Lecture, three hours. Prerequisites: course 209A. Observations of the atmospheric general circulation and the present climatic state. Global budgets of energy and angular momentum. The hydrologic cycle. Observations of past climates and history of climatic change. Feedback mechanisms determining the sensitivity of climate. Possible causes of climatic changes. Numerical experiments in climatic sensitivity. Mr. Suarez

***1216A. Dynamics of the Tropical Atmosphere I.** Lecture, three hours. General circulation of the tropics. Zonally averaged fields. Zonally varying features. Intertropical convergence zone. Monsoon circulation. The role of cumulus convection in the tropical circulation. Formation and structure of tropical cyclones. Theory and numerical models of tropical cyclones. Mr. Yanai

216B. Dynamics of the Tropical Atmosphere II. Lecture, three hours. Planetary- and synoptic-scale wave disturbances in the tropics. Theory of equatorial waves. The energy cycle of tropical waves. Excitation mechanisms. Observation and theory of the quasi-biennial oscillation in the equatorial stratosphere. Mr. Yanai

***1218. Dynamics of the Atmosphere-Ocean Systems.** Lecture, three hours. Mass, momentum and heat transfers between atmosphere and ocean; wind-driven ocean currents; thermohaline convection; dynamics of the Gulf Stream.

***1219. Special Topics in Dynamic Meteorology. (½ to 1 course)** The content of this course varies from year to year. The Staff

DYNAMICS AND MICROPHYSICS OF CLOUDS AND PRECIPITATION

221. Atmospheric Chemistry. Lecture, three hours. Physical and chemical properties of atmospheric trace gases; size distribution and physical and chemical properties of atmospheric aerosol particles; wet and dry removal processes for atmospheric trace gases and atmospheric aerosol particles. Mr. Pruppacher

***1223A. Cloud and Precipitation Physics I.** Lecture, three hours. Prerequisites: course 152 or consent of instructor. Microstructure of atmospheric clouds; structure of the three phases of water substance including surface effects; thermodynamic theory for equilibrium between the three phases of water substance including surface effects; theory of homogeneous and heterogeneous nucleation of water drops and ice crystal. Mr. Pruppacher

***1223B. Cloud and Precipitation Physics II.** Lecture, three hours. Prerequisites: course 223A. Theory of the growth and evaporation of water drops and ice crystals by diffusion of water vapor; hydrodynamics of rigid bodies in a viscous medium, hydrodynamics of cloud drops, rain drops and atmospheric ice particles; growth of cloud drops and atmospheric ice particles by collision. Mr. Pruppacher

224. Atmospheric Electricity. Lecture, three hours. Prerequisites: course 223B and Physics 110A-110B. Fair weather electricity; atmospheric ions; electric structure of stormy and nonstormy clouds; electric charge generation mechanisms in atmospheric clouds; physics of thunder and lightning; effect of electric fields and charges on cloud and precipitation formation. Mr. Pruppacher

228A. Clouds and Radiation. Lecture, three hours. Radiation budget of cloudy atmospheres including cloud-albedo feedback mechanisms; dependence of cloud radiative properties on microphysical parameters; test-bed modelling techniques of radiative effects of clouds; radiative dynamical interactions in cloudy atmospheres. Mr. Kuriyan

***1228B. Radar Meteorology.** Lecture, three hours. Radar detection of spherical and non-spherical particles; use of radar in studying size distributions of cloud and precipitation particles, precipitation intensity and amount, updraft velocities, horizontal wind speed and turbulence; radar observations of convective clouds, thunderstorms, tornadoes, hurricanes, squallines, and fronts; clear air echoes. Mr. Pruppacher

RADIATION

***1235. Infrared Radiative Transfer.** Lecture, three hours. Prerequisites: course 153. Theory of radiative transfer. Approximate solutions to the equation of transfer. Absorption spectroscopy; band models; absorption by atmospheric gases; fluxes and heating rates. Satellite radiation measurements. Mr. Kuriyan

***1236. Scattering Processes in the Atmosphere.** Lecture, three hours. Prerequisites: course 153. Equation of transfer in a scattering medium. Stokes formalism; Rayleigh and Mie theories; polarization of skylight; scattering in a turbid atmosphere; aerosols and their effects on the radiation balance of the atmosphere. Experimental methods of determining aerosol parameters and their significance to meteorology. Mr. Kuriyan

***1238. Radiative Transfer in the Earth's Atmosphere.** Lecture, three hours. Prerequisites: course 153. Critical review of methods available to calculate the transfer of radiation (visible, ultraviolet and infrared) through the atmosphere. Computations of fluxes and heating rates using various methods. The emphasis of the course will be to provide a familiarity with the available techniques in the literature. Mr. Kuriyan

UPPER ATMOSPHERIC AND SPACE PHYSICS

240A. Solar System Magnetohydrodynamics. (1½ courses) (Formerly numbered 240.) Prerequisite: course 154 or consent of instructor. Derivation of the MHD equations with two fluid aspects, generalized Ohm's law, small amplitude waves, discontinuities, shock waves, and instabilities. Applications to the statics and dynamics of the solar wind and planetary magnetospheres and to solar wind-magnetosphere-ionosphere coupling. Mr. Siscoe

240B. Solar System Plasma Physics. (1½ courses) Prerequisite: course 154 or consent of instructor. Adiabatic charged particle dynamics; collective plasma phenomena; cold plasma wave theory, ray tracing; conceptual introduction to plasma instabilities and diffusion, violation of the adiabatic invariants. Mr. Venkateswaran

***1247. Radiation Belt Plasma Physics.** Prerequisite: course 240B or consent of instructor. Turbulent plasma instabilities, their relation to satellite observations and magnetospheric structure. Processes responsible for the source, loss and transport of energetic radiation belt particles. Mr. Thorne

249A-*1249B-*1249C. Special Topics in Solar Planetary Relations. (½ to 1 course each) (Formerly numbered 249.) Selected topics of current research interest in the solar wind, magnetospheric or ionospheric physics. Mr. Siscoe, Mr. Thorne, Mr. Venkateswaran

255. Dynamics of the Stratosphere and the Mesosphere. Lecture, three hours. Prerequisites: course 209B or consent of the instructor. Photochemistry and radiation regime of the middle atmosphere; propagation of waves of tropospheric origin; radiative and photochemical damping effects; excitation and propagation of atmospheric tides; wave-zonal wind interactions; internal instabilities; theories of circulation features including annual, semi-annual and quasi-biennial oscillations and the build-up and breakdown of polar vortex. The Staff

***1256. Remote Sensing.** Prerequisite: course 255 or consent of instructor. Remote sensing of stratospheric temperature and composition—theory and practice. Mr. Venkateswaran

***1258. Theory of Planetary Atmospheres.** Lecture, three hours. Prerequisites: Background in fluid dynamics and electromagnetism required. Model planetary atmospheres, including evolution, structure, radiative balance and general circulation; ionospheres and magnetospheres. Comparison with the atmospheres of the terrestrial and outer planets.

NOTE: For key to symbols, see page 74

Seminars

260. Seminar in Meteorology. (½ course) Mr. Siscoe, Mr. Venkateswaran, Mr. Yanai

261. Seminar in Atmospheric Dynamics. (½ course) Mr. Suarez

***[1]262. Seminar in Cloud and Precipitation Physics (½ course)** Mr. Pruppacher

***[1]263. Seminar in Atmospheric Radiation. (½ course)** Mr. Kuriyan

***[1]264. Seminar in Physics of the Upper Atmosphere. (½ course)** Mr. Siscoe, Mr. Thorne, Mr. Venkateswaran

Individual Study and Research

596. Directed Studies for Graduate Students. (½ to 1 course) The Staff

597. Preparation for the Master's Comprehensive Examinations and the Doctoral Qualifying Examinations. (½ to 1 course) The Staff

598. Research and Preparation of the Master's Thesis. (½ to 1 course) The Staff

599. Research on Doctoral Dissertation. (½ to 2 courses) The Staff

Related Courses in Other Departments

Astronomy 101; 103A-103B; 104.

Chemistry 110A-110B; 113; 114A; 123A-123B.

Earth and Space Sciences 101; M109A; M154.

Engineering 10C, 103A; 117A-117B; M118; M124A; 131A; 150A-150B; 181A; 192A-192B-192C.

Mathematics 135A-135B-135C; 131A-131B; 132; 140A-140B-140C; 142; 145A-145B; 150A-105B-105C; 152A-152B.

Physics 108; 110A-110B; 112A-112B; 115A-115B; M122; 131A-131B.

Graduate Courses of Special Interest to Qualified Meteorology Majors

Astronomy 201A.

Chemistry 215; 223.

Earth and Space Sciences 202; 203; M211; 214; 217; 228; 250; 261; 265.

Engineering 231C; 250A-250C; 251A-251C; 252A-252B; 259A.

Mathematics 250C; 265A-265B; 266A-266B-266C; 267A-267B; 269A-269B-269C; 271A-271B-271C; M274A-274B; 276A-276B-276C.

Physics 210A-210B; 215A-215B; 222A-222B-222C; 231A-231B-231C.

BIOCHEMISTRY

Undergraduate Biochemistry Major

The Biochemistry major is described in the Chemistry section. For further information consult the Chemistry Undergraduate Office, 2356 W. Young Hall.

Graduate Study

Programs of study and research leading to the M.S. and Ph.D. degrees in the general area of biochemistry are offered in the Department of Biological Chemistry, School of Medicine, in the Division of Biochemistry, Department of Chemistry, and in the Department of Biology. More detailed information regarding admission requirements and opportunities for graduate studies in these programs may be obtained by writing to the graduate adviser in the department in which you are interested.

BIOLOGICAL CHEMISTRY

(Department Office, 33-257 Center for the Health Sciences)

Robert J. DeLange, Ph.D., *Professor of Biological Chemistry.*
Armand J. Fulco, Ph.D., *Professor of Biological Chemistry.*
Dohn G. Glitz, Ph.D., *Professor of Biological Chemistry (Vice-Chairman of the Department).*
Isaac Harary, Ph.D., *Professor of Biological Chemistry.*
Ralph W. McKee, Ph.D., *Professor of Biological Chemistry.*
[16]James F. Mead, Ph.D., *Professor of Biological Chemistry.*
[16]John G. Pierce, Ph.D., *Professor of Biological Chemistry (Chairman of the Department).*
[16]Sidney Roberts, Ph.D., *Professor of Biological Chemistry.*
Irving Zabin, Ph.D., *Professor of Biological Chemistry.*
Robert M. Fink, Ph.D., *Emeritus Professor of Biological Chemistry.*
Joseph F. Nyc, Ph.D., *Emeritus Professor of Biological Chemistry.*
Emil L. Smith, Ph.D., *Emeritus Professor of Biological Chemistry.*
John Edmond, Ph.D., *Associate Professor of Biological Chemistry.*
[16]Harvey R. Herschman, Ph.D., *Associate Professor of Biological Chemistry.*
[16]Bruce D. Howard, M.D., *Associate Professor of Biological Chemistry.*
David S. Sigman, Ph.D., *Associate Professor of Biological Chemistry.*
John E. Snoke, Ph.D., *Associate Professor of Biological Chemistry.*
Patrice J. Zamenhof, Ph.D., *Associate Professor of Biological Chemistry.*
William A. Coty, Ph.D., *Assistant Professor of Biological Chemistry.*
Kathleen Hercules, Ph.D., *Assistant Professor of Biological Chemistry.*
James C. Paulson, Ph.D., *Assistant Professor of Biological Chemistry.*
William T. Wickner, M.D., *Assistant Professor of Biological Chemistry.*

•

Roslyn B. Alfin-Slater, Ph.D., *Professor of Nutrition and Professor of Biological Chemistry.*
[16]Samuel Eiduson, Ph.D., *Professor of Psychiatry in Residence and Professor of Biological Chemistry in Residence.*
[16]George J. Popjak, M.D., D.Sc., *Professor of Psychiatry and Biological Chemistry.*
Marian E. Swendseid, Ph.D., *Professor of Nutrition and Professor of Biological Chemistry.*
[16]Stephen Zamenhof, Ph.D., *Emeritus Professor of Microbial Genetics and Emeritus Professor of Biological Chemistry.*

Requirements for Admission to Graduate Status

1. For general University requirements for the M.S. degree, see the Graduate Division.

2. Minimum departmental requirements: applicants must have received the bachelor's degree, preferably with an undergraduate major in chemistry. Students who have degrees in a biological science are also eligible. A previous course in biochemistry is not a prerequisite for acceptance as a graduate student. Minimum course requirements for admission normally include the following: general chemistry; quantitative chemistry; organic chemistry (including laboratory); physical chemistry (including laboratory); general physics; and mathematics through calculus. In some cases the requirement in physical chemistry or mathematics may be fulfilled during the first-year of graduate study. Courses in life sciences such as biology (similar to Introductory Biology 1A-1B) or zoology or bacteriology and advanced quantitative analysis, qualitative organic analysis and advanced organic chemistry are recommended.

Concurrent M.D. and Ph.D. Programs

Students may enroll in both the School of Medicine and the Graduate Division in order to fulfill some graduate degree requirements while obtaining the M.D. degree. This dual registration makes it possible for a medical student to utilize for graduate work one vacation period and the four elective quarters during the four-year medical curriculum and to offer this work in partial fulfillment of the requirements for the Ph.D. The Department of Biological Chemistry offers this opportunity to qualified applicants. There are various ways in which some financial support can be made available to students in the program after completion of one or two years of the medical curriculum. Contact Robert DeLange, the Department Adviser, for further information concerning the program.

Requirements for the M.S. degree

1. General University Requirements.

2. Thesis Plan. Completion of "core" courses M253, M255, M263 and M267 (grade of B or better) either concurrently with or following completion of a general course in biochemistry (can be taken before admission to graduate status). Completion of a satisfactory thesis based on laboratory research. A written examination; an oral examination on the thesis. By special arrangement a comprehensive examination plan may be followed instead of the thesis plan.

Requirements for the Ph.D. degree

1. General University Requirements.

2. Completion of "core" courses M253, M255, M263 and M267 (grade of B or better) either concurrently with or following completion of a general course in biochemistry (can be taken before admission to graduate status); also courses 220ABC, 260ABC and 596 or 599 and other courses recommended on an individual basis. A reading knowledge of German, Russian or French, plus either a second language or a course related to the "language of an instrument" (e.g. courses on computer techniques, etc.).

The Department of Biological Chemistry in the Medical School and the Division of Biochemistry of the Chemistry Department offer coordinated programs leading to the M.S. and Ph.D. degrees. Although there is close cooperation between the two departments, a student must be formally admitted into the program of one department or the other. For more information concerning graduate study in biological chemistry, write to Robert J. DeLange, Graduate Adviser, Department of Biological Chemistry, School of Medicine, Center for Health Sciences, University of California, Los Angeles, California 90024.

Upper Division Courses

101A-101B-101C. Biological Chemistry. Lecture, three hours. Prerequisite: organic chemistry. Required in the medical curriculum; consent of the instructor is required for nonmedical students. The Staff

101E. Biological Chemistry Laboratory. Laboratory, seven hours. Required in the medical curriculum; consent of the instructor is required for nonmedical students. Experiments illustrating some of the procedures employed in clinical chemistry, enzymology and metabolic studies. The Staff

102A-102B. Biological Chemistry Lecture (Dental Students). Lecture, three hours. Prerequisite: courses for admission to dental school. Required in the dental curriculum; consent of the instructor is required for nondental students. The biochemical properties and structures of living systems are considered with special emphasis on mineral metabolism and nutrition. The Staff

102C. Biological Chemistry Laboratory and Seminar (Dental Students). (½ course) Laboratory, four hours. Required in the dental curriculum; consent of the instructor is required for nondental students. The laboratory, which consists of experiments designed to illustrate biochemical principles, involves studies on enzymes, metabolic processes, respiration and calcified structures. The seminars, which will be given by the students to small discussion groups, involve presentation of material from current research dealing with biochemical studies related to dentistry. Mr. McKee, Mr. Snoke and the Staff

Graduate Courses

201A-201B. Biological Chemistry. Lecture, three hours. Prerequisites: Organic chemistry, a course in

undergraduate biochemistry other than a beginning survey course. Consent of instructor is required. A graduate level course in fundamentals of biochemistry, with emphasis on mammalian biochemistry. Structure, function and metabolism of major cell constituents. The Staff

220A-220B-220C. Biochemical Preparations. (½ to 2 courses) Prerequisite: consent of the instructor. During the first quarter, students will carry out supervised experiments utilizing a variety of laboratory techniques important in biochemical research. In the winter and spring quarters (220B and 220C) each student will arrange to apprentice in the laboratories of one or more departmental faculty members. This apprenticeship program will allow the student to acquire in-depth laboratory experience in specific research areas and will facilitate an informed decision on his part in the selection of a thesis-research advisor. Graded S/U. Mr. Fulco and the Staff

221. Functional Neurochemistry. Lecture or recitation, three hours. Prerequisites: courses 101A-101B-101C or equivalent. Chemistry and metabolism of neural tissue with particular relationship to specialized function in the central nervous system. Mr. Roberts and the Staff

222. Biochemistry of the Synapse. (½ course) Lecture or recitation, two hours. Prerequisite: course 221. Detailed analysis of the research literature dealing with biochemistry of the synapse. Metabolism, storage and release of transmitter; transmitter receptors and functions; neuronal plasticity. Mr. Howard

223. Current Topics in Neurochemistry. (½ course) Lecture or recitation, two hours. Prerequisite: course 221. Detailed analysis of a circumscribed area of neurochemistry of current interest. One of the following topics may be presented: metabolic diseases affecting brain function, developmental neurochemistry, role of cyclic nucleotides in neural activity, biochemical differentiation of the nervous system, research methods in neurochemistry, brain specific macromolecules. The Staff

M226. Chromosome Structure and Regulation. (Same as Biology M226, Chemistry M226, Microbiology M226, Microbiology and Immunology M226.) Lecture, three hours. Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes. Satisfactory/unsatisfactory grades are used for this course. Mr. Martinson, Mr. Tobin, Mr. Wall

M253. Macromolecular Structure. (1½ courses) (Same as Chemistry M253.) Lecture or recitation, five hours. Prerequisites: Chemistry 110A; Chemistry 156; Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent. Chemical and physical properties of proteins, nucleic acids and other macromolecular complexes with emphasis on theory and methodology; correlation of structure and biological properties; chemical synthesis and properties of polypeptides and polynucleotides. Mr. Glitz and the Staff

M255. Protein Dynamics and Function. (Same as Chemistry M255.) Lecture or recitation, three hours. Prerequisites: Chemistry 110A; Chemistry 156; Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent. Recommended: Chemistry-Biological Chemistry M253. Discussion of enzymes and enzymic catalysis, emphasizing mechanisms, actions of modifiers and inhibitors, and structural aspects of enzyme function; bio-energetics. Mr. Sigman

M257. Physical Chemistry of Biological Macromolecules. (½ course) (Same as Chemistry M257.) Lecture, two hours. Prerequisite: Chemistry 110A or 22 or consent of the instructor. Theory of hydrodynamic, thermodynamic, optical and x-ray techniques used to study the structure and function of biological macromolecules. The Staff

259. Biochemical Endocrinology. (½ course) Prerequisite: Biological Chemistry 101A-101B or 201A-201B, or Chemistry 153 or equivalent. A lecture course emphasizing aspects of the structures of peptide and steroid hormones, with cell receptors, the physical and chemical properties of hormone receptors, the molecular mode of action of peptide and steroid hormones, and the role of second and third messengers in hormone action. Mr. Coty, Mr. Pierce, Mr. Roberts

260A-260B-260C. Seminar in Biological Chemistry. (½ course each) Lecture or recitation, one hour. Prerequisite: consent of the instructor. Oral reports by graduate students on topics selected from current biochemical literature. Graded S/U only. The Staff

M261. Advanced Chemistry and Biochemistry of Lipids. (½ course) (Same as Chemistry M261.) Lecture, two hours. Prerequisites: courses 101A-101B or 201A-201B; Chemistry 157A-157B or equivalent. Knowledge of elementary chemistry and biochemistry of lipids essential. The biochemistry of lipids including chemical and physical characteristics of lipids and their metabolism. Mr. Mead, Mr. Popjak

262A-262B-262C. Seminar in the Biochemistry of Proteins. (½ course each) Lecture or recitation, one hour. Prerequisites: courses 101A-101B-101C and consent of the instructor. An advanced seminar in the field of protein structure including current methods used in research and the relationships between the structure and function of proteins. Mr. DeLange

M263. Cellular Metabolism and Its Regulation. (Same as Chemistry M263.) Lecture or recitation, three hours. Prerequisites: Chemistry 156; Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent. Recommended: Chemistry-Biological Chemistry M253. Analysis of regulatory controls involved in cellular energy and biosynthetic metabolism. Consideration of comparative aspects of metabolism in relation to physiological function. The Staff

M264. Molecular Basis of Atherosclerosis. (½ course) (Same as Chemistry M264 and Microbiology M264.) Prerequisite: M216 or equivalent with consent of instructor. The course will cover the biochemistry, morphology and physiology of atherosclerosis. Emphasis will be placed on the chemistry of lipoproteins and the role of plasma lipoproteins on the regulation of tissue lipid metabolism and the development of atherosclerosis. The Staff

265. Seminar in the Biochemistry of Nucleic Acids. (½ course) Lecture or recitation, one hour. Prerequisites: Chemistry or Biological Chemistry M253 or equivalent. Biochemistry and chemistry of nucleic acids and nucleotides. Mr. Glitz

266A-266B-266C. Seminar in the Biochemistry of Differentiation. (½ course each) Lecture or recitation, one hour. Prerequisite: consent of the instructor. A review of the current literature covering the chemical mechanisms underlying the developmental process including: control of gene expression, metabolism in developing systems, specific expression of function and control of enzyme synthesis, external parameters determining cellular expression in the whole organism and the single cell. Mr. Harary, Mr. Herschman

M267. Macromolecular Metabolism and Subcellular Organization. (1½ courses) (Same as Chemistry M267.) Lecture or recitation, five hours. Prerequisites: Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent. Recommended: Chemistry-Biological Chemistry M253. Metabolism of nucleic acids and proteins; biosynthesis of complex lipids and polysaccharides; structure and properties of cellular organelles. The Staff

M269. Developmental Biochemistry. (½ course) (Same as Chemistry M269). Lecture, two hours. Prerequisites: Biological Chemistry 267 or consent of instructor. This course will deal with the biochemical aspects of development, specific tissue and cell function, and differential gene expression. The biochemistry of cell division, macromolecular synthesis, chromatin function in gene expression, cell-cell interactions, membrane organization, and growth will be studied as they contribute to such topics as hormone induction, morphogenesis and viral transformation. Emphasis will be placed on the use of differentiating *in vivo* systems and cell culture as models. Mr. Harary, Mr. Herschman

M298. Seminar in Current Topics in Molecular Biology. (½ course) (Same as Biology M298, Chemistry M298, Microbiology and Immunology M298 and Molecular Biology M298.) Discussion, one hour. Prerequisite: enrollment must be approved by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics. May be repeated for credit. The Staff

Individual Study and Research

596. Directed Individual Study and Research. (½ to 3 courses) Laboratory, by arrangement. Prerequisite: consent of graduate adviser. Graded S/U. The Staff

597. Preparation for Examinations. (½ to 1 course) Prerequisite: consent of the graduate adviser. Individual study for qualifying examination for Ph.D. or comprehensive examination for the master's degree. Graded S/U. The Staff

598. Preparation of the Master's Thesis. Prerequisite: consent of the graduate adviser. Preparation of research data and writing of master's thesis. The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 3 courses) Prerequisite: consent of the graduate adviser. Preparation of research data and writing Ph.D. dissertation. Graded S/U. The Staff

BIOLOGY

(Department Office, 2203 Life Sciences Building)

Albert A. Barber, Ph.D., *Professor of Cell Biology.*
George A. Bartholomew, Ph.D., *Professor of Zoology.*
Joseph Cascarano, Ph.D., *Professor of Cell Biology.*
David J. Chapman, Ph.D., *Professor of Biology.*
William R. Clark, Ph.D., *Professor of Cell Biology*
Martin L. Cody, Ph.D., *Professor of Biology.*
Nicholas E. Collias, Ph.D., *Professor of Zoology.*
Wilbur T. Ebersold, Ph.D., *Professor of Biology.*
[16]Roger O. Eckert, Ph.D., *Professor of Biology.*
Eric B. Edney, Ph.D., *Professor of Biology.*
Franz Engelmann, Ph.D., *Professor of Biology.*
John H. Fessler, Ph.D., *Professor of Molecular Biology.*
Malcolm S. Gordon, Ph.D., *Professor of Biology.*
[16]Alan D. Grinnell, Ph.D., *Professor of Biology.*
Thomas R. Howell, Ph.D., *Professor of Zoology.*
Thomas W. James, Ph.D., *Professor of Cell Biology.*
J. Lee Kavanau, Ph.D., *Professor of Biology.*
James A. Lake, Ph.D., *Professor of Molecular Biology.*
George G. Laties, Ph.D., *Professor of Plant Physiology.*
F. Harlan Lewis, Ph.D., *Professor of Biology.*
O. Raynal Lunt, Ph.D., *Professor of Biology.*
Austin J. MacInnis, Ph.D., *Professor of Cell Biology.*
Leonard Muscatine, Ph.D., *Professor of Biology.*
Park S. Nobel, Ph.D., *Professor of Biology.*
Bernard O. Phinney, Ph.D., *Professor of Biology.*
Dan S. Ray, Ph.D., *Professor of Molecular Biology.*
Winston A. Salser, Ph.D., *Professor of Molecular Biology.*
Charles A. Schroeder, Ph.D., *Professor of Botany.*
Richard W. Siegel, Ph.D., *Professor of Biology.*
Larry Simpson, Ph.D., *Professor of Cell Biology.*
Fritiof S. Sjostrand, M.D., Ph.D., *Professor of Molecular Biology.*
Clara M. Szego, Ph.D., *Professor of Biology.*
Henry J. Thompson, Ph.D., *Professor of Botany.*
J. Philip Thornber, Ph.D., *Professor of Molecular Biology.*
Peter P. Vaughn, Ph.D., *Professor of Zoology.*
Boyd W. Walker, Ph.D., *Professor of Zoology.*
Samuel G. Wildman, Ph.D., *Professor of Botany.*
David Appleman, Ph.D., *Emeritus Professor of Plant Physiology.*
Gordon H. Ball, Ph.D., *Emeritus Professor of Zoology.*
John N. Belkin, Ph.D., *Emeritus Professor of Zoology.*
Jacob B. Biale, Ph.D., *Emeritus Professor of Biology.*
Frederick Crescitelli, Ph.D., *Emeritus Professor of Cell Biology.*

NOTE: For key to symbols, see page 74

Karl C. Hamner, Ph.D., *Emeritus Professor of Botany.*
Arthur W. Haupt, Ph.D., *Emeritus Professor of Botany.*
Theodore L. Jahn, Ph.D., *Emeritus Professor of Zoology and Cell Biology.*
Mildred E. Mathias, Ph.D., *Emeritus Professor of Botany.*
Everett C. Olson, Ph.D., *Emeritus Professor of Zoology.*
Flora Murray Scott, Ph.D., *Emeritus Professor of Botany.*
Vladimir Walters, Ph.D., *Emeritus Professor of Zoology.*
Clifford F. Brunk, Ph.D., *Associate Professor of Cell and Molecular Biology.*
Robert Goldberg, Ph.D., *Associate Professor of Biology.*
George C. Gorman, Ph.D., *Associate Professor of Biology.*
Harumi Kasamatsu, Ph.D., *Associate Professor of Biology.*
John R. Merriam, Ph.D., *Associate Professor of Genetics.*
James G. Morin, Ph.D., *Associate Professor of Zoology.*
Kenneth A. Nagy, Ph.D., *Associate Professor of Biology in Residence*
John D. O'Connor, Ph.D., *Associate Professor of Developmental Biology.*
Elma Gonzalez, Ph.D., *Assistant Professor of Cell Biology.*
Michael Grunstein, Ph.D., *Assistant Professor of Biology.*
Henry A. Hespenheide, Ph.D., *Assistant Professor of Biology.*
Judith A. Lengyel, Ph.D., *Assistant Professor of Biology.*
Peter M. Narins, Ph.D., *Assistant Professor of Biology.*
Paul H. O'Lague, Ph.D., *Assistant Professor of Biology.*
Jane A. Peterson, Ph.D., *Assistant Professor of Biology.*
Allan J. Tobin, Ph.D., *Assistant Professor of Biology.*
Elaine M. Tobin, Ph.D., *Assistant Professor of Biology.*
Richard R. Vance, Ph.D., *Assistant Professor of Biology.*
Dan B. Walker, Ph.D., *Assistant Professor of Botany.*

•

Robert Barrett, Ph.D., *Lecturer in Biology.*
Jared M. Diamond, Ph.D., *Professor of Physiology.*
Jean B. Harrison, Ph.D., *Lecturer in Biology.*
James G. Miller, *Senior Museum Scientist, Ornithology and Mammalogy.*
J. William Schopf, Ph.D., *Professor of Geology.*
M. Ann Spence, Ph.D., *Associate Professor of Psychiatry and Biomathematics in Residence.*
David Verity, B.S., *Senior Museum Scientist, Botanical Gardens and Herbarium.*

Advising

All incoming students (Freshmen and Transfers) must see a departmental advisor before they register for classes. In addition, all students majoring in Biology must confer with a departmental advisor by the start of the junior year and again during the senior year.

Pre-Biology Major

Students who have not completed all the courses required as preparation for the major are pre-Biology majors. Upon completion of these courses with a grade of C− or better in each, students should petition to enter the Biology major in the Undergraduate Affairs Office.

Preparation for the Major

1. Biology 5, 6, 6L, 7, 8, 8L

2. Chemistry 11A-11B-11BL-11C-11CL; 21, 23, 25

3. Mathematics 3A-3B-3C or 31A-31B-31C; the 31A-31B-31C series is strongly recommended for students intending to study ecology, evolution, or population genetics.

4. Physics 6A-6B-6C

Requirements for the Major

1. Three courses from the core list, one from each of the following groups:

a. Morphology Systematics: Biology 100, 105, 110, 153, Microbiology 101

b. Developmental and Molecular Biology: Biology 137, 138, 141, 144, 146

c. Physiology: Biology 158, 162, 166

2. Two additional upper division Biology courses

3. Four courses which may be chosen from upper division Biology or any upper division course in Microbiology, Chemistry, Mathematics (except 100 through 107), Physics or the approved list which may be obtained in the Student Affairs Office. A maximum of 4 units of Biology 199 may be applied toward the major. 199's from other departments cannot be applied.

Additional Requirements

1. Six unit courses (1½ courses) count as only one course on the requirements for the major.

2. A maximum of eight units of Biology 190 *or* four units of Biology 199 may be used for fulfillment of the major.

3. Courses taken to fulfill requirements for preparation for the major and the major must be taken for a letter grade.

4. Biology majors must earn a C− or better in each core course, a 2.0 average in all upper division Biology courses, and a 2.0 average in the nine courses comprising the major.

Transfer Students

In order to be admitted as pre-Biology majors, transfer students who have 80 units or more must have completed one year of General Chemistry with laboratory Biology 5 and 7 or its equivalent, and one of the following sequences:

1. one year of calculus;

2. one year of calculus-based physics; or

3. two courses in organic chemistry with laboratory

Honors in Biology

Requirements for admission to candidacy for Honors in Biology are the same as those required for admission to the Honors Program of the College of Letters and Science. Highest Honors in Biology are awarded to those Biology majors who have a GPA of 3.60 overall and a 3.60 in the major at graduation and who have satisfactorily completed Biology 190.

Graduate Study

The department offers M.A. and Ph.D. degrees in Biology with specialization in a wide spectrum of fields. Students who plan to enter a graduate school are urged to seek advice of staff members in their field of interest. Prospective applicants to this department are invited to visit the campus for this purpose.

The departmental requirements (including those in Chemistry, Physics, and Mathematics) for a bachelor's degree in Biology represent most of the background necessary as preparation for research leading to advanced degrees in Biology, but certain fields of study will require additional training in the basic sciences. Work in additional fields may be pursued by qualified students on a limited basis through directed individual studies at the Santa Catalina Marine Biological Laboratory. Consult the Student Affairs Office for additional information.

Master's Degree

In addition to the general requirements of the Graduate Division, the department of Biology requires oral and/or written examinations of any candidate for the Master's degree. Although there is no formal foreign language requirement, a reading knowledge of a foreign language is a prerequisite for admission to certain seminars and advanced courses.

Ph.D. Degree

In addition to the general requirements of the Graduate Division, every candidate for the Ph.D. degree is required to pass departmental examinations and to serve as a teaching assistant for at least one year. There is no standard language requirement; it is determined by the sponsor based on the needs of the candidate.

Requirements for the Standard Credential in Secondary Teaching

Consult the UCLA Announcement of the Graduate School of Education.

Lower Division Courses

2. Principles of Biology. Lecture, three hours; laboratory, one and one-half hours. Lecture: structure and chemical composition of cells, animal structure and diversity, cellular respiration, photosynthesis, major organ systems with emphasis on human, cell division, reproduction, development, ecology, population growth, genetics, evolution. Laboratory: structure and function of cells, morphology of plants and animals, circulatory and nervous systems, embryology, plant diversity and adaptation, human genetics. Offered for students other than majors in the biological sciences. Not open to students who have had Biology 4A-4B or 5 and 7. Ms. Harrison

5. Biology of Organisms. Lecture, three hours; discussion/demonstration, two hours. Comparative morphology and embryology of the major plant and animal phyla; function of organ systems including gas exchange, transport, regulation of the internal environment, hormones, coordination, and the nervous system. The Staff

6. Ecology and Evolution. Lecture, three hours; discussion, one hour. Prerequisites: course 5 and Mathematics 3A or 31A. A survey of the principles of population growth and ecology, competition, predation, community ecology, environmental physiology, population genetics, natural selection, and speciation. The Staff

6L. Organismic and Environmental Biology Laboratory. (¼ course) Laboratory, three hours. Prerequisite: course 6 (may be taken concurrently with Biology 6). Introductory Biology Laboratory including basic cell and microorganism organization, morphology and diversity of organisms, population biology, evolution, and community ecology. The Staff

7. Introductory Cellular and Molecular Biology. Lecture, three hours; discussion/demonstration, one hour. Prerequisite: course 5; Chemistry 23 is strongly recommended. An integrated introduction to cellular and subcellular biology, including bioenergetics, cells and organelles molecular biology, cell cycles, and developmental biology. The Staff

8. Introductory Genetics. Lecture, three hours; discussion/demonstration, one hour. Prerequisite: course 7. Principles of Mendelian inheritance, including gene interactions, introductory biochemical genetics, chromosome changes, and mutations genetics. The Staff

8L. Cellular and Molecular Biology Laboratory. (¼ course) Laboratory, three hours. Prerequisite: course 8 (may be taken concurrently with Biology 8). Introductory laboratory experience including; bacterial growth, mitosis and meiosis, genetics, molecular biology and developmental biology. The Staff

10. Plants and Civilization. Lecture, three hours; lecture-demonstration, one hour. The origin of crop plants; man's role in the development, distribution, and modification of food, fiber, medicinal and other plants in relation to their natural history. Designed for non-majors. Mr. Schroeder (F,Sp)

11. Field Botany. Lecture, two hours; laboratory, six hours; required field trips. An introduction to the systematics, morphology, and ecology of the local flora (native and cultivated). Use of keys for identification; morphological characteristics of common families of vascular plants; plant communities and environmental factors affecting their distribution; emphasis on California. Designed for non-majors. Mr. Thompson (Sp)

12. Taxonomy and Ecology of Ornamental Plants. Lecture, one hour; laboratory and field trips, six hours. The origin, classification and identification of the more important ornamental plants in southern California with special emphasis on their environmental requirements and adaptation. Designed for non-majors. Mr. Lewis

13. Evolution of Life. Lecture, three hours; discussion, one hour. Limited to 100 students. Not open to Life Sciences majors. An introduction to biology within the framework of evolutionary theory. The relationships of evolutionary thought to other areas of knowledge and society. Natural selection and the origin of variation are examined in the context of genetics, molecular biology, physiology, phylogeny, population dynamics, behavior and ecology. Stress is laid upon the critical role of historical processes. The Staff (F)

20. Introduction to Human Heredity. Lecture, two hours; discussion, one hour; laboratory, two hours.

This course is not open to students with a previous college course in genetics, nor is it intended to satisfy the requirements of medical or dental schools. Man's inheritance and its biological basis will be introduced through lectures, readings and laboratory exercises with *Drosophila*. Topics will include prenatal development, Mendelizing factors, the role of chromosomes in heredity and the role of genes in disease and population structure.
The Staff (Sp)

21. Field Biology. Lecture, three hours; required field trips. Prerequisite: course 2. An introduction to the natural history and ecology, interrelationships, and classification of the common animals and plants with emphasis on western North America. The Staff

25. The Oceans. Lecture, three hours; discussion, one hour. Not open to students in the sciences or to students who have taken Earth and Space Sciences 15. Limited to 40 students. Physical and chemical processes that take place in the oceans with emphasis on their effects on organisms.
Mr. B. Walker (W)

30. Biology of Cancer. Lecture, four hours. An introduction to molecular, cellular and clinical aspects of cancer and a consideration of the sociological and psychological impact of cancer on the individual and society. Each lecture-discussion period will be given by an invited lecturer who is prominent in cancer research or treatment. (Credits may not be applied toward fulfillment of the Biology major.) P/NP Mr. Clark

M33. Biological and Sociological Perspectives of Human Variability. (Same as Afro-American Studies M33.) Lecture, three hours; discussion, one hour. Introductory exposition of biological principles of inheritance and of evolutionary processes. Sociological criteria for classification of humans into races or ethnic groups, interactions of the groups, and sociological forces influencing them. History of intellectual development of concepts of human variation and their societal applications. (Credits may not be applied toward fulfillment of the Biology major). Mr. Kitano, Mr. Saxton

Upper Division Courses

Upper division standing and completion of Biology 4A-4B or 5, 6, 7 and 8 or equivalent or consent of instructor are required for admission to all upper division courses.

100. Biology of Lower Plants. (1½ courses) Lecture, four hours; laboratory, six hours. Prerequisite: course 5 or equivalent or consent of instructor. An introduction to the biology of algae, fungi and bryophytes, with an emphasis on form, function and development, and the role of lower plants in the environment. Students are strongly encouraged to take both 100 and 101 since these represent a course sequence to survey the entire plant world as appropriate background for upper division courses in plant biology. Mr. Chapman

101. Biology of Vascular Plants. (1½ courses) Lecture, three hours; laboratory, six hours. Prerequisite: course 5 or the equivalent or consent of the instructor. An intoduction to the diversity in form and reproduction of vascular plants with emphasis on development, evolution, and function. Students are strongly encouraged to take both 100 and 101 since these represent a course sequence to survey the entire plant kingdom as appropriate background for upper division courses in plant biology.
Mr. D. Walker

102. Biology of Marine Invertebrates (1 or 1½ courses) Lecture, five hours; laboratory, fifteen hours (five week intensive course). Prerequisites: Preparation for the Major and consent of instructor. Morphology, systematics, life histories and natural history, ecology, behavior, and physiology of marine invertebrates; emphasis on local invertebrates of southern California and their habitats. Course to be given at the *Catalina Marine Science Center.* Mr. Morin, Mr. Muscatine, Mr. Vance

103. Taxonomy of Flowering Plants. Lecture, two hours; laboratory and field trips, six hours. The evolution, systematics, and distribution of the families of flowering plants. Morphology, principles of taxonomy, phylogenetic systems, nomenclature, modern methods of investigation.
The Staff

104. Biology of Marine Vertebrates. (1 or 1½ courses) Prerequisites: completion of preparation for the Major and consent of instructor. Selected aspects of the natural history, ecology, physiology and behavior of vertebrates living in marine environments. To be offered as a concentrated five or seven week course for four or six units credit as part of the Catalina Marine Biology Quarter.
Mr. B. Gordon, Mr. B. Walker

105. Biology of Invertebrates. (1½ courses) Lecture, three hours; laboratory, six hours (includes field trips). Prerequisite: completion of all courses listed under Preparation for the Major. Introduction to the systematics, evolution, natural history, morphology and physiology of the invertebrates.
Mr. Morin, Mr. Muscatine (F)

106A-106B. Experimental Marine Invertebrate Zoology. (1½ courses each) Lecture, two hours; laboratory, 12 hours. Prerequisites: courses 105 and 166 (latter may be taken concurrently with 106A) or the equivalent and the consent of the instructor. Course 106A is a prerequisite to 106B. An advanced course on natural history, physiology, biochemistry of invertebrates with emphasis on independent laboratory and field investigations.
Mr. Morin, Mr. Muscatine

107. Entomology. Lecture, three hours; laboratory, six hours; field trips. An introduction to the morphology, ecology and classification of insects.
Mr. Belkin

108. Terrestrial Arthropods. Lecture, three hours; laboratory, six hours; several field trips. Prerequisite: course 107 or consent of the instructor. Systematics, distribution, and bionomics of hexapods and arachnids. Mr. Belkin

109. The Development of Evolutionary Theory. Lecture, three hours; discussion, one hour. A study of the historical development of the physical and biological concepts which have led to current evolutionary theory. These concepts are considered in context of the social circumstances in which they originated. Enrollment limited to 80 students.
The Staff

110. Vertebrate Morphology. Lecture, three hours; laboratory, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. A study of vertebrate morphology and evolution from the viewpoint of: comparative anatomy of adult forms, developmental anatomy, and paleontology. Laboratory study of selected vertebrates.
Ms. Peterson, Mr. Vaughn (F,W)

111. Biology of Vertebrates. Lecture, three hours; demonstrations, field trips, discussions, three hours. Prerequisite: completion of all courses listed under Preparation for the Major. The adaptations, behavior, and ecology of vertebrates.
Mr. Bartholomew, Mr. Howell (F,Sp)

112. Ichthyology. Lecture, two hours; laboratory, six hours; field trips. Prerequisites: courses 110 and 111. The systematics, ecology and behavior of fishes, with special emphasis on local marine forms.
Mr. B. Walker

113. Herpetology. (1 or 2 courses) Prerequisites: One of the following: Biology 111, 120 or 122, and consent of the instructor. *Herpetology will be offered alternately as a 4-unit course to be given during a conventional academic quarter, or as an 8-unit course as part of the Field Biology Quarter.* The 4-unit course has lecture, three hours, laboratory, six hours, and approximately 4 weekend field trips. The systematics, distribution, physiology, behavior and ecology of amphibians and reptiles will be covered. The 8-unit course covers the same basic lecture and laboratory material in two intensive weeks. This is followed by an extended field trip where students will do individual field projects in behavior, physiological ecology, or field ecology.
Mr. Gorman

114. Ornithology. Lecture, two hours; laboratory, discussion, field trips, six hours. Prerequisites: course 111 and consent of the instructor. Limited enrollment. The systematics, distribution, physiology, behavior and ecology of birds.
Mr. Howell

115. Mammalogy. Lecture, two hours; laboratory and field trips, six hours. Prerequisite: course 111 or the equivalent and consent of the instructor. The evolution, ecology, behavior and physiology of mammals. The Staff

116. The Evolution of Mammalian Dentitions. Lecture, two hours; laboratory, six hours. Prerequisite: consent of the instructor. Limited enrollment. The origin and adaptive radiation of mammalian teeth is considered with special emphasis upon morphological aspects of change relative to function. Tooth histology and embryology are studied. Laboratory work involves study of dental morphology and histology. The Staff

M117. Vertebrate Paleontology. (Same as Earth and Space Sciences M117.) Lecture, three hours; laboratory, three hours. Prerequisite: course 110. Recommended: a course in general geology. Limited enrollment. The fossil record of the evolution of the vertebrates, with emphasis on the morphology of primitive forms in the series from fish to mammal. Mr. Vaughn

M118. Paleobotany. (Same as Earth and Space Sciences M118.) Lecture, three hours; laboratory, three hours. Prerequisite: one course in biological science or consent of instructor. Recommended: Earth and Space Sciences 2 or equivalent. Survey of morphology, paleobiology, and evolution of vascular and nonvascular plants during geologic time, and particular emphasis on major evolutionary events. Mr. Schopf

120. Evolutionary Biology. Lecture, three hours; laboratory, two hours. Prerequisites: completion of all courses listed under Preparation for the Major; Mathematics 31A-31B-31C is highly recommended. Recommended for biology majors specializing in environmental and population biology. Introduction to the mechanics and processes of evolution with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation.
Mr. Cody, Mr. Hespenheide (W)

121. Seminar in Ecology. (½ course) Discussion two hours. Prerequisites: course 120 or 122 and consent of instructor. Undergraduate seminar in ecology; reading and discussion of current research, including preparation of review paper or annotated bibliography. May be repeated twice for credit. Mr. Hespenheide

122. Ecology. Lecture, three hours; laboratory, three hours. Prerequisites: completion of all courses listed under Preparation for the Major; Mathematics 31A-31B-31C is highly recommended. Recommended for biology majors specializing in environmental and population biology. Introduction to population and community ecology, with emphasis on the growth and distribution of populations, interactions between species, and the structure, dynamics and functions of communities and ecosystems. Mr. Cody, Mr. Vance (F)

123. Ecology of Marine Communities. (1 or 2 courses) Prerequisites: course 122, approval for scuba diving from UCLA diving officer, and consent of instructor; course 105 and 112 are recommended. *This course will be offered either as a full quarter course for 4 units credit or in the Field Biology Quarter as a concentrated five-week course for 8 units credit.* Field study of the natural history and ecology of marine organisms and communities. Field work will involve scuba diving. Part of the course will be devoted to an independent research project.
Mr. Morin, Mr. Vance

NOTE: For key to symbols, see page 74

124. Field Ecology. (1 or 2 courses) Lecture, two hours; laboratory or field trip, ten hours. Prerequisites: course 120 or 122 and consent of instructor. Field and laboratory research in ecology, the collection, analysis and write-up of numerical data, with emphasis on design and execution of field studies. *The course may either be given as a quarter-long course with weekend field trips, or as a single field trip conducted between quarters followed by lectures and tutorials for three weeks. When the course is given as part of the Field Biology Quarter, it will be 8 units and will last for five weeks (see above, under Requirements for the Major).* Mr. Cody

125. Plant Population Ecology. (1 or 2 courses) Lecture, two hours; laboratory, six hours; field trips. Prerequisites: course 120 and consent of instructor. *This course will be offered either as a full quarter course for 4 units credit or in the Field Biology Quarter as a concentrated five-week course for 8 units credit.* A study of ecological variation, structure, distribution and reproductive biology of plant populations emphasizing field studies of selected populations and ecosystems. Mr. Cody

M127. Soils, Plants, and Society. (Same as Geography M127.) Lecture, four hours; field trip. Prerequisites: Chemistry 1A, 1B, 1C or equivalent or consent of instructor. A general treatment of: soil development and morphology and the physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation and cultural aspects. Soil profiles examined on the field trip are used to explain developmental phenomena. Mr. Lunt

128. Plant Physiological Ecology. (1 or 2 courses) Lecture, three hours; laboratory and field, three hours. A study of plant-environmental interactions under natural conditions. Emphasis is on transpiration and photosynthesis, leaf temperatures, and water movement in the soil-plant-atmosphere continuum. Individual student projects. *When the course is given as part of the Field Biology Quarter it will be 8 units and the individual research project will be correspondingly expanded.* Mr. Nobel

129. The Behavior of Animals. Lecture, three hours; discussion, three hours. Prerequisite: course 111 or consent of the instructor. Ecological significance, underlying mechanisms, and evolution of behavior, with special reference to animal sociology under natural conditions. Mr. Collias

130. Behavior Research Problems. Lecture, three hours; laboratory, two hours. Prerequisite: consent of the instructor. Systems controls and non-obtrusive sensing procedures for behavior studies in the laboratory and field. Rationale, design, and limitations of laboratory studies of behavior. Mr. Kavanau

131. Insect Ecology. (1 or 2 courses) Lecture, two hours; laboratory or field trip, eight hours. Prerequisites: course 120 or 122 and consent of instructor. Analysis of the ecological roles of insects in terrestrial communities, with emphasis on interactions with both plants and vertebrates. Students will perform group and individual field projects. *The course may either be given as a quarter-long course with weekend field trips or as part of the Field Biology Quarter. When given as part of the Field Biology Quarter, it will be 8 units and the amount of field work increased accordingly.* Mr. Hespenheide

M132. Comparative Genetics. (Same as Microbiology M132.) Lecture, three hours: discussion/demonstration, one hour. Prerequisites: course 4A-4B or 5, 7 with grade of C or better, or consent of instructor. Chemistry 23 or equivalent course in biochemistry, or consent of instructor. Mendelian principles; the gene: its structure, function, and chemistry, with emphasis on mutation, coding regulation, and transmission. Not open to students who have had Biology 134. Mr. Grunstein, Mr. Siegel (F,W,Sp)

M134. Human Genetics. (Same as Biomathematics M134.) Lecture, three or four hours; discussion, one or two hours. Prerequisites: Biology 4A-4B, elementary organic chemistry and biochemistry (equivalent to Chemistry 21 and 22) or concurrent registration. Mendelian principles and the gene, with emphasis on human examples. Topics include mutation at the locus, chromosome, family and population levels; in borne errors of metabolism; ascertainment bias; linkage; X inactivation; gene regulation. Not open to students who have had Microbiology or Biology M132. Mr. Merriam, Ms. Spence

135. Population Genetics. Lecture, three hours; discussion, one hour. Prerequisite: course M132: Mathematics 31A-31B-31C is highly recommended. Basic principles of genetics of population, dealing with the genetic structure of natural populations and the mechanisms of evolution. The course will cover equilibrium conditions and the forces altering gene frequencies, polygenic inheritance, and the methods of quantitative genetics. The Staff

136A-136B-136C. Seminar in Genetics. (½ course each) Discussion, two hours. Prerequisites: course M132 or 134, and consent of the instructor. Undergraduate seminar in genetics; reading and group discussion of current research in genetics. Mr. Siegel (F,W,Sp)

137. Morphogenesis. Lecture, three hours; discussion, one hour. Prerequisite: completion of Prebiology Major. Study of embryonic development. Emphasis will be on the morphogenetic events in insect, avian, amphibian and mammalian species. The Staff

138. Developmental Biology. Lecture, three hours; discussion, one hour. Prerequisite: completion of all courses listed under Preparation for the Major. Synopsis of fundamental concepts in embryology and a survey of current topics in developmental biology. Ms. Lengyel, Mr. O'Connor, Mr. Tobin (F,W,Sp)

139. Introductory Laboratory in Developmental Biology. Lecture, two hours; laboratory, six hours. Prerequisites: course 138 and consent of the instructor. Introductory course in developmental biology including cell and organ culture and biochemical analysis of developing systems. The Staff

140. Plant Development and Differentiation. Lecture, two hours; laboratory, four hours. Prerequisites: Biology 4A-4B (or 5 and 7) or consent of instructor. A study of the ontogeny of the vascular plant body and comparisons of that development among the major plant taxa; discussion of the concepts of plant development. Mr. Schroeder

141. Molecular Basis of Plant Differentiation and Development. Lecture, three hours; discussion, one hour. Prerequisites: course 4A-4B or 5, 6, 7, 8. An in depth study of the basic processes of development and the molecular aspects of the developmental process as it relates to the plant kingdom. A variety of developing systems will be discussed (protistons, fungi, lower and higher plants) with the goal of developing a unified concept of differentiation. Mr. Goldberg, Ms. Tobin (Sp)

142A-142B-142C. Seminar on Topics in Developmental Biology. (½ course each) Discussion, two hours. Prerequisites: course 138 and consent of the instructor. Undergraduate seminar on topics in developmental biology. Reading and group discussions of current research. Will be offered each quarter. Ms. Lengyel, Mr. O'Connor, Mr. Tobin

144. Molecular Biology. Lecture, three hours; discussion, one hour. Prerequisite: completion of all courses listed under Preparation for the Major. Course M132 is strongly recommended. A course in molecular biology emphasizing the synthesis, structure, function and interactions of biological macromolecules. Mr. Brunk, Mr. Fessler, Mr. Ray (F,W,Sp)

145A-145B-145C. Molecular Biology Laboratory. Laboratory, twelve hours. Prerequisite: consent of the instructor. It is highly desirable that the student have already taken course 144. A course in experimental molecular biology in which the student carries out original research under supervision. Space available is limited, and arrangements must be made in advance with the instructor. Mr. Salser (F,W,Sp)

146. Physicochemical Biology. Lecture, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. A physicochemical analysis of the physiology of cells and organelles with emphasis on membranes, thermodynamics of solute and water movement, light absorption, and subcellular energy transduction. Mr. Nobel (F)

147. Biological Oceanography. Lecture, five hours; laboratory, fifteen hours (five week intensive course). Prerequisites: completion of preparation for the Major and consent of instructor. Lecture: physical, chemical, and biological factors affecting the composition and distribution of plankton. Natural history of major phytoplankton and zooplankton taxa; production in marine food chains; adaptation to pelagic habitat. Laboratory: systematics, morphology of major plankton taxa; experimental studies of local marine plankton with emphasis on measurement of feeding, primary and secondary productivity, and nutrient flux. Course to be given at the *Catalina Marine Science Center.* Mr. Muscatine

148. Biology of Marine Plants. (Formerly numbered 101.) Lecture, five hours; laboratory, 15 hours. Prerequisite: Preparation for the Major and consent of instructor. An introducation to the general biology of marine algae: includes basics of structure reproduction, life histories, systematics and an introduction to the physiology and ecology of marine algae. Techniques in culture and laboratory investigation and utilization of algae. Course to be given at the Catalina Marine Science Center. Mr. Chapman

149. Plant Biochemistry and Photosynthesis. Lecture/discussion, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. A survey course emphasizing plant-specific biochemistry, including photosynthesis; nitrogen fixation and metabolism; sulfur metabolism; respiration; plant pigments, lipids, proteins and nucleic acids; the cell wall; terpenes; alkaloids and flavenoids. Mr. Thornber

150. Experimental Phycology and Mycology. Lecture, three hours; discussion, one hour; laboratory, six hours. Prerequisite: course 100 or equivalent or consent of instructor. Study of algae and fungi emphasizing basic concepts in such topics as photobiological phenomena, physiology of growth, nutrition and reproduction; physiological ecology. Laboratory includes isolation and culture techniques and experiments designed to introduce students to a wide range of experimental uses of algae and fungi. Mr. Chapman

152. Functional Plant Anatomy. Lecture, three hours; laboratory, six hours. Prerequisite: completion of all courses listed under Preparation for the Major or consent of the instructor. The structure and functional significance of the various cell and tissue types in higher plants, plus the patterns of growth and differentiation in roots, stems, leaves, flowers, and fruits. Mr. D. Walker

153. Histology. Lecture, three hours; laboratory, four hours. Prerequisite: completion of all courses listed under Preparation for the Major. An introduction to descriptive and functional histology, using light and electron microscope information. Discussion of histological research methods. Mr. Lake (Sp)

154. Functional Ultrastructure of Cells and Tissues. Lecture, three hours; discussion, one hour. Prerequisites: Biolog 4A-4B or 7; Chemistry 21, 22, 24 or equivalent. Basic life processes at the supramolecular and molecular levels of cells. Functional significance of membrane structure, molecular basis of absorption, secretion and muscle contraction. Conventional and advanced methods in ultrastructural analysis, electron microscopy. Interpretations of structural information. Mr. Sjostrand

155. Analytical Microscopy and Cytology. Lecture, three hours; laboratory, three hours. Prerequisites: Physics 3A-3B-3C or 6A-6B-6C or equivalent or consent of instructor. A course designed for students in the biological sciences to acquaint them with quantitative cytology with emphasis on bright field, dark field, phase contrast, interference, polarization analysis, fluorescence microscopy and epi-illumination. Mr. James

158. Cell Biology. (1½ courses) Lecture, three hours; laboratory, six hours. Prerequisites: completion of all courses listed under Preparation for the Major and Biology M132 or 134 or equivalent (genetics). The cell biology of eukaryotic cells with emphasis on the correlation of structure and function at the molecular, organellar, and cellular levels. Mr. Cascarano, Mr. James, Mr. Simpson

162. Plant Physiology. Lecture, three hours; laboratory, one hour. Prerequisite: completion of all courses listed under Preparation for the Major. Water movement within the plant body and between the plant and its environment. Soil genesis, characteristics and plant-soil interrelations. Salt movement across membranes and through tissues. Hormonal control of growth and development. Photomorphogenesis. Photoperiodism and flowering. Photochemical and physiological aspects of photosynthesis. Mr. Laties, Mr. Thornber (F)

163. Plant Physiology Laboratory. Lecture, one hour; discussion, one hour; laboratory, eight hours. Prerequisite: course 162. Students will be introduced to the instrumentation used in Plant Physiology research by performing experiments based on the lecture material in 162. Subsequently, students working singly or in groups will undertake a research project of their own design. Limited enrollment. The Staff

166. Animal Physiology. (1½ courses) Lecture, three hours; laboratory, five hours. Prerequisite: completion of all courses listed under Preparation for the Major. Normally to be taken after course 158. An introduction to physiological principles with emphasis on organ systems and intact organisms.
Mr. Eckert, Mr. Engelmann, Mr. Narins (F,Sp)

168. Insect Physiology. Lecture, two hours; laboratory, six hours. Prerequisite: course 158 or 166 or the equivalent. Survey of the physiology of insects with emphasis on functional adaptations.
Mr. Engelmann

169. Comparative Physiology. Lecture, three hours; laboratory, four hours. Prerequisites: courses 158 and 166. A detailed analysis of selected aspects of invertebrate and vertebrate physiology.
Mr. Gordon

170. Physiological Ecology of Arthropods. Lecture, three hours; discussion, one hour. Prerequisite: course 166 or equivalent. The physiology of terrestrial arthropods in relation to their distribution and function in natural environments. Mr. Edney

171. Principles of Neurobiology. Lecture, three hours; discussion, one hour. Prerequisite: course 166 or consent of instructor. An introduction to basic principles of neurobiology, including a description of the structure of neurons and nervous systems; the ionic mechanisms responsible for generating membrane potentials, action potentials, and synaptic potentials; the properties of synaptic transmission, the information transduction and coding in sensory pathways, and the neural control of movement; development of and trophic interactions between cells of the nervous system.
Mr. Eckert, Mr. Grinnell, Mr. O'Lague

172A-172B. Introductory Laboratory in Neurophysiology. Laboratory, eight hours each. Prerequisite: course 171 or consent of the instructor. Limited enrollment. Laboratory investigation of the function of central and peripheral nervous systems in invertebrates and vertebrates. Emphasis will be on electrophysiological approaches to basic neurophysiological problems. To be taken concurrently. Mr. Eckert, Mr. Grinnell, Mr. O'Lague

173. Anatomy and Physiology of Sense Organs. Lecture, three hours; discussion, one hour. Prerequisite: course 171 or the equivalent. The anatomy and physiology of the sense organs. Comparative aspects will be emphasized. Mr. Narins

177. Introductory General Endocrinology. Lecture, three hours, discussion, one hour. Prerequisite: Biochemistry; course 158 or 166 or the equivalent. Principles of chemical integration in biological systems. Ms. Szego

179. Invertebrate Endocrinology. Lecture, three hours. Prerequisite: course 158 or 166 or consent of the instructor. A comprehensive treatment of invertebrate endocrinology. Mr. Engelmann

180. Advanced Topics in General Endocrinology. Lecture, three hours; discussion, one hour. Prerequisite: course 177 or consent of instructor. Detailed consideration of selected mechanisms in endocrine control of growth and differentiation.
Ms. Szego

181. Parasitology and Symbiosis. (1½ courses) Lecture, three hours; laboratory, six hours. Prerequisites: courses 4A-4B or 5 and 7. An introduction to the principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man. Mr. MacInnis

182. Experimental Parasitology. Laboratory, eight hours. Prerequisite: consent of the instructor. Introduction to the use of parasites in experiments concerning basic biological problems and to problems concerning parasitism. Mr. MacInnis

184. Mathematical Ideas in Biology. Lecture, three hours; discussion, one hour. Prerequisites: one year of calculus and consent of the instructor. The use of mathematical ideas and analysis in the formulation and evaluation of theories of biological phenomena, such as growth, growth control, biological rate processes and applications of random walk theory. Coverage of topics will be tailored to specific student interests.
Mr. Kavanau

M185. Immunology. (Same as Microbiology M185 and Microbiology and Immunology M185.) Lecture, three hours, discussion, one hour. Prerequisites: Chemistry 23, 25; course M132. Concurrent enrollment in Chemistry 152 or 156 is recommended. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions. Mr. Clark, Mr. Sercarz

M186. Immunology Laboratory. (½ course) (Same as Microbiology M186 and Microbiology and Immunology M186.) Laboratory, four hours. Prerequisites: course M185 and consent of the instructor. This course will focus on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments. Must be taken concurrently with Biology M187. Mr. Clark, Mr. Sercarz

M187. Immunology Seminar. (½ course) (Same as Microbiology M187 and Microbiology and Immunology M187.) Discussion, two hours. Prerequisites: course M185 and consent of the instructor. Student presentation of selected papers from the immunology literature. Designed to serve as a forum for the critical analysis of research papers. Must be taken concurrently with Biology M186 (Microbiology M186). Mr. Clark, Mr. Sercarz

188. Seminar on Biology and Society. (½ course) Prerequisite: consent of the instructor. Investigations and discussions of current socially important issues involving substantial biological considerations, either or both as background for policy and as consequences of policy. Mr. Gordon, Ms. Tobin

190A-190D. Honors Research in Biology. (½ to 1 course each) Prerequisites: senior standing and permission of the Undergraduate Advisor. Individual research designed to broaden and deepen the student's knowledge of some phase of Biology. Must be taken for at least two quarters and for a total of at least two courses. Grade will only be given upon completion of 190B. Students may elect to enroll in additional research under 190C-D for a letter grade. A report on progress must be presented to the Undergraduate Advisor each quarter a 190 course is taken. A maximum of eight units of 190 may be used to fulfill the requirements for the Biology major. The Staff (F,W,Sp)

199. Special Studies. (½ to 4 courses) Prerequisites: consent of the instructor and the Undergraduate Adviser. This consent is based on a written proposal outlining the study or research to be undertaken. The proposal should be worked out in consultation with the instructor and submitted for approval to the Biology Undergraduate Adviser before the day instruction begins in that quarter. At the end of the quarter a report describing the progress of the study or research and signed by the student and the instructor must be presented to the Biology Undergraduate Adviser. No limit on credit, but students who wish to carry more than 8 units of 199 in any one quarter must obtain authorization from the departmental chairman and the appropriate dean. Only one 199 course may be used to fulfill the requirements for the Biology major.
The Staff (F,W,Sp)

Graduate Courses

The consent of the instructor is required for admission to all graduate courses. Any additional prerequisites are stated in the course descriptions.

202. Principles of Animal Taxonomy. Lecture, three hours. Taxonomic concepts, principles, and methods. Mr. Belkin

203. Marine Botany and Physiology. (2 courses) Prerequisite: consent of instructor. *This course is given at the Santa Catalina Marine Biological Laboratory.* Structure, reproduction, life histories, systematics and biology of marine algae; techniques in culture and cytological investigation of algal material. Lecture and laboratory. The Staff

204A-204B. Advanced Algae. Prerequisites: consent of instructor. 204A: lecture, four hours. A consideration of current research in experimental phycology. Topics include a discussion of the appropriate aspects of chemical and physical oceanography and limnology; algal physiology; experimental ecology of benthic and planktonic algae. 204B: Lecture, three hours; laboratory, six hours. A course designed to introduce students to current concepts in algal systematics. The laboratory section is designed to teach students, by practical application to unknowns, how to identify algae by appropriate application of keys.
Mr. Chapman

205. Marine Invertebrate Biology. (2 courses) *This course is given at the Santa Catalina Marine Biological Laboratory.* Functional morphology, life histories, and systematics of marine invertebrates of all major and most minor taxa; emphasis on the living animal and its habitat. The Staff

206. Advanced Ichthyology. Lecture, three hours; laboratory, three hours. Prerequisite: course 112 or consent of the instructor. The higher classification and functional morphology of fishes from an evolutionary point of view. Mr. B. Walker

208. Advanced Vertebrate Morphology. Lecture, two hours; laboratory, eight hours. Prerequisites: course 110 or the equivalent and consent of the instructor. Emphasizes a functional approach to evolution of the vertebrate locomotor, feeding, and circulatory systems. Laboratory includes comparative and experimental analyses of morphological adaptation. An independent project is required. May be taken twice for credit. Ms. Peterson

210. Advanced Ornithology. Lecture, two hours; laboratory, two hours; fieldwork, two hours. Prerequisites: course 114 or equivalent, and consent of instructor. Advanced study of topics in avian biology, including systematics, distribution, behavior, and ecology. Students will carry out individual study projects in laboratory, museum, or field. Mr. Howell

NOTE: For key to symbols, see page 74

211. Animal Sociology. Lecture, two hours; discussion, two hours. Prerequisite: course 129, The Behavior of Animals, or equivalent. The description, analysis, physiology, ecology and evolution of different social systems in animals. Mr. Collias

213. Community Ecology. Lecture, three hours. Prerequisites: course 122 or equivalent, one year of calculus. Investigation of the structure and function of animal communities, in theory and in practice; includes the concepts of coexistence, competition, niche and diversity. Mr. Cody

214. Physiological Ecology. (½ course) Lecture, two hours. Prerequisite: course 111. A detailed consideration of the role of physiology and behavior in the autecology of organisms in natural environments. Mr. Bartholomew, Mr. Nagy

215. Theoretical Ecology. Lecture, three hours. Prerequisites: course 122, one year of calculus and consent of instructor. The use of mathematical models in studying ecological systems. A wide range of autecological and synecological models will be treated; relevant mathematical techniques, which include parts of basic calculus, differential equations, linear algebra and probability, will be reviewed as necessary. Mr. Vance

217. Marine Ecology. (2 courses) *This course is given at the Santa Catalina Marine Biological Laboratory.* Structure, diversity and energetics of marine communities; behavior, population dynamics, and biogeography of component species; associated oceanography and geology. Mr. Vance

218. Oceanology. (2 courses) *This course is given at the Santa Catalina Marine Biological Laboratory.* Ecology and dynamics of pelagic and benthic associations; physio-chemical properties of seawater and marine substrates and their biological significance; qualitative and quantitative methods of oceanology. The Staff

219. Animal Behavior in Laboratory and Field. Discussion, two hours; laboratory, six to eight hours. Prerequisites: course 129 and consent of the instructor. Limited Enrollment. Laboratory and field studies of selected problems in animal behavior. Mr. Collias

220. Multigene Families. Lecture, two hours; discussion, two hours. Prerequisites: Biology M132 and 144 (or equivalent) and consent of instructor. Analysis of the molecular structure, developmental regulation, and evolution of multigene families. Topics to be discussed will include the hemoglobins, immunoglobulins, histones, ribosomal RNAs, satellite DNAs, and histocompatibility antigens. Mr. Campbell, Mr. Tobin

221. Genetic Analysis. Lecture and discussion, three hours. Prerequisite: course M132 or equivalent. Examples of genetic analysis in eukaryotic organisms by means of mutation and chromosome changes. Readings in the literature will be provided. Topics to be presented include *Drosophila* chromosome behavior, techniques of gene localization, the one gene-one chromomere hypothesis, meiotic mutants, mosaic animals and cell lineage, behavior, and X-chromosome inactivation. Mr. Merriam

222A-222F. Topics in Genetics. Lecture. Prerequisite: course M132. Intensive study of selected topics. The Staff

223A-223B. Advanced Genetics Laboratories. Laboratory, nine hours. Prerequisites: Biology M132 or equivalent and consent of instructor. Original research with supervision in eukaryotic genetics; topics include transmission, developmental and behavioral genetics. 223A and 223B may be taken one time each for credit. 223A—Mr. Merriam, 223B—Mr. Siegel.

224. Developmental Biology of Marine Organisms. (2 courses) *This course is given at the Santa Catalina Marine Biological Laboratory.* Descriptive and experimental studies of developmental stages of marine plants and animals; patterns of reproductive biology; larval biology; metamorphosis. The Staff

225. Special Topics in Development. Lecture, three hours. Variable topics emphasizing the control of eukaryotic gene expression and morphogenesis. Special attention will be given to the role of hormones in the modulation of gene expression during development. Mr. O'Connor

M226. Chromosome Structure and Regulation. (Same as Biological Chemistry M226, Chemistry M226, Microbiology and Immunology M226, and Microbiology M226.) Lecture, three hours. Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes. Satisfactory/unsatisfactory grades are used for this course. The Staff

227. Chromosome Structure and Replication. Lecture, three hours. Prerequisites: course M132, Chemistry 153, or consent of instructor. A survey of biochemical and biophysical investigations of the structure and replication of chromosomal nucleic acids with emphasis on bacterial and viral systems. Mr. Ray

228. Prokaryotic and Eukaryotic Gene Systems. (½ course) Lecture, two hours. Prerequisite: consent of instructor. Presentations concerning current experimental approaches in the study of DNA replication, organization, transcription and translation. Mr. Grunstein, Mr. Ray

229. Structural Macromolecules. Lecture, three hours; discussion, one hour. Prerequisite: consent of the instructor. The comprehensive molecular biology of selected structural proteins and polysaccharids, including cellular synthesis, structure and physical properties, and integrated biological functions. Mr. Fessler

M230A. Structural Molecular Biology. (½ course) (Same as Microbiology M230A and Chemistry M230A.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor, based on a written research proposal. Fundamentals of electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals. Mr. Eiserling, The Staff

M230B. Structural Molecular Biology. (½ course) (Same as Microbiology M230B and Chemistry M230B.) Lecture, two hours; discussion, one hour. Prerequisites: Physics 6C, Mathematics 3C and consent of instructor. Selected topics from the following: principles of biological structure; structures of globular proteins and RNA's; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron and x-ray diffraction; optical and computer filtering; three-dimensional reconstruction. The Staff

M230C. Structural Molecular Biology Laboratory. (½ course) (Same as Microbiology M230C and Chemistry M230C). Laboratory, 10 hours. Prerequisite: consent of instructor, based on a written research proposal. Laboratory: practical experience with electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals. Mr. Eiserling, The Staff

M230D. Structural Molecular Biology Laboratory. (½ course) (Same as Microbiology M230D and Chemistry M230D.) Laboratory, 10 hours. Prerequisite: course M230B concurrent. Methods in structural molecular biology, including experiments utilizing the following procedures: single crystal x-ray diffraction, low angle x-ray diffraction, electron diffraction, optical diffraction, optical filtering, three dimensional reconstruction from electron micrographs, and model building. The Staff

231. Advanced Topics in Molecular Biology. Lecture, three hours; discussion, one hour. Prerequisite: consent of the instructor. Each offering of the course will treat a different topic of current interest in molecular biology. The topic will be covered in depth at a level appropriate to advanced graduate students. The course will include lectures, discussion and presentations by students. Mr. Brunk

232. Experimental Molecular Developmental Biology. (2 courses) Lecture, one hour; discussion, two hours; laboratory, 12 hours. Prerequisites: Biology 138, 144, and/or consent of instructor. A laboratory course in the biochemical expression and regulation of differentiation in eucaryotes. Mr. Fessler, Ms. Lengyel, Mr. Tobin

233A-233B. Electron Microscopy of Cells. (2 courses each) Lecture, four hours; laboratory, 20 hours; demonstration, three hours. Prerequisite: consent of instructor. Electron microscopic techniques applied to structure of cells and to molecular structure of cellular components. Intensive training in electron microscopy techniques and in the use of the electron microscope for high resolution electron microscopy. Mr. Sjostrand

234. Advanced Topics in Development. Lecture, three hours; discussion, one hour. Prerequisite: course 138 or equivalent. A 4-unit lecture course which will cover at an advanced level, special topics in areas such as: changes in gene activity during development, hormone action during development, cell commitment and differentiation, developmental genetics, plant development and developmental neurobiology. Ms. Lengyel and the Staff

235. Advanced General Physiology. Lecture, three hours. Prerequisite: course 158 or 161. Discussion of specific topics such as excitation, conduction, physiology of blood, muscle contraction, etc. Students will participate in giving reports. The Staff

236. Experimental Cell Biology. Lecture, two hours; discussion, one hour; laboratory, four hours. Prerequisites: course 158 and consent of the instructor. Theoretical and experimental analysis of systems utilized in the study of cellular metabolism and physiology: cell organelles, cell populations and organized tissues. Mr. Cascarano, Mr. James

238. Structure, Function and Biogenesis of the Mitochondrion. Lecture, three hours. Prerequisites: course 158, Chemistry 22, and consent of the instructor. Origin, maintenance and function of the mitochondrion as an example of a highly organized subcellular organelle in the eukaryotic cell. Mr. Simpson

M239. Laboratory Techniques in Nucleic Acid Research. (2 courses) (Same as Microbiology M239.) Lecture, two hours; discussion, one hour; laboratory, 12 hours (open lab). Prerequisite: consent of instructor. Procedures in the manipulation of nucleic acids, including: isolation of DNA and RNA and physical and chemical characterization by several means; characterization of circular DNA molecules by electron microscopy, gradient centrifugation and restriction enzyme analysis; in vitro transcription and hybridization analysis. Mr. Nierlich, Mr. Simpson

240. Physiology of Marine Animals. (2 courses) *This course is given at the Santa Catalina Marine Biological Laboratory.* Lecture and laboratory studies on cellular, tissue, organ, and animal physiology; regulatory biology; metabolic characteristics of cells; energy transformations. The Staff

241. Laboratory in Advanced Electrophysiology. (2 courses) Laboratory, twelve hours. Prerequisites: course 172 or equivalent and consent of the instructor. In-depth involvement in individual research projects under staff guidance. Approximately two projects each quarter. Course may be repeated twice. Mr. Eckert, Mr. Grinnell, Mr. O'Lague

242. Topics in Neurobiology. Lecture, three hours. Prerequisites: course 171 or the equivalent and consent of the instructor. Selected current problems in neurobiology will be discussed in depth with emphasis on analysis of original papers. May be repeated for credit. Mr. Eckert, Mr. Grinnell, Mr. O'Lague

243. Animal Communication. Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 3C, Physics 6C and consent of the instructor. Qualified undergraduates may also enroll with consent of the instructor. Physical properties of animal signals and the physiological mechanisms underlying their generation and reception will be considered. Lectures will treat signal analysis, signal transmission and receptor design in light of the constraints placed on each of the sensory modalities. Examples of communication systems using visual, auditory, chemical, electrical and magnetic cues will be discussed, with emphasis on biological adaptions for efficiently signalling species specific information. Mr. Narins

244. Advanced Insect Physiology. Lecture, two hours; laboratory, five hours. Prerequisite: course 168 or consent of the instructor. A detailed discussion of current problems in insect physiology. Advanced laboratory. Mr. Engelmann

247A-247E. Advanced Plant Biology. Lecture/discussion, four hours. Prerequisite: consent of instructor. Some background in plant biology is recommended. 247A. Control of growth and development in plants – Ms. Tobin, Mr. Phinney. 247B. Plant genetics – Mr. Goldberg. 247C. Organelle development and function in plants – Ms. Gonzalez. 247D. Photobiology – Mr. Thornber. 247E. Plant metabolic pathways – Mr. Chapman.

248. Laboratory Techniques in Plant Biochemistry. (½ course) Laboratory, six hours. Prerequisites: Biology 247 (taken concurrently) and Chemistry 153 or equivalent and consent of instructor. A laboratory course aimed at introducing graduate students to techniques used in plant biochemistry research. Limited enrollment. Mr. Chapman, Mr. Thornber

249. Biochemistry of Parasitism. Lecture, three hours. Biochemical and physiological aspects of parasite-host relationships. Mr. MacInnis

251. Seminar in Plant Systematics. (½ course) Mr. Thompson

253. Seminar in Plant Structure. (½ course) Mr. Phinney, Mr. D. Walker

255. Seminar in Invertebrate Zoology. (½ course) Mr. Muscatine, Mr. Morin

256. Seminar in Entomology. (½ course) Mr. Belkin

258. Seminar in Icthyology. (½ course) Mr. B. Walker

259. Seminar in Herpetology. (½ course) Discussion, three hours. Prerequisite: course 113 or consent of instructor. Seminar in current approaches to herpetology. Main theme will vary from year to year in areas such as biogeography, ecology, behavior, environmental physiology. Mr. Gorman

260. Seminar in Biology of Terrestrial Vertebrates. (½ course) Mr. Bartholomew, Mr. Howell

261. Seminar in Vertebrate Morphology. (½ course) Prerequisite: course 110 or equivalent. Discussion of current problems in vertebrate morphology and evolution. Graded Satisfactory/Unsatisfactory. Ms. Peterson

262. Seminar in Vertebrate Paleontology. (½ course) Mr. Vaughn

264. Evolutionary Concepts. (½ course) Lecture: three hours. Exploration in depth of evolutionary concepts, their diversity, biological interpretations and impact on social and humanistic patterns of today and the past. The Staff

265. Seminar in Biophysical Plant Ecology. (½ course) Mr. Nobel

266. Seminar in Plant Ecology. (½ course) Mr. Cody, Mr. Thompson

268. Seminar in Population Biology. (½ course) Mr. Cody

269. Seminar in Animal Ecology. (½ course) Discussion, three hours. Prerequisite: consent of instructor. A seminar to discuss specific topics in animal ecology and related fields; designed for advanced graduate students. The Staff

270. Seminar in Environmental Physiology. (½ course) Mr. Bartholomew, Mr. Nagy

271. Seminar in Phycology and Mycology. (½ course) Lecture, two hours. Prerequisites: course 100 or equivalent and consent of instructor. Advanced study in biology of algae and fungi. Topics in physiological ecology, physiology and biochemistry of algae and fungi, and their industrial uses. Algae and fungi as experimental organisms. Phylogeny and origin of eucaryote organisms. Evolutionary origin of chloroplasts. Mr. Chapman

272. Seminar in Marine Biology. (½ course) Mr. Gordon, Mr. Muscatine, Mr. Morin

274. Seminar on Animal Behavior. (½ course) Mr. Collias

275. Seminar on Behavior Research Problems. Lecture, three hours; laboratory, two hours. Prerequisite: course 130. Mr. Kavanau

276. Seminar in Molecular Genetics. (½ course) Graduate seminar will concentrate on a specific topic each quarter. Mr. Salser

277. Seminar in Genetics. (½ course) Mr. Ebersold, Mr. Merriam, Mr. Siegel

278. Information Processing in Eukaryote Cells. (Seminar) (½ course) Discussion, three hours. Prerequisites: Chemistry 153, Biology 132, or equivalents; consent of instructor. Structure and organization of eukaryote DNA; nuclear RNA species; definition and properties of eukaryote mRNA; translation of mRNA; current related topics. Mr. Clark

279. Seminar in Developmental Biology. (½ course) Prerequisite: consent of instructor. Graded Satisfactory/Unsatisfactory. Mr. Tobin

280. Seminar on Chromosome Structure and Replication. (½ course) Prerequisite: course 227. Current topics in the field of control and mechanism of DNA replication. Mr. Ray

281. Seminar in Molecular Biology. (½ course) Prerequisite: consent of instructor. Mr. Brunk, Mr. Fessler, Mr. Ray

283. Seminar on Topics in Cell Biology. (½ course) A discussion of various topics on the biology of eukaryotic cells. A different topic will be emphasized each year. The topics will include bioenergetics, motility, organelle DNA, membrane structure and function, oncogenic transformation, nuclear organization and function. Mr. Simpson

284. Seminar in Structural Macromolecules. (½ course) Lecture, one hour; discussion, three hours. Prerequisites: courses 138, 144, and/or consent of instructor. In depth analysis of current problems in the biology, biochemistry, and molecular biology of structural macromolecules involving critical evaluation of recent findings and publications on the biosynthesis, structure, and biodegradation of these molecules. Mr. Fessler

285. Seminar in Protein Synthesis. (½ course) Discussion, three hours. Prerequisites: course 144 and/or consent of instructor. A detailed analysis of our current understanding of the structural and functional events occuring during protein synthesis. Mr. Lake

286. Seminar in Plant Development. (½ course) Lecture, one hour; discussion, two hours. Prerequisites: a course in plant physiology and at least one advanced undergraduate or graduate course in plant development or biochemistry, Chemistry 153 or equivalent. A graduate seminar that will concentrate on a specific topic in plant development each quarter. Mr. Phinney, Ms. Tobin

287. Seminar in Comparative Cell Physiology. (½ course) Mr. Cascarano, Mr. James

288. Seminar on Plant Cell Biology. (½ course) Prerequisite: course 162 is particularly recommended. Ms. Gonzalez

289. Seminar in Plant Physiology. (½ course) Mr. Laties

290. Seminar in Comparative Physiology. (½ course) Mr. Gordon, Mr. Narins

291. Seminar in Physiology and Biochemistry of Arthropods. (½ course) Mr. Engelmann

292. Seminar on Topics in Ultrastructure. (½ course) The Staff

294. Seminar on Current Aspects of Photosynthesis. (½ course) Mr. Chapman, Mr. Thornber, Mr. Wildman

295. Seminar in Neurophysiology. (½ course) Mr. Eckert, Mr. Grinnell, Mr. O'Lague

297. Seminar in Molecular Endocrinology. (½ course) Ms. Szego

M298. Seminar in Current Topics in Molecular Biology. (½ course) (Same as Biological Chemistry M298, Chemistry M298, Microbiology and Immunology M298, Microbiology M298 and Molecular Biology M298.) Prerequisite: enrollment must be approved by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics. May be repeated for credit. The Staff

299. Seminar in Parasitology. (½ course) Mr. MacInnis

495. Preparation for the Teaching of Biology in Higher Education. (½ course) Prerequisites: graduate standing and consent of instructor. Study of problems and methodologies in teaching biology, which includes workshops, seminars, apprentice teaching, and peer observation. Graded S/U. Mr. Morin

501. Cooperative Program. (½ to 2 courses) Prerequisites: Approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in graduate courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

Individual Study and Research

The conduct of each of the courses listed below is supervised by a member of the faculty. He or she is identified by letter code as follows: AB, Albert A. Barber; GB, George A. Bartholomew; JB, John N. Belkin; CB, Clifford F. Brunk; DC, David J. Chapman; JC, Joseph Cascarano; MC, Martin L. Cody; NC, Nicholas E. Collias; WC, William R. Clark; WE, Wilbur T. Ebersold; RE, Roger O. Eckert; ED, Eric Edney; FE, Franz Engelmann; JF, John H. Fessler; BG, Robert Goldberg; LG, Elma Gonzalez; MG, Malcolm S. Gordon; GG, George C. Gorman; AG, Alan D. Grinnell; RG, Michael Grunstein; HH, Henry A. Hespenheide; TH, Thomas R. Howell; WJ, Thomas W. James; HK, Harumi Kasamatsu; LK, J. Lee Kavanau; AL, James A. Lake; GL, George G. Laties; JL, Judith A. Lengyel; HL, F. Harlan Lewis; RL, O. Raynal Lunt; AM, Austin J. MacInnis; JM, John R. Merriam; GM, James G. Morin; LM, Leonard Muscatine; KN, Kenneth A. Nagy; MN, Peter M. Narins PN, Park S. Nobel; JO, John D. O'Connor; PO, Paul H. O'Lague; EO, Everett C. Olson; JP, Jane A. Peterson; BP, Bernard O. Phinney; DR, Dan S. Ray; WS, Winston A. Salser; AS, Charles A. Schroeder; RS, Richard W. Siegel; LS, Larry Simpson; FS, Fritiof S. Sjostrand; CS, Clara M. Szego; HT, Henry J. Thompson; PT, J. Philip Thornber; AT, Allan J. Tobin; ET, Elaine M. Tobin; PV, Peter P. Vaughn; RV, Richard C. Vance; BW, Boyd W. Walker; DW, Dan B. Walker; SW, Samuel G. Wildman.

596AA-596ZZ. Directed Individual (or Tutorial) Studies. (½ to 2 courses) The Staff

596F. Directed Individual (or Tutorial) Studies. (½ to 2 courses) Directed individual (or tutorial) studies at the Santa Catalina Island Marine Laboratory. The Staff

NOTE: For key to symbols, see page 74

597AA-597ZZ. Preparation for Comprehensive Examination for the Master's Degree or Qualifying Examination for the Ph.D. (½ to 2 courses) Prerequisite: consent of instructor. Course 597 may not be used to fulfill any course requirements for the Master's or Doctor's degrees, and is graded S/U.

598AA-598ZZ. Master's Thesis Research and Writing. (½ to 2 courses) The Staff

599AA-599ZZ. Doctoral Dissertation Research and Writing. (½ to 2 courses) The Staff

BIOMATHEMATICS

(Department Office, AV-111 Center for the Health Sciences)

Abdelmonem A. Afifi, Ph.D., *Professor of Biostatistics and Biomathematics.*
Virginia A. Clark, Ph.D., *Professor of Biostatistics and Biomathematics.*
Edward C. DeLand, Ph.D., *Adjunct Professor of Surgery and Biomathematics.*
[16]Wilfrid J. Dixon, Ph.D., *Professor of Biomathematics (Vice Chairman of the Department) and Professor of Biostatistics and Psychiatry.*
Olive Jean Dunn, Ph.D., *Professor of Biostatistics and Biomathematics.*
[16]Donald J. Jenden, B.Sc., M.B., B.S., *Professor of Pharmacology and Biomathematics.*
Robert J. Jennrich, Ph.D., *Professor of Biomathematics, Biostatistics and Mathematics.*
Frank J. Massey, Ph.D., *Professor of Biostatistics and Biomathematics.*
Carol M. Newton, M.D., Ph.D., *Professor of Biomathematics (Chairman of the Department) and Professor of Radiological Oncology.*
Charles J. Stone, Ph.D., *Professor of Mathematics and Biomathematics.*
Robert M. Elashoff, Ph.D., *Associate Professor of Biomathematics and Biostatistics.*
Kenneth L. Lange, Ph.D., *Associate Professor of Biomathematics.*
Arthur Peskoff, Ph.D., *Adjunct Associate Professor of Biomathematics and Physiology.*
Mary Anne Spence, Ph.D., *Associate Professor of Biomathematics and Psychiatry in Residence.*
Jacqueline Benedetti, Ph.D., *Assistant Professor of Biomathematics in Residence.*
Eli Engel, M.D., Ph.D., *Adjunct Assistant Professor of Biomathematics.*
Ping Yu Liu, Ph.D., *Assistant Professor of Biomathematics in Residence.*

•

Fred Dorey, Ph.D., *Lecturer in Biomathematics.*
Alan B. Forsythe, Ph.D., *Computer Systems Designer, Department of Biomathematics, and Lecturer in Dentistry.*
James W. Frane, Ph.D., *Principal Statistician.*
Edward Korn, Ph.D., *Assistant Research Statistician.*
M. Ray Mickey, Ph.D., *Research Statistician.*
Nancy Mann, Ph.D., *Senior Statistician.*
Mary L. Ralston, Ph.D., *Lecturer in Biomathematics and Assistant Research Statistician.*

Biomathematics relates to the biological domain, much as mathematical physics relates to the physical. It also seeks to develop theoretical and computational vehicles for moving basic research findings rapidly and effectively into medicine. The Department of Biomathematics offers both methodologically-oriented and biologically subject-oriented course sequences in biomedical computation, modeling, and the relating of models to data and to experimental or treatment strategies. It is responsible for such training in the medical curriculum, and the department offers the M.S. and Ph.D. in Biomathematics.

Admission to Graduate Status

Candidates for admission to graduate status in the Department of Biomathematics must conform to the general admissions requirements set by the Graduate Division and have received the bachelor's degree in mathematics, one of the biological or physical sciences, or the premedical curriculum. Candidates also must submit results of the Aptitude and the Advanced Tests of the Graduate Record Examination. In general, at the time of admission, students must have completed two years of mathematics through second-year calculus and elementary organic chemistry and biochemistry (equivalent to Chemistry 21, 22, and 24).

Ideal course preparation should also include the equivalent of Mathematics 150A-150B-150C, 115, and 135A-135B-135C: 16 or more quarter units of biology; 12 quarter units of physics (preferably equivalent to the Physics 7 series); physical chemistry (equivalent to Chemistry 110A-110B); and some training in statistical and computer methods. At the discretion of the Department, students lacking some of this preparation but with strong backgrounds in other areas pertinent to biomathematics may be admitted to graduate status, provided that deficiencies are removed by appropriate courses within a specified time after admission.

Requirements for the Master's Degree

Students entering graduate study in the Department of Biomathematics will normally be expected to pursue the Ph.D. degree. Exceptional cases may be considered for the Master of Science Degree and must meet the general requirements set by the Graduate Division for this degree, (see Master's Degree). Students for this degree will be encouraged to follow the Comprehensive Examination Plan. Those permitted to undertake the Thesis Plan will conform to University regulations described under Thesis or Comprehensive Examination. Required courses include: Biomathematics 201, 202A, 203 and 204, and two other graduate-level courses in Biomathematics. No foreign language is required.

Requirements for the Doctor's Degree

Candidates for the doctorate in biomathematics must conform to the general requirements set by the Graduate Division for this degree (see candidate in Philosophy Degree). No foreign language is required.

Individually designed curricula and independent reading will remove mathematical or biological deficiencies the student might have at time of admission. Required courses in Biomathematics are 201, 202A, 203, 204 and 8 units chosen from an approved list. Each student will select and prepare for a field of major biological emphasis such as immunology, genetics, neurosciences, pharmacology, physiology, or population/ecological modeling. Graduate courses in mathematics will be selected to best support the student's intended area of specialization. Students are required and helped to participate in research each year. A teaching preceptorship is designed to involve the student in all aspects of planning for and delivering a course. Examinations are: written Comprehensive Examination in biomathematics, Qualifying Examination in the field of major biological emphasis, Final Oral Qualifying Examination (including presentation of dissertation proposoal), and Final Defense of Dissertation.

A more detailed description of the program should be obtained from the Department of Biomathematics.

Graduate Adviser: Kenneth Lange, Ph.D.

Upper Division Courses

107. Introduction to Biomathematics in Genetics. Prerequisite: introductory genetics course and consent of instructor. A presentation of mathematical modeling in biology with specific reference to analysis of family data in genetics. Topics include linkage and polygenic inheritance. Ms. Spence

110. Elements of Biomathematics. Prerequisite: calculus. Analysis of deterministic models including some general approaches to the study of homeostatis. Conditions under which deterministic and probabilistic descriptions of biological phenomena are appropriate. Both approaches will be applied to selected examples in epidemiology and enzyme kinetics. Mr. Peskoffs and the staff

M134. Human Genetics. (Same as Biology M134.) Prerequisites: Biology 4A-4B, elementary organic chemistry and biochemistry (equivalent to Chemistry 21 and 22) or concurrent registration. Mewdelian principles and the gene, with emphasis on human examples. Topics include mutation at the locus, chromosome, family and population levels; in borne errors of metabolism; ascertainment bias; linkage; X inactivation; gene regulation. Not open to students who have had Microbiology or Biology M132. Mr. Merriam, Ms. Spence

M153. Introduction to Computational Statistics. (Same as Mathematics M153.) Prerequisites: Mathematics 150C or Mathematics 152B or the equivalent. Statistical analysis of data by means of package programs. Regression, analysis of variance, discriminant analysis, and analysis of categorical data. Emphasis will be on understanding the connection between statistical theory, numerical results, and analysis of real data. The Staff

170A-170B-170C. Selected Biomathematical Topics for Researchers in Medicine and Biology. Prerequisite: none for 170A; for 170B and 170C, elementary calculus. Basic techniques for examination of data, planning of experiments, comparison of theory and experiment. Commonly used models (e.g., compartment, transport) will be developed and used to illustrate the latter. Techniques include use of computer P/NP or letter grade. Ms. Newton

171A-171B. Selected Topics for Dental Researchers. (½ course) Prerequisites: Of particular interest to students in Dentistry. Instruction in critical and efficient reading of the dental literature, experimental designs, analysis of data using BMD programs, and some basic modeling techniques. Review of modern biomathematical techniques in craniofacial research and other areas of interest to dentistry. The Staff

190HA-190HB. Honors Research in Biomathematics. Prerequisites: upper division standing, permission of instructor and chairman. Individual research in some aspect of biomathematics designed to acquaint the student in depth with mathematical models and computer applications in biology. Must be taken for at least two quarters and for a total of at least two courses. A thesis is required for completion of the final course. The Staff

199. Special Studies in Biomathematics. (½ to 2 courses) Prerequisites: upper division standing and consent of the instructor. Special studies in biomathematics, including either reading assignments or laboratory work or both, designed for appropriate training of each student who registers in this course. The Staff

Graduate Courses

200. Research Frontiers in Biomathematics. (½ course) Prerequisite: consent of instructor. A series of presentations by the faculty on research frontiers in biomathematics. The Staff

201. Deterministic Models in Biology. Prerequisites: Linear algebra and differential equations. The conditions under which deterministic approaches can be employed are examined, and conditions where they may be expected to fail. Topics receiving special attention include compartmental analysis, enzyme kinetics, membrane theory, and the homeostatic control of physiological systems. Ms. Newton and the Staff

202A-202B. Time Series Analysis. Prerequisites: calculus, linear algebra and probability. Spectral representation, linear time invariant systems, ergodic theory, and prediction theory. Estimation of spectra, coherence, frequency response and bispectra. Statistical stability, hypothesis testing, and design. Use of the fast Fourier transform, complex demodulation, and instrumental variables. Biomedical and physical applications. The Staff

203. Stochastic Models in Biology. Prerequisite: Mathematics 150A or equivalent experience in probability. The mathematical description of biological relationships with particular attention directed to areas where the conditions for deterministic models are inadequate. Examples of stochastic models

drawn from genetics, physiology, ecology and a variety of other biological and medical disciplines. Mr. Lange

204. Biomedical Data Analysis. Prerequisite: consent of instructor. The quantity and quality of observations has been greatly affected by the present day extensive use of computers. The course is a problem-oriented study of the latest methods in statistical data analysis and their use for such arising in laboratory and clinical research. Mr. Dixon

205. Electric Potential Problems in Membranes, Cells and Tissues. Prerequisites: Differential equations and electrostatics or consent of instructor. Subthreshold electrical properties of cells, microelectrode measurements of intracellular potentials, boundary conditions for current flow across membranes, eigenfunction expansions and singular perturbation analysis of intracellular and extracellular potential distribution in spherical and cylindrical cells. Mr. Peskoff

206. Modeling of Cellular Systems. (½ course) Study of recently reported characterizations of differentiating systems, labeling, etc. Deterministic, stochastic, and computer simulation models are developed from simple dividing cellular systems. Biological assumptions, indications for various approaches, and relationships to laboratory research and methods are emphasized. Ms. Newton

M207. Modeling in Genetic Analysis. (Same as Anthropology M222C.) Prerequisite: graduate standing, course M222B, or consent of instructor. Basic concepts of human genetics with emphasis on methods of computer-oriented genetic analysis. Topics include segregation analysis, genetic linkage, polygenic (quantitative) models, and population structure. Ms. Spence

208. Modeling and Analysis of Neuroelectric Data. For biologists (esp, neuroscientists), but open to other science majors. Mathematical approaches for modeling and developing neural theory are applied to basic neurophysiological pheonomena and neural models. Appropriate practical approaches are also presented. The Staff

209. Models of Steady-State Biochemistry. (½ course) Prerequisite: undergraduate chemistry or biochemistry, mathematics through calculus, FORTRAN. This course will employ computer methods for study and simulation of detailed biochemical subsystems from physiology. Primary emphasis is upon steady-state distributions of fluid and electrolytes across active membranes of systems chosen for their clinical or research interest. Mr. DeLand

210. Introduction to Biomedical Computation. Prerequisite: graduate standing. Basic concepts of data acquisition and machine computation, with special reference to biomedical applications. The Staff

213. Biomedical Laboratory Computation. Prerequisite: none, however, course 210 is highly recommended. Computational problems encountered in the direct processing of physiological data and in controlling laboratory experiments are analyzed. Experience will be acquired in implementing approaches to these problems on a small laboratory computer widely used in the biological sciences. The Staff

215. Advanced Biomedical Computation. Prerequisite: course 210 or equivalent programming experience. Biomedical computation enabling those having elementary FORTRAN programming to acquire skills applicable to biomedical research. Use of random-number generators, stochastic modeling, models with differential equations, package programs, specialized applications, interactive modeling on IBM-2250 graphics system. Individual term projects. Ms. Newton and the Staff

M216. Computer and Biomathematical Applications in Radiological Sciences. (Same as Radiological Sciences M216.) Prerequisites: Biomathematics 210 and elementary calculus are recommended. Computer and biomathematical methods will be presented that relate to dosimetry, treatment strategies, biological effects of radiation, and laboratory research in radiotherapy and radiobiology. Mr. Frey, Ms. Newton

220. Topics in Biological Control Theory. Prerequisite: Calculus, up to differential equations. Biochemical, physiological and neurological phenomena are treated theoretically using the methodology of cybernetics. The problem of the nervous system and various approaches to understanding it are presented. Mr. Fox and the Staff

M231. Special Topics: Statistical Methods for Categorical Data. (Same as Public Health M201E.) Prerequisites: Public Health 100B or 101B, Math 150C or 152B or equivalent and consent of instructor. Statistical techniques for the analysis of categorical data; discussion and illustration of their applications and limitations. The Staff

M246. Probability Models and Statistical Methods in Genetics. (Same as Anthropology M222B.) Prerequisite: graduate standing, two quarters of statistics. Mathematics 3A, Anthropology M222A. An introduction to probability models and statistical methods in genetics. Maximum likelihood methods for estimating genetics parameters will be introduced and discussed in detail. This course is a prerequisite for Anthropology M222C. The Staff

M280. Computational Statistics. (Same as Mathematics M280 and Public Health M244C.) Prerequisite: Mathematics 115 and 150C or the equivalent. Introduction to theory and design of statistical programs; pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance including the mixed model, iterative rescaling and other methods for loglinear models. Mr. Jennrich

401. Biomathematics. (½ course) Fundamentals of statistical estimation and inference. Emphasis on critical appraisal of current research literature. The Staff

410. Biomedical Computing: Introduction. Same lectures as Biomathematics 210. A term project is required in lieu of homework and examinations. To be graded S/U only. The Staff

Individual Study and Research

596. Directed Individual Study or Research in Biomathematics. (½ to 3 courses) This course will serve for individual study on topics not yet covered by the offerings of the department. This course can be taken several times for credit when different topics are covered. A letter grade will be used. The Staff

CHEMISTRY

(Department Office, 3010 W.G. Young Hall)

Frank A. L. Anet, Ph.D., *Professor of Chemistry.*
Daniel E. Atkinson, Ph.D., *Professor of Chemistry.*
Kyle D. Bayes, Ph.D., *Professor of Chemistry.*
Paul D. Boyer, Ph.D., *Professor of Chemistry.*
Orville L. Chapman, Ph.D., *Professor of Chemistry.*
Donald J. Cram, Ph.D., *Professor of Chemistry.*
David S. Eisenberg, Ph.D., *Professor of Molecular Biology in Chemistry.*
Mostafa A. El-Sayed, Ph.D., *Professor of Chemistry.*
Paul S. Farrington, Ph.D., *Professor of Chemistry.*
Christopher S. Foote, Ph.D., *Professor of Chemistry.*
E. Russell Hardwick, Ph.D., *Professor of Chemistry.*
M. Frederick Hawthorne, Ph.D., *Professor of Chemistry.*
Herbert D. Kaesz, Ph.D., *Professor of Chemistry.*
Daniel Kivelson, Ph.D., *Professor of Chemistry.*
Charles M. Knobler, Ph.D., *Professor of Chemistry.*
William G. McMillan, Jr., Ph.D., *Professor of Chemistry.*
John P. McTague, Ph.D., *Professor of Chemistry.*
Malcolm F. Nicol, Ph.D., *Professor of Chemistry.*
Howard Reiss, Ph.D., *Professor of Chemistry.*
Verne N. Schumaker, Ph.D., *Professor of Molecular Biology in Chemistry.*
Robert L. Scott, Ph.D., *Professor of Chemistry.*
Roberts A. Smith, Ph.D., *Professor of Chemistry.*
Robert V. Stevens, Ph.D., *Professor of Chemistry.*
Kenneth N. Trueblood, Ph.D., *Professor of Chemistry.*
John T. Wasson, Ph.D., *Professor of Geochemistry and Chemistry.*
Charles A. West, Ph.D., *Professor of Chemistry.*
Francis E. Blacet, Ph.D., D.Sc., *Emeritus Professor of Chemistry.*
Clifford S. Garner, Ph.D., *Emeritus Professor of Chemistry.*
Theodore A. Geissman, Ph.D., *Emeritus Professor of Chemistry.*
Thomas L. Jacobs, Ph.D., *Emeritus Professor of Chemistry.*
Willard F. Libby, Ph.D., *Emeritus Professor of Chemistry.*
James D. McCullough, Ph.D., *Emeritus Professor of Chemistry.*
William G. Young, Ph.D., D.Sc., *Emeritus Professor of Chemistry.*
Mario E. Baur, Ph.D., *Associate Professor of Chemistry.*
William M. Gelbart, Ph.D., *Associate Professor of Chemistry.*
Eric J. Heller, Ph.D., *Associate Professor of Chemistry.*
John M. Jordan, Ph.D., *Associate Professor of Molecular Biology in Chemistry.*
Michael E. Jung, Ph.D., *Associate Professor of Chemistry.*
Jerome V. V. Kasper, Ph.D., *Associate Professor of Chemistry.*
Charles E. Strouse, Ph.D., *Associate Professor of Chemistry.*
Jeffery I. Zink, Ph.D., *Associate Professor of Chemistry.*
Mark L. Elert, Ph.D., *Adjunct Assistant Professor of Chemistry.*
John A. Gladysz, Ph.D., *Assistant Professor of Chemistry.*
Jay D. Gralla, Ph.D., *Assistant Professor of Chemistry.*
Steven G. Clarke, Ph.D., *Assistant Professor of Chemistry.*
Harold G. Martinson, Ph.D., *Assistant Professor of Chemistry.*
Joseph R. Murdoch, Ph.D., *Assistant Professor of Chemistry.*
Emil Reisler, Ph.D., *Assistant Professor of Chemistry.*
Robert M. Sweet, Ph.D., *Assistant Professor of Chemistry in Residence.*
Richard L. Weiss, Ph.D., *Assistant Professor of Chemistry.*

•

Sandra I. Lamb, Ph.D., *Lecturer in Chemistry.*
Lawrence H. Levine, Ph.D., *Lecturer in Chemistry.*
Arlene A. Russell, M.A., *Lecturer in Chemistry.*
George C. Kennedy, Ph.D., *Professor of Geochemistry and Geology.*

Admission to Courses in Chemistry

Regular and transfer students who have the prerequisites for the various courses are not thereby assured of admission to those courses. The Department may deny admission to any course if a grade D was received in a course prerequisite to that course, or if in the opinion of the Department the student shows other evidence of inadequate preparation.

A student may not repeat a chemistry course if he has credit for a more advanced course which has the first course as a prerequisite.

Preliminary Examination in Chemistry

Students who wish to enroll in course 11A or in course 11AH must take the Chemistry/Mathematics Preliminary Examination in Chemistry *during the enrollment period for the quarter in which they intend to enroll in these courses.* Enrollment usually will be limited to students who have passed the examination. During 1979-1980, the Preliminary Examination is scheduled on September 17, 1979, for the Fall Quarter; January 2, 1980, for the Winter Quarter; and March 26, 1980 for the Spring Quarter. These dates may be changed. The time and location of the examination will be posted on the First Year Chemistry Bulletin Board located near Room 1054 in W.G. Young Hall (Chemistry Building) about two weeks before the announced date of the examination.

The Majors in Chemistry

There are three majors available to the student interested in Chemistry: the regular Chemistry major, the Biochemistry major, and the General Chemistry major. Each of these programs is outlined below. Students may contact Dorothy Seymour, Undergraduate Counselor, for help and advice in the Chemistry Undergraduate Office, Room 4016 W.G. Young Hall.

Courses taken to fulfill any of the requirements for any of the Chemistry Department's majors must be taken for a letter grade and not Pass/Not Pass. Seminar courses, individual study courses, and research courses (e.g., 190, 199) may not be used to satisfy the requirements for the major in Chemistry, Biochemistry, or General Chemistry.

CHEMISTRY MAJOR

For students who intend to pursue a career in chemistry.

NOTE: For key to symbols, see page 74

Preparation for the Major

Required: Chemistry 11A, 11B, 11BL, 11C, 11CL, 21, 23, 25; Physics 8A, 8B, 8C (8D, strongly recommended); Mathematics 31A, 31B, 31C, 32A, 32C. Another course, directly related to a student's career objectives, may be substituted for the fifth mathematics course upon approval of the Undergraduate Adviser. No specific foreign language is required; however, a reading knowledge of German (at least at the level of German 3) is strongly recommended for students planning to pursue graduate work in Chemistry.

The Major

Chemistry 110A, 110B, 113A, 114, 133A, 133B, 133C, 173, and two other upper division or graduate courses in chemistry including at least one laboratory course selected from 136, 144, 154, 174, and 184.

BIOCHEMISTRY MAJOR

The major in Biochemistry is intended for students preparing for careers in biochemistry or in other fields requiring extensive preparation in both chemistry and biology.

Preparation for the Major

Chemistry 11A, 11B, 11BL, 11C, 11CL, 21, 23, 25 Mathematics 31A, 31B, 31C, and either 32A or 32C; three courses from Physics 6A*, 6and lower division biology courses (see below).

*If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

The Major

Chemistry 133A, 133B, 133C, 110A, 156, 157AB, and 154; plus one course from each of the following five categories: 1) Bacteriology/Biology M132 (or Biology 134); 2) Bacteriology 101; 3) One Course from Biology 137, 138, 140, 141, 153, 154, 158, 162, 166, Bacteriology 111, or 113; 4) One upper division or graduate level course in Biology, Bacteriology, or Biological Chemistry; 5) One upper division or graduate level course in Biology, Bacteriology, Chemistry, Biological Chemistry, Mathematics, or Physics. Courses chosen to satisfy categories 4 and 5 must be approved by the Biochemistry Undergraduate Adviser.

Recent changes in Biology course offerings will necessitate changes in the lower and upper division course requirements for the Biochemistry major. See the Chemistry Department Undergraduate Counselor.

GENERAL CHEMISTRY MAJOR

The major in General Chemistry is intended for students who wish to acquire considerable chemical background in preparation for careers outside chemistry. The requirements are accordingly quite flexible. It may be appropriate for some students who plan to enter professional schools, such as those of medicine, dentistry, or public health.

Preparation for the Major

Chemistry 11A, 11B, 11BL, 11C, 11CL, 21, 23, 25; Mathematics 31A, 31B, 31C, and either 32A or 32C; three courses from Physics 6A*, 6B, 6C, 8A, 8B, 8C, 8D.

*If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

The Major

Six upper division courses in chemistry, including at least one in physical chemistry and at least two with laboratory work; six additional upper division courses. A 2.0 average is required in all upper division chemistry courses. The program should be coherent in terms of the student's interests and objectives, and must be based on a written proposal and approved by the Chemistry Undergraduate Adviser.

Transfer Students

Transfer students with more than 84 quarter units will be accepted into the Chemistry Department majors only if they have completed the equivalent of Chemistry 11A, 11B, 11BL, 11C, 11CL and Mathematics 31A-31B-31C. *Recommended: Organic Chemistry; one year of calculus-based physics.*

An entering transfer student who has satisfactorily completed a year course in general college chemistry should enter course 21. Transfer students should consult the Chemistry Undergraduate Office for assistance in planning their programs.

Graduate Study

The Department of Chemistry offers programs of study and research leading to the M.S. and Ph.D. degrees in chemistry and in biochemistry. Prospective candidates for advanced degrees in chemistry may specialize in the following fields: biochemistry, inorganic, organic, or physical chemistry.

A number of Chemistry Department faculty also serve as advisers for interdepartmental graduate programs in Environmental Science and Engineering, Geochemistry, and Molecular Biology.

The general University requirements for the M.S. and Ph.D. degrees are described in the Graduate Section. The M.S. in Chemistry makes use of the Thesis plan. The M.S. in Biochemistry may be obtained by the Thesis Plan or a Comprehensive Examination Plan. A student is not required to earn the M.S. degree before undertaking work for the Ph.D. degree. More detailed information regarding admission to and requirements for graduate study may be obtained by writing to Phyllis Jergenson, Graduate Counselor, Department of Chemistry, University of California, Los Angeles, California 90024.

Lower Division Courses

2. Introductory Chemistry. Lecture and discussion, four hours. This course is designed to meet part of the College of Letters and Science requirements for non-science majors and similar requirements in other colleges. The course deals with the concept of the submicroscopic world of Chemistry, and ranges from protons to proteins in subject matter. This course is not open to students who have received credit for Chemistry 11A.
Mr. Farrington, Mr. Hardwick (F,Sp)

11A. General Chemistry. Lecture, four hours; discussion, one hour. Prerequisites: High school chemistry or equivalent background and three years of high school mathematics. High school physics recommended. (Students lacking the prerequisites may qualify for admission by exceptional performance on the Chemistry/Mathematics Preliminary Examination.) All students who intend to take this course must take the Chemistry/Mathematics Preliminary Examination that is normally given within 10 days before instruction begins. Enrollment is usually limited to students who have passed that examination. Students appearing for the examination must be prepared to identify themselves. This course as well as some of the succeeding first-year courses (11BL, 11C, 11CL), are required of all majors in chemistry and biochemistry and many other fields of science and technology. Atomic theory and stoichiometry; states of matter and phase equilibrium; gases; liquids and solutions; acids, bases, and salts; equilibria in gases and solutions; solubility and solubility equilibria; oxidation and reduction. Mr. Baur, Mr. Elert, Mr. Trueblood (F,W,Sp)

11AH. General Chemistry—Honors Sequence. Lecture, four hours; discussion one hour. Prerequisites: high school chemistry or equivalent background and three years of high school mathematics. High school physics recommended. (Students lacking the prerequisites may qualify for admission by exceptional performance on the Chemistry/Mathematics Preliminary Examination.) All students who intend to take this course must take the Chemistry/Mathematics Preliminary Examination that is normally given within 10 days before instruction begins. Enrollment is usually limited to students who have passed that examination. An honors course parallel to course 11A.
Mr. Gelbart (F)

11B. General Chemistry. Lecture, three hours; discussion, one hour. Prerequisite: course 11A with grade C− or higher or consent of instructor. Thermochemistry and thermodynamics; electrochemistry; chemical kinetics; quantum theory and electronic structure of atoms; periodicity of chemical properties. Mr. Heller, Mr. Kaesz, Mr. McTague (F,W,sp)

11BH. General Chemistry—Honors Sequence. Lecture, three hours; discussion, one hour. Prerequisites: course 11AH with grade C or higher, or course 11A and consent of instructor. An honors course parallel to course 11B. Mr. McMillan (W)

11BL. General Chemistry Laboratory. (¼ course) Laboratory, four hours. Prerequisites: course 11A with grade C− or higher, or consent of instructor. Course 11B must be taken concurrently or must already have been passed with a grade of C− or higher. Enrollment priority, if needed, will be given to those taking 11B concurrently. Use of the balance; volumetric techniques; equilibria; thermochemistry; and quantitative analysis using volumetric and potentiometric procedures; Beer's Law.
The Staff in Freshman Chemistry (F,W,Sp)

11C. General Chemistry. (¾ course) Lecture, two hours. Prerequisite: course 11B with grade C− or higher or consent of instructor. Bonding and molecular structure; descriptive inorganic chemistry, presented in terms of the principles discussed in courses 11A and 11B.
Mr. Elert, Mr. Kaesz, Mr. Zink (F,W,Sp)

11CH. General Chemistry—Honors Sequence. (¾ course) Lecture, two hours. Prerequisites: course 11BH with grade C or higher, or course 11B and consent of instructor. An honors course parallel to course 11C. Mr. El−Sayed (Sp)

11CL. General Chemistry Laboratory. (½ course) Laboratory, eight hours. Prerequisites: course 11BL with grade C− or higher. Course 11C must be taken concurrently or must already have been passed with grade C− or higher. Enrollment priority, if needed, will be given to those taking 11C concurrently. Rates of reactions; quantitative volumetric analysis; qualitative inorganic analysis; inorganic synthesis; column chromatography; colorimetric analysis.
The Staff in Freshman Chemistry (F,W,Sp)

15. Organic and Biochemistry for Prenursing and Kinesiology. Lecture and discussion, four hours. Prerequisite: course 11A with grade C− or higher. Recommended for students in certain areas of kinesiology and in the prenursing, pre-physical therapy and pre-dental hygiene curricula. An introduction to the structures and reactions of organic compounds, particularly with respect to their roles and their transformations in living systems. This course does not meet requirements for admission to medical or dental school, nor does it satisfy the requirements of any major in the College of Letters and Science other than certain areas of Kinesiology. Mr. Hardwick (W)

15L. Chemistry Laboratory for Prenursing and Kinesiology. (¼ course) Laboratory, four hours. Prerequisite: course 15 must be taken concurrently or must already have been completed with grade C− or higher. An introduction to quantitative work with aqueous solutions and to the preparation, isolation, and characterization of organic compounds, particularly some of those important in living systems. This course does not meet requirements for admission to medical or dental school.
Mr. Hardwick (W)

21. Organic Structure and Reactions. Lecture and discussion, four hours. Prerequisite: courses 11C and 11CL (11CL may be taken concurrently) with grades C− or higher, or consent of instructor. Structure, reactivity, and properties of organic compounds. The theory of functional groups, chemical bonds, molecular structure, and stereochemistry of organic compounds.
Mr. Cram, Ms. Lamb, Mr. Stevens (F,W,Sp)

23. Bioorganic Structure and Reactions. Lecture, three hours; discussion, one hour; laboratory, four

hours. Prerequisite: courses 11CL and 21 with grades C− or higher, or consent of instructor. Organic structures and reactions of biochemical interest. The classes of compounds most important to biological functions: amino acids, carbohydrates, etc. Sulfur, phosphorous, and anhydride chemistry. Methods of separation, purification and analysis of organic compounds: extraction, crystallization, distillation, and chromatography.
Mr. Clarke, Ms. Lamb, Mr. Stevens

25. Elementary Biochemistry. Lecture, three hours; discussion, one hour; laboratory, four hours. Prerequisite: course 23 with grade C− or higher, or consent of instructor. Protein structure and function; enzyme catalysis; intermediary metabolism; cell constituents; properties and biosynthesis of nucleic acids and proteins. Purification and characterization of biological macromolecules; spectrophotometry; catalysis; enzyme kinetics; gel filtration and paper chromatography; viscosity; utilization of radioisotopes.

96. Special Courses in Chemistry. (¼ to 1 course) To be arranged. Prerequisite: consent of the Chemistry Undergraduate Advisor.
The Staff (F,W,Sp)

Upper Division Courses

103. Environmental Chemistry. Lecture, four hours. Prerequisites: courses 21, 22, 24 and consent of the instructor. Chemical aspects of air and water pollution, solid waste disposal, energy resources, and pesticide effects. Chemical reactions in the environment, and the effect of chemical processes on the environment. Mr. Bayes (Sp)

110A. Physical Chemistry: Chemical Thermodynamics. Lecture four hours; discussion, one hour. Prerequisites: courses 11C (or 13B), Physics 8B or 6C (may be taken concurrently), Mathematics 31C or, for life science majors, Mathematics 3C. (An understanding of partial differentiation such as that obtained in Mathematics 32A or 3C is very desirable.) Properties of gases; laws of thermodynamics; free energy; entropy; chemical potential and chemical equilibrium; thermodynamics of solutions. Mr. McTague, Mr. Reiss, Mr. Trueblood (F,W,Sp)

110AG. Physical Chemistry: Chemical Thermodynamics. Lecture four hours; discussion, one hour. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 110A in this institution.
Mr. McTague, Mr. Reiss, Mr. Trueblood (F,W,Sp)

110B. Physical Chemistry: Chemical Equilibrium, Electrochemistry, and Kinetics. Lecture four hours; discussion, one hour. Prerequisites: course 110A, Physics 8C. Introduction to statistical thermodynamics, kinetic theory of gases, chemical kinetics, phase equilibria, chemical equilibria in solutions, electrochemistry.
Mr. McMillan, Mr. Scott (W,Sp)

110BG. Physical Chemistry: Chemical Equilibrium, Electrochemistry, and Kinetics. Lecture, four hours; discussion, one hour. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 110B in this institution.
Mr. McMillan, Mr. Scott (W,Sp)

110C. Physical Chemistry: Charges, Fields and Matter. Lecture and discussion, four hours. Prerequisite: course 110A. A selection of topics from: Electromagnetic fields in matter—susceptibilities, molar polarization and refraction, multipoles, van der Waals forces; classical EM waves—propogation, refraction, scattering, absorption, optical rotation and rotatory dispersion, magnetic effects; Radiation—multipoles, black-body, Einstein coefficients, lasers; Scattering and diffraction—Rayleigh, Mie, Raman, X-ray, electron, neutron, nuclear—by particles, molecules, lattices; resonance phenomena—light, EPR, NMR, NQR, Mössbauer; Electrolytes—ion activity, conductivity, rate effects.
Mr. Heller, Mr. McMillan

113A. Physical Chemistry: Introduction to Quantum Chemistry. Lecture, four hours; discussion, one hour. Prerequisite: courses 11C, Physics 6C or 8C, Mathematics 32C. An introduction to the principles and applications of quantum chemistry; atomic structure and spectra; harmonic oscillator; rigid rotor, molecular spectra.
Mr. Heller, Mr. Kasper (F,Sp)

113B. Physical Chemistry: Introduction to Molecular Spectroscopy. Lecture, four hours; discussion, one hour. Prerequisites: course 113A or equivalent. Spectroscopic applications of basic quantum chemistry, including light-matter interaction, origin of selection rules, rotation-vibration spectra, anharmonic effects, electronic spectra, Franck-Condon principle, and topics from Raman, microwave, ESR, NMR, laser spectroscopy and radiationless transitions. Mr. Bayes, Mr. Kasper

113G. Physical Chemistry: Introduction to Quantum Chemistry. Lecture, four hours; discussion, one hour. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 113 at this institution.
Mr. Heller, Mr. Kasper (F,Sp)

114. Physical Chemistry Laboratory. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 11C, 11CL, 110A, 110B, and 113 or consent of the instructor. Lecture: techniques of physical measurement, error analysis and statistics, special topics. Laboratory: spectroscopy, thermodynamic measurements, and chemical dynamics.
Mr. Bayes, Mr. Kasper, Mr. Strouse (F,W,Sp)

115A-115B. Quantum Chemistry. Lecture, four hours. Prerequisites: course 113, Mathematics 32C. Recommended: Knowledge of differential equations equivalent to Mathematics 135A or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course 115A or Physics 115B is prerequisite for course 115B. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. Students entering course 115A will normally be expected to take course 115B the following quarter. These two courses are designed for chemistry students with a serious interest in quantum chemistry. Mr. Baur (115A-W; 115B-Sp)

121. Special Topics in Physical Chemistry. Lecture, four hours. Prerequisite: course 110B (113 and Physics 8D recommended). Each offering of the course covers several topics that are of considerable research interest, and will be presented at a level suitable for students who have completed the Junior year courses in physical chemistry. (Sp)

123A-123B. Classical and Statistical Thermodynamics. Prerequisite: course 110B. Rigorous presentation of the fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules and the perfect gas. Applications of classical and statistical thermodynamics selected from diatomic polyatomic gases, the solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, the imperfect gas, non-electrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation.
Mr. Gelbart, Mr. Knobler (F,W)

125. Computers in Chemistry. Lecture, three hours. Prerequisites: courses 110A, 110B, 113, and a working knowledge of FORTRAN IV or PL/1. Discussion of computer techniques, including matrix manipulation, solution of differential equations, data acquisition and instrumental control, and their applications to chemical problems in quantum mechanics, thermodynamics, and kinetics.
Mr. Kasper, Mr. Levine (F)

133A. Intermediate Organic Chemistry. Lecture and quiz, three hours; laboratory, four hours. Prerequisities: courses 21, 23, 25 (25 may be taken concurrent) with grades C or higher, or consent of instructor. Lecture: Structure, reactivity and spectroscopic properties of organic compounds. Laboratory: Methods of organic reactions, synthesis, isolation and characterization.
Mr. Jung, Mr. Murdoch (F,W)

133AG. Intermediate Organic Chemistry. (½ course) Lecture and quiz, three hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 133A in this institution.
Mr. Jung, Mr. Murdoch (F,W)

133B. Intermediate Organic Chemistry. Lecture and quiz, three hours; laboratory, four hours. Prerequisite: course 133A with grade C− or higher. Lecture: Reactions, mechanisms and synthesis in organic chemistry; common classes of compounds and reactions. Laboratory: Methods of organic reactions, synthesis, isolation and characterization.
Mr. Jung, Mr. Murdoch (W,Sp)

133BG. Intermediate Organic Chemistry. (½ course) Lecture and quiz, three hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 133B in this institution.
Mr. Jung, Mr. Murdoch (W,Sp)

133C. Intermediate Organic Chemistry. Lecture and quiz, three hours; laboratory, four hours. Prerequisite: course 133B with grade C− or higher. Lecture: Reactions, mechanisms and synthesis in organic chemistry; complex molecules and natural products; polymers. Laboratory: Methods of organic reactions, synthesis, isolation and characterization. Mr. Jung, Mr. Murdoch (F,Sp)

133CG. Intermediate Organic Chemistry. (½ course) Lecture and quiz, three hours. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 133C in this institution.
Mr. Jung, Mr. Murdoch (F,Sp)

136. Organic Structural Methods. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 133A, 133B, 133C, or equivalent, with grades of C− or higher, or consent of instructor. A laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques. Mr. Foote (F)

143A. Structure and Mechanism in Organic Chemistry. Lecture and discussion, three hours. Prerequisite: courses 133C (may be taken concurrently), 110B, 113, or equivalent, with grade of C− or higher, or consent of instructor. Mechanisms of organic reactions. Acidity and acid catalysis; linear free energy relationships; isotope effects. Molecular orbital theory; photochemistry; pericyclic reactions. Mr. Chapman (F)

143B. Mechanism and Structure in Organic Chemistry. Lecture, three hours; discussion, one hour. Prerequisite: course 143A with grade C− or higher, or consent of instructor. Mechanisms of organic reactions, structure and detection of reactive intermediates. Mr. Foote (W)

144. Laboratory Methods in Organic Synthesis. Lecture, two hours; laboratory, eight hours. Prerequisite: course 133C, or equivalent instruction including spectroscopic methods of organic chemistry, with grade of C− or higher or consent of instructor. Laboratory methods of synthetic organic chemistry including reactions under inert atmosphere, semimicro-scale reaction techniques, synthesis of natural products and molecules of theoretical interest. Mr. Chapman (Sp)

144G. Laboratory Methods in Organic Synthesis. (½ course) Lecture, two hours. Consists of the lecture portion *only* of course 144. Open only by consent of the Chemistry Graduate Adviser to graduate students who have not taken course 144 in this institution and who do not wish to take the laboratory of course 144. Mr. Chapman (Sp)

152. Biochemistry. Lecture, four hours; discussion, one hour. Prerequisite: course 25. Survey of biochemistry. May not be used in the Chemistry or Biochemistry major. Mr. Boyer (F)

154. Biochemical Methods. Lecture and quiz, two hours; laboratory, eight hours. Prerequisite: course

NOTE: For key to symbols, see page 74

25; course 157A or 152 recommended. Applications of biochemical procedures to metabolic reactions; properties of living systems; enzymes; proteins; nucleic acids and other tissue constituents.
Mr. Gralla, Mr. Jordan, Mr. Schumaker, (F,W,Sp)

156. Physical Biochemistry. Lecture, four hours; discussion, one hour. Prerequisite: course 110A. Solution thermodynamics and electrochemistry of biochemical systems; enzyme kinetics; physical biochemistry of proteins and membranes.
Mr. Eisenberg, Mr. Reisler (F,Sp)

157A. Biochemistry. Lecture, four hours; discussion, one hour. Prerequisites: course 156, 133B (133B may be taken concurrently). Enzymes; metabolic pathways and their integration and regulation; biological energetics.
Mr. Atkinson (W)

157B. Biochemistry. Lecture, four hours; discussion, one hour. Prerequisite: course 157A. Biosynthetic metabolism; synthesis of nucleic acids and proteins, and control of these processes.
Mr. Atkinson (Sp)

173. Structural Inorganic Chemistry. Lecture, three hours. Prerequisites: courses 113A, 110A (may be taken concurrently); 133B recommended. Introductory survey of structure and bonding in inorganic compounds; molecular stereochemistry; donor-acceptor interactions; coordination compounds of the transition metals; elements of crystal field and ligand field theory.
Mr. Hawthorne, Mr. Zink (F,Sp)

174. Inorganic and Metalorganic Laboratory Methods. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 173, 133A, or consent of the instructor. Synthesis of inorganic compounds including air-sensitive materials; dry-box, vacuum line and high-pressure techniques; Schlenck methods; chromatographic and ion exchange separations. Mr. Hawthorne, Mr. Kaesz (W)

175. Inorganic Reaction Mechanisms. Lecture and quiz, three hours. Prerequisites: courses 110A, 110B and 113 or consent of the instructor. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization and racemization reactions; stereochemistry; oxidation – reduction, free – radical, polymerization and photochemical reactions of inorganic species. Mr. Hawthorne (Sp)

176. Group Theory and Applications to Inorganic Chemistry. Lecture, three hours. Prerequisites: courses 113A, 173. Group theoretical methods; molecular orbital theory; ligand field theory; electronic spectroscopy; vibrational spectroscopy.
(F)

184. Chemical Instrumentation. Lecture and quiz, two hours; laboratory, eight hours. Prerequisite: course 110A. Theory and practice of instrumental techniques of chemical and structural analysis including atomic absorption spectroscopy, gas chromatography, mass spectrometry, nuclear magnetic resonance, polarography, x-ray fluorescence and other modern methods.
Mr. Kasper, Mr. Strouse, (F,Sp)

190A-190ZZ. Undergraduate Thesis Research. Prerequisite: two quarters of chemistry 199A-ZZ on related material and approval of the Undergraduate Adviser and Research Director. Final quarter of an integrated one-year research project. Can consist of experimental and/or theoretical research or, in some cases, a comprehensive review of a given area. A thesis embodying the totality of the year's work is to be submitted, and an oral presentation will be made. This course is suggested, but not required, for those seeking departmental honors at graduation. The Staff (F,W,Sp)

196. Special Courses in Chemistry. (½ to 1 course) To be arranged. Prerequisite: consent of the Chemistry Undergraduate Advisor.
The Staff (F,W,Sp)

199A-ZZ. Directed Individual Study or Research for Undergraduate Students. (½ to 2 courses) To be arranged with individual faculty members involved. Each faculty member has a unique letter designation, which is the same for the 199 and 599 series. Prerequisite: advanced Junior standing and 3.0 GPA in the major, or Senior standing, and consent of the Chairman of the Department of Chemistry. This consent must be based upon a written proposal outlining the study or research to be undertaken. The proposal should be worked out in consultation with the faculty member involved and submitted at the Chemistry Undergraduate Adviser's Office before the first day of the quarter. At the close of each quarter, a report describing the student's program of study or research and signed by the student and supervising faculty member must be submitted to the Chemistry Undergraduate Adviser, who should be consulted concerning the format of the report and deadlines for submission. A maximum of three 199 courses may be taken. Pass/Not Pass grades are used for this course. Approval of other than four units per quarter is allowed only under unusual circumstances.
The Staff (F,W,Sp)

Graduate Courses

207. Organometallic Chemistry. Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Survey of synthesis, structure and reactivity (emphasizing a mechanistic approach) of compounds containing carbon bonded to elements selected from the main group metals, the metalloids and the transition metals; olefin -complexes and metal carbonyls; applications in catalysis and organic synthesis.

213. Advanced Quantum Chemistry. Lecture, four hours. Prerequisites: course 115B, Physics 131. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. Mr. McMillan (W)

215. Molecular Spectra, Diffraction and Structure. Lecture and quiz, four hours. Prerequisites: course 115B, Physics 131. Selected topics from electronic spectra of atoms and molecules; vibrational, rotational and Raman spectra; magnetic resonance spectra; x-ray, neutron and electron diffraction; coherence effects. Mr. El–Sayed (F)

218. Physical Chemistry Student Seminar. (½ course) Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students. Each student doing research in physical chemistry is required to give a seminar on a timely and significant topic outside his immediate research specialty, ordinarily during the second year of graduate study. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.
The Staff in Physical Chemistry (F,W,Sp)

221A-221Z. Advanced Topics in Physical Chemistry. (½ to 1 course each) Lecture, two to four hours. Prerequisite: consent of the instructor. Each course will encompass a recognized specialty in physical chemistry, and will be taught by a staff member whose research interests embrace that specialty.
The Staff in Physical Chemistry

223. Statistical Mechanics. Lecture and quiz, four hours. Prerequisites: courses 115B, 123B, Physics 131. Fundamentals of statistical mechanics; classical equations of state; coulomb systems; phase transitions; quantum statistical mechanics; quantum corrections to the equation of state; density matrix; second quantization. Mr. Baur (Sp)

225. Chemical Kinetics. Lecture and quiz, four hours. Prerequisites: courses 115A, 123A, 123B. Theories of chemical reactions and their applications to experimental systems; general kinetic postulates; theories of elementary reactions; energy transfer processes; experimental studies.
Mr. Kasper (Sp)

M226. Chromosome Structure and Regulation. (Same as Microbiology M226, Biology M226, Biological Chemistry M226 and Microbiology and Immunology M226.) Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes. Satisfactory/unsatisfactory grades are used for this course.

228. Chemical Physics Seminar. (½ course) Seminars will be presented by staff, outside speakers, postdoctoral fellows and graduate students. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.
The Staff in Chemical Physics (F,W,Sp)

M230A. Structural Molecular Biology. (½ course) (Same as Microbiology M230A and Biology M230A.) Lecture and discussion, three hours. Prerequisite: consent of instructor based on a written research proposal. Fundamentals of electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals.
Mr. Eisenberg, Mr. Eiserling, Mr. Kasmatsu

M230B. Structural Molecular Biology. (½ course) (Same as Bacteriology M230B and Biology M230B.) Lecture and discussion, three hours. Prerequisites: Physics 6C, Mathematics 3C and consent of instructor. Selected topics from the following: principles of biological structure; structures of globular proteins and RNA's; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and x-ray diffraction; optical and computer filtering; three-dimensional reconstruction.
Mr. Eisenberg, Mr. Eiserling, Mr. Lake

M230C. Structural Molecular Biology Laboratory. (½ course) (Same as Microbiology M230C and Biology M230C.) Laboratory, 10 hours. Prerequisite: consent of instructor, based on a written research proposal. Laboratory: practical experience with electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals. Mr. Eisenberg, Mr. Eiserling, Mr. Kasamatsu

M230D. Structural Molecular Biology Laboratory. (½ course) (Same as Bacteriology M230D and Biology M230D.) Laboratory, 10 hours. Prerequisite: course M230B concurrent. Methods in structural molecular biology, including experiments utilizing the following procedures: single crystal x-ray diffraction, low angle x-ray diffraction, electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building.
Mr. Eiserling, Mr. Lake, Mr. Sweet

232. Stereochemistry and Conformational Analysis. Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Molecular symmetry, chirality, prochirality, stereochemistry in vinyl polymers, atropisomerism, diastereomeric interactions in solution, conformations of acyclic and cyclic molecules.

236. Spectroscopic Methods of Organic Chemistry. Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Proton and carbon-13 nuclear magnetic resonance; photoelectron, ultraviolet, infrared, and Raman spectroscopy; optical rotatory dispersion and circular dichroism; mass spectrometry.

241A-241Z. Special Topics in Organic Chemistry. Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently), or equivalent, or consent of instructor. Each course will encompass a recognized specialty in organic chemistry, generally taught by a staff member whose research interests embrace that specialty.

242. Organic Photochemistry. Lecture and discussion, three hours. Prerequisite: course 143 (may be

taken concurrently) or consent of instructor. Interactions of light with organic molecules, mechanistic and preparative photochemistry.

244. Strategy and Design in Organic Synthesis. Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. The theory behind the planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in the synthetic process. The reasoning and art involved in organic synthesis.

245. Applications of Electronic Theory in Organic Chemistry. Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. A review of molecular orbital theory; introduction to alternative theoretical methods; aromaticity and homoaromaticity; Hückel and Möbius conjugation; Woodward-Hoffmann theory of concerted pericyclic reactions; the estimation of through-bond and through-space interactions; an introduction to photoelectron spectroscopy; related special topics.

246. Bio-Organic Chemistry. Lecture and discussion, three hours. Prerequisite: course 143 (may be taken concurrently) or consent of instructor. Organic chemical models for biological processes; synthetic models for enzymic complexation, catalysis and inhibition; models for transport; solid support chemistry; mechanisms for differential complexation.

247. Organic Colloquium. (½ course) Seminars in organic chemistry and related areas will be presented by outside speakers, department faculty, and postdoctorals and graduate students. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Organic Chemistry

248. Organic Chemistry Student Seminar. (½ course) Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students. Each student doing research in organic chemistry is required to give a seminar on a timely and significant topic outside his immediate research specialty, ordinarily during the second year of graduate study. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit. The Staff in Organic Chemistry

249. Problems in Advanced Organic Chemistry. (½ course) Problems in organic reaction mechanisms, synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry are discussed, with an emphasis on current literature. Intended primarily for first and second year graduate students as preparation for cumulative exams. Satisfactory/Unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Organic Chemistry

251A-251Z. Advanced Topics in Biochemistry. (½ course) Lecture, two hours. Prerequisite: consent of the instructor. Each course will encompass a recognized specialty in biochemistry, and will be taught by a staff member whose research interests embrace that specialty. The Staff in Biochemistry

252. Experimental Techniques in Cell Culture and Animal Virology. Lecture, two hours; laboratory, eight hours. Prerequisite: satisfactory completion of a course in General Genetics, Chemistry 152 or equivalent and consent of the instructor. Experimental methods used in molecular biological and biochemical analysis of processes in higher eukaryotes with emphasis on animal cells: model systems for studying differentiation, development, chemical and virus induced malignant transformation; characterization of cell and viral nucleic acids; tumor production, explanation and analysis.

M253. Macromolecular Structure. (1½ courses) (Same as Biological Chemistry M253.) Lecture and quiz, four hours. Prerequisites: Chemistry 110A; Chemistry 156; Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent. Chemical and physical properties of proteins, nucleic acids and other macromolecular complexes with emphasis on theory and methodology; correlation of structure and biological properties; chemical synthesis and properties of polypeptides and polynucleotides.

The Staff in Biochemistry and Biological Chemistry (F)

254. Advanced Biochemical Methods. Lecture and quiz, two hours; laboratory, eight hours. Prerequisite: course 156, Chemistry 157A, Chemistry 157B recommended (may be taken concurrently), or consent of the instructor. Theoretical and practical basis of metabolic, chromatographic, kinetic, electrophoretic, ultracentrifugal, isotopic and other techniques as applied to biochemical systems.

Mr. Eisenberg, Mr. Schumaker (W)

M255. Protein Dynamics and Function. (Same as Biological Chemistry M255.) Lecture and quiz, four hours. Prerequisites: Chemistry 110A; Chemistry 156; Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent. Recommended: Chemistry-Biological Chemistry M253. Discussion of enzymes and enzymic catalysis, emphasizing mechanisms, actions of modifiers and inhibitors, and structural aspects of enzyme function; bioenergetics. Mr. Boyer (Sp)

M257. Physical Chemistry of Biological Macromolecules. (½ course) (Same as Biological Chemistry M257.) Lecture, two hours. Prerequisite: Chemistry 22 and Chemistry 110A. Theory of hydrodynamic, thermodynamic, optical and x-ray techniques used to study the structure and function of biological macromolecules.

Mr. Schumaker (F)

257L. Hydrodynamic and Optical Characterization of Biopolymers. Lecture, two hours; laboratory, eight hours. Prerequisite: course M257 completed or concurrent. A laboratory course covering a variety of hydrodynamic and optical techniques, and including an individual project dealing with: sedimentation velocity, sedimentation equilibrium, buoyant density gradient centrifugation, capillary and rotating cylinder viscometry, circular dichroism, or intensity fluctuations of scattered laser light.

258. Biochemistry Student Seminar. (½ course) Seminars are presented by graduate students on topics of current biochemical interest. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Biochemistry (F,W,Sp)

259. Mechanisms in Regulation of Transcription. Lecture, three hours. Prerequisite: one of the following courses, M253 or M267, or consent of instructors. Prokaryotic operons; initiation and termination; DNA regulatory sequences and regulator protein-DNA interactions; RNA polymerases; regulation of eukaryotic transcription; hormones, differentiation, the cell cycle; role of chromatin structure in mediating regulation.

M261. Advanced Chemistry and Biochemistry of Lipids. (½ course) (Formerly numbered Biological Chemistry 261 and same as Biological Chemistry M261.) Lecture, two hours. Prerequisites: Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Knowledge of elementary chemistry and biochemistry of lipids essential. The biochemistry of lipids including chemical and physical characteristics of lipids and their metabolism. Mr. Howton, Mr. Mead, Mr. Popjak

262. Biological Energy Transductions. Prerequisite: course M253. Molecular basis of energy-transducing processes, including oxidative and photosynthetic phosphorylation, other energy-linked oxidative functions, membrane active transport, muscle contraction, and special sensory functions.

M263. Cellular Metabolism and Its Regulation. (Same as Biological Chemistry M263.) Lecture, two hours. Prerequisites: Chemistry 156; Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent. Recommended: Chemistry-Biological Chemistry M253. Analysis of regulatory controls involved in cellular energy and biosynthetic metabolism. Consideration of comparative aspects of metabolism in relation to physiological function.

Mr. Atkinson, Mr. West and the Staff in Biological Chemistry (W)

M264. Molecular Basis of Atherosclerosis. (½ course) (Same as Biological Chemistry M264 and Microbiology M264.) Lecture, two hours. Prerequisite: course M261 or equivalent with consent of instructor. The course will cover the biochemistry, morphology and physiology of atherosclerosis. Emphasis will be placed on the chemistry of lipoproteins and the role of plasma lipoproteins on the regulation of tissue lipid metabolism and the development of atherosclerosis. The Staff

266. Seminar in Techniques for the Study of Gene Regulation. (½ course) Prerequisite: course 259 or consent of instructors. A seminar to discuss specific experimental approaches being taken in the study of gene regulation. Emphasis will be on the specific biochemical techniques being used to study regulatory protein-DNA interactions in diverse biological model systems.

M267. Macromolecular Metabolism and Subcellular Organization. (1½ courses) (Same as Biological Chemistry M267.) Lecture, two hours. Prerequisites: Chemistry 157A-157B or Biological Chemistry 101A-101B or 201A-201B or equivalent; Recommended: Chemistry-Biological Chemistry M253. Metabolism of nucleic acids and proteins; biosynthesis of complex lipids and polysaccharides; structure and properties of cellular organelles.

Mr. Zabin

268. Biochemistry Research Seminar. (½ course) Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students on topics of current biochemical research interest. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit.

The Staff in Biochemistry (F,W,Sp)

M269. Developmental Biochemistry. (½ course) (Same as Biological Chemistry M269.) Prerequisite: Chemistry M267 or consent of instructor. This course will deal with the biochemical aspects of development, specific tissue and cell function, and differential gene expression. The biochemistry of cell division, macromolecular synthesis, chromatin function in gene expression, cell-cell interactions, membrane organization, and growth will be studied as they contribute to such topics as hormone induction, morphogenesis and viral transformation. Emphasis will be placed on the use of differentiating in vivo systems and cell culture as models.

271A-271Z. Advanced Topics in Inorganic Chemistry. (½ to 1 course each) Lecture, two to four hours. Prerequisite: consent of the instructor. Each course will encompass a recognized specialty in inorganic chemistry, and will be taught by a staff member whose research interests embrace that specialty. The Staff in Inorganic Chemistry

273. Nuclear Chemistry. Lecture and quiz, four hours. Prerequisite: consent of the instructor. Radioactivity; nuclear reactions; interactions of nuclear radiation with matter; nuclear detection methods; preparation, isolation and identification of radionuclides; chemical effects of nuclear transformations; isotope effects; application of isotopes in chemistry. (Sp)

276. Physical Methods for the Characterization of Inorganic Compounds. Lecture, three hours. Prerequisite: course 176 or consent of instructor. Applications of spectroscopic techniques including IR, Raman, visible, UV, NMR, ESR, and NQR to the elucidation of structure and bonding in inorganic and organometallic compounds.

Mr. Strouse (W)

278. Inorganic Chemistry Student Seminar. (½ course) Seminars are presented by staff, outside speakers, postdoctoral fellows and graduate students. Each student doing research in inorganic chemistry is required to give a seminar on a timely and significant topic outside his immediate research specialty, ordinarily during the second

NOTE: For key to symbols, see page 74

year of graduate study. Satisfactory/unsatisfactory grades are used for this course. May be repeated for credit. (F,W,Sp)

Individual Study and Research

596A-596ZZ. Directed Individual Study or Research. (½ to 4 courses) To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study or research will be identified by the same two-letter code used to identify his 599 research course. Prerequisite: consent of the Chemistry Graduate Adviser. With the consent of the Chemistry Graduate Adviser, courses of directed individual study, but not research courses, may be used to fulfill the departmental requirement for the Master's degree of three courses selected from courses 115A, 115B, 123A, 123B, 143, or any graduate level course. Graded on a satisfactory/unsatisfactory basis. The Staff (F,W,Sp)

Courses in Related Fields

597. Preparation for the Doctoral Qualifying Examination or the Master's Comprehensive Examination. (½ to 2 courses) Prerequisite: consent of the Chemistry Graduate Adviser. Graded on a satisfactory/unsatisfactory basis.
The Chemistry Graduate Adviser (F,W,Sp)

598A-598ZZ. Research for and Preparation of the Master's Thesis. (½ to 4 courses) Each member of the faculty supervises research of master's students and holds research group meetings, seminars, and discussions with the students that take his master's research course which is identified by the same two-letter code used to identify his 599 research course. Research courses in the 596A-ZZ, 598A-ZZ, and 599A-ZZ series may be used to fulfill not more than six of the nine quarter courses required for the M.S. Degree. The Staff (F,W,Sp)

599A-599ZZ. Research for and Preparation of the Doctoral Dissertation. (½ to 4 courses) Each member of the faculty supervises research of doctoral students and holds research group meetings, seminars, and discussion with the students that take his doctoral research course. Each faculty member has his own doctoral research course identified by a two letter code as follows:

F.A.L. Anet, 599FA; D.E. Atkinson, 599DA; M.E. Baur, 599MB; K.D. Bayes, 599KB; P.D. Boyer, 599PB; D.J. Cram, 599DC; D.S. Eisenberg, 599SE; M.A. El Sayed, 599ME; P.S. Farrington, 599PF; C.S. Foote, 599CF; W.M. Gelbart, 599WG; J.A. Gladysz 599JG; J.D. Gralla, 599DG; E.R. Hardwick, 599RH; M.F. Hawthorne, 599FH; E.J. Heller, 599EH; J.M. Jordan, 599JJ; H.D. Kaesz, 599HK; J.V.V. Kasper, 599JK; D. Kivelson, 599DK; C.M. Knobler, 599CK; H.G. Martinson, 599HM; W.G. McMillan, 599WM; J.P. McTague, 599PM; J.R. Murdoch, 599JM; M.F. Nicol, 599MN; E. Reisler, 599ER; H. Reiss, 599HR; V.N. Schumaker, 599VS; R.L. Scott, 599RS; R.A. Smith, 599AS; R.V. Stevens, 599ST; C.E. Strouse, 599CS; K.N. Trueblood, 599KT; J.T. Wasson, 599JW; R.L. Weiss, 599RW; C.A. West, 599CW; J.I. Zink, 599JZ. (F,W,Sp)

Many courses of interest to Chemistry and Biochemistry majors are listed under Physics, Biology, and Bacteriology. Outside the College of Letters and Science, the attention of students is directed to Engineering 238D, Atomic and Molecular Collisions and Engineering 232D, Molecular Dynamics.

CLASSICS

(Department Office, 7349 Bunche Hall)

Philip Levine, Ph.D., *Professor of Classics.*
Bengt T.M. Lofstedt, Ph.D., *Professor of Mediaeval Latin.*
Jaan Puhvel, Ph.D., *Professor of Classics and Indo-European Studies.*
Milton V. Anastos, Ph.D., *Emeritus Professor of Byzantine Greek and History.*
Paul A. Clement, Ph.D., *Emeritus Professor of Classics and Classical Archaeology.*
Herbert B. Hoffleit, Ph.D., *Emeritus Professor of Classics.*
Albert H. Travis, Ph.D., *Emeritus Professor of Classics.*
Steven Lattimore, Ph.D., *Associate Professor of Classics and Classical Archaeology (Chairman of the Department).*
Andrew Dyck, Ph.D., *Assistant Professor of Classics.*
Bernard Frischer, Ph.D., *Assistant Professor of Classics.*
Michael W. Haslam, Ph.D., *Assistant Professor of Classics.*
Katharine King, Ph.D., *Assistant Professor of Classics.*
——, *Assistant Professor.*
——, *Assistant Professor.*

•

Helen F. Caldwell, M.A., *Senior Lecturer in Classics, Retired.*
Barbara E. Killian, M.A., *Lecturer in Classics.*
Evelyn V. Mohr, M.A., *Lecturer in Classics.*

Major Fields in the Department

The student may take the major in Greek, in Latin, or in the Classics (i.e., Greek and Latin). Students considering a major in the Department should consult the adviser as soon as possible in their University career, but in no case later than the point at which they are about to take upper division courses.

Preparation for the Major

Required: Greek 1, 2, 3 and Latin 1, 2, 3, or the equivalent.

The Major

Greek. Required: (1) nine upper division courses in Greek, including Greek 110; (2) one upper division course in Latin; (3) Classics 142 and either Classics 141 or 143; (4) two courses in Greek or Roman History (History 112A-112B, 113A-113B, 111B, 111C); (5) two additional courses in one or two of the related areas, classical archaeology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A-166B), ancient philosophy (Philosophy 101, 102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170A-M170B), medieval Latin literature (Latin 131, 133). Total required: 16 courses.

Latin. Required: (1) nine upper division courses in Latin, including Latin 110; (2) one upper division course in Greek; (3) Classics 143 and either Classics 141 or 142; (4) two courses in Greek or Roman history (History 112A-112B, 113A-113B, 111B-111C); (5) two additional courses in one or two of the related areas, classical archaeology (Classics 151A-151B-151C), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168). Greek and Roman religion (Classics 166A-166B), ancient philosophy (Philosophy 101, 102, Greem 121, 122, 123, 124), Byzantine civilization (Classics M170A-M170B), medieval Latin literature (Latin 131, 133). Total required: 16 courses.

The Major

Classics. (Greek and Latin): Required (1) twelve upper division courses, six in Greek and six in Latin, including Greek 110 and Latin 110; (2) one of Classics 141, 142, 143; (3) one course in Greek or Roman history (History 112A-112B, 113A-113B, 111B-111C); (4) one additional course in two of the related areas, classical archaeology (Classics 151A-151B-151C), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A-166B), ancient philosophy (Philosophy 101, 102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170A-170B) medieval Latin literature (Latin 131, 133). Total required: 16 courses.

Note: Students in any of the three majors are permitted to take Greek 200A-200B-200C and Latin 200A-200B-200C. *Two* of these courses may be counted as replacing *one* course in Requirement 3 of the Greek and Latin majors and Requirement 2 of the Classics major, as well as two courses in Requirement 1 of all three majors, thereby reducing the total number of required courses by one.

JOINT MAJOR FIELDS WITH OTHER DEPARTMENTS

English-Greek
Preparation for the Major

English 2, 10A, 10B, 10C; Greek 1, 2, 3.

The Major

(1) Seven courses selected from English 140-190 in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Greek, including 100 and either 101A or 101B, chosen in consultation with an adviser in the Department of Classics: of these seven courses at least two will be in poetry and two in prose. Total required: 14 courses.

English-Latin
Preparation for the Major

English 2, 10A, 10B, 10C; Latin 1, 2, 3.

The Major

(1) Seven courses selected from English 140-190 in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Latin, including 105A and 113, chosen in consultation with an adviser in the Department of Classics; of these seven courses, at least two will be in poetry and two in prose. Total required: 14 courses.

Admission to Graduate Status

A candidate for admission to graduate status in the Department must meet, in addition to general University requirements, the minimum requirement of a Bachelor of Arts degree from this University, or its equivalent, with a major in the Classics (Greek and Latin) or in Greek or in Latin (for the M.A. in Greek or in Latin only). Candidates deficient in formal preparation may in exceptional cases be granted provisional admission.

Special Requirements for the Secondary Teaching Credential in Latin

Students preparing for this credential are required to take Latin 110 and Latin 370. Latin 370 may not be counted as part of the minimum course requirements for the M.A. degree.

Requirements for the Master's Degree in Classics

General University Requirements. The Department follows the comprehensive examination plan.

Foreign Language. During the first year of study, the student must pass the standard ETS reading examination in French or German or the UCLA departmental examination in Italian. This examination is offered periodically during the academic year, at publicly announced times and places. Completion of FRENCH 5, GERMAN 5, or ITALIAN 5 at this University with a minimum grade of C, or the equivalent, is acceptable in lieu of such an examination.

Program of Study. Nine courses, including Greek 210 and Latin 210, at least one course from Greek 200A-200B-200C and one from Latin 200A-200B-200C, and one further 200-series course in each literature (chosen from 201-229). The remaining three courses are selected in consultation with the Graduate Adviser from the upper division and graduate offerings of the department, or exceptionally from other departments or programs in related fields such as archaeology, Indo-European studies, linguistics, ancient history, and ancient philosophy. In addition, the student must complete the Reading Lists in Greek and Latin authors established for the M.A. degree in Classics.

Comprehensive Examinations. Three written two-hour examinations in (1) sight translation from Greek and Latin, (2) translation of passages from works on the Reading Lists, and (3) the history of Greek and Latin literature.

Requirements for The Master's Degree in Greek or in Latin

The General University and Foreign Language requirements are identical with those for the M.A. in Classics.

Program of Study. Seven upper division or graduate courses in Greek (Latin), including Greek (Latin) 210, at least two courses from Greek (Latin) 200A-200B-200C, and one further 200-series course in Greek (Latin) literature (chosen from 201-229). Two further upper division or graduate courses are

chosen in consultation with the Graduate Adviser. Total: 9 courses.

Comprehensive Examinations. Three written two-hour examinations in (1) sight translation from Greek (Latin), (2) translation of Greek (Latin) passages from the Greek (Latin) part of the Reading Lists for the Master's degree in Classics, and (3) the history of Greek (Latin) literature.

Requirements for the Doctor's Degree

Admission to the Doctoral Program: Prerequisite for admission is an M.A. degree in Classics (Greek and Latin), in Greek, or in Latin, with distinction, from this University, or its equivalent. In cases of doubtful equivalency the Department may allow provisional admission and require the candidate to pass with distinction during the first year of residence a set of tests identical with the M.A. comprehensive examination.

General Requirements

Foreign Language Examination. French or German, in addition to and in the same manner as the language studies for the M.A. degree (see above). With permission, Italian may be substituted for French. If Italian was the language studied at the M.A. level, German must be taken.

Program of Study. At lease one year of full-time graduate study (normally 8-9 courses) is required in preparation for the qualifying examinations. The student may elect to specialize in Classical Literature and Philology or in one of the following areas: Classical Linguistics, Ancient History, Ancient Philosophy, Classical Archaeology, Patristic and Byzantine Studies, Medieval Latin Studies. Students entering with an M.A. degree in Classics (Greek and Latin) may concentrate entirely on their specialization, stressing either Greek or Latin as their research interests indicate. Those without M.A. competence in both Greek and Latin are required to take additional course work in their minor language (including 210, one of 200A-200B-200C, and one course from 201-229). All students must complete the Doctoral Reading List in either Greek or Latin authors which is additional to the M.A. list and differs somewhat depending on area specialization; those without M.A. competence in one language must complete the M.A. reading list in that language.

Qualifying Examinations for Advancement to Doctoral Candidacy and Conferral of the C.Phil. Degree. Three written three-hour examinations, supervised by the student's departmental guidance committee, in translation and interpretation of (1) Greek and (2) Latin texts, partly from the Reading Lists and partly at sight, and (3) on the area of specialization. The oral examination, conducted by the Doctoral Committee, covers both the area of specialization and the general field of Classical studies.

Dissertation. A dissertation must be submitted, on a subject approved by the candidate's doctoral committee and normally relating to his Special Field. The dissertation must be the result of original research and constitute a significant contribution to knowledge.

Final Examination. This oral examination, administered by the doctoral committee, covers primarily the dissertation and its relation to the field in which the subject lies.

Courses Which Do Not Require a Knowledge of Greek or Latin

Classics 10, 20, M70, 141, 142, 143, 151A, 151B, 151C, 161, 162, 166A, 166B, 168, M170A, M170B, 230A, 251A, 251B, 251C, 251D, 252, 253, 254, 255, 260, 268; Greek 40; Latin 40.

Exchange and resource-sharing programs make it possible for UCLA students to take Classics and Classics-related courses at other schools in the Southern California area, e.g., UCSB, USI, USC. The Classics departments at these schools should be consulted for specific details.

Classics

Lower Division Course

10. Survey of Classical Greek Culture. Lectures, many illustrated, on Greek life and culture from the age of Homer to the Roman conquest. Discussion of art, literature, philosophy, and mythology. Readings in the Greek authors are suggested, but not required. A knowledge of Greek is not required. Mr. Lattimore

20. Survey of Roman Civilization. A study of life and culture of Rome from the time of its foundation to the end of antiquity. A survey of art, literature, and political thought of the Romans. Selections from Latin authors are read in translation. A knowledge of Latin is not required. Mr. Frischer

M70. Survey of Mediaeval Greek Culture. (Formerly numbered 145A. Same as History M70.) Classical roots and mediaeval manifestation of Byzantine civilization; political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including the discovery of America). Mr. Dyck

Upper Division Courses

141. A Survey of Greek Literature in English. A study of classical Greek literature, exclusive of the drama, with readings in English. Mr. Dyck, Mr. Frischer

142. Ancient Drama. A study of the major Greek and Latin dramas in translation. Mr. Dyck, Mr. Haslam

143. A Survey of Latin Literature in English. A study of classical Latin literature, exclusive of the drama, with readings in English. Mr. Dyck

151A. Classical Archaeology: Graeco-Roman Architecture. A general introduction to the study of Aegean, Greek, and Roman architecture. Mr. Lattimore

151B. Classical Archaeology: Graeco-Roman Sculpture. A general introduction to the study of Aegean, Greek, and Roman sculpture. Mr. Lattimore

151C. Classical Archaeology: Graeco-Roman Painting. A general introduction to the study of Aegean, Greek, and Roman painting. Mr. Lattimore

151D. Classical Archaeology: The Aegean Bronze Age. The course is a survey of the prehistoric art and archaeology of the Greek lands. A knowledge of Greek is not required. The Staff

161. Introduction to Classical Mythology. The origins of classical myth; the substance of divine myth and heroic saga; the place of myth in religion; a survey of the study of classical mythology. Mr. Lattimore, Mr. Puhvel

162. Classical Myth in Literature. The use of myth in the principal authors and genres of Greek and Roman literature with examples of its influence in later literatures. Mr. Lattimore

166A. Greek Religion. A study of the religion of the ancient Greeks. Mr. Dyck

166B. Roman Religion. A study of the religion of the ancient Romans. Mr. Puhvel

168. Introduction to Comparative Mythology. Prerequisite: course 161 or consent of the instructor. The religious, mythical, and historical traditions of Greece and Rome compared with each other and with those of other ancient Near Eastern and European societies. Mr. Puhvel

M170A. Byzantine Civilization. (Same as History M122A.) Emphasis is laid on Byzantine Theology. Mr. Dyck

M170B. Byzantine Civilization. (Formerly numbered 145C.) (Same as History M122B.) Literature, relations with Rome, and the Renaissance. Mr. Dyck

180. Introduction to Classical Linguistics. Prerequisites: Greek 3 and Latin 3. Basics of the comparative grammar of Greek and Latin in relation to one another and in the frame of Indo-European linguistics. Mr. Puhvel

199. Special studies in Classics. (½ to 2 courses) Prerequisites: senior standing and consent of the instructor.

Graduate Courses

200. History of Classical Scholarship. Mr. Dyck

230A-230B. Language in Ancient Asia Minor. Prerequisite: consent of the instructor. Survey of the language situation in Anatolia in the second and first millennia B.C. Readings in Hittite, Palaic, Luwian, Hieroglyphic, Lycian, and Lydian texts. Anatolian-Greek relationships and survivals in Classical and Hellenistic times. Mr. Puhvel

240. Etruscology. Prerequisite: consent of the instructor. A survey of scholarly research on Etruscan language and culture, with analysis of epigraphic material. Mr. Puhvel

246. Greek and Latin Meter. Prerequisite: consent of instructor. A comprehensive study of meter as it functions in classical poetry. Mr. Haslam

251A. Seminar in Classical Archaeology. The Aegean Bronze Age. The Staff

251B. Seminar in Classical Archaeology. Graeco-Roman architecture. Mr. Lattimore

251C. Seminar in Classical Archaeology. Graeco-Roman sculpture. Mr. Lattimore

251D. Seminar in Classical Archaeology. Graeco-Roman painting. Mr. Lattimore

252. Topography and Monuments of Athens. Detailed studies in the topography and momuments of Athens combining the evidence of literature, inscriptions, and actual remains. Mr. Lattimore

253. Topography and Momuments of Rome. Detailed studies in the topography and momuments of ancient Rome combining the evidence of literature, inscriptions, and actual remains. Mr. Frischer, Mr. Lattimore

260. Seminar in Roman Religion. Prerequisite: consent of the instructor. The Staff

268. Seminar in Comparative Mythology. Prerequisite: course 168 and consent of the instructor. Advanced study of selected topics in comparing Greek and Roman traditions with other ancient Near Eastern and European societies. Mr. Puhvel

271. Computer Techniques in Classical Studies. Survey of computer techniques in the study of the ancient world with emphasis on Greek and Latin literary texts. Students will learn enough computer programming to work on a project of their own during the course. The Staff

287. Graduate Colloquium in Classical Literature. Reading, research and discussion of selected topics from Greek and Roman Literature. May be repeated for credit. The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) The Staff

597. Study for the M.A. Comprehensive Examination or the Ph.D. Qualifying Examination. (½ to 2 courses) The Staff

599. Research for the Doctoral Dissertation. (½ to 2 courses) The Staff

Greek

Lower Division Courses

1. Elementary Greek. Lecture, five hours per week. The Staff

2. Elementary Greek. Lecture, five hours per week. Prerequisite: course 1. The Staff

NOTE: For key to symbols, see page 74

3. Elementary Greek. Lecture, five hours per week. Prerequisite: course 2. The Staff

10. Elementary Modern Greek. An introduction designed to teach the student to pronounce correctly, understand, speak, and write with some facility the language of everyday life. Comparisons with Ancient Greek are made. Not intended for native or near-native speakers of Modern Greek. The Staff

11. Intermediate Modern Greek. Prerequisite: course 10 or consent of the instructor. Drill in pronunciation and grammatical patterns. Building-up of vocabulary. Easy readings in literature. The Staff

12. Advanced Modern Greek. Prerequisite: course 11 or consent of the instructor. Conversation and composition. A survey of the structure of the language. The Staff

40. The Greek Element in English. A knowledge of Greek is not required. A study of the derivation and usage of English words of Greek origin: analysis into their component elements directed toward understanding of form and meaning. Mrs. Killian, Mrs. Mohr

Upper Division Courses

Note: Greek 3 is prerequisite to 100. Greek 100 is prerequisite to 101-107 and 111-124, and prerequistie or corequisite to 110.

100. Readings in Greek Prose. Prerequisite: course 3. Plato's *Apology* or a text of comparable difficulty is read. The Staff

101A. Homer: *Odyssey.* Ms. King, Mrs. Mohr, Mr. Puhvel

101B. Homer: *Iliad.* Ms. King, Mrs. Mohr, Mr. Puhvel

102. Lyric Poets. Selections from Archilochus to Bacchylides. Mr. Haslam, Mrs. Mohr

103. Aeschylus. Mr. Haslam

104. Sophocles. Mr. Haslam, Mr. Lattimore

105. Euripides. Mr. Frischer, Mr. Haslam, Ms. King

106. Aristophanes. The Staff

107. Theocritus. Mr. Frischer, Mr. Lattimore

110. The Study of Greek Prose. Work in sight reading and grammatical analysis of Attic prose texts; writing the Attic prose. Mr. Haslam

111. Herodotus. Mr. Lattimore

112. Thucydides. Mr. Haslam, Mr. Lattimore

113. Attic Orators. Mr. Dyck, Mr. Haslam

121. Plato. Mr. Frischer, Ms. King

122. Plato: *Republic.* Mr. Haslam

123. Aristotle: *Poetics and Rhetoric.* Mr. Haslam

124. Aristotle: *Ethics.* Mr. Dyck, Mr. Frischer

130. Readings in the New Testament. Prerequisite: Greek 3. Mr. Haslam

131. Readings in Later Greek. Prerequisite: course 100. Topics treated will vary from year to year; they will include: "Longinus", On the Sublime; Marcus Aurelius; Arrian; the Second Sophistic; Plutarch; later epic; epigram; epistolographi Graeci. Mr. Dyck

132. Survey of Byzantine Literature. Prerequisite: course 100. Readings will be based on 1) Anthology of Byzantine Prose, ed. Nigel Wilson; 2) Oxford Book of Medieval and Modern Greek Verse, ed. C.A. Trypanis, or, if this is unavailable, Poeti bizantini, ed. R. Cantarella. In addition, necessary historical and cultural background will be provided by readings and lectures. Concurrent scheduling with Greek 231A. Mr. Dyck

133. Readings in Byzantine Literature. Prerequisite: course 132. Topics to be treated will vary from year to year; they will include: Procopius, Agathias, Michael Psellus, the Alexiad of Anna Comnena, and Digenis Akritas. Mr. Dyck

150. Readings in Modern Greek. Prerequisites: course 3 or course 12 or consent of the instructor. Study of Modern Greek literature and its development since the Middle Ages through analysis of texts in the original. The Staff

151. Advanced Readings in Modern Greek. Prerequisites: course 150 or consent of the instructor. The Staff

160. Greek Drama: Study and Performance. (2 courses) Prerequisite: consent of the instructor. Intensive critical study of a dramatic work in Greek, culminating in its performance in the original language and manner of presentation. May be repeated for credit whenever a different play is studied and performed. Mrs. Mohr

199. Special Studies in Greek. (½ to 2 courses) Prerequisite: senior standing and consent of the instructor. The Staff

Graduate Courses

The 200-series courses which are designated A and B (e.g., 201A-201B) are double courses. Course A is a preseminar and is normally prerequisite to course B, a seminar.

200A-200B-200C. History of Greek Literature. Prerequisite: consent of the instructor. Lectures on the history of Greek literature, supplemented on the part of the student by the independent reading of Greek texts in the original. Mr. Haslam, Ms. King

201A-201B. Homer: *The Iliad.* Mr. Haslam, Ms. King

202A-202B. Homer: *The Odyssey and the Epic Cycle.* Mr. Haslam, Ms. King

203. Hesiod. Mr. Frischer

204. Homeric Hymns. The Staff

205. Seminar in Aeschylus. Mr. Haslam

206A-206B. Sophocles. Mr. Haslam, Mr. Lattimore

207A-207B. Euripides. Mr. Frischer, Mr. Haslam, Ms. King

208A-208B. Aristophanes. The Staff

209. Seminar in Hellenistic Poetry. Mr. Frischer

210. Advanced Greek Prose Composition. Prerequisite: course 110 or the equivalent. Mr. Haslam

211A-211B. Herodotus. The Staff

212A-212B. Thucydides. Mr. Haslam, Mr. Lattimore

213. Seminar in Greek Historiography. The Staff

214. Demosthenes. Mr. Dyck

215. Early Greek Orators. Studies in the works of Antiphon, Andocides, and Lysias. Mr. Dyck

216. Menander. Prerequisite: a reading knowledge of Classical Greek is required. Mr. Frischer

217. Pindar. Prerequisite: consent of instructor. A detailed study of Pindaric texts, with attention to Pindar's place in the development of Greek choral lyric in addition to his characteristics as a thinker and artist. Mr. Haslam

221. Seminar in the Presocratic Philosophers. Mr. Frischer

222A-222B. Plato. The Staff

223A-223B. Aristotle. Mr. Dyck, Mr. Frischer

224. Seminar in Post-Aristotelian Philosophy. Mr. Frischer

230. New Testament Greek. The Greek New Testament, as a work of Greek literature, with special emphasis on the information it gives about the culture on the whole, and the language in particular, of the society for which it was produced. The Staff

231A-231B-231C. Seminar in Later Greek and Byzantine Literature. Prerequisite: consent of the instructor. Studies in various aspects of Byzantine Greek language and literature; subject treated varies from year to year; course need not be taken in A-B-C sequence and may be repeated for credit with contents changed. Mr. Dyck

233. Byzantine Poetry. A study of the main representatives of both religious and secular poetry. Mr. Dyck

240A-240B. History of the Greek Language. Prerequisite: consent of the instructor. 240A covers the linguistic history of Classical Greek. In 240B Post-Classical, Mediaeval, and Modern Greek are discussed. Mr. Dyck

241. Greek Epigraphy. A survey of Greek historical inscriptions, chiefly Attic. Mr. Dyck

242. Greek Dialects and Historical Grammar. Prerequisite: consent of the instructor. The linguistic situation in early Greece. Readings in Classical Greek dialectal texts. Greek grammar in the context of common Greek and Indo-European linguistics. Mr. Puhvel

243. Mycenaean Greek. Prerequisite: consent of the instructor. Script, language, and grammar of the Linear B inscriptions; their relevance to Ancient Greek linguistic and cultural history. Mr. Puhvel

244. Greek Papyrology. Prerequisite: consent of the instructor (some reading knowledge of Greek required). An introduction to Greek papyri, considered both as historical documents and as carriers of literature. Mr. Haslam

245. Greek Palaeography. Studies in the development of the book hand in Greek manuscripts earlier than the invention of printing. The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) The Staff

597. Study for the M.A. Comprehensive Examination or the Ph.D. Qualifying Examination. (½ to 2 courses) The Staff

599. Research for the Doctoral Dissertation. (½ to 2 courses) The Staff

Latin

Lower Division Courses

1. Elementary Latin. Lecture, five hours per week. The Staff

1G. Elementary Latin for Graduate Students. (No Credit) Offered concurrently with Latin 14, being identical in scheduling and content. Mrs. Killian

2. Elementary Latin. Lecture, five hours per week. Prerequisite: course 1. The Staff

2G. Intermediate Latin (Intensive). (No Credit) Prerequisite: Latin 14 or Latin 2 with grade B or better, or consent of instructor. Review of grammar; reading of selected portions of Latin Prose ranging from Classical to Medieval, with emphasis on historical texts. The Staff

3. Elementary Latin. Lecture, five hours per week. Prerequisite: course 2. The Staff

14. Elementary Latin (Intensive). (2 courses) The intensive course in Latin will cover all the declensions of nouns and adjectives, all conjugations in the indicative mood and the primary uses of the subjunctive mood. Emphasis will be given to the development of the ability to read easy selections of classical prose. Mrs. Killian

15. Intermediate Latin (Intensive). (2 courses) Prerequisites: Latin 14 or Latin 2 with grade B or better, or consent of instructor. Review of grammar; reading of selected portions of Latin prose ranging from Classical to Medieval, with emphasis on historical texts. Mrs. Killian

40. The Latin Element in English. A knowledge of Latin is not required. A study of the derivation and usage of English words of Latin origin: analysis into their component elements directed toward understanding of form and meaning. Mrs. Killian, Mrs. Mohr

Upper Division Courses

Note: Latin 3 is prerequisite to Latin 104, 105A, 107, 111, 113. One of the latter is normally prerequisite to all other 100-series courses in Classical Latin authors.

101. Plautus. Mr. Löfstedt, Mrs. Mohr

102. Terence. Mr. Löfstedt

103. Lucretius. Mr. Frischer

104. Ovid. Mrs. Killian, Mrs. Mohr

105A. Vergil: Selections from Aeneid I-VI. Ms. King, Mr. Levine, Mrs. Mohr

105B. Vergil: Advanced Course. Ms. King, Mrs. Mohr

106. Catullus. Mr. Levine

107. Horace: Odes and Epodes. Mr. Levine

108. Roman Elegy. Selections from Catullus, Tibullus, and Propertius. Mr. Frischer, Mr. Levine

109. Roman Satire. Selections from the *Epistles* of Horace, the *Satires* of Juvenal, and the *Epigrams* of Martial. Mrs. Killian, Mr. Levine

110. The Study of Latin Prose. Work in sight reading and grammatical analysis of classical prose texts; writing of classical prose. Mr. Dyck

111. Livy. Mrs. Mohr

112. Tacitus. Mr. Frischer

113. Cicero: The Orations. Mr. Dyck, Mr. Frischer, Mrs. Mohr

114. Roman Epistolography: Cicero and Pliny. Mr. Dyck, Mr. Frischer

115. Caesar. Mr. Dyck, Mr. Frischer

116. Petronius. Mr. Frischer, Mr. Löfstedt, Mrs. Mohr

117. Sallust. Mrs. Killian

118. Seneca. A selection of Seneca's works will be read in Latin, supplemented by further readings in translation. Mr. Löfstedt

130. Introduction to Mediaeval Latin. Prerequisite: course 3, or course 15, or consent of the instructor. Reading of easy prose texts, with interest centered on basic language training. Mr. Löfstedt

131. Mediaeval Latin Prose. Prerequisite: course 130 or consent of the instructor. Extensive reading of selected texts in prose; interest is centered on the idiosyncrasies of Mediaeval Latin. Mr. Löfstedt

133. Mediaeval Latin Poetry. Prerequisite: one upper division language course in Latin or consent of the instructor. Emphasis varies from year to year between Christian and secular poetry. Mr. Löfstedt

150. Roman Drama: Study and Performance. (2 courses) Prerequisite: consent of the instructor. Intensive critical study of a dramatical work in Latin, culminating in its performance in the original language and manner of presentation. May be repeated for credit whenever a different play is studied and performed. Mrs. Mohr

199. Special Studies in Latin. (½ to 2 courses) Prerequisite: senior standing and consent of the instructor. The Staff

Graduate Courses

The 200-series courses which are designated A and B (e.g., 203A and 203B) are double courses. Course A is a preseminar and is normally prerequisite to course B, a seminar.

200A-200B-200C. History of Latin Literature. Prerequisite: consent of the instructor. Lectures on the history of Latin literature, supplemented on the part of the student by the independent reading of Latin texts in the original. Mr. Frischer, Mr. Levine

201. Seminar in the Roman Epic: Ennius to Silius Italicus. The fragments of Ennius and selected readings from the minor epic poets (Lucan, Valerius Flaccus, Statius, Silius Italicus). The Staff

202. Seminar in Catullus. A detailed consideration of the entire Catullan corpus. Mr. Levine

203A. Elegiac Poetry. Mr. Frischer, Mr. Levine

203B. Propertius. Mr. Levine

204A-204B. Vergil's Aeneid. Mr. Haslam, Ms. King

205. Seminar in Vergil's Bucolics. Mr. Frischer

206. Horace. Mr. Frischer

207. Roman Comedy. Prerequisite: consent of the instructor. Survey of the history of Roman Comedy. Reading of one comedy by Plautus or Terence with interest centered on language and meter. Mr. Löfstedt

208. Ovid. Prerequisite: a reading knowledge of Classical Latin is required. A detailed study of the poetic works of Ovid: readings in the original with discussion of the secondary literature and scholarship. The course may be repeated for credit as the content varies. The Staff

210. Advanced Latin Prose Composition. Prerequisite: course 110 or the equivalent. Mr. Levine

211A-211B-211C. Seminar in the Roman Historians. A study of considerable portions of the writings of:

211A. Sallust. The Staff

211B. Livy. Mr. Frischer

211C. Tacitus. Mr. Frischer

220A. Cicero's Rhetorical Works. Mr. Dyck

220B. Cicero's Orations. Mr. Dyck

221A. Cicero'sPhilosophical Works. Mr. Dyck, Mr. Levine

221B. Cicero: De Natura Deorum. Mr. Dyck, Mr. Frischer, Mr. Levine

222. Seminar in Roman Stoicism. Prerequisite: a reading knowledge of Greek and Latin. Mr. Dyck, Mr. Frischer

223. Lucretius. Mr. Frischer

224. Seminar in the Roman Novel. Petronius' *Satyricon* and Apuleius' *Metamorphoses:* a study of the literary problems. Mr. Dyck

225. Lucan. A detailed study of Lucan, *Bellum Civile:* readings in the original, discussion and reports on important literary and historical aspects. The Staff

231A-231B. Seminar in Mediaeval Latin. Prerequisite: at least one upper division course in Latin or consent of the instructor. Studies in various areas of the language and literature of Mediaeval Latin. With instructor's permission, may be repeated for credit. Mr. Löfstedt

232. Vulgar Latin. Prerequisite: consent of the instructor. History and characteristics of popular Latin; its development into the early forms of the Romance languages. Mr. Löfstedt

240. History of the Latin Language. Prerequisite: consent of the instructor. The development of Latin from the earliest monuments until its emergence in the Romance languages. Mr. Löfstedt

242. Italic Dialects and Latin Historical Grammar. Prerequisite: consent of the instructor. The linguistic situation in early Italy. Readings in Oscan, Umbrian, and early Latin texts. Latin grammar in the context of Italic and Indo-European linguistics. Mr. Puhvel

243. Seminar in Latin Palaeography. Studies in the development of the book hand in Latin manuscripts earlier than the invention of printing. Mr. Levine

244. Seminar in Textual Criticism. Studies in the preparation of a critical edition of a Latin author. The Staff

Professional Courses in Method

370. The Teaching of Latin. Prerequisite: graduate standing or consent of the instructor. Techniques for teaching; organization of courses; review of the content of the curriculum offered in junior and senior high schools. Mrs. Killian

495. College Teaching of Latin. (½ course) Prerequisite: current service as a teaching assistant and consent of the instructor. Methodology of instruction, in conjunction with classroom practice. Mrs. Killian

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) The Staff

597. Study for the M.A. Comprehensive Examination or the Ph.D. Qualifying Examination. (½ to 2 courses) The Staff

599. Research for the Doctoral Dissertation. (½ to 2 courses) The Staff

Related Courses in Other Departments

Ancient Near East (Near Eastern Languages) 170. Introduction to Biblical Studies.

171. Old Testament: Hebrew and Septuagint Texts.

172. Semitic Background of the New Testament.

Art 103A. Greek Art.

103B. Hellenistic Art.

103C. Roman Art.

222A-222B. Greco-Roman Art.

History 111A-111B-111C. History of the Ancient Mediterranean World.

112A-112B. History of Ancient Greece.

113A-113B. History of Rome.

121A. The Early Middle Ages.

121B. The Later Middle Ages.

123A-123B-123C. Byzantine History.

222A-222B. Studies in Medieval Latin. Literary History.

250A-250B. Seminar in Ancient History.

252A-252B-252C. Seminar in Byzantine History.

Indo-European Studies M132. European Archaeology: The Bronze Age.

140. Introduction to Indo-European Mythology.

M150. Introduction to Indo-European Linguistics.

210. Indo-European Linguistics: Advanced Course.

280A-280B. Seminar in Indo-European Linguistics.

Philosophy 101A. Plato – Earlier Dialogues.

101B. Plato – Earlier Dialogues.

102. Aristotle.

COMMUNICATION STUDIES (INTERDEPARTMENTAL)

Donald E. Hargis, Ph.D., *Professor of Communication Studies.*
Paul I. Rosenthal, Ph.D., *Associate Professor of Communication Studies.*
Patrice French, Ph.D., *Assistant Professor of Communication Studies and Psychology.*

•

L. Geoffrey Cowan, LL.B., *Lecturer in Communication Studies.*
Janet Weathers, Ph.D., *Lecturer in Communication Studies.*

UNDERGRADUATE CURRICULUM

The major in Communication Studies seeks to provide the student with a comprehensive knowledge of the nature of human communication, the symbol systems by which it functions, the environments in which it occurs, its media, and its effects. The major draws its resources from the social sciences, humanities, and fine arts. The specialization in Mass Communication centers upon formal and institutional communication systems and the social contexts in which they function. The specialization in Interpersonal Communication centers upon face-to-face communicative interaction in the small

NOTE: For key to symbols, see page 74

group environment. Students selecting the major must complete the required lower division prerequisites and a minimum of 16 upper division courses as set forth below.

Enrollment in the major is limited. Admission to the major will be by application to the Committee in charge. Applications are available at Royce Hall 232.

For purposes of Breadth Requirements, the Communication Studies major is classified within the Social Sciences Division.

Preparation for the Major. Communication Studies 10, Linguistics 1, Psychology 10, Sociology 1. Linguistics 2 is required for students who elect to specialize in Interpersonal Communications.

The Major. Required core courses: Communication Studies 100 and 101 and one course from Anthropology 146, Communication Studies 102 or Linguistics 100.

Specializations. A. Studies in Mass Communication. (1) Theory and Method. Required Courses: Communication Studies 140, Communication Studies 152 and either Communication Studies 147 or Sociology 122, and one course from Political Science 141, Psychology 137B or Sociology 150. (2) Modes of Mass Communication. Two courses chosen from Communication Studies 160, 165, 170. (3) Media and Media History. Two courses chosen from Journalism 192, Theatre Arts 106A, 108, 110A and either Theatre Arts 116 or Communication Studies 175. (4) Electives (Five Courses). Two courses chosen from Communication Studies 120, Communication Studies 130, Psychology 135 or Sociology 154, Psychology 137A or Sociology 152, Sociology 155. Three courses chosen from one of the following three groups: (a) Language Theory. Communication Studies 142, 150, Linguistics 100, 170, Philosophy 172, Psychology 123. (b) American Studies. English 101B, 101C, 115, History 148A,B,C, History 150A, 150B, 156A, 156B, Political Science 114A, 114B. (c) Social Systematics. Anthropology 141, 144, 145A, 145B, 149A, 149B, Sociology 144A, 144B, and either Sociology 151 or Anthropology 148.

B. Studies in Interpersonal Communication. (1) Theory. Psychology 135 or Sociology 154, Psychology 137A or Sociology 152. (2) Methods. Three courses required: Communication Studies 120, Management 182, Psychology 174. (3) Heterogeneous Groups Communication. Three courses chosen from Anthropology 139, Communication Studies 130, Sociology 124, 155. (4) Electives (Five courses). Two courses chosen from Communication Studies 140, Communication Studies 147 or Sociology 122, Communication Studies 152, 160, 165, 170. Three courses chosen from one of the following three groups: (a) Language Theory. Communication Studies 142, 150, Linguistics 100, 170, Philosophy 172, Psychology 123. (b) Media and Media History. Journalism 192, Theatre Arts 106A, 108, 110A and either Communication Studies 175 or Theatre Arts 116. (c) Social Systematics. Anthropology 141, 144, 145A, 145B, 149A, 149B, Sociology 144A, 144B or either Anthropology 148 or Sociology 151.

Lower Division Course

10. Introduction to Communication Studies. An introduction to the fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory. The Staff

Upper Division Courses

100. Communication Theory. Prerequisites: course 10, Linguistics 1, Sociology 1, Psychology 10 or consent of instructor. Analysis of the fundamental nature of human communication; its physical, linguistic, psychological and sociological bases. Study of theoretical models explicating the process and constituents of the communicative act. Ms. French

101. Freedom of Communication. Analysis of legal, political and philosophical issues entailed in the rights of free expression, access to an audience, and access to information. Study of court decisions governing freedom of communication in the United States. Mr. Cowan, Mr. Rosenthal

102. The Code of Human Communication. Prerequisites: course 10; Sociology 1; Psychology 10; Linguistics 1. or consent of instructor. The structural analysis and description of human communication codes; the development of language; characteristics of the source, channels and destination in human communication. Ms. French

120. Principles and Types of Group Communication. Prerequisite: course 10 or consent of instructor. Analysis of the purposes, principles, and types of small group communication. Particular emphasis upon the organization of and participation in problem-solving discussion. Ms. Weathers

130. Cultural Factors in Interpersonal Communication. Prerequisite: course 100 or consent of instructor. Study of cultural factors as they affect the quality and processes of interpersonal communication; exercises in the participation, analysis, and criticism of inter-ethnic and interracial communications in the small-group configuration. Ms. Weathers

140. Theory of Persuasive Communication. Prerequisite: course 100 or consent of instructor. The dynamics of communication designed to influence human conduct; analysis of the structure of persuasive discourse; integration of theoretical materials drawn from relevant disciplines of the humanities and social sciences. Mr. Rosenthal

142. Rhetorical Theory. Prerequisite: course 100 or consent of instructor. Survey of the major classical and neoclassical treatises on rhetoric. Analysis of the theories of Plato, Aristotle, Cicero, Quintilian, St. Augustine, Blair, Whately, Campbell, and other leading works in the theory of rhetoric. Mr. Hargis

147. Mass Communication and Social Systems. Prerequisite: course 100 or consent of instructor. Comparative analysis of major theories about relationships between mass media and social systems from the interpersonal to the international level; emphasis on empirical research. The Staff

150. Analysis of Communication Content. Prerequisite: course 100 or consent of instructor. Study of methodologies for the qualitative and quantitative analysis of the content of communications. Ms. French

152. Analysis of Communication Effects. Prerequisite: course 100 or consent of instructor. Survey of experimental and field research on the effects of communications. Study of source, message, and environmental factors affecting audience response. The Staff

160. Political Communication. Prerequisite: courses 100 and 101 or consent of instructor. Study of the nature and function of communication in the political sphere; analysis of contemporary and historical communications within established political institutions; state papers; deliberative discourses; electoral campaigns. The Staff

165. Agitational Communication. Prerequisite: courses 100 and 101 or consent of instructor. Theory of agitation; agitation as a force for change in existing institutions and policies in a democratic society. Intensive study of selected agitational movements and the technique and content of their communications. The Staff

170. Legal Communication. Prerequisite: courses 100 and 101 or consent of instructor. Study of the trial and appellate processes as systems of communication. Analysis of the elements of the juridical process as they affect the quality of communication content. Study of the rules of evidence, jury behavior, and the structure of legal discourse. Mr. Rosenthal

175. Criticism and the Public Arts. Prerequisites: course 10 or consent of instructor. An introduction to methods and problems of criticism in the public arts. Several types of critical methods will be studied: formalistic, analogue, pragmatic, and aesthetic criticism. Topics include the definition of art and criticism, the aesthetic media, genre and resources of film, television, theatre and public discourse, the varieties of critical method, the problems of critical judgment. The Staff

197. Undergraduate Honors Proseminar. Prerequisite: senior standing; grade point average of 3.5 in Communication Studies major and 3.3 overall. Variable topic course involving specialized study of selected aspects of the field of human communication. Enrollment is limited. The Staff

199. Special Studies. Prerequisites: senior standing and consent of the instructor. A course of independent study for senior undergraduates who desire an intensive or specialized investigation of selected research topics. To be arranged with the member of the faculty who will direct the study. The Staff

199H. Special Studies for Honors Candidates. Prerequisites: admission to Honors Program and senior standing. A course of independent study for honors undergraduates who desire an intensive or specialized investigation of selected research topics. To be arranged with a member of the faculty who will direct the study. The Staff

COMPARATIVE LITERATURE (INTERDEPARTMENTAL)

Arnold J. Band, Ph.D., *Professor of Hebrew and Comparative Literature (Chairman of the Department).*
Pier-Maria Pasinetti, Ph.D., *Professor of Italian and Comparative Literature.*
Ross P. Shideler, Ph.D., *Associate Professor of Scandinavian Languages and Comparative Literature.*
Katherine C. King, Ph.D., *Assistant Professor of Classics and Comparative Literature.*
Kathleen L. Komar, Ph.D., *Assistant Professor of German and Comparative Literature.*

•

Ehrhard Bahr, Ph.D., *Professor of German.*
Amin Banani, Ph.D., *Professor of Persian and History.*
Marc Bensimon, Ph.D., *Professor of French.*
Marga Cottino-Jones, Ph.D., *Professor of Italian.*
Eric Gans, Ph.D., *Professor of French.*
Kenneth Harper, Ph.D., *Professor of Slavics.*
Claude L. Hulet, Ph.D., *Professor of Spanish and Portuguese.*
Carroll B. Johnson, Ph.D., *Professor of Spanish.*
Murray Krieger, Ph.D., *University Professor of English.*
Richard A. Lanham, Ph.D., *Professor of English.*
Richard D. Lehan, Ph.D., *Professor of English.*
Vladimir Markov, Ph.D., *Professor of Slavics.*
Blake R. Nevius, Ph.D., *Professor of English.*
Maximillian E. Novak, D. Phil., Ph.D., *Professor of English.*
George S. Rousseau, Ph.D., *Professor of English and Eighteenth Century Studies.*
Ben Befu, Ph.D., *Associate Professor of Oriental Languages.*
Albert Braunmuller, Ph.D., *Associate Professor of English.*
Frederick L. Burwick, Ph.D., *Associate Professor of English.*
Albert D. Hutter, Ph.D., *Associate Professor of English.*
Gerardo Luzuriaga, Ph.D., *Associate Professor of Spanish.*
Robert M. Maniquis, Ph.D., *Associate Professor of English.*
James R. Massengale, Ph.D., *Associate Professor of Scandinavian Languages.*
Stephen D. Werner, *Associate Professor of French.*
Stephen I. Yenser, Ph.D., *Associate Professor of English.*
Michael Heim, Ph.D., *Assistant Professor of Slavic Languages.*
Romey T. Keys, Ph.D., *Assistant Professor of English.*

UCLA's Program in Comparative Literature requires that all degree candidates demonstrate linguistic, historical, and critical competence in two or more literatures. Candidates for the M.A. degree are examined in at least two literatures, one major and one minor. Candidates for the Ph.D. degree are examined in at least three literatures, one major and two minors. To assist students to achieve this goal, the Comparative Literature Program draws upon the facilities, services, and faculty of UCLA's language and literature departments and programs. While specific required courses in various aspects of Comparative Literature are sponsored by the Graduate Program in Comparative Literature, students do much of their course work in the

appropriate language and literature departments: members of these departments participate in the advising and examination of all degree candidates.

Students may be admitted as candidates for either the M.A. or Ph.D. degrees. Students who enter with only the B.A. degree must register in the M.A. program. Though students are advised to enter in the Fall Quarter of the academic year, they may begin their studies in the Winter or Spring Quarter.

REQUIREMENTS FOR THE M.A.

Admission Requirements for the M.A.

1. For entrance into the program, a B.A. in literature, ancient or modern, is a prerequisite. Students not having a literature major in their B.A. program will be required to demonstrate the equivalent knowledge and comprehension of one literature before being considered a graduate student in good standing.

2. Applicants are expected to have at least a 3.4 GPA in upper division literature courses.

3. All applicants for admission must take the G.R.E. examination.

Areas of Study for the M.A.

The student's study plan should combine the work in the major and minor literatures by focusing on a limited area in which these literatures can be fruitfully explored. The area may be a literary period (e.g., Romanticism), a genre (e.g., the novel), or a theoretical problem.

The Major Literature. The major literature is the area of the student's primary concentration. He/she specializes in one historically defined period (e.g., Medieval, Renaissance and Baroque, Neo-classicism and 18th century, Romanticism to Modern) but a general knowledge of the major literature is a prerequisite of the specialization.

The Minor Literature. In the minor literature the student focuses on a period comparable to the area of specialization in the major literature. However, it is assumed that the student may not have as much historical depth and breadth in the minor literature as in the major.

Foreign Language Requirements for the M.A.

Literary proficiency in the major and minor literatures is an essential prerequisite for courses and degrees in Comparative Literature. Students are expected to be able to take graduate classes conducted in the languages of their specialization. The candidate should be able to speak the major foreign language adequately and read literary texts in that language with "literary proficiency," i.e., with sensitivity to stylistic nuances.

Before completion of the M.A., knowledge of two foreign languages is required. Proficiency in one of these languages must be certified by completion of at least three upper division and/or graduate literature courses in the appropriate language department. (Students must prove more than elementary language competency in order to enter upper division and graduate courses at UCLA.) The second foreign language requirement may be completed either by course work or by passing the ETS foreign language examinations administered by the Graduate Division. In those cases where such examinations are unavailable, translation examinations may be administered by departmental members.

Course Requirements for the M.A.

Candidates for the M.A. degree specialize in two literatures in which they take a total of eight courses; five are taken in the major literature and three in the minor. Four additional courses are taken from those designated as Comparative Literature courses.

The following twelve courses are the minimal course requirements. Some students will take extra courses to make up deficiencies.

1. Four courses in Comparative Literature

A. Comparative Literature 200—Methodology; theory of literature, bibliography, etc.

B. Comparative Literature 201—Contemporary theories of criticism.

C. The comparative study of one genre, e.g., the novel, the epic, the lyric.

D. The comparative study of one period or movement, e.g., Baroque, Romanticism.

2. Five courses (a minimum of three must be graduate courses; the other two, upper division) in the student's major literature. The departmental course in the history of the language of that particular literature may be included.

3. Three courses, either graduate or upper division, in the student's minor literature. The student should study periods, genres, or problems in the minor literature which lend themselves to comparison with similar elements in his/her major literature.

4. Of the above required courses, 12 units at most may be 500 series courses.

Qualifying Examination for the M.A.

The examination for the M.A. is both written and oral, testing historical knowledge and comprehension of methodology. The results of this examination determine the student's ability to continue toward the Ph.D. in Comparative Literature. There are three possible results of the examination: a student may be allowed to progress toward the Ph.D., may be granted a terminal M.A., or may fail the examination altogether.

The written examinations of six hours in the major literature and three in the minor, test the student's skill in literary analysis and his/her detailed knowledge of specified works. The examinations are based upon reading lists from the works of approximately fifteen to twenty authors in the major literature and the works of five to ten authors in the minor literature. Normally, the student's reading list consists of 24-30 works in the major literature and 12-15 works in the minor literature.

The reading list for the major literature should contain both prose and poetry, although one of these may be emphasized. In addition, the list must include representative texts outside the period of specialization. For example, students specializing in the 19th and 20th century novel should have novels from the 17th and 18th centuries on their reading lists.

The reading list for the minor literature is focused almost entirely on the student's period of specialization. Sample reading lists are available in the Program's office—334 Royce Hall.

REQUIREMENTS FOR THE PH.D.

Admission Requirements for the Ph.D.

For entrance into the Ph.D. program, an M.A. in Comparative Literature is normally required. Students with an M.A. in one national literature, extensive knowledge of a second, and the ability to read literary texts in a third language may be considered for admission. Students entering with any degree other than an M.A. in Comparative Literature from UCLA are required to pass a Permission to Proceed Examination before being allowed to continue toward the Ph.D. This examination establishes that the applicant is at the same level of graduate work in both major and minor literatures as one of the Program's M.A. students. The examination is conducted along lines similar to the M.A. examination described above. It should be taken within the first year of residence.

Foreign Language Requirements for the Ph.D.

The candidate must have literature proficiency in at least two foreign languages and a reading knowledge of a third foreign language before taking the qualifying examination. Two of these three must be from different language groups, i.e., Romance and Germanic, English and Slavic, etc. If the student intends to offer three literatures written in foreign languages for his Ph.D. degree, he is expected to have literature proficiency in the three pertinent foreign languages. A classical languages is usually necessary for anyone majoring in a period prior to the 19th century.

Course Requirements for the Ph.D.

Though no specific courses are normally required after the M.A., entering students who have not received the M.A. in the UCLA Comparative Literature Program or its equivalent, are strongly advised to take courses in those areas in which they are deficient. The areas of deficiency will be identified in consultation with the graduate adviser. In general, all students are urged to take the courses necessary to attain sufficient depth in their major and two minor literatures. In the second minor, a combination of three upper division and graduate courses may be required. Students entering Comparative Literature with an M.A. in a single literature are usually required to take the four Comparative Literature courses required for the M.A.

Study Plan for the Ph.D.

The student's study plan should combine the work in the major and minor literatures by focusing on a limited area in which these literatures can be fruitfully explored. This area may be a literary period (e.g., the late Middle Ages, the sixteenth century, or the Romantic Age) or a particular aspect common to all three literatures (e.g., a genre like tragedy or the novel, or a phenomenon like neo-classicism or the baroque). It may also be a critical or theoretical problem, involving analyses of style or modes of interpretation; comparisons of classical and modern genres and themes; questions about the artistic process in different art forms; or problems in literary aesthetics or epistemology.

Qualifying Examinations for the Ph.D.

Ph.D. candidates usually take their Qualifying Examinations six to eight quarters after the M.A., although it is possible to take the examination as soon as the candidate's doctoral committee feels that he/she is adequately prepared. The examinations are both written and oral and may be taken over a period of two to three quarters.

The written examinations are based on reading lists for the major and two minor literatures. The reading list for the major should include texts from the earliest works in the literature through the twentieth century. As long as historical depth is demonstrated, the list may emphasize a genre and specific periods. The period of specialization may comprise up to half the items on the list. A normal reading list consists of approximately 50 to 60 primary works or items (an item is equivalent to a novel or a long play). The reading lists for each minor literature focuses on the period of specialization and consists of approximately 25 to 30 primary works. Sample reading lists are available in the Program's office—334 Royce Hall.

The written examinations for the major may be divided into two or three parts. Usually a total of eight to nine hours of examinations (two or three examinations of three to four hours each) are taken in the major literature and a three to four hour written examination is taken in each of the minor literatures.

As part of the preparation for these examinations, students should propose a possible dissertation topic and prepare a short prospectus (5-10 pages) on the topic.

The oral examination covers three areas:

1. Competence as determined by the reading lists and the written examinations in the major and minor literatures.

2. Both a familiarity with major critical texts pertaining to the reading lists and competence in general literary theory.

3. The proposed dissertation must demonstrate original critical work in the field. Comparative Literature students may write a dissertation on a single subject in a single field. It is assumed that their wide range of knowledge would be demonstrated by the quality of the work.

Graduate Courses

200. The Methodology of Comparative Literature. Prerequisite: Consent of the instructor. A study of

NOTE: For key to symbols, see page 74

both the methodology of comparative literature and the theory of literature. Mr. Shideler

201. Contemporary Theories of Criticism. Prerequisite: Comparative Literature 200 or its equivalent. An advanced course in the theory of literature focusing upon structuralist, psychoanalytic, and Marxist approaches. The Staff

202. Problems in the Theory of Literature. Prerequisite: A reading knowledge of French or German; Comparative Literature 201 or its equivalent. A study of specific topics in the theory of literature for advanced students in criticism and literary theory. The Staff

204. Psychoanalytic Approaches to Literature. Prerequisite: Comparative Literature 200 or the equivalent criticism course in English. A study of the development of modern psychoanalytic approaches to literature, with particular stress on affective theories of criticism. Readings will include Freud and the early psychoanalytic critics (Crews, Holland) and modern British and American psychoanalytic theorists (Winnicott, Schafer) whose work is applicable to literary theory. Mr. Hutter

205. The Comic Spirit. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 105). Literary masterpieces, both dramatic and nondramatic, selected to demonstrate the varieties of comic expression. Graduate students will be required to prepare papers based on texts read in the original language. These students will meet as a group an additional hour each week. Mr. Band

209. The Crisis of Consciousness in Modern Literature. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 109). Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of the artist and his society, focusing on the works of Flaubert, Joyce, Gide, Mann and Nabokov. Graduate students will be required to prepare papers based on texts read in the original language. These students will meet as a group an additional hour each week. The Staff

220. From Epic to Novel. Seminar, three hours. Prerequisite: Literature proficiency in one language, ancient or modern. A comparative study of the themes and techniques germane to each genre. The Staff

221. The Lyric: Classical to Modern. Prerequisite: Some knowledge of either Latin or Greek. An examination of the genres and conventions of Greek and Roman lyric poetry and their influence on subsequent European poetry. The Staff

222. Ovid's Influence on European Letters. Prerequiste: Elements of Latin or consent of the instructor. Readings in Latin and in translation from Ovid's works, particularly *Amores* and *Metamorphoses*. Analysis of Ovid's place in Latin letters and his influence on subsequent European literature. The Staff

229. Archetypal Heroes in Literature. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 129). Survey and analysis of the function and appearance of such archetypal heroes as Osiris, Ulysses, Prometheus and Oedipus in literature from antiquity to the modern period. Graduate students will be required to prepare papers based on texts read in the original language and will meet as a group an additional hour per week. The Staff

230. Translation Workshop. Prerequisite: A solid reading knowledge of at least one foreign language and consent of instructor. The theory and practice of literary translation. Analyses of significant theoretical contributions to the field. Weekly exercises in translation technique with genres, periods, and authors at the discretion of the participants. Open to qualified undergraduates with proper language preparation. Mr. Heim

240. Medieval Epics. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 140). The seminar will consider five medieval epics: *Beowulf, El Cid, Chanson de Roland, Niebelungenlied,* and *Njalssaga*. There will be two objectives: first, a critical understanding of each work, and second, an understanding of the nature of epic literature. Assignments will consist of an extended seminar paper and short oral reports. Graduate students will be required to prepare papers based on texts read in the original languages. Mr. Condren

245. Renaissance Drama. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 145). The course offers a broad introduction to the subject matter and types of plays in the Renaissance. Historical and literary influences on the plays will be considered. Readings will include works of such dramatists as: Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. Graduate students will be required to prepare papers based on texts read in the original language and will meet as a group one additional hour per week. Mr. Braunmuller

251. Varieties of Picaresque Fiction in the 18th Century. Prerequisite: Some knowledge of eighteenth century English literature, and a reading knowledge of two of the following languages: French, Spanish, German, Italian. A study of the metamorphoses of picaresque fiction during 1700-1800, with special attention to the novels of Defoe, Fielding, Smollett, Diderot, Rousseau, and others. The course will begin with a study of Cervantes' *Don Quixote* and will map out a critical theory for quixotic versus picaresque fiction. Mr. Rousseau

252. Structural Problems in Autobiography. Prerequisite: A reading knowledge of one European language, plus one other language. This course explores the ways in which writers of different nationalities and cultural backgrounds conceive of the form known as autobiography. Students are expected to read extensively in the autobiographical literature of two languages, one of which must be European. Mr. Rousseau

M260. Literature and the Other Arts. (Same as Humanities M160.) Prerequisites: upper division standing and literature major. (Reading knowledge of French, Spanish, Italian or German for graduate students.) A comparative study of literature and the other art media. This course is cross-listed with Humanities M160. Students seeking U/G credit will read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original languages, and will meet as a group an additional hour each week. Mr. Bensimon

M268. Mozart and the Literature of Opera. (Same as Humanities M118.) Prerequisites: Humanities 1A and 1B, English 1 and 2, or consent of instructor. (Reading knowledge of *either* German or Italian for graduates.) The course will concentrate on opera as a dramatic and poetic medium, by focusing on the literary texts and musical settings of five major Mozart operas. Major topics: theatrical use of mixed media; recitative and aria; staging of opera; Mozart's career as a dramatic composer; Da Ponte as librettist. This course is cross-listed with Humanities M118. Students seeking U/G credit will be allowed to read all works in translation. Students seeking graduate credit will participate in a special discussion section and will prepare all papers based on texts read in the original languages. The Staff

270. The Dream in English and German Romantic Literature. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 170). A study of the use of the dream as a standard narrative technique in English and German Romantic Literature. Mr. Burwick

271. Dramatic Theory and Criticism in German and English Romanticism. Prerequisite: A reading knowledge of German. This seminar examines the generic conception of drama in the critical essays of the Schlegels, Tieck, Jean Paul, Coleridge, De Quincey, and Hazlitt. It gives particular attention to the role of the actor and the idea of dramatic action as discussed by the critics. Mr. Burwick

272. The Grotesque in Romantic Literature. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 172). A study of the grotesque in the visual and verbal arts of the Romantic period: interpretation will address the aesthetics of tragic-comic interaction, the demonic vision, and the satirical sketches of man's abnormality and perversity. Graduate students will be required to prepare papers based on texts read in the original languages and will meet as a group an additional hour each week. Mr. Burwick

274. The Search for Organic Forms. Prerequisite: Reading knowledge of French or German. A seminar devoted to theories of the "organic" in the eighteenth and nineteenth centuries, with special emphasis on Rousseau and Goethe. A large part of the course will be given to studies of the transition made between theories of nature and theories of state. Mr. Maniquis

275. The Nineteenth Century Novel. Prerequisites: Ability to read either French or German. (This course may be concurrently scheduled with Humanities 175). A comparative study of the 19th century novel in England and on the continent. Novels will be selected so as to allow the seminar to concentrate on a particular tradition or critical problem. The Staff

276. Fiction and History. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 176). The course analyzes the use of historical events, situations, and characters in works of fiction that are not necessarily "historical novels." Texts and individual assignments range from nineteenth century authors such as Stendhal, Tolstoy, Verga, to Proust and contemporaries like Vidal, Grass, Garcia Marques. Use of fictional methods by historians may also be analyzed. Mr. Pasinetti

277. Sexual Stances in Modern Fiction. Prerequisites: Reading knowledge of one appropriate foreign language. (May be concurrently scheduled with Humanities 177). An examination of sexual stances employed in fiction, beginning with heterosexuality in Stendhal and continuing through hyper-masculinity in Hemingway, Mailer and Lawrence; aware femininity in Woolf and Murdock; and gayness in Gide, Forster and Isherwood, Graduate students will be required to prepare papers based on texts in the original language and will meet as a group an additional hour each week. The Staff

280. The Symbolist Tradition in Poetry. Prerequisites: Reading knowledge of either French or German. (May be concurrently scheduled with Humanities 180). A study of the symbolist tradition in English, French and German poetry. Graduate students will be required to prepare papers based on texts read in the original languages and will meet as a group an additional hour each week. Mr. Shideler

281. Poetry and Poetics of the Post-Symbolist Period. Prerequisites: Reading knowledge of either French or German. (May be concurrently scheduled with Humanities 181). A study of some of the dominant poetic trends and figures in American and European poetry in the first half of the 20th century including such Surrealists as G. Appollinaire and A. Breton, imagists, and major individual poets such as E. Pound, T.S. Eliot, Paul Valery, R.M. Rilke, Stefan George, and Wallace Stevens. Graduate students will be required to prepare papers based on texts read in the original languages and will meet as a group an additional hour each week. Mr. Shideler

290. The Distracted Scholar. Prerequisite: A reading knowledge of either French or German and graduate standing. A study of those scholars whose intellectual pursuits have led them into the unfamiliar attics and cellars of that mansion of

human imagination which lesser minds have called irrationality. Classical specimens of such great researchers have been presented in the works of Rabelais, Burton, Swift, Voltaire, Nabokov, and Borges. The Staff

291. The Post-Joycean Novel. Prerequisite: A reading knowledge of at least one appropriate foreign language. A study of the post-Joycean novel in several of its best-known representatives: Nabokov, Robbe-Grillet, Queneau (or Butor or Claude Mauriac), Gadda, Borges, and Beckett. Some knowledge of Joyce will be assumed. The Staff

292. The Psychological Novel. Prerequisite: Major in literature and reading knowledge of French. A comparative study of French and English novels which both precede and follow the development of psychoanalysis. Selected readings of Freud will be assigned in addition to the required fiction. Mr. Hutter

293. Neoclassicism in the 1920's. Prerequisite: Reading knowledge of either French or German. A study of neoclassicism in England, France, and Germany in the 1920's with emphasis on literary texts and reference to works of fine art, architecture and music. The Staff

297. The Mystery Novel. Prerequisites: Reading knowledge of French. (May be concurrently scheduled with Humanities 117). A study of mystery and detective fiction in England, France, and the United States. The origin, form and historical significance of mystery fiction will be developed through close readings of selected works. Graduate students will be required to participate in a special discussion section and to prepare papers based on texts read in the original languages. Mr. Hutter

596. Directed Individual Study. (½ to 2 courses) Graded S/U only. The Staff

596X. Directed Individual Study. (½ to 1 course) Preparation for Foreign Language Examination. Graded S/U only. The Staff

597. Preparation for the Doctoral Qualifying Examination. (½ to 2 courses) Graded S/U only. The Staff

599. Research on Dissertation. (½ to 2 courses) Restricted to those who have passed the qualifying examination for the doctor's degree. Graded S/U only. The Staff

COMPUTER SCIENCES

Studies related to computer science are possible in several academic departments. Detailed information is given in the announcements of the individual departments that are listed below.

Biomathematics

Course work in mathematical modeling, simulation and other computer techniques in the health sciences, including computer graphics. M.S. and Ph.D. degrees offered.

Engineering

Master of Science and Ph.D. degree programs with specialization in control systems, communication theory, computer applications, computer languages, and computer systems.

Library Service

Master of Library Science degree with specialization in Information Science (Documentation), including consideration of computer applications to information retrieval.

Linguistics

Course work in mathematical linguistics and computational linguistics.

Management

Master of Business Administration and Ph.D. degree programs with specialization in computers and information systems, management science, and production and operations management.

Mathematics

Please see Mathematics-Computer Science major under College of Letters and Sciences.

Psychology

Course work in mathematical psychology, factor analysis and multivariate analysis, and in computer techniques in the behavioral sciences.

Public Health

Master of Science and Ph.D. degree programs in Biostatistics with specializations in data processing and computer assisted statistical analysis.

COUNCIL ON EDUCATIONAL DEVELOPMENT

The Council on Educational Development (CED) was created by the Los Angeles Division of the Academic Senate in May of 1968. The Council's purpose is to promote academic enrichment and encourage educational diversity and innovation. In fulfilling these objectives, the Council works closely with departments, colleges, schools and research centers on the UCLA campus. The Council is uniquely situated to offer special courses and programs, since it possesses modest funding which can be used for faculty released time or the employment of outside lecturers and teaching personnel.

The Council seeks out and, upon approval, supports academic projects, programs and individual courses of scholarly excellence not otherwise available in the University, including courses of timely or topical importance. The Council can offer a course as many as three times, although in principle the Council seeks to encourage departments and schools to adopt appropriate courses into their regular curriculum.

For information about CED courses consult the Schedule of Classes and the Registration and other selected issues of the Daily Bruin. Further information may be obtained from the CED office, 3121 Murphy Hall, telephone: 55467.

DANCE

(Department Office, 205 Women's Gym)

Pia Gilbert, *Professor of Dance.*
Carol Scothorn, M.A., *Professor of Dance.*
Emma Lewis Thomas, Ph.D., *Professor of Dance.*
Alma M. Hawkins, Ed.D, *Emeritus Professor of Dance.*
Elsie Dunin, M.A., *Associate Professor of Dance.*
Marion Scott, *Associate Professor of Dance.*
Doris Siegel, *Associate Professor of Dance.*
Allegra Snyder, M.A., *Associate Professor of Dance. (Chairperson of the Department).*
Erma Alperson, Ph.D., *Assistant Professor of Dance.*
Kathe Copperman, M.A., *Assistant Professor of Dance.*

•

Charles Berliner, M.F.A., *Lecturer in Dance.*
Gloria Bowen, *Lecturer in Dance.*
Lynn Dally, M.A., *Lecturer in Dance.*
Gary Faltico, Ph.D., *Lecturer in Dance.*
Alfred Ladzekpo, B.A., *Lecturer in Dance.*
Susan Lovell, M.A., *Lecturer in Dance.*
Margalit Oved Marshall, *Lecturer in Dance.*
Barbara Mattingly, *Lecturer in Dance.*
Emilio Pulido-Huizar, B.A.C., *Lecturer in Dance.*
Mia Slavenska, *Lecturer in Dance.*
Judy Susilo, M.A., *Lecturer in Dance and Ethnic Arts.*
Suenobu Togi, *Lecturer in Dance.*
Martin Tracy, M.A., *Lecturer in Dance.*
Medha von Essen, M.S., *Lecturer in Dance.*
Melinda Williams, M.A., *Lecturer in Dance.*

The dance major offered in the College of Fine Arts leads to the Bachelor of Arts degree. For requirements, see College of Fine Arts.

Students who wish to confer with the department counselor regarding program planning and major requirements should see Wendy Urfrig in the department office Women's Gym 205.

Preparation for the Major

Dance 30A-30B, 35, 36A-36B-36C, 37A-37B-37C, 38A-38B, and 70A.

The Major

A total of 14 courses including courses 111A-111B, 150A-150B-150C, 151A-151B, 152A-152B, 153A-153B-153C, 154, 158A-158B; two courses (8 units) chosen from upper division dance electives.

Admission to the Major

Readiness for admission to the upper division major is determined by a screening and evaluation conducted during Spring Quarter of the sophomore year.

All entering transfer students are auditioned for placement in technique and choreography classes.

Admission to Graduate Status

In addition to meeting the requirements of the Graduate Division as stated in the announcement of the Graduate Division, the student must have an undergraduate major in dance or equivalent preparation with a minimum of upper division courses in the dance concentration. Students whose preparation is deficient, as determined by Graduate Admissions, will be required to make up such deficiencies in addition to the degree program. New students will be admitted for graduate study to the Department of Dance only once a year, at the beginning of Fall term. For more detailed information, write to the Chairman of the Department of Dance for a form which describes academic requirements and helps identify deficiencies.

Requirements for the Master's Degree

An audition for entering graduate dance majors if offered in the Winter Quarter of each year. The audition will look at the technical proficiency and creative potential of each applicant, which is expected to be equivalent to, or surpass the level of the UCLA undergraduate senior. Special attention is given to the creative aspects of dance the sense of form and forming. Because the Department recognizes the importance of diversity and specializations at the graduate level, each applicant will be evaluated according to his/her primary focus, i.e., performance-choreography, education, therapy and ethnology.

The Department hold two auditions: one on the east and west coast. The Department is cognizant of the possible hardships such as audition requirment poses. All applications will be considered; however, priority will be given to those candidates who audition.

Graduate students may follow the thesis plan or the comprehensive examination plan. The candidate's course of study will be planned under the guidance of the graduate adviser. Emphasis may be placed on choreography, dance therapy, dance ethnology, dance education or dance history and criticism.

Thesis Plan. A minimum of nine courses and a thesis. A major choreography is acceptable as partial completion of a thesis. The nine courses include 4 courses elected from the graduate courses in the dance department; 4 courses from either the dance department or outside the department selected from upper division and graduate courses, and; one course, Dance 202, Research Methods and Bibliography in Dance.

Comprehensive Examination Plan. A minimum of 10 courses as listed above, including an independent study project and a final comprehensive examination.

NOTE: For key to symbols, see page 74

Lower Division Courses

10A-10B-10C. Fundamentals of Creative Dance. (½ course each) For non-dance majors. Courses must be taken in sequence. Study of dance through varied experience in movement including historical and contemporary forms with emphasis on increasing ability to use movement creatively and to relate to dance the principles and elements of other arts. The Staff

11A-11B-11C. Creative Dance. (½ course each) Prerequisite: course 10C or consent of the instructor. For non-dance majors. A continuing study of dance with emphasis on movement principles and composition. The Staff

30AF-30AW-30AS. Fundamentals of Ballet. (½ course per year) Open only to Dance majors. This course is offered on an In Progress basis, which requires students to complete the full three quarter sequence, at the end of which time a grade is given for all quarters of work. Students are admitted in the Fall quarter only. Study of ballet techniques and principles including dance terminology. Ms. Bowen

30BF-30BW-30BS. Fundamentals of Ballet. (½ course per year) Open only to Dance majors. This course is offered on an In Progress basis, which requires students to complete the full three quarter sequence, at the end of which time a grade is given for all quarters of work. Study of ballet techniques and principles including dance terminology. Students are admitted in the Fall quarter only. Ms. Bowen

35. Music Analysis for Dance. (½ course) Study of the elements of music, music structures, and their relationship to dance, with emphasis on rhythmic analysis, dance accompaniment and teacher-accompanist roles. Mrs. Gilbert

36A-36B-36C. Fundamentals of Creative Dance. (½ course each) Open only to dance majors. Courses must be taken in sequence. Study of dance through varied experience in movement including historical and contemporary forms with emphasis on increasing ability to use movement creatively and to relate to dance the principles and elements of other arts. Ms. Williams

37A-37B-37C. Creative Dance. (½ course each) Prerequisite: course 36C. A continuing study of dance with emphasis on movement principles and choreography. Ms. Copperman

38A-38B. Dance Notation. (½ course each) Prerequisite: courses 35 and 36C. Study of Labanotation with experience in recording and interpreting dance scores with emphasis on reading skills. Mr. Tracy

46A-46B-46C. Fundamentals of Movement. (½ course each) Prerequisite: consent of instructor. Study of the fundamentals of movement with emphasis on experiencing body awareness, exploring movement potential, and structuring of dance forms. Consideration of cultural influences on expressive forms. Ms. Susilo

47A-47B-47C. Dance Forms. (½ course each) Prerequisite: course 46C. A continuing study of dance forms with consideration of social factors and environmental influences. Includes observation and analysis of movement and the development of basic skills in Labanotation. Mrs. Dunin

52. Introduction to Dance Theater. (½ course) Prerequisite: course 36A. Study of the interaction of the aesthetic components of dance theater. Mrs. Siegel

70A-70B. Introduction to Performance in Ethnic Dance. (½ course each) Study of basic movement in ethnic dance forms. Mrs. Dunin

71A-71Q. Performance Courses in Ethnic Dance. (½ course each) May not be repeated for credit. (A) Dance of Bali; (B) Dance of Africa; (E) Dance of India; (F) Dance of Israel; (G) Dance of Japan; (H) Dance of Java; (J) Dance of Mexico; (L) Dance of Scotland; (M) Dance of Spain; (P) Dance of Yugoslavia; (Q) Dance of Korea. The Staff

Upper Division Courses

111A-111B. Analysis of Human Movement. Prerequisites: course 37; 111A must be completed before enrollment in 111B. A study of the biological and physical principles of movement and the effects of movement upon the structure of and function of the human body. Mr. Tracy

111C. Analysis of Human Movement. Prerequisite: course 111A and 111B. In depth study of selected topics introduced in 111A and 111B. Mr. Tracy

112A-112F. Intermediate Modern Dance Technique. (½ course each) Prerequisite: course 150C or consent of instructor. Synthesis of previous dance experience, advanced technique, and individual and group choreography. Ms. Copperman, Ms. Dally

114A-114F. Advanced Contemporary Dance. (½ course each) Prerequisite: course 153C or consent of the instructor. Advanced technique in contemporary dance with emphasis on performing skills. The Staff

116. Improvisation in Dance. (½ course) Prerequisite: consent of instructor, course 37C. Practical study of the art of improvisation with emphasis on centering, spontaneity, and the generation of new movement materials and forms as soloist and within the group. Ms. Dally

127. Foundation of Dance Education. Prerequisite: course 150C or consent of instructor. Analysis of theoretical aspects of movement and choreography with special reference to teaching in junior colleges and higher education. Ms. Williams

128. Dance as Culture in Education. Prerequisite: course 70A or consent of instructor. Analysis of theoretical and practical aspects of ethnic dance forms with special reference to teaching in higher education. Mrs. Dunin

131A-131B-131C. Intermediate Ballet. (½ course each) Prerequisite: course 30B or consent of instructor. Open only to dance majors. Courses must be taken in sequence. Study of advanced techniques and principles of classical ballet including phrasing, combinations, and repertory works. Miss Slavenska

132A-132F. Advanced Ballet. (½ course each) Prerequisite: course 131C. Advanced technique in classical ballet with emphasis on performing skills. Miss Slavenska

140A-140B-140C. Dance Cultures of the World. A survey of dance in selected cultures, the role of dance in society; consideration of style, rhythmic structure, historical background and related folklore. Lectures illustrated with demonstrations, film, slides and recordings: (A) Africa (folk and tribal traditions); (B) Asia (art, tribal and folk traditions); (C) North American Indians (tribal and folk traditions). Mrs. Snyder (F,Sp), Ms. Susilo (W)

142. Dance in the Balkans. Prerequisite: course 71P. An introduction to the dance of the Balkans, factors influencing its development and social functions, consideration of relationship of dance to other art forms. Mrs. Dunin

143. Dance in India. Prerequisite: course 71E. An introduction to the dance of India, factors influencing its development and social functions, consideration of relationship of dance to other art forms. Ms. von Essen

144. Dance in Indonesia. Prerequisite: course 71A or 71H. An introduction to the dance of Indonesia, factors influencing its development and social functions, consideration of relationship of dance to other art forms. Ms. Susilo

145. Dance in Japan. Prerequisite: course 71G. An introduction to the dance of Japan, factors influencing its development and social functions, consideration of relationship of dance to other art forms. The Staff

146. Dance in Latin America. Prerequisite: course 71J. An introduction to the dance of Latin America, factors influencing its development and social functions, consideration of the relationship of dance to other art forms. Mr. Pulido-Huizar

150A-150B-150C. Advanced Dance. Prerequisite: course 37C. Choreography with emphasis on the use of composed music, the group composition, and the theatrical environment; synthesis of previous dance experience, theories and technique of outstanding dance artists; principles of human movement related to dance. Mrs. Scothorn

151A. History of Dance in Western Culture, Origins to 1600. Lecture, four hours. Trends in the evolution of dance in Western Civilization are studied from their origins in the Middle East through the European Renaissance period. Mrs. Thomas

151B. History of Dance in Western Culture, Early Baroque to the Present. Lecture, four hours. The evolvement of dance as an art form in historical context, with particular emphasis on the development of style in any given period. The shift from European court entertainment to American theatrical presentation is studied chronologically from the early 1600s on. Mrs. Thomas

152A. Lighting Design for Dance Theater. (½ course) Prerequisite: course 37C. Study of aesthetics, principles and technical elements of lighting for dance. Mrs. Siegel

152B. Costume and Scenic Design Concepts for Dance Theatre. (½ course) Lecture, two hours; laboratory, two hours. Prerequisite: course 37C. General study of costume history, selected historical styles and introductory drawing as a conceptual basis for visual awareness in theatrical dance design. Designer-choreographer relationships are explored. Mr. Berliner

152C. Advanced Studies in Dance Theater Lighting. (½ course) Prerequisites: course 152A. Analysis of diverse dance theater lighting problems at an advanced level and individual development of creative solutions. Mrs. Siegel

153A-153B-153C. Choreography and Repertory. (½ course each) Prerequisite: course 150C. Independent work in solo and group choreography. Exploration of various styles and forms. Performance in repertory works. Ms. Scott

154. Music as Dance Accompaniment. Prerequisite: course 35 or consent of the instructor. Piano and percussion improvisation for dance. Choreographer-composer relationships. History of music for the dance with emphasis on contemporary trends. Music for the dance performance. Mrs. Gilbert

155. Form and Structure in Choreography. Prerequisite: course 36C. A study of the craft of choreography as taught by selected artists including Louis Horst, Doris Humphrey and Helen Tamaris. Attention will be given to their concepts of form and structure as well as philosophic bases on which these approaches were formed. Ms. Scott

158A-158B. Philosophical Bases and Trends in Dance. (1, ½ course) Prerequisite: course 150C. Critical analysis of dance as a creative experience and the role of professional and educational dance in our society. Study of selected approaches to current development in dance. Mrs. Gilbert

159. Advanced Dance Notation. Prerequisite: courses 37C and 38A-38B. Intermediate and advanced Labanotation. Reconstruction and score preparation in ballet, modern, and ethnic dance. Mr. Tracy

160. Creative Dance for Children. Prerequisite: course 150C or consent of the instructor. Study of dance as an expressive medium for children with emphasis on concepts and principles. Ms. Williams

165A-165B-165C. Introduction to Movement Dynamics and Personality Growth. (½ course each) Prerequisite: course 150C or consent of instructor. Courses must be taken in sequence. Study of movement experience as a means of increasing awareness, spontaneity, and self-directed non-verbal response to inner and outer

stimuli. Emphasis on the dynamic (energy and spatial) aspects of movement with special attention to the felt-dimension associated with the experiencing. Mrs. Lovell

171A-171P. Performance Courses in Ethnic Dance. (½ course each) Each course may be repeated, with the consent of the instructor, for a maximum of four units. Prerequisite: corresponding course in 71A-71P series (i.e., 71A is prerequisite to 171A. 71B is prerequisite to 171B, etc.). (A) Dance of Bali; (B) Dance of Ghana; (E) Dance of India; (F) Dance of Israel; (G) Dance of Japan; (H) Dance of Java; (J) Dance of Mexico; (L) Dance of Scotland; (M) Dance of Spain; (P) Dance of Yugoslavia. The Staff

190A-190B-190C. Advanced Dance Performance. (½ course each) Prerequisite: consent of the instructor. The study of performance of major choreography. Mrs. Scothorn, Ms. Scott

197A-197B. Proseminar: Dance Perspectives. (½ course each) Prerequisite: upper division standing or consent of the instructor. Consideration of the aesthetic evolving from the work of the great artists of our time. The Staff

199. Special Studies in Dance. (½, 1, or 2 courses) Prerequisite: senior standing and consent of the instructor. The Staff

Graduate Courses

Not open to undergraduate students. See College of Fine Arts, Unit Requirements.

200. Dance Notation. (½ course) Prerequisite: course 159. Advanced study of dance notation. Mr. Tracy

202. Research Methods and Bibliography in Dance. Mr. Faltico, Mrs. Thomas

204A-204B-204C. Advanced Choreography. (½ course, 1 course, ½ course) Prerequisite: course 153C or the equivalent. Theoretical and creative aspects of advanced choreography. ay. Mrs. Scothorn, Ms. Scott

204D-204E-204F. Advanced Choreography. Prerequisites: courses 204A-204B-204C and consent of instructor. Theoretical aspects of advanced choreography for the student who has reached the level of self-initiation of substantial creative works. The course will focus on refinement, realistic self-evaluation as well as critical counsel by acknowledged choreographers. Mrs. Scothorn, Ms. Scott

206. Music for Dance. Prerequisite: course 154. Theory of the aesthetic and functional relationship of music to dance. Mrs. Gilbert

208. Principles of Dance Theater. Prerequisite: course 152A-152B. Principles which serve the presentation of dance. Mrs. Scothorn

210. Aesthetics of Dance. Prerequisite: course 158B. A critical analysis of aesthetic concepts related to dance. Mrs. Thomas

220. Dance in the 20th Century. Prerequisite: course 151A-151B. Concepts, styles and forms of dance in the 20th century. Mrs. Thomas

221. The History of Ballet. Prerequisite: courses 151A-151B. The development of ballet in its various stages: Renaissance, Baroque, Romantic Period; stylistic differences in Italy, France, Spain, and England; influence of the other arts and problems of ballet as an art form. Mrs. Thomas

223. Renaissance Dance. Prerequisite: course 151A-151B or consent of instructor. The evolution of the dance suite will be traced from its earliest records (Domenico da Piacenza, 1430) to codification in words of Arbeau, Caroso, Negri (1580-1610). Style will be studied through reconstruction of steps, costumes, music and presentational form. Mrs. Thomas

226A-226B-226C. Dance Expressions in Selected Cultures. Prerequisite: course 140 or consent of instructor. Dance as an aspect of culture and human behavior. A survey of writings on dance ethnology and literature from related disciplines particularly anthropology and the behavioral sciences as well as techniques for research. Mrs. Snyder

227A-227B. Advanced Studies in Dance Education. Prerequisite: consent of instructor and 227A is prerequisite for 227B. Concepts in the area of movement, creativity, and learning applied to the art of dance. Development of dance in higher education with consideration of the body of knowledge, curriculum development and administrative problems. Ms. Williams

251A-251B-251C. Dance in Rehabilitation. Prerequisite: consent of the instructor. Dance in the therapeutic setting. A year course including a study of related research and literature, theoretical foundations for movement therapy, and individual research projects. Ms. Alperson

252A-252B-252C. Seminar in Movement Therapy. Prerequisites: courses 251A-251B-251C and course 596R. Selected topics explored in depth; theoretical concepts related to clinical experience. Ms. Alperson

Professional Courses

327A-327B. Principles of Teaching Dance. (½ course each) Prerequisite: senior standing or consent of the instructor. A study of methods, curricular materials, and evaluation procedures as related to the teaching of dance in the secondary schools. Mrs. Dunin

495. Preparation for the Teaching of Dance in Higher Education. (½ course) Prerequisites: graduate standing and consent of instructor. Study of problems and methodologies in teaching Dance which includes seminars, workshops and apprentice teaching. May be repeated once for credit. Graded S/U. Ms. Williams

Individual Study and Research

596A. Directed Individual Study or Research. (½ to 2 courses)

596R. Directed Study or Research in a Hospital or Clinic. (½ to 2 courses) Ms. Lovell

597. Preparation for the Comprehensive Examination for the Master's Degree. (No Credit)

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses)

Related Courses in Other Departments

Anthropology 144. Aesthetic Anthropology.

Art 10A-10B. Drawing.

25. Sculpture.

30A. Introduction to Design and Technology.

50. Ancient Art.

51. Medieval Art.

52. Renaissance Art.

53. Baroque Art.

54. Modern Art.

55. Africa, Oceania and Native America.

56. Asia, Mid-East.

110A-110B-110C. European Art.

110D. Contemporary Art.

122. History of Style and Ornament.

161J. Video Imagery.

English 80. Major American Authors.

85. The American Novel.

90. Shakespeare.

100A. Introduction to Poetry.

100B. Introduction to Drama.

101C. Recent American Fiction.

112. Children's Literature.

133A-133B-133C. Creative Writing: Poetry.

134A-134B-134C. Creative Writing: Short Story.

135A-135B-135C. Creative Writing: Drama.

Humanities 1A-1B. World Literature.

Music 2A-2B-2C. Introduction to the Literature of Music.

132A-132B. Development of Jazz.

135A-135B-135C. History of the Opera.

140A-140B-140C. Musical Cultures of the World.

Theater Arts 5A-5B-5C. History of the Theater.

20. Acting Fundamentals.

101. Introduction to the Theater Arts.

102A-102B. Selected Topics in the History of the European Theater.

105. Main Currents in Theater.

118A-118B. Creative Dramatics.

122. Make-up for the Stage.

188. The Aesthetics of Visual Communication.

DENTISTRY (ORAL BIOLOGY)

(Department Office, 63-050 Health Sciences Center)

Thomas K. Barber, D.D.S., M.S., *Professor of Pediatric Dentistry and Pediatrics.*
George W. Bernard, D.D.S., Ph.D., *Professor of Oral Biology and Anatomy.*
Angelo A. Caputo, M.S., Ph.D., *Professor of Biomaterials Science.*
Fermin A. Carranza, Jr., D.D.S., Dr. Odont., *Professor of Periodontics.*
Spiro J. Chaconas, D.D.S., M.S., *Professor of Dentistry.*
Andrew D. Dixon, D.D.S., M.D.S., Ph.D., D.Sc., *Professor of Dentistry.*
Louis J. Goldberg, D.D.S., Ph.D., *Professor of Dentistry (Oral Biology) and Anatomy (Chairman, Oral Biology Section).*
E. Barrie Kenney, D.D.S., M.S., *Professor of Periodontics.*
Carol M. Newton, M.D., Ph.D., *Professor of Biomathematics.*
Bernard G. Sarnat, M.D., M.S., D.D.S., *Adjunct Professor of Oral Biology and Plastic Surgery.*
Max H. Schoen, D.D.S., M.P.H., Ph.D., *Professor of Public and Preventive Dentistry.*
G. Douglas Silva, F.D.S., M.R.C.S., *Professor of Oral Medicine and Medicine.*
Normal S. Simmons, D.M.D., Ph.D., *Professor of Oral Medicine and Research Biochemist.*
Reidar F. Sognnaes, Ph.D., D.M.D., *Professor of Oral Biology and Anatomy.*
Alfred Weinstock, D.D.S., Ph.D., *Professor of Periodontics and Anatomy.*
Robert B. Wolcott, D.D.S., M.S., *Professor of Restorative Dentistry.*
Fred Herzberg, D.D.S., M.S., *Emeritus Professor of Oral Biology and Research Anatomist.*
John Beumer, III, D.D.S., M.S., *Associate Professor of Restorative Dentistry.*
Colin K. Franker, Ph.D., *Associate Professor of Oral Biology.*
Douglas Junge, Ph.D., *Associate Professor of Oral Biology and Physiology.*
Michael G. Newman, D.D.S., *Associate Professor of Periodontics.*
George R. Riviere, D.D.S., M.S., Ph.D., *Associate Professor of Pediatric Dentistry and Oral Biology.*
William K. Solberg. D.D.S., M.S.D., *Associate Professor of Restorative Dentistry.*
Ray E. Stewart, III, D.M.D., M.S., *Associate Professor in Residence of Pediatric Dentistry and Pediatrics.*
Stuart C. White, D.D.S., Ph.D., *Associate Professor of Oral Radiology.*
Gerald C. Brundo, D.D.S., M.A., *Assistant Professor of Restorative Dentistry.*
Russell Christensen, D.D.S., M.S., *Assistant Professor of Oral Diagnosis.*
Glenn Clark, D.D.S., M.S., *Assistant Professor of Gnathology.*
Joseph P. Cooney, D.D.S., M.S., *Assistant Professor of Restorative Dentistry.*
Bruce Crispin, D.D.S., M.S., *Assistant Professor of Operative Dentistry.*
Donald F. Duperon, D.D.S., M.Sc., *Assistant Professor of Pediatric Dentistry and Pediatrics.*
Jay Gershen, D.D.S., Ph.D., *Assistant Professor of Pediatric Dentistry and Public Health.*
Wyatt R. Hume, B.D.S., B.Sc.Dent., Ph.D. *Assistant Professor of Oral Biology.*
Bruce D. McKelvy, D.D.S., M.S.D., *Assistant Professor of Oral Pathology.*
Marlin Walling, D.M.D., *Adjunct Assistant Professor of Orthodontics.*

NOTE: For key to symbols, see page 74

•

David Benson, D.D.S., M.S., *Associate Clinical Professor of Restorative Dentistry.*
Wil Faermark, D.D.S., M.S., *Lecturer in Oral Biology.*
Larry S. Luke, D.D.S., M.S., *Assistant Clinical Professor of Dentistry and Pediatrics.*
William A. Richter, D.M.D., M.S., *Clinical Professor of Restorative Dentistry.*
Robert P. Thye, D.M.D., M.S., *Clinical Professor of Restorative Dentistry.*

M.S. (Oral Biology)

The program focuses on the biology of the oral-facial area. An understanding of all systems is obtained through courses designed to explore in depth the morphology, physiology, biochemistry, immunology, microbiology and genetic aspects of the oral-facial complex. Research in any of these fields may be undertaken on problems related to oral biology. The principles of scientific research design and evaluation and the principles of course organization and student evaluation are stressed in order to prepare the student for a more effective career in teaching and research.

Admission to Graduate Status

An applicant for the M.S. degree (Oral Biology) is expected to hold an acceptable bachelor's degree in the biological and chemical sciences; or to hold a D.D.S. or D.M.D. degree from an accredited university. Minimum requirement for graduate status is a B scholarship average in the last two years of school prior to admission. Applicants with foreign degrees will be considered individually. The graduate record examination and/or evidence of English language proficiency may be required.

Concurrent D.D.S. and M.S. Programs

The summer between the freshman and sophomore years will be spent in a dental school laboratory involved in basic research in oral biology and studying principles and methods of dental research. In the sophomore year students will study advanced oral biology. The student's progress in the M.S. program from the beginning of the junior year will be dependent on individual abilities and desires.

Requirements for the M.S. Degree

Candidates for the Master of Science degree must meet the general requirements set by the Graduate Division for this degree, (see Requirements for Graduate Degrees). The required courses are Oral Biology 201A, 201B, 201C, 202, 495, Biomathematics 170A; completion of a satisfactory thesis and oral defense based on laboratory research is required.

Related courses from any department within the Health Sciences Center may be included in a student's program with the approval of the Major Advisor and the Assistant Dean for Research.

A dental student, who qualifies for admission to the Graduate Division, may be concurrently enrolled in the Master's Program of the School of Dentistry.

Graduate Courses

201A. Advanced Oral Biology. (¾ course) Two hours of lecture, one hour discussion per week in the fall and winter quarters. This course in oral biology includes the embryonic biology of specialized oral components, other aspects of orofacial prenatal physiology, predentulous biology of the neonate, deciduous dentition, mixed dentition and its relevant biology, adolescence and adulthood, senescence and the endentulous condition, and pathobiology of the oral cavity. To be graded on an In Progress basis.
Mr. Junge and the Staff

201B. Advanced Oral Biology. (¾ course) Two hours of lecture, one hour discussion. Prerequisite: course 201A. Continuation of 201A. To be graded on an In Progress basis. Mr. Junge and the Staff

201C. Advanced Oral Biology. (½ course) Prerequisite: course 201A and 201B. Continuation of 201A and 201B. To be graded on an In Progress basis.

202. Principles and Methods of Research. One hour lecture and three hours of lab per week. This course is designed to familiarize the student with the experimental method and its application to basic and applied research. It will include experimental method and design and interpretation of data. The student will be exposed to research instrumentation and the advantages and limitations of various investigative tools.
Mr. Goldberg and the Staff

203. Growth and Development. Four hours of lecture per week in the spring quarter. A course of lectures and laboratory instruction the the development and historlogical structure of the facial region and the oral and peri-oval organs and tissues.
Mr. Bernard and the Staff

206. Biology of the Neoplastic Cell. (¼ course) One hour seminar per week. Selected topics in oncology are surveyed to provide an acquaintance with current perspectives on the etiology of cancer. Recent research on tumorigenesis is evaluated with the view of possible applications to therapy and management of human neoplasms. Mr. Franker

210. Nervous System Control of Masticatory Muscles. (¼ course) One hour seminar per week. This seminar includes reflex control, motor cortex-pyramidal system, corpus striatum and vestibular system, cerebellum, and discussion of current theories of mastication and jaw position.
Mr. Goldberg

214. Biology of Bone. (¼ course) Prerequisite: consent of instructor. Embryology of bone tissue; bone as an organ; growth and development of specific bones; biochemistry and physiology of bone; remodelling of bone; crystallography of hydroxyapatite; pathological calcifications; pathology of bone; mechanisms and lineage of calcification; clinical correlations. Mr. Bernard

215. Genetics in Dentistry. (½ course) Two hours lecture per week. This course includes molecular and cytologic basis of inheritance, human cytogenetics, mendelian genetics and polygenic modes of inheritance, inborn errors of metabolism, genetic diseases affecting the oral facial area, and recent advances, i.e., amniocentesis, linkage, and cell hybridization. Mr. Stewart

216. Biological Electron Microscopy in Dental Research. (¼ course) Prerequisite: consent of instructor. A review of the application of electron microscopy to hard and soft tissues of the oral-facial region. Emphasis given to oral health problems. Course content adapted to special interests of the participants. Mr. Dixon

218A. Oral Pathology. (¾ course) Two hours of lecture per week. This course encompasses the embryology, cell biology, histopathology, histophysiology, and symptomatology of oral pathologic condition of local or systemic origin. The course consists of lectures, demonstrations (laboratory tests), and microscopy dealing with the developmental, inflammatory, neoplastic, metabolic, degenerative diseases and physical injuries and healing of wounds. The Staff

223. Oral Immunopathology. (¼ course) Prerequisites: consent of instructor. This seminar will evaluate the involvement of immunological phenomena in the pathogenesis of oral diseases such as dental caries, periodontal disease, oral ulceration, and hypersensitivity reactions. Aberrations of the immune system which affect the oral cavity will also be discussed. Mr. Riviere

M224A-224B. Structure and Chemistry of Connective Tissue. (½ course each) (Same as Anatomy M224A-224B.) Prerequisites: histology, biochemistry. This seminar course is designed for graduate students in dentistry or basic science. The objective of the course is to provide students with fundamental information on the fine structure and the chemical composition of bone, dentin, cementum, cartilage, cells of connective tissue in general, as well as enamel. Emphasis will be placed on the biosynthesis of collage, noncollagenous proteins and glycoproteins, and glycosaminoglycans (mucopolysaccharides). The possible roles of the cellular and non-cellular elements in the process of biological mineralization will also be discussed. Correlation of biological processes to periodontal pathology will be stressed when possible.
Mr. Weinstock

225. Gross Postnatal Craniofacial Growth and Development. (½ course) This seminar is designed primarily to develop a critical sense in the evaluation of the research literature and an appreciation of the dynamic complexity of postnatal craniofacial growth. At each session students will present reviews and critiques of original articles. This will be followed by group discussion. Specific aspects of the following general topics on growth of bone and bones will be considered in detail: Historical review; modes of growth; general and craniofacial (mandible, midface, cranium) growth; methods of assessing; factors affecting; and conflicting hypotheses. The student will be encouraged to pursue his particular interest.

226. Physiology of Nerve Cells. (¼ course) Covers basic mechanisms determining resting and action potentials in neurons, and mechanism of action of local anesthetics. Concepts of ionic channels common to a variety of membranes including secretory and osteogenic, will be illustrated with some numerical problems. Text: Junge (1976). *Nerve and Muscle Excitation.* Mr. Junge

227. Dental Embryology and Histology. (¼ course) The student will be able to describe and interpret important stages in the development of the orofacial apparatus and histological features of its component tissues. The student will be able to critique scientific literature relevant to the course content and will analyze the current state of our knowledge about selected features of the orofacial apparatus which are of significance to the clinical dental specialist. Mr. Dixon

228. Dental Therapeutics. (½ course) Lecture, two hours. A course of lecture/seminar sessions considering details of specific therapeutic agents sued by dentists. The compounds and prepation available within each lcass of agents will be described, their basic pharmacology reviewed, dosages and schedules of administration analyzed, and indications and contradictions for their use discussed. For each agent, possible adverse reactions and interactions with other drugs will be emphasized.
Mr. Hume

495. Communicating Scientific Information. (½ course) Two hours of lecture and laboratory per week. This course is designed to enhance the preparation of the student for university teaching and to provide an opportunity to study the problems and methodologies associated with instruction in professional schools. S/U grading only.
Mr. Gershen

596. Directed Individual Study or Research. (½ to 1 course) Graded S/U. The Staff

598. Thesis Research and Preparation. (½ to 1 course) Graded S/U. The Staff

EARTH AND SPACE SCIENCES

(Department Office: 3806 Geology)

[17]Orson L. Anderson, Ph.D., *Professor of Geophysics.*
[17]Arthur L. Boettcher, Ph.D., *Professor of Geochemistry and Geophysics.*
[17]Friedrich H. Busse, Ph.D., *Professor of Geophysical Fluid Dynamics.*
Donald Carlisle, Ph.D., *Professor of Geology and Mineral Resources.*
John M. Christie, Ph.D., *Professor of Geology.*
[17]Paul J. Coleman, Jr., Ph.D., *Professor of Geophysics and Space Physics.*
Wayne A. Dollase, Ph.D., *Professor of Geology.*
[17]W. Gary Ernst, Ph.D., *Professor of Geology and Geophysics (Chairman of the Department).*
Clarence A. Hall, Jr., Ph.D., *Professor of Geology.*
[17]Isaac R. Kaplan, Ph.D., *Professor of Geology and Geochemistry.*

[17]William M. Kaula, D.Sc., *Professor of Geophysics.*
[17]Margaret G. Kivelson, Ph.D., *Professor of Space Physics in Residence (Vice-Chairman of the Department).*
Helen Tappan Loeblich, Ph.D., *Professor of Paleontology and Geology.*
[17]Robert L. McPherron, Ph.D., *Professor of Space Physics and Geophysics.*
Clemens A. Nelson, Ph.D., *Professor of Geology.*
Gerhard Oertel, Dr.rer.nat., *Professor of Geology.*
John L. Rosenfeld, Ph.D., *Professor of Geology.*
[17]J. William Schopf, Ph.D., *Professor of Paleobiology.*
Gerald Schubert, Ph.D., *Professor of Geophysics and Planetary Physics.*
[17]Ronald L. Shreve, Ph.D., *Professor of Geology and Geophysics.*
[17]John T. Wasson, Ph.D., *Professor of Geochemistry and Chemistry.*
Kenneth D. Watson, Ph.D., *Professor of Geology.*
[17]Robert E. Holzer, Ph.D., *Emeritus Professor of Geophysics.*
Willis P. Popenoe, Ph.D., *Emeritus Professor of Geology.*
David D. Jackson, Ph.D., *Associate Professor of Geophysics.*
Hugh H. Kieffer, Ph.D., *Associate Professor of Planetary Physics.*
Susan W. Kieffer, Ph.D., *Associate Professor of Geological Physics.*
Walter E. Reed, Ph.D., *Associate Professor of Geology.*
George Peter Bird, Ph.D., *Assistant Professor of Geophysics and Geology.*
Donald J. DePaolo, Ph.D., *Assistant Professor of Geochemistry and Geology.*
David J. Stevenson, Ph.D., *Adjunct Assistant Professor of Planetary Physics.*

•

Mario E. Bauer, Ph.D., *Associate Professor of Chemistry.*
Kyle D. Bayes, Ph.D., *Professor of Chemistry.*
Bradford K. Johnson, Ph.D., *Lecturer in Geology.*
Robert E. Jones, B.S., *Lecturer in Geology.*
[17]George C. Kennedy, Ph.D., *Professor of Geochemistry and Geology.*
[17]Leon Knopoff, Ph.D., *Professor of Geophysics and Physics.*
[17]Willard F. Libby, Ph.D., *Emeritus Professor of Chemistry.*
Alfred R. Loeblich, Ph.D., *Adjunct Professor of Paleontology and Geology.*
Ajit K. Mal, Ph.D., *Professor of Engineering and Applied Science.*
Paul M. Merifield, Ph.D., *Lecturer in Engineering and Environmental Geology.*
Malcolm F. Nicol, Ph.D., *Professor of Chemistry.*
Everett C. Olson, Ph.D., *Professor of Zoology.*
LouElla R. Saul, M.S., *Senior Museum Scientist.*
Floyd F. Sabins, Jr., Ph.D., *Lecturer in Geology.*
Takeo Susuki, M.S., *Senior Museum Scientist.*
Peter P. Vaughn, Ph.D., *Professor of Zoology.*
Michio Yanai, D.Sc., *Professor of Atmospheric Dynamics.*

Undergraduate Study

The programs described below are designed to provide the student majoring in earth and space sciences with broad training in curricula leading to the Bachelor of Science degree in Geology or Geophysics. Students intending eventually to work toward a doctorate may want to attain reading proficiency in one or more appropriate foreign languages, required by many graduate schools.

Students majoring in the Department should confer with the appropriate Undergraduate Counselor at or before the beginning of each quarter. Sample undergraduate programs for the majors in Geology and in Geophysics are available in the advising office.

Bachelor of Science in Geology

Geology Specialty

Preparation for the Major. Earth and Space Sciences 1, 2, 9, 51A, 51B, 51C; Biology 2; Chemistry 11A, 11B, 11BL, 11C, 11CL; Mathematics 31A-31B-31C (or 3A-3B-3C, 31C); Physics 6A, 6B, 6C (or 8A, 8B and 8C).

The Major. Earth and Space Sciences 111A, 111B, 111C (or 169), 112, 115 (or 120B), 121A, 121B, M136A, 103 or 141; *four* additional courses from Earth and Space Sciences 103, 108, 114, 119, 122, 128A,B, 129A,B, M130, M131, 132, 133, M136B, 137, M139, 141, 144, 150, 160.

Engineering Geology Specialty

Preparation for the Major. Earth and Space Sciences 1, 51A,B,C; Biology 2; Chemistry 11A, 11B, 11BL, 11C, 11CL; Mathematics 31A,B,C (or 3A,B,C, 31C), 32A; Physics 8A,B,C.

The Major. Earth and Space Sciences 103 or 141, 111A, 111B, 111C (or 169), 112, 121A,B, M136A, M139; Engineering 108, 184A,B, 185A,B (½ course); *one* course from Earth and Space Sciences 137, 141, 150; Geography 102; Engineering 184D.

Paleobiology Specialty

Preparation for the Major. Earth and Space Sciences 1, 2, 51A,B,C; Biology 5, 6, 6L; Chemistry 11A, 11B, 11BL, 11C, 11CL, 21, 22; Mathematics 31A,B,C (or 3A,B,C, 31C).

The Major. Earth and Space Sciences 111A, 111B, 111C, 112, 115, (or 120B), 132, 141; *eight* courses from Chemistry 24; Public Health 163A-163B; Biology 100 (1½ courses), 101, 102, 103, 104, 105, 110, 111, 120, 122, 123; Earth and Space Sciences M117, M118, 119, 121A-121B, 133, 144.

Geochemistry Specialty

Preparation for the Major. Earth and Space Sciences 1, 51A,B,C; Biology 2; Chemistry 11A, 11B, 11BL, 11C 11CL 21; Mathematics 31A,B,C (or 3A,B,C, 31C), 32A, (recommended: Mathematics 32B,C); Physics 8A,B,C (Physics D recommended).

The Major. Earth and Space Sciences 111A-111B-111C (or 169), M130, M131; Chemistry 110A,B, 113, 114 (or Chemistry 22 and 24; or 184 or Earth and Space Sciences 132); *three* courses from Earth and Space Sciences 103, 112, 119, 121A,B, 128A,B; Chemistry 22; *two* Earth and Space Sciences or Chemistry courses on approval of the advisor.

Nonrenewable Natural Resources Specialty

Preparation for the Major. Earth and Space Sciences 1, 2, 51A,B,C; Biology 2; Chemistry 11A, 11B, 11BL, 11C, 11CL; Mathematics 31A,B,C (or 3A,B,C, 31C); Physics 6A,B,C (or 8A,B,C).

The Major. Earth and Space Sciences 111A,B,C, 112, 121A,B, 128A or 128B, 129A (½ course), 129B, M136A,B, 137, 169; *two* courses from Earth and Space Sciences 103, 128A or 128B, 138, M139, 140, 141, 150.

Bachelor of Science in Geophysics

Applied Geophysics Specialty

Preparation for the Major. Earth and Space Sciences 1, 51A,B,C; Chemistry 11A; Mathematics 31A,B,C, 32A,B,C; Physics 8A,B,C,D; Engineering 10.

The Major. Earth and Space Sciences 111A,B, 112, 122, M136A,B, 169; Physics 105A,B, 110A,B, 114; *three* courses from Earth and Space Sciences 101, 111C, 129A,B, M131, 137, 138, M139, M154, 205, 265; Mathematics 140A,B,C, 152A,B; Physics 112, 115A, 116, 131A,B; or other courses by approval of the advisor.

Geophysics and Space Physics Specialty

Preparation for the Major. Earth and Space Sciences 1, 9; Chemistry 11A, 11B, 11BL, 11C, 11CL; Mathematics 31A,B,C, 32A,B,C; Physics 8A,B,C,D.

The Major. Earth and Space Sciences M109A, 122, M154; Physics 105A,B, 110A,B, 112; Physics 131A or Mathematics 145A; *three* courses from Earth and Space Sciences 101, 119, 129B, M131, M136A,B, 150, 160, 205, 233; Atmospheric Sciences 153; one of Mathematics 140A,B, or C. *Three* science electives on approval of the advisor.

Students planning to do graduate work in specialized careers in earth science should aim to take, when possible, appropriate courses in departments outside the major in addition to those already specified. Suggested graduate programs for various fields of emphasis are available in the Student Affairs Office, Room 3683 and will provide guidelines in choosing upper division courses.

Qualified undergraduate students may, upon consent of their advisers and the instructor, take Earth & Space Sciences graduate courses numbered from 200 to 250.

Honors in Geology or Geophysics

The honors program in Geology or Geophysics is intended to provide exceptional students an opportunity for advanced research and study under the tutorial guidance of a member of the faculty. Requirements for admission to candidacy are the same as those required for admission to the Honors Program of the College of Letters and Science. Qualified students wishing to enter the program must submit a completed application form to the Departmental Honors Committee near the end of their junior year. Honors in Geology or Geophysics are awarded upon graduation to those students who have a cumulative GPA of 3.4, who have completed at least 20 graded courses in the University of California, and who have completed a minimum of two quarters (8 units) of course 199H leading to the preparation of a satisfactory honors thesis. Students demonstrating exceptional ability will be awarded Highest Honors.

Graduate Study

The Department of Earth and Space Sciences offers programs leading to the M.S. and Ph.D. degrees in Geochemistry, in Geology, and in Geophysics and Space Physics. The program in Geochemistry offers study in biogeochemistry, crystal chemistry, experimental petrology, isotopic studies of light elements, marine geochemistry, meteorite research, planetology, and lunar geochemistry. The program in Geology offers study in geochemistry, geological physics, geomorphology, glaciology, mineral deposits, mineralogy, organic geochemistry, paleobiology, petrology, sedimentology, stratigraphy, structural geology, tectonophysics, and other fields. The program in Geophysics and Space Physics offers study in geophysics (seismology, gravity, thermal regime, geomagnetism, tectonics), geophysical fluid dynamics (turbulence, rotating systems, stability, hydromagnetism), planetology (orbital dynamics, planetary interiors, surfaces, and atmospheres, solar-system origin), and space physics (magnetosphere, radiation belts, solar wind, magnetic fields, cosmic rays). Other comparable areas of study are also possible.

Admission to all three programs is based on the likelihood of success in the program as judged from the materials submitted with the application. The more important criteria considered are: (a) the appropriateness of the program to the applicant's stated objectives and background; (b) the applicant's academic record, especially in the relevant basic sciences; (c) the applicant's Graduate Record Examination scores in verbal, mathematical, and analytical ability and in the appropriate advanced test; (d) the applicant's statement of purpose, which should deal more with the intellectual goals and motivations than with occupational ones; (e) the three required letters of recommendation, which should be from people familiar with the applicant's intellectual and motivational qualifications for academic pursuits; and (f) Departmental load in the desired program and specified field.

Application forms and further information or assistance can be obtained by writing or telephoning the Graduate Advisor, Department of Earth and Space Sciences. Applications, transcripts, and all related materials except letters of recommendation should be sent to the Admissions Office, Graduate Division; letters of recommendation should be sent directly to the Graduate Advisor.

General University requirements. All programs are subject to the general University requirements governing graduate degrees, which are summarized in the announcement of the Graduate Division elsewhere in this Catalog and should be read in conjunction with the Departmental requirements.

Departmental requirements. These requirements are summarized in the following sections. Variances from them will be permitted only in exceptional cases, and require written recommendation by the student's faculty advisor and formal approval by the Graduate Student Affairs Committee, a faculty committee chaired by the Graduate Advisor.

NOTE: For key to symbols, see page 74

Departmental reviews. The Graduate Student Affairs Committee annually reviews the progress of each student (generally in late May or early June). These reviews become part of the student's Departmental record and are transmitted to students and their faculty advisors in writing. Students whose scholarship or progress are insufficient are subject to dismissal.

The normal minimum course load is 12 units per Quarter.

PROGRAM IN GEOCHEMISTRY

Admission. A bachelor's degree in chemistry, geology, physics, or related field is required. Applicants must have outstanding records in the basic sciences, physics, chemistry, and mathematics. Recent Graduate Record Examination aptitude and advanced test scores are required; the advanced test may be in any appropriate field of science.

Students planning to work toward the Ph.D. are not encouraged to obtain the M.S.

Advising. All entering students are required to take either the General Preliminary Examination given by the Department of Earth and Space Sciences or the Orientation Examination given by the Department of Chemistry. These examinations are given at the beginning of each Fall quarter (and also Winter and Spring Quarters as necessary). They are general in scope, are based on undergraduate courses only, and are used solely for guidance in setting up students' courses of study.

All students are assigned a three-member faculty advising committee, which is chosen by the Graduate Advisor in consultation with the student just prior to the first Quarter of enrollment. At the beginning of every Quarter each student's program must be reviewed and approved by his or her faculty advisor before submission for official approval by the Graduate Advisor.

Master of Science Degree

Course requirements. Each course of study is worked out individually by the advising committee in consultation with the student. All students are expected to attain, either through their previous training or through prescribed course work, a common mastery of the subject matter of courses 51A, 51B, 51C, M130, M131, 234B, and Chemistry 110A and 110B, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology (courses 111AG, 111BG, and 111CG strongly recommended). All students are required to register in 235A, 235B, or 235C each Quarter.

Research courses 596, 597, and 598 may be taken with the approval of the student's advising committee. They may be counted for up to 16 units of the required 36 units of course work for the degree and up to 12 units of the required 20 units of graduate-level courses.

Except for courses 597 and 598, courses graded on an S/U basis are not applicable toward the requirements.

Thesis plan. The advising committee normally serves as the Thesis Committee. The topic must be approved and the thesis accepted by the student's research director (who is ordinarily the chairman of the Thesis Committee) as well as by the Thesis Committee.

Comprehensive-examination plan. The examination is administered by the advising committee and is normally oral. Although the committee will take into account the fact that some students are better qualified in chemistry and others in geology, it is required that distinct competence in the one be matched by at least adequate performance in the other. In the event of failure a second try is allowed in most cases.

Doctor of Philosophy Degree

Course requirements. Each course of study is worked out individually by the advising committee in consultation with the student. All students are expected to attain, either through their previous training or through prescribed course work, a mastery of the material covered in courses 51A, 51B, 51C, M130, M131, 234B, and Chemistry 110A and 110B, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology (courses 111AG, 111BG, and 111CG strongly recommended). All students are required to register in 235A, 235B, or 235C each Quarter.

Written Qualifying Examination. This examination is normally taken toward the end of the second year of graduate study. It covers the field of geochemistry and related areas in geology and chemistry. It may include an oral part at the discretion of the advising committee. If failed, it can be repeated at the discretion of the advising committee.

Oral Qualifying Examination. After passing the Written Qualifying Examination the student must consult the advising committee and the Graduate Advisor regarding nomination of his or her doctoral committee.

The student is responsible for arranging the time and place of the examination, which should be as soon after the Written Qualifying Examination as possible. At least a week beforehand he or she must provide each member of the doctoral committee with a written prospectus of his or her proposed dissertation research. The subject matter covered in the examination includes, but is not limited to, the proposed research. Repetition of a failed examination is at the option of the doctoral committee.

Foreign language requirement. None.

Candidate in Philosophy degree. Not offered.

Final Oral Examination. Normally required.

PROGRAM IN GEOLOGY

Admission. A bachelor's degree in geology, biology, chemistry, physics, or other field is required. Applicants must have outstanding records in the relevant basic sciences and mathematics. Recent Graduate Record Examination aptitude test scores are required. Advanced test scores are optional, and may be in any appropriate subject.

Qualified students may proceed directly toward the Ph.D. degree without first obtaining an M.S. degree.

Advising. All entering students are required to take the General Preliminary Examination at the beginning of their first Quarter of enrollment. It is a six-hour written examination which covers normal undergraduate training in geology and allied basic sciences and mathematics. It is used solely for guidance, and may result in recommendations that specific courses be taken.

All students are assigned a three-member faculty advising committee, chaired by a faculty advisor, that is selected from the faculty in the appropriate fields of specialization by the Graduate Advisor in consultation with the student just prior to the first Quarter of enrollment. With the approval of the Graduate Advisor the advising committee may be reconstituted to fit developing interests or other circumstances. At the beginning of every Quarter each student's program must be reviewed and approved by his or her faculty advisor before submission for official approval by the Graduate Advisor.

Master of Science Degree

Course requirements. Each course of study is worked out individually by the advising committee in consultation with the student. It may include appropriate courses offered by other departments. Courses applied toward the 36-unit minimum requirement must be from the 100, 200, or 500 series in the physical or life sciences. Not more than 8 units may be from the 500 series. At least 24 units must be graduate level courses, of which at least 4 units must be a geology seminar (courses 251 through 260, 283) and no more than 4 units may be from the 500 series.

Except for courses 597 and 598, courses graded on an S/U basis are not applicable toward the requirements.

All students except those who have already passed course 111C are required to take either course 195G or the sequence 111AG-111BG-111CG in their first year of residence. A grade of U (Unsatisfactory) in 195G automatically requires taking 111BG and 111CG in the following two Quarters.

The advising committees may require additional courses in light of individual educational objectives and performance on the General Preliminary Examination.

Thesis plan. This plan is normally required for students not continuing to the doctorate. The Thesis Committee consists of the three-member advising committee, whose chairman is the supervisor of the thesis research. One member of the Committee commonly is from another department, although this is not a requirement. The thesis subject may be selected at once and the research undertaken concurrently with course work; in any event it should normally be selected within the first year of residence. The completed thesis must be approved by the Thesis Committee. If it is not, the Committee may on the basis of the student's academic performance recommend either termination of graduate study or further course work or research or both leading to submission of a revised thesis. Revision and resubmission is not normally permitted more than once.

Comprehensive-examination plan. This plan is recommended for those continuing to the Ph.D. The examination is administered by the student's three-member advising committee and one additional member who is appointed by the Graduate Advisor following consultation with the student. It consists of a 6-hour written part and a subsequent oral part. The written part covers the student's major field of study, whereas the oral part may be more general in scope. If the examination is failed, the committee may on the basis of the student's academic performance recommend either termination of graduate study or further course work followed by another examination. Reexamination is not normally permitted more than once.

Specialization in Nonrenewable Natural Resources. The objective of this program is to prepare students for professional careers in the geology of metallic, nonmetallic, and fossil energy resources. Because of the diverse backgrounds of students entering the specialization, individual courses of study will be arranged in consultation with the Committee for Graduate Study in Nonrenewable Natural Resources. Particularly relevant courses include 128A, 128B, 129A, 129B, M130, M131, 132, M136A, M136B, 137, 138, 140, 144, 150, 169, 227, 235A, 235B, 235C, 258, 268 and 283, as well as selected courses in Chemistry, Engineering, the Social Sciences, Law, and Management.

Doctor of Philosophy Degree

Course requirements. Each course of study is worked out individually by the advising committee in consultation with the student. It may include appropriate courses offered by other departments. No fixed number of courses is required, but the program must satisfy the minimum course requirements for the M.S. in Geology.

All students except those who have already passed course 111C are required to take either course 195G or the sequence 111AG-111BG-111CG in their first year of residence. A grade of U (Unsatisfactory) in 195G automatically requires taking 111BG and 111CG in the following two Quarters.

All students are required to take at least 4 units of geology seminars (courses 251 through 260, 283) each year.

Written Qualifying Examination. This examination must be taken before the end of the first year of the doctoral program if the student has a master's degree; otherwise it must be taken before the end of the second year of enrollment. It is administered by the advising committee augmented by a fourth member who is appointed by the Graduate Advisor in consultation with the student and serves as chairman of the examining committee. It is given in either a question-answer format or a proposal-proposition format, which the student may select.

The *question-answer format* consists of a two-part examination. The first part is written, takes 6 hours, and can cover any aspect of geology in which the student has had training, including general background, current emphases, and in-depth focus on the student's special field. The second part is oral, is taken no later than a week after the first part, and can cover subjects from the written part, the field of the proposed dissertation, and specifics of the proposed research, although it is not limited to these topics.

The *proposal-proposition format* consists of an oral examination based on three written independent research proposals or scientific propositions in any combination, which must be submitted to the examining committee at least 10 days before the examination. One of the proposals must specify the intended dissertation research. The examination is concerned with the originality and soundness of the proposals and propositions, the depth and breadth of thinking they display, their scientific significance, and the quality of their elucidation and defense, although it is not limited to these topics.

Oral Qualifying Examination. After passing the Written Qualifying Examination the student must consult the advising committee and the Graduate Advisor regarding nomination of his or her doctoral committee.

The student is responsible for arranging the time and place of the examination, which should be as soon after the Written Qualifying Examination as possible. At least a week beforehand he or she must provide each member of the doctoral committee with a written prospectus of his or her proposed dissertation research. The subject matter covered in the examination includes, but is not limited to, the proposed research. Repetition of a failed examination is at the option of the doctoral committee.

Foreign language requirement. Advising committees may require one or more foreign languages in special individual cases. The committee determines how the requirement is to be fulfilled.

Candidate in Philosophy degree. Offered.

Final Oral Examination. Normally required, but may be waived upon recommendation of the doctoral committee.

PROGRAM IN GEOPHYSICS AND SPACE PHYSICS

Admission. A bachelor's degree in a physical science, engineering, mathematics, or other field is required. Undergraduate work must include Junior or Senior level courses in mathematical methods, dynamics, electromagnetism, and thermodynamics. Recent Graduate Record Examination aptitude test scores are required. Advanced test scores are desirable, preferably in physics, although mathematics or geology are also acceptable.

Qualified students may proceed directly toward the Ph.D. degree, although most obtain the M.S. degree in the process.

Advising. All students are assigned a faculty advisor with research interests close to their own by the Graduate Advisor in consultation with the student just prior to the first Quarter of enrollment. At the beginning of every Quarter each student's program must be reviewed and approved by his or her faculty advisor before submission for official approval by the Graduate Advisor.

Master of Science Degree

Course requirements. Courses applied toward the 36-unit minimum requirement must include courses 200A, 200B, and 200C and at least 12 additional units of 200-series (graduate-level) courses, of which at least half must fall within a single field of concentration (geophysics, geophysical fluid dynamics, planetology, or space physics) selected by the student with the advice and approval of his or her faculty advisor and the remainder must contribute to his or her general competence in geophysics and space physics. Courses from the 500 series and courses graded on an S/U basis do not apply toward the minimum requirement.

Thesis plan. This plan is an optional alternative to the comprehensive-examination plan. At least two members of the Thesis Committee must be from the Department.

Comprehensive-examination plan. This plan is the one normally followed. The examination is the Comprehensive-Examination part of the Written Qualifying Examination taken by doctoral students, but the passing level for the master's degree is not so rigorous. It must be first attempted by the end of the fourth Quarter of enrollment. If failed, it must be retaken the next time it is given. Permission to take it a third time may be granted by the Graduate Advisor in extenuating circumstances.

Doctor of Philosophy Degree

Course requirements. No specific requirement.

Written Qualifying Examination. In this program this examination is divided into three stages, which must be passed in sequence: (1) the Fundamental Physics Examination, (2) the Comprehensive Examination, and (3) the Field Examination. Students not passing these examinations within 3 years, 2 years, and 4 years, respectively, after entering the Program are subject to dismissal.

(1) Fundamental Physics Examination. Students must take the final examinations in at least three of the following five categories of fundamental physics courses: (a) Physics 231A; (b) 201 or Physics 220A; (c) 202; (d) 203 or Physics 210A; and (e) Physics 215A. For the purpose of this requirement the examinations are graded on a 4.0 scale and passing requires an average grade of 3.4 or better in at least three of the categories. Students failing to attain a 3.4 in an examination may repeat it. Students who have attained a grade of A in a comparable course at another institution may petition for credit for passing the corresponding examination; such petitions should be submitted to the Graduate Advisor for consideration by the appropriate faculty. The Fundamental Physics Examinations must be passed before the Field Examination may be attempted.

(2) Comprehensive Examination. This is a 6-hour written examination on the level of the introductory courses 200A, 200B, and 200C and is given every December and June. It must be first attempted by the end of the fourth Quarter of enrollment. A grade of S is required to pass. If failed, it must be retaken the next time it is given. Permission to take it a third time may be granted by the Graduate Advisor in extenuating circumstances. It must be passed before the Field Examination may be attempted.

(3) Field Examination. This examination must be first attempted within a year of passing the Comprehensive Examination. It consists of a 3-hour written part (which may be waived by mutual agreement of both student and examining committee) followed by an oral part. It tests the student's general knowledge of his or her field of concentration (geophysics, geophysical fluid dynamics, planetology, or space physics) as defined by the student in a written statement to which he or she must obtain the examining committee's concurrence before arranging the examination. The examining committee consists of three or more faculty members, appointed by the Graduate Advisor in consultation with the student, of whom at least three must be from the Department and one must be from outside the student's field of concentration.

Oral Qualifying Examination. After passing the written qualifying examination the student must consult his or her faculty advisor and the Graduate Advisor regarding nomination of his or her doctoral committee.

The student is responsible for arranging the time and place of the examination, which should be as soon after the written qualifying examination as possible. The examination determines the suitability of the chosen problem for the Ph.D. dissertation and the capability of the student to pursue research on the problem, but it is not limited to these topics. Repetition of a failed examination is at the option of the doctoral committee. Students not passing this examination within 5 years after entering the Program are subject to dismissal.

Foreign language requirement. None.

Candidate in Philosophy degree. Not offered

Final Oral Examination. Required.

1. Fundamentals of Earth Science. Elements of earth science; study of earth materials; the nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology. The Staff (F,W,Sp)

2. Earth History. Prerequisite: course 1. Methods of historical science; consideration of special problems relating to the physical and biological evolution of the earth from earliest time to the present. Mrs. Loeblich (W)

3. Evolution: Solar System, Earth, Life. A nonmathematical course for the general university student. Origin and evolution of the solar system, emphasizing the planets Mercury, Venus, Earth, and Mars. Internal evolution of the earth and its geologic consequences (including oceans and atmosphere). Evolution of life; its interaction with the terrestrial environment. The Staff (F)

5. Earth Science and Society: Geological Ecological Interactions. Geologic aspects of major environmental problems with emphasis on lithosphere-biosphere interactions. Problems of exploration and exploitation of fossil fuel resources. Comparison of society-produced materials and natural cycles. Mr. Reed (Sp)

8. Earthquakes. The causes and effects of earthquakes, with special emphasis on the problems of living with earthquakes in Southern California. Topics include the relationship between earthquakes and local and regional geology, types of earthquakes, past and future earthquakes in California, earthquake engineering, disaster preparedness, and prospects for predicting or controlling earthquakes. Mr. Coleman (Sp)

9. Origin and Evolution of the Solar System. Properties of the sun, planets, asteroids and comets. Astronomical observations relevant to understanding the solar system and its origin. Dynamical problems, including examination of fallacious hypotheses. Meteoritic evidence regarding the earliest history of the solar system. Chemical models of the solar nebula. Space exploration and its planning. Mr. Wasson (W)

10. Geology of California. Prerequisite: course 1. General survey of major geologic features and geologic history of California; its relationship to large scale crustal motions of western North America and the eastern Pacific. Environmental geology; study of geologic hazards such as earthquakes, landslides; aspects of urban geology. Mr. Nelson (Sp)

15. Introduction to Oceanography. Not open for credit to students who have taken Biology 25. Processes responsible for the chemical composition of the ocean, and current circulation patterns. Sea floor spreading and morphology of the ocean floor. Biological productivity, marine ecology, and minerals forming in the ocean. The Staff (F,W,Sp)

20. Natural History of Southern California. Identification, distribution, diversity of plants, animals, and communities; environmental factors influencing distribution in alpine to lower desert life zones. Identification, interpretation, and physical history of rocks, landforms, and structural geologic features within the physiographic regions of southern California. Emphasis is on field based learning related to integrated aspects of natural history. Mr. Hall (Sp)

51A. Mineralogy-Petrology. Prerequisite: course 1, Chemistry 11C, 11CL or consent of instructor Mineralogic crystal chemistry; relation of physical properties to structure. Structural classification and petrogenesis of the main rock-forming minerals. Laboratory study of crystallography and identification of minerals in igneous, sedimentary and metamorphic rocks. Mr. Dollase (F)

NOTE: For key to symbols, see page 74

51B. Mineralogy-Petrology. Prerequisites: course 51A and an introductory course in high school or college physics or the consent of the instructor. Principles of optical crystallography. Utilization of optical properties to identify non-opaque minerals in immersion media and in thin section. Sufficient theory is presented to understand the operations performed in the laboratory. Mr. Dollase (W)

51C. Mineralogy-Petrology. Prerequisite: course 51B. Composition, occurrence, and origin of igneous, sedimentary, and metamorphic rocks; megascopic and microscopic study of rocks. Mr. Watson (Sp)

***[1]100. Principles of Earth Science.** Designed for non-majors. Fundamentals of physical geology and earth history; major problems of geology, such as continental drift and development of large scale features of the earth; physical and biological evolution. Not open to students who have taken Earth and Space Sciences 1. Mr. Oertel

101. Introduction to Geophysics and Space Physics. Prerequisites: Physics 8A-8B-8C, Mathematics 31A-31B-31C. A survey of geophysics, the physics of the planets, their atmospheres, and the interplanetary medium, with emphasis on topics of current research interest. The course is designed primarily for students majoring in a physical science or mathematics. Mr. Coleman (F)

103. Intermediate Petrology. Prerequisite: course 51C. Microscopic and megascopic study of selected suites of igneous; sedimentary, and metamorphic rocks; their composition, occurrence, and origin. Mr. Watson (F)

105. Earth Science and Society: Nonrenewable Resources and Geological Hazards. Prerequisite: course 1 or consent of instructor. An enquiry into the alternatives, opportunities and constraints imposed upon the activities and aspirations of mankind by geological processes and by the characteristics of earth materials. Topics include the nature of non-petroleum mineral resources, mineral and environmental depletions and conservation, the recognition of geological hazards and possible responses. Open to non-majors. Mr. Carlisle (Sp)

108. Geothermomechanics. Prerequisites: Mathematics 32C or consent of instructor. Quantitative studies of thermal and mechanical aspects of geological and geophysical phenomena. Basic concepts of heat transfer and mechanics of solids and fluids presented in a geological and geophysical context. Examples of problems discussed are: Stress, strain and temperature changes due to erosion and sediment deposition. Support of loads (volcanoes, seamounts, etc.) by tectonic plates. Plate bending at oceanic trenches. Cooling of oceanic plates. Thermal history of sedimentary basins. Cooling of dikes, lava flows, etc. Thermal convection in geothermal regions. Viscous flow in the asthenosphere. Glacial rebound of a viscous earth. Mr. Rosenfeld, Mr. Schubert (W)

M109A. Geophysical Fluid Dynamics. (Same as Atmospheric Sciences M109A.) Prerequisites: Mathematics 32C; Physics 8D. Together with Atmospheric Sciences 109B, an introduction to fluid dynamics as applied to geophysical problems. Kinematics. Equations of fluid motion. Irrotational flow. Circulation theorems. Vorticity and vortices. Acoustic and gravity waves. Viscous flow. Mr. Wurtele (F)

111A-111BG-111CG. Field Geology. (½ to 1 course each) Prerequisite: graduate standing or consent of instructor. Geologic mapping, principles of stratigraphy, structural Geology and map interpretation. The Staff

111A. Elements of Field Geology. Prerequisite: course 1 or consent of instructor; majors must have completed course 51C or be enrolled concurrently in course 51A; course 112 normally is taken concurrently. Techniques of geologic mapping; preparation of geologic reports; methods of mapping faults and folds, sedimentary, igneous, and metamorphic terrains, and Quaternary deposits; introduction to field methods in engineering and environmental geology, petroleum geology, and mining geology and mineral exploration; interpretation of geologic maps; field exercises in pace-and-compass topographic and geologic mapping. Mr. Shreve (F)

111B. Stratigraphic and Field Geology. Prerequisite: course 111A, or consent of instructor. Principles of stratigraphy; geologic mapping of a selected area; preparation of a geologic report. Mr. DePaolo, Mr. Hall (W)

111C. Field Geology. Prerequisite: course 111B, or consent of instructor. Interpretation of geologic maps and aerial photographs; plane table mapping; geologic mapping of a selected area; preparation of a geologic report. Mr. Boettcher, Mr. Oertel (Sp)

112. Structural Geology. Prerequisite: course 111A normally is taken concurrently, or consent of instructor. Planar and linear structures at different scales in sedimentary, metamorphic, and igneous rocks. Faults and folds, their description, classification, and dynamic analysis. Deformation, strength, fracture, and rheological properties of rocks. Mr. Christie (F)

114. Intermediate Structural Geology. Prerequisite: course 112 or consent of instructor. Large scale tectonics. The major structural features of the continental and oceanic crust of the earth; their geometry, geological and geophysical characteristics and theories as to their mode of origin. Orogenesis, continental drift, sea-floor spreading and plate tectonics. Methods of structural analysis and interpretation of geological structures. Mr. Oertel (W)

115. Principles of Paleontology. Principles governing the evolution and distribution of fossils; the geologic history of plants, invertebrates and vertebrates. The Staff (F,Sp)

M117. Vertebrate Paleontology. (Same as Biology M117.) Prerequisite: Biology 110. Recommended: a course in general geology. Limited enrollment. The fossil record of the evolution of the vertebrates, with emphasis on the morphology of primitive forms in the series from fish to mammal. Mr. Vaughn (W)

***[1]M118. Paleobotany.** (Same as Biology M118.) Prerequisite: one course in biological science or consent of instructor. Recommended: course 2 or equivalent. Survey of morphology, paleobiology, and evolution of vascular and non-vascular plants during geologic time, with particular emphasis on major evolutionary events. Mr. Schopf

***[1]119. Continential Drift and Sea Floor Spreading.** Prerequisite: senior standing in Earth and Space Sciences, Physics, or Mathematics. Evidence for continental drift and sea floor spreading from age-dating of marine sediments and continents and from seismic, magnetic and heat-flow data. Description of sea floor topography and sediments. Processes at mid-ocean rises and edges of plates. Description of events on the continental margins. Biological and biostratigraphic implications. Field work at option of instructors. Mr. Bird, Mr. Ernst

120A. Rubey Colloquium: Major Advances in Earth Science. Prerequisite: upper division standing. Lectures on major advances in earth science. Series of lectures to be offered by distinguished authorities (including regular faculty). Supervision of continuity and assessment of student performance by a faculty member. Series of lectures or short courses to cover topics such as continental drift or plate tectonics, nonrenewable natural resources, geologic hazards, geophysics, geochemistry, i.e., aspects of physical or chemical geology. Students should consult the Department prior to enrolling in order to ascertain course content. Content or subjects will vary from year to year. Mr. Carlisle, Mrs. Kivelson (W)

***[1]120B. Rubey Colloquium: Major Advances in Earth Science.** Prerequisite: upper division standing. Lectures on major advances in earth science. Series of lectures to be offered by distinguished authorities (including regular faculty). Supervision of continuity and assessment of student performance by a faculty member. Series of lectures or short courses to cover topics such as major events in the evolution of life, paleoecologic interpretation, paleobiologic aspects of continental drift, origin of life, etc., i.e., aspects of biogeology. Students should consult Department prior to enrolling in order to ascertain course content. Content or subjects to vary. Laboratory work may be required. When required, students also will register for Earth and Space Sciences 199 (Special Studies in Earth and Space Sciences), ½ course.

121A-121B. Advanced Field Geology. (1½ courses each) Prerequisites: courses 111A, 111B, 111C (169), or consent of instructor; to be taken concurrently. Problems in field geology; preparation of geologic maps and cross-sections; preparation of written geologic reports in the field and a final written summary geologic report of selected areas. The Staff (Sum)

122. Physics of the Earth. Prerequisite: Physics 8A-8B-8C, Mathematics 31A-31B-31C, or consent of instructor. Application of physics to the structure and evolution of the solid earth. Seismology, convection and heat flow, gravity, geomagnetism, rock magnetism, and the relation of these topics to plate tectonics and other problems of current geophysical interest. Mr. Anderson (Sp)

128A. Mineral Deposits. Prerequisite: course 51C. Origin and occurrence of important mineral deposits with emphasis on chalcophile elements and sulfide ores. (Alternates yearly with course 128B.) Mr. Carlisle (F)

***[1]128B. Mineral Deposits.** Prerequisite: course 51C. Origin and occurrence of important mineral deposits with emphasis on siderophile and lithophile elements and their minerals. (Alternates yearly with course 128A.) Mr. Carlisle

***[1]129A. Coal. (½ course)** Prerequisite: course 51C, 111A-B-C or 169 or consent of instructor. Coal resources and reserves of the major coal-bearing stages. Geological methods of estimating coal reserves, and cost of extraction. Theories of coal formation. New geophysical techniques for estimating reserves. Regional analysis of the issues in transporting energy from the coal deposits to urban centers of usage. Mr. Anderson

129B. Geothermics Heat flow on the surface of the earth. Origin and distribution of heat sources. Heat transfer in minerals and in the earth. The geothermal gradient, geobarometry and geothermometry. Geology and geochemistry of geothermal areas. Drilling for geothermal power. Mr. Bird (Sp)

M130. Isotope Geochemistry. (Same as Geophysics and Planetary Physics M130.) Prerequisites: junior or senior standing in physical or biological science and consent of instructor. Theoretical aspects of geochronology, particularly Carbon-14 dating. Applications of radioisotopes to the hydrologic cycle and to atmospheric circulation. Stable isotope distribution in nature. Exchange mechanisms and their applications to paleotemperatures, hydrology, mineral formation and origin of biological deposits. (Alternates yearly with Earth and Space Sciences and Geophysics and Planetary Physics M131.) Mr. Kaplan (W)

***[1]M131. Geochemistry.** (Same as Geophysics and Planetary Physics M131.) Prerequisite: junior or senior standing in chemistry, physics, or Earth and Space Sciences. Origin and abundance of the elements and their isotopes; distribution and chemistry of the elements in the earth, oceans, and atmosphere; chemistry of the earth's interior, phase transformations at high pressure and temperature. (Alternates yearly with Earth and Space Sciences and Geophysics and Planetary Physics M130.) Mr. DePaolo

***[1]132. Principles of Biogeochemistry.** Prerequisite: Chemistry 21. Organic substances as evidence for origin and biochemical evolution of life; origin and development of petroleum; comparative properties of recent and ancient sediments, and application of

molecular stratigraphy to modern and ancient sediments. The Staff

133. Regional Geology. Prerequisite: course 111ABC or 169 or consent of the instructor. Application of geologic, stratigraphic, paleontologic, biologic, and climatic principles to a specific province or provinces. Emphasis on tectonic evolution of selected regions. Mr. Nelson (W)

M136A. Geophysical Exploration. (Same as Geophysics and Planetary Physics M136A.) Prerequisite: Physics 6ABC, or 8ABC, Math 31C completed or consent of instructor. Principles and techniques of gravimetric, seismic, magnetic and other geophysical methods of exploration for ores, petroleum, and other economic minerals. Mr. Jackson (Sp)

M136B. Geophysical Exploration. (Same as Geophysics and Planetary Physics M136B.) Prerequisite: Physics 6ABC, or 8ABC, Math 31C completed or consent of instructor. Principles and techniques of exploration for mineral deposits using natural and artificial electric and magnetic fields. Methods covered include self potential, induced polarization, electric, tellurics, electromagnetic, magnetotellurics. Mr. McPherron (W)

137. Petroleum Geology. Prerequisite: course 111ABC or 169 or consent of instructor. Geology applied to exploration for and production of natural gas and petroleum; techniques of surface and subsurface geology; problems of petroleum geology. Mr. Johnson (Sp)

***1138. Mining and Exploration Geology.** Prerequisite: course 51C. Geological principles applied to the exploration for and evaluation of mineral deposits; geological techniques at operating mines; mine economics; exploration geology and mineral resource economics. Mr. Watson

M139. Engineering and Environmental Geology. (Same as Architecture and Urban Planning M195.) Prerequisite: course 1 or 100; 111A recommended. Principles and practice of soil mechanics and foundation engineering in light of geologic conditions, recognition, prediction and control or abatement of subsidence, landslides, earthquakes, and other geologic aspects of urban planning and subsurface disposal of liquids and solid wastes. Mr. Merifield (F)

***1140. Nonrenewable Resource Extraction.** Prerequisite: course 128A or 128B or 138 or consent of instructor. The elements of mining and recovery of nonpetroleum mineral resources; associated geological and economic considerations for the resource analyst and geologist. The Staff

141. Sedimentology. Prerequisite: course 111B taken concurrently or consent of instructor. Characteristics of sediment particles, dynamics of sedimentary processes and process-significance of sedimentary features. Interpretation of depositional environments is strongly emphasized. Mr. Reed (W)

144. Marine Geology. Prerequisite: senior standing. Recent marine sedimentology, and geochemistry; oceanography morphology, structure and geologic history of the ocean basins. The Staff (W)

***1145. Advanced Oceanography.** Prerequisite: course 15 or consent of instructor. Physical, chemical, geological, and biological environmental factors and their relationship to the distribution of marine organisms and community structure. Special emphasis will be placed on changes in the marine environment during the last 600 million years.

150. Remote Sensing for Earth Sciences. Prerequisite: open to upper division and graduate students. Remote sensing related to the development of natural resources. Characteristics of the electromagnetic spectrum and review of remote sensing devices. Applicability to land use classification, soil survey, urban studies, vegetation classification; emphasis on geologic interpretation of imagery. Mr. Sabins (W)

M154. Solar Terrestrial Physics. (Same as Atmospheric Sciences M154.) Prerequisite or concurrent: Physics 110B. Particle and electromagnetic emissions from the sun under quiet and under disturbed conditions. The solar wind. The magnetospheres and the ionospheres of the earth and other planets. Geomagnetic phenomena. Aurora and airglow. Mr. Venkateswaran (F)

***1160. Astrogeology.** Prerequisite: basic geology and calculus, or consent of instructor. Surface modification processes on the planets; meteorite impact and volcanism; field, laboratory and theoretical concepts of impact cratering and shock waves; volcanic landforms and processes; Lunar and Martian impact and volcanic features; field trip to Meteor Crater, Arizona. Mrs. Kieffer

169. Field Geophysics. Prerequisite: Geophysics and Planetary Physics and Earth and Space Sciences M136A (can be taken concurrently). Application of seismic, gravimetric, magnetic, and other geophysical methods to geologic and engineering problems. Practical aspects of geophysical exploration including planning, data collection, data reduction, and interpretation. Field work on unsolved problems. Mr. McPherron (Sp)

190. Earth and Space Sciences Seminar. (½ course) Prerequisite: junior or senior standing. Limited to undergraduate students. Current topics of geologic research. To be given on a pass/not pass basis. May be repeated more than once for credit. Mr. Rosenfeld (W)

195G. Field Geology for Graduate Students. (½ course) Field mapping; preparation of a geologic report. Graded P/NP. Mr. Nelson, Mr. Reed (F)

199. Special Studies in Earth and Space Sciences. (½ to 2 courses) Students may be allowed to take course more than once for credit. The Staff

199H. Honors Research in Earth and Space Sciences. Prerequisite: senior standing and permission of the departmental honors committee. Individual research designed to broaden and deepen the student's knowledge of some phase of earth and space sciences. The Staff

200A. Introduction to Geophysics and Space Physics 1: The Solid Earth and Planets. Prerequisite: Physics 105A, 110A, 112A, 131 or consent of instructor. Geochemistry, cosmochemistry, and petrology; geotectonics; gravity field; seismology; heat transfer, thermal and mechanical evolution of the mantle; the core and geomagnetism; lunar and planetary interiors. Mr. Jackson (F)

200B. Introduction to Geophysics and Space Physics 2: Oceans and Atmospheres. Prerequisite: Physics 105A, 110A, 112A, 131 or consent of instructor. Evolution, chemistry, and heat balance of oceans and atmospheres; molecular spectra, radiative transfer, and planetary observations; dynamics of oceans and atmospheres. Mr. Busse (W)

200C. Introduction to Geophysics and Space Physics 3: Plasmas: Aeronomy and the Interplanetary Medium. Prerequisite: Physics 105A, 110B, 112A, 131, or consent of instructor. Solar surface features, heating and expansion of corona, solar wind, plasma and magnetic fields, interaction of the solar wind with the earth, magnetospheric phenomena. Mrs. Kivelson (Sp)

201. Classical Mechanics. Kinematics, variational principles and Lagrange's equations, rotational dynamics. Hamilton equations of motion, linear and non-linear perturbation theory, applications to the solar system. Mr. Stevenson (W)

202. Continuum Mechanics. Kinematics and dynamics of continuous media. Properties of stress, strain and rate-of-strain tensors. Conservation laws. Rotating systems, boundary layers, and dynamical similarity. Mr. Kaula (F)

203. Electrodynamics. Prerequisite: upper division electromagnetic theory or consent of instructor. Maxwell's equations and boundary conditions; momentum, angular momentum and energy of electromagnetic fields; plane electromagnetic and magnetohydrodynamic waves; wave guides, simple radiating systems and diffraction. Mr. Coleman (W)

***1204. Advanced Remote Sensing.** Theory of surface scattering and thermal emission; useful spectral and photometric characteristics of natural materials; atmospheric and topographic effects; general instrumental transfer characteristics, noise and errors; visible, thermal and radar photometry and imagery; decalibration, data reduction and display techniques; digital image processing, enhancement algorithms; the limits of analysis. Mr. Kieffer

205. Inverse Theory and Data Interpretation. Prerequisites: Math 115, Math 150. This course addresses the inverse modelling problem: to determine model parameters consistent with experimental data, considering the effects of random errors and nonuniqueness. Linear and quasi-linear problems will be emphasized, but nonlinear problems will be discussed. Tools to be used include matrix theory, quadratic forms, orthogonal rotations, statistics, the principal axis transformation for rectangular matrices, Backus-Gilbert resolving kernels, and Lagrange multipliers. Examples will be taken from a broad range of physical sciences. Mr. Jackson (W)

210. Advanced Paleontology. Prerequisite: course 115 or advanced standing in biological science. Lectures will emphasize evolutionary, ecological, stratigraphic, and taxonomic aspects of fossil invertebrates. Field work and laboratory will be devoted to a research project and written report. Content will vary from year to year. May be repeated for credit. Mrs. Loeblich (Sp)

***1M211. Hydrodynamic Instabilities and Turbulence.** (Same as Mathematics M263.) An introduction to the theories of hydrodynamic instability and the non-statistical description of turbulence; stability bounds by the energy method; linear theory of instability; finite amplitude theories of post-instability flows; bounds on properties of turbulent flows by variational techniques. Mr. Busse

***1212. Paleoecology.** Prerequisite: course 115 or advanced standing in biological science. How and where animals and plants lived in the past; study of habits and habitats of animals, changes in habits and habitats, and the distribution of animals through time and space. Content will vary from year to year. May be repeated for credit. The Staff

214. Geophysical Fluid Dynamics. Prerequisite: consent of instructor. Dynamics of stationary and transient motions in rotating systems; Ekman boundary layer theory; inertial oscillations; B-plane approximation; Rossby waves; theory of thermally induced motions; applications to flow phenomena in planetary atmospheres, in the oceans, and in the earth's core. Mr. Busse (Sp)

***1215. Paleobiology of Plant Microorganisms.** Prerequisite: course 115 or advanced standing in biological science. Survey of morphology, evolution and diversification, environmental interactions, and stratigraphic value of bacteria, algae and fungi, with emphasis on dinoflagellates and acritarchs, chrysomonads, silicoflagellates, ebridians and diatoms, discoasters, and coccolithophorids. (Alternates yearly with course 216.) Mr. Loeblich

216. Micropaleontology. Prerequisite: course 115 or advanced standing in biological science. Survey of microfossils of the animal kingdom, their systematics, morphology, ecology, evolutionary history and stratigraphic use, with emphasis on foraminiferans, radiolarians, chitinozoans, tintinnids, ostracods, scolecodonts and conodonts. (Alternates yearly with course 215.) Mrs. Loeblich (W)

***1217. Magnetohydrodynamics.** The continuum theory of the interaction of conducting fluids and magnetic fields. Electrodynamics of moving media, boundary conditions, wave motion in bounded and unbounded media, energy flow, dynamo problem. Boundary layers and the effects of rotation. Geophysical and astrophysical applications. Mr. Busse

***1219. Planetary and Orbital Dynamics.** Solar system dynamical evolution; figure and gravitational field of a planet; satellite orbits; earth-moon system

NOTE: For key to symbols, see page 74

evolution; rotational dynamics, including effects of non-rigidity and energy dissipation. The Staff

*[1]**220. Principles of Paleobiology.** Prerequisites: graduate standing in science; qualified undergraduates in biological and physical sciences admitted with consent of instructor. Current and classic problems in paleobiology, with emphasis on interdisciplinary problems involving aspects of biology, geology, organic geochemistry and cosmology. Course content to vary from year to year. May be repeated for credit. Mr. Schopf

222. Introduction to Seismology. Types of seismic waves; travel-time seismology; epicenter location; amplitude variations; seismograph theory; explosion seismology; seismicity; focal conditions; surface wave analysis; microseisms and tsunamis. Mr. Knopoff (Sp)

*[1]**M224A. Elastic Wave Propagation I.** (Same as Engineering M257A.) Prerequisite: Engineering 158A or 159A or consent of instructor. Elastic wave equation and elementary solutions; wave motions in elastic half-spaces; reflection and refraction of elastic waves; surface waves; vibrations of rods and plates. Mr. Knopoff, Mr. Mal

*[1]**M224B. Elastic Wave Propagation II.** (Same as Engineering M257B.) Prerequisite: consent of instructor. Wave propagation in layered media; Green's function for various geometries; diffraction and scattering of elastic waves: attenuation; inversion problems. Mr. Knopoff, Mr. Mal

225A. Physics and Chemistry of Planetary Interiors 1. Chemical compositions of the earth and planets; high pressure and temperature effects, phase transitions, and equations of state; variations of density and temperature with depth; thermal and compositional evolution. Mr. Anderson, Mr. Boettcher (W)

225B. Physics and Chemistry of Planetary Interiors 2. Lateral inhomogeneities in the earth: seismic velocities, petrology, geothermal and gravitational variations; evidences of motion; remanent magnetism, seismic motions; post-glacial rebound; plate tectonics; rheology of mantle; thermal convection. Mr. Kaula (Sp)

226. Theoretical Geomorphology. Prerequisites: Mathematics 32C and one course in elementary probability theory, or consent of instructor; recommended, Geography 102. Analysis of the intellectual foundations and objectives of modern geomorphology, illuminated by selected past and present theories of river profiles, slope processes, and channel networks. Reading and discussion of original sources. Preparation of term paper. (Offered approximately every third year.) Mr. Shreve (Sp)

*[1]**227. Resource Evaluation Field Methods.** Prerequisite: course 111B and 128A or 128B or 138 or consent of instructor. Techniques of mapping, sampling, appropriate laboratory studies, economic or socio-economic evaluation of a variety of nonrenewable natural sources; preparation of reports. The Staff

228. Planetary Magnetism. Prerequisite: course 217 or consent of instructor. Description and analysis of the magnetic fields of the earth and planets. Origin and history of the earth's magnetic field: core dynamics, dynamo theory, paleomagnetism. Mr. Schubert (Sp)

*[1]**229. Planetary Surfaces and Atmospheres.** Prerequisite: course 200A-200B. Study of planetary observations toward determining the evolutionary history and current active processes. Surface and atmosphere heat balance; volatile budgets; condensate cycles and cloud formation; erosion mechanisms; diurnal, annual and secular variations. Current observations and theories will be critically discussed. Mr. Kieffer

*[1]**230. X-Ray Crystallography.** Prerequisite: course 51C. Point, translation, and space group symmetry, diffraction of x-ray reciprocal lattice theory, single crystal x-ray methods, diffraction symmetry and elementary crystal structure analysis. (Alternates yearly with course 231.) Mr. Dollase

*[1]**231. Crystal Chemistry and Structure of Minerals.** Prerequisite: course 51C. Bonding, interatomic configurations, polymorphic transformations, isotypism, thermal and positional disorder; survey of the structures of the common minerals, and relation of physical and chemical properties to crystal structure. (Alternates yearly with course 230.) Mr. Dollase

*[1]**232. Thermodynamics of Crystals.** Prerequisites: Physical Chemistry (including thermodynamics and some chemical quantum mechanics) and course 233; or consent of instructor. Application of fundamentals of methods for approximating lattice vibrational spectra. Calculation of thermodynamic functions of silicates. Interpretation of experimental data. Systematic variations in thermodynamic functions with crystal structure. Given alternate years. Mrs. Kieffer

233. Mineral Physics and Equation of State. Prerequisite: consent of instructor. Interrelationship of the physical properties of rock-forming minerals: optical reflectivity, refraction index, sound velocity, elastic constants, specific heat, and thermal expansivity. Determination of pressure, volume, and temperature relationships and planet-forming compounds. Variation of elastic constants with temperature and pressure. Application of shock-wave experiments to equations of state. Mr. Anderson (W)

*[1]**234A. Thermodynamic and Geometric Principles of Phase Equilibria.** Prerequisites: course 51C, Chemistry 110B, or consent of instructor. Thermodynamic bases of phase transformations and of phase rules. Geometric representation of multicomponent systems using pressure, temperature, chemical potential, molal volume, and the fugacity of oxygen, water, and other volatile components as variable parameters. Mr. Boettcher

234B. Petrologic Phase Equilibria. Prerequisites: course 51C; Chemistry 110B or consent of instructor. Principles governing homogeneous and heterogeneous equilibria, with selected applications to mineral stability relations in igneous and metamorphic rocks (fractional crystallization, partial melting, hydrothermal solutions, element partitioning in coexisting phases). Mr. Ernst (W)

235A-235B-235C. Current Research in Geochemistry. (¼ course each) Prerequisite: graduate standing in the Department of Earth and Space Sciences. Seminars presented by staff, outside speakers and graduate students stressing current research in earth and planetary chemistry. Grading on satisfactory/unsatisfactory basis. May be repeated for credit. The Staff (F,W,Sp)

*[1]**236A. Igneous Petrology.** Prerequisites: course 234A (may be taken concurrently) and a knowledge of differential equations. Solutions of the heat flow equation for specific examples of cooling magmatic bodies; the nature and origin of batholiths and associated rocks. (Alternates yearly with course 236B.) The Staff

236B. Igneous Petrology. Prerequisite: course 234A or consent of instructor. Occurrence and origin of mafic and ultramafic rocks. (Alternates yearly with course 236A.) Mr. Watson (W)

238. Metamorphic Petrology. Prerequisite: course 103 or consent of the instructor. Interpretation of metamorphic rocks in the light of observation, theory, and experiment. Geological relations, petrographic evidence, metamorphic zoning, thermodynamics of phase equilibria, projections, chemographic relationships, use of piezobirefringent haloes, Rayleigh depletion model, isotopic fractionation, environmental factors of metamorphism. Laboratory study of representative metamorphic rocks and suites of rocks selected to illustrate topics discussed in lectures. Mr. Rosenfeld (Sp)

*[1]**239. Structural Petrology of Deformed Rocks.** Prerequisites: course 51C, 111; 114 or 248 recommended, or consent of instructor. Use of universal stage. Microscopic study of textures, structures and preferred orientations of minerals in tectonites. Deformation mechanisms in crystals and aggregates. Theories of development of preferred orientation. Application of experimental data to the interpretation of microfabrics. (Alternates yearly with course 249.) Mr. Christie

240. Space Plasma Physics. Prerequisite: course 203 or Physics 210A. The physics of plasmas in space including treatments based on magnetohydrodynamics and kinetic theory. Applications to solar or planetary winds; steady-state magnetospheres; magnetospheric convection; substorm processes; magnetic merging; field-aligned currents and magnetosphere-ionosphere coupling; ring current dynamics; and wave particle instabilities. Mrs. Kivelson (F)

241. Sedimentary Petrology. Prerequisites: course 51C; recommended course 141. Texture, composition, structure, and modes of origin of the sedimentary rocks. Content varies from year to year. Mr. Reed (F)

*[1]**245A-245B. Stress and Deformation.** Prerequisites: Physics 8A, 8B, Mathematics 31C, 32A, 32B, or consent of instructor. Scalars, vectors, tensors; subscript notation; rotation and inversion of axes, transformation matrix; stress; finite homogeneous strain, rotation; infinitesimal strain, strain rate; Mohr's circle construction and other graphical methods; flow laws. (Offered every third year.) Mr. Oertel

246. Stress in the Lithosphere. Prerequisites: courses 202, or 245A or Engineering 108, or consent of the instructor. Overcoring, hydrofracture, fault plane solutions, seismic stress drops; effects of erosion, cooling, earth ellipticity, topography, and density anomalies. State of stress in plate boundaries and interiors. Applications of finite element and analytic methods to stress determination. Offered in alternate years. Mr. Bird (W)

*[1]**247. Glaciology.** Prerequisites: course 245A or similar course, or consent of instructor. Occurrence and classification of glaciers; accumulation and ablation; glacier budget; mechanical properties of ice; glacier flow; crevasses; textural and structural features; thermal relationships; bed slip; climatic response; catastrophic advances. (Offered every third year.) Mr. Shreve

248. Advanced Structural Geology. Prerequisites: course 111A, 111B, and 111C or 169. Principles governing fracture, folding, and flow of rocks; solution of structural problems at various scales; regional tectonic problems. Mr. Oertel (Sp)

*[1]**249. Structural Analysis of Deformed Rocks.** Prerequisites: courses 111ABC or 169; 114 or 248 recommended, or consent of instructor. Geometrical analysis of megascopic structures in terranes with complex or multiple deformations. Analysis of strain from deformed primary features. Interpretation of structural history in metamorphic terranes. (Alternates yearly with course 239.) Mr. Christie

*[1]**250. Dynamics of the Solar Wind.** Parker's hydrodynamic solution and spiral magnetic field model; effects of magnetic field and solar rotation; shock waves, discontinuities, small amplitude wave propagation, large scale structure; interaction with the moon, planets and interstellar medium, stellar winds and stellar spindown. Mr. Coleman

251. Seminar in Mineralogy. Examination of groups of rock-forming minerals (e.g., feldspars) integrating such aspects as crystal structure, crystal chemistry, phase equilibria, and petrogenesis. Mr. Dollase (Sp)

252. Seminar in Geochemistry. Phase equilibria under crustal conditions, chemistry of ocean waters, recent and ancient sediments, structure and chemistry of the upper mantle, geochronology, cosmochronology, and cosmochemistry. Mr. DePaolo (F)

253. Seminar in Petrology. Problems of igneous or metamorphic petrology: methods of evaluating physical conditions of metamorphism; diffusion in mineralogic systems; origin of ultramafic rocks and problems of the mantle; element fractionation

among coexisting phases; other current subjects in the field. To be graded S/U or Letter Grade. The Staff (F, Sp)

254. Seminar in Sedimentology. Processes of sediment transport and deposition; deep sea sediments; deltas and estuaries; petrology of carbonates, sandstones, and lutites; stratigraphy; paleoenvironmental studies. The Staff (F)

255. Seminar in Structural Geology and Tectonics. Flow and fracture in the earth's crust from microscopic to continental scale and in experiments. Examples may include metamorphic terranes, glaciers, plutons, volcanoes; and consolidated or unconsolidated sediments. Modern concepts of the oceanic basins; processes leading to segregation of continental-type rocks. Mr. Oertel (F)

***1256. Seminar in Glaciology and Geomorphology.** Glacier physics, theoretical geomorphology, river mechanics, statistical models. Mr. Shreve

257. Seminar in Paleontology. Current biogeologic literature and research on: evolution of selected groups of animals and plants, numerical taxonomy, organism-environmental relationships, origin and development of life, biostratigraphy, paleoecology, biogeography, and biostatistics. Mr. Loeblich (F)

258. Seminar in Mineral Deposits. Problems of distribution, composition, and formation of mineral deposits; mineral economics; investigations of opaque minerals by microscopic or other techniques. Mr. Carlisle, Mr. Watson (W)

***1259. Seminar in Advance Topics in Geology.** Topics to vary. May be repeated for credit. Mr. Schopf

***1260. Seminar in Geological Physics.** Problems of current interest in geological physics, including topics related to impact cratering processes, mechanisms of volcano eruption, high pressure properties of materials, and thermodynamics of crystals. Mrs. Kieffer

261. Topics in Magnetospheric Plasma Physics. Lectures, discussions and exercises on specific, advanced topics in magnetospheric plasma physics. Previous causes have examined magnetic storms, magnetospheric substorms, ultra-low frequency waves and adiabatic particle motion in the earth's radiation belts. The Staff (W)

***1265. Instrumentation, Data Processing, and Data Analysis in Space Physics.** Principles, testing and operations of magnetometers and other instruments. Data processing, display, and archiving. Time-series analysis techniques, including filtering. Fourier series, eigen-analysis, and power spectra. Mr. McPherron

***1M266. Cosmic Ray Physics.** (Same as Astronomy M266.) Cosmic ray composition, origin, acceleration, propagation, interactions with interstellar matter, magnetic field and radiation field, role in interstellar heating, non-thermal galactic radio and galactic x- and gamma-radiation, interaction in the earth's atmosphere.

268. Seminar in Resource Analysis. Prerequisite: consent of instructor. Geological, geophysical, economic and technological factors in studies of optimum use of mineral and energy resources. Seminars will emphasize different mineral or energy sources from time to time. Mr. Carlisle (W)

***1270. Energy Production and Environmental Tradeoffs.** Upper Colorado Basin coal and other energy resources of the southwestern states; interest groups involved in exploitation of these resources; impacts of exploitation of these resources on power, water, agriculture and environmental quality. A laboratory course concerning societal issues. Mr. Anderson

***1M282. Seminar in Geophysics.** (Same as Geophysics and Planetary Physics M282.) Prerequisite: consent of instructor. Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in earth physics. The content will vary from year to year. May be repeated for credit. The Staff

***1283. Seminar in Environmental Science and Engineering.** Problems of current interest concerning the interaction of man, technology, and the environment, such as: regional water and energy allocation; earthquake mechanism; geochemistry of pollution; environmental fluid dynamics; engineering geology; environmental geology. May be repeated for credit. The Staff

***1284. Seminar in Mineral Physics and Rock Physics. (½ to 1 course)** Prerequisite: courses 233 or 234A. Seminar for students interested in rock physics, mineral physics, and aspects of seismology and petrology. Registered students will present seminars in their research topics. The topics covered will be equations of state, acoustic properties of minerals under pressure, dielectric properties of minerals, properties of the earth's deep mantle and core, compression of porous aggregates, fracture dynamics, lattice dynamics of low symmetry crystals, laboratory analogs of earthquakes. Mr. Anderson

M285. Origin and Evolution of the Solar System. (Same as Astronomy M285.) Dynamical problems of the solar system; chemical evidences from geochemistry, meteorites, and the solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of the planets and satellite systems. Content will vary from year to year. May be repeated for credit. Graded S/U. Mr. Kaula (F)

286A-286B-286C. Seminar in Planetology. (½ course each) Problems of current interest concerning the moon, planets, and meteorites. To be graded S/U only. May be repeated for credit. The Staff (F,W,Sp)

287A-287B-287C. Seminar in Seismology and the Earth's Interior. (½ course each) Problems of current interest in seismology and the earth's interior. To be graded S/U only. May be repeated for credit. The Staff (F,W,Sp)

288A-288B-288C. Seminar in Space Physics. (½ course each) Problems of current interest concerning particles and field in space. To be graded S/U only. May be repeated for credit. The Staff (F,W,Sp)

289A-289B-289C. Seminar in Fluid Dynamics. (½ course each) Problems of current interest in fluid dynamics with emphasis on geophysical applications. To be graded S/U only. May be repeated for credit. The Staff (F,W,Sp)

290. Seminar in Time Series Analysis. (½ course) Discussion of recent research in spectral estimation, filtering, and signal detection applied to geophysical problems. To be graded S/U only. Mr. Jackson (Sp)

***1295. Earth and Space Sciences Colloquium. (¼ to ½ course)** Reading and discussion in the frontiers of earth and space sciences. The Staff

297. Advanced Techniques in Geological Research. (½ to 1 course) Graded S/U. The Staff (F,W,Sp)

298. Advanced Topics in Earth and Space Sciences. (½ to 2 course) The Staff

501. Cooperative Program. (½ to 2 courses) Prerequisites: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Study and/or Research. (½ to 3 courses) S/U or Letter Grade. The Staff

597. Preparation for Master's Comprehensive Examination or Doctoral Qualifying Examination. (½ to 2 courses) To be graded S/U. The Staff

598. Master's Research and Thesis Preparation. (½ to 3 courses) To be graded S/U. The Staff

599. Doctoral Research and Dissertation Preparation. (½ to 3 courses) To be graded S/U. The Staff

ECONOMICS

(Department Office, 2263 Bunche Hall)

Armen A. Alchian, Ph.D., *Professor of Economics.*
William R. Allen, Ph.D., *Professor of Economics.*
Robert W. Clower, *D. Litt. (OXON.) Professor of Economics.*
Michael R. Darby, Ph.D., *Professor of Economics.*
Harold Demsetz, Ph.D., *Professor of Economics.*
George W. Hilton, Ph.D., *Professor of Economics.*
Werner Z. Hirsch, Ph.D., *Professor of Economics.*
Jack Hirshleifer, Ph.D., *Professor of Economics.*
Michael D. Intriligator, Ph.D., *Professor of Economics.*
Benjamin Klein, Ph.D., *Professor of Economics.*
Edward E. Leamer, Ph.D., *Professor of Economics.*
Axel Leijonhufvud, Ph.D., *Professor of Economics.*
John J. McCall, Ph.D., *Professor of Economics.*
Harold M. Somers, Ph.D., LL.B., *Professor of Economics.*
Thomas Sowell, Ph.D., *Professor of Economics.*
Earl A. Thompson, Ph.D., *Professor of Economics.*
Finis R. Welch, Ph.D., *Professor of Economics.*
John F. Barron, Ph.D., *Emeritus Professor of Economics.*
Paul A. Dodd, Ph.D., LL.D., *Emeritus Professor of Economics.*
Earl J. Miller, Ph.D., LL.D., *Emeritus Professor of Economics.*
Dudley F. Pegrum, Ph.D., *Emeritus Professor of Economics.*
Yung-Ping Chen, Ph.D., *Associate Professor of Economics.*
Bryan C. Ellickson, Ph.D., *Associate Professor of Economics.*
Bruce Herrick, Ph.D., *Associate Professor of Economics.*
Cotton M. Lindsay, Ph.D., *Associate Professor of Economics.*
George G.S. Murphy, Ph.D., *Associate Professor of Economics.*
Joseph M. Ostroy, Ph.D., *Associate Professor of Economics.*
John G. Riley, Ph.D., *Associate Professor of Economics.*
Robert F. Cotterman, Ph.D., *Assistant Professor of Economics.*
Rodney L. Jacobs, Ph.D., *Assistant Professor of Economics.*
Robert Jones, Ph.D., *Assistant Professor of Economics.*

•

Joel M. Guttman, Ph.D., *Lecturer in Economics.*

Objective of the Major in Economics

The undergraduate program in economics is designed for students who wish to gain a thorough understanding of economic analysis. Emphasis is on economic principles applied to the resolution of interpersonal conflicts of interest and the coordination of productive activity in a world of scarce resources. Because students must gain a thorough theoretical and technical competence before extensive study of the applied specializations in the discipline, the analytic core of the major in economics is closely structured. Some courses are appropriate for non-majors, but the curriculum is most suitable for students who wish to make the study of economics their primary focus in their undergraduate education.

The undergraduate major in economics provides analytical training in reference to socioeconomic phenomena and develops the capacity for general problem solving, independent thought, and research. Moreover, the major provides an excellent theoretical background for those pursuing graduate education in law, management, public administration, journalism, social welfare, architecture and urban planning, and education, as well as economics.

Preparation for the Major

Required: Economics 1, 2, 40 (or Management 115 as a substitute for Economics 40); four lower or upper division courses in the social sciences other than economics, which may be taken pass/fail; and one course in calculus (e.g., Mathematics 3A, 4A, or 31A, which may be taken pass/fail.) The student should complete the calculus requirement before taking upper division economics courses. The honors sequence in theory (101AH, 101BH, and 102H) requires 2 courses in calculus. Upon petition, Economics 100 may be substituted for Economics 1 and 2 if the student is in upper division standing. Those who wish additional work in economics or in closely related fields while still in lower division standing may take Economics 10 and Management 1A and 1B.

The Major

Nine upper division courses in economics, which must include: Economics 101A, 101B, 102, and at least one course in each of three fields in economics chosen from the list below. It is preferable for the student to complete Economics 101A, 101B, and 102

NOTE: For key to symbols, see page 74

in separate, consecutive quarters prior to taking economics field courses. Economics 100 may not be included among the nine upper division courses. One or two of the nine courses may be chosen from the following courses in the Department of Management: 120 and 130. A 2.0 average is required in upper division economics courses, and also a 2.0 average is required in management courses applied toward the major. (A gradepoint deficiency in economics courses cannot be offset by gradepoints earned in management courses.) Upon consent of the instructor, students may take an upper division course for which they do not have prerequisites.

MAJOR IN ECONOMICS-SYSTEM SCIENCE

This major is an alternative to the regular departmental major in Economics, and combines work in the Department of System Science (School of Engineering and Applied Science) with preparation in economic theory and in those aspects of mathematics and statistics that are necessary for the study of quantitative aspects of economics and system theory. The major is appropriate for students who plan graduate study with emphasis on such areas as economic theory, mathematical economics, econometrics, feedback and control systems, optimization, computing techniques, and the modeling and analysis of various socio-economic systems.

Preparation for the Major. Economics 1 and 2; Engineering 10C; Mathematics 31A, 31B, 31C, 32A, 32B, 32C, 60.

The Major. Fourteen upper-division courses are required, consisting of six courses in Economics, six courses in System Science, and two courses in Mathematics. Selections must include: Economics 101A, 101B, 102, and one from Economics 144, 145, 146, 147; Engineering 128A, 129A, and one from Engineering 121C, 122A, 122B, 127B; Engineering 120A or Mathematics 150A or 152A; at least one from Engineering 120B, Engineering M120C/Mathematics M151, Mathematics 150B, 152B. System Science selections are made from courses numbered Engineering 120A, 120B, 120C, 121C, 122A, 122B, 124A, 127B, 128A, 128D, 128L, 129A, 172A.

For the purposes of the College breadth requirement, this major is considered to be in the division of Physical Sciences. Economics-System Science majors may not offer courses in Economics as breadth courses in the Social Sciences.

The major is administered by an interdepartmental committee of six faculty members, three from Economics and three from System Science.

For further information, please contact Committee Chairman M. Aoki of System Science, or Department Chairmen J.C. LaForce of Economics and J.W. Carlyle of System Science.

Fields for the Major

Economic Theory (courses 101A-101B, 102, 106, 107); *Economic Development* (courses 110, 111, 112); *Regional Economics* (courses 120, 121); *Public Finance* (courses 130, 131, 132, 133); *Statistics, Mathematical Economics, and Econometrics* (courses 141, 144, 145, 146, 147); *Labor Economics* (courses 150, 151, 152); *Money and Banking* (courses 160, 161); *Government and Industry* (courses 170, 171, 172, 175); *Economic Institutions* (courses 180, 181, 182, 183); *International Economics* (courses 190, 191, 192).

Undergraduate Advising

There is an undergraduate advising office located in 2253 Bunche Hall. The adviser is available for consultation on matters relating to curriculum and major requirements, course evaluations, special programs, and career planning.

The Graduate Program

The Economics Department offers a broad selection of graduate courses, all of which are designed primarily for the Ph.D. program. However they are also open to candidates for the M.A. degree.

All applicants for graduate study who satisfy the University requirements for admission must submit a full record of prior university experience, three letters of recommendation and their scores in the Graduate Record Examinations. Applicants who have studied in U.S. schools are required to take both the aptitude (verbal and quantitative) and advanced economics tests. Foreign applicants must take the former.

Selection of students is based on the above information. Identical criteria apply to candidates for either the M.A. or the Ph.D. degree.

Requirements for the M.A. Degree

Candidates for the degree of Master of Arts in Economics normally have completed the equivalent of an undergraduate major in economics. In addition to the general University requirements (see University Minimum Standards), the departmental requirements are nine upper division and graduate level courses in economics. These must include, if not taken previously, Economics 101A-101B, or 102 (or their equivalent) which must be taken (or retaken) with grade B or better; and Economics 107 (or its equivalent) passed with a grade of at least C. Graduate level courses in economic theory and the history of economic theory may, of course, be substituted for these undergraduate courses. At least five of the nine courses must be strictly graduate courses in economics.

For the purposes of the M.A. degree only, the two graduate theory sequences (Macrotheory and Microtheory) each count as two-thirds of a "field" and the sequence in Quantitative Methods one-third of a "field." Candidates for the M.A. are required to take the qualifying examinations in at least one and two-thirds "fields," so defined, and achieve a Satisfactory grade (S) in at least one examination and Conditional (C) grades otherwise. (A student achieving a B+ average in the Quantitative Methods Sequence automatically receives an S grade.) For example, a student might achieve an S in the Microtheory qualifying examination and a C in a qualifying examination for one of the doctoral fields other than Theory or Quantitative Methods. As another example, a student might take Microtheory, Macrotheory, and Quantitative Methods and achieve one S and two C's.

With the consent of the graduate adviser candidates may offer a maximum of two courses of acceptable upper division and/or graduate courses in other social sciences, history, management, mathematics, psychology, education, or philosophy in partial satisfaction of the requirements for the degree. This will not, however, relieve the student from taking five graduate courses in the Department of Economics.

Students are required to complete or have previously completed three courses in mathematics and statistics consisting of two courses in calculus and one in statistics. Economics 144 may be used as one of the "calculus" courses, and Economics 40 as the statistics course.

The Ph.D. Program

Students admitted to the graduate program are all potential candidates for the Ph.D. degree. During the first year it is customary to take the three-quarter Microtheory sequence (201ABC), the three-quarter Macrotheory sequence (202ABC), the three-quarter Quantitative Methods sequence (246ABC) and one additional course. Students with a strong background in calculus and with a sound knowledge of basic econometric methods are encouraged to take the Econometrics sequence in place of Quantitative Methods.

Either in the Spring of the first year or the Fall following the first-year courses, students take the Theory Comprehensive Examination. During their second year, students select three areas of study in preparation for three field qualifying examinations. Course work is completed in the third year, at which time students begin work on their dissertation research. It is usual to enroll also in one of the graduate workshops. The latter provide an opportunity for students to participate in discussions of current research by visiting professors, the faculty and, most importantly, their own classmates. All third year students are expected to choose some forum, either a workshop or class seminar, in which to present their preliminary research progress.

While a few students finish a dissertation by the end of the third year it is normal for the main development to be completed during the fourth year.

Written and oral qualifying examinations and other requirements.

All doctoral candidates are expected to take the Theory Comprehensive Examination following their first year in the graduate program. In addition, there is a Quantitative Method requirement which may be satisfied *either* by achieving a B+ average in 246B or 246C *or* passing the Quantitative Methods Waiver Examination (administered at the beginning of fall quarter) *or* achieving a B average in at least two quarters of the advanced econometrics sequence (247 248 249).

Doctoral candidates are also required to have taken at least a one quarter course in (a) either U.S. or European economic history (with grade B or better) and (b) history of economic theory (with grade C or better).

To gain admission to candidacy and to become eligible for the Candidate in Philosophy (C. Phil.) degree, graduate students shall pass further written and oral examinations. The written examinations will cover three fields in economics, beyond the theory and quantitative methods areas already mentioned. A student, upon petition, may substitute a "special field" for one of the three elective fields. That is, with the consent of the instructors and approval of the Chairman of the Graduate Committee, a student may combine three related courses (not necessarily in the department) into a field, e.g., Econ. 245A, 241A and 241B. Overall evaluation of the student's performance in the field is determined by the instructors, who will consider the three course grades and a related paper which must be completed not later than one year after beginning the sequence. The paper becomes a part of the student's official record. The written examinations are offered twice a year, near the beginning of the fall quarter and near the end of the spring quarter.

Written examinations are graded S (satisfactory pass), C (conditional pass), and U (unsatisfactory). A student is considered to have completed his theory and elective field written examinations when he has earned either four S grades or three S grades and one C. A student cannot be advanced to candidacy with more than one conditional grade on his/her record. Students may take no more than six exams in the following four fields: Theory and three electives.

An oral qualifying examination, administered by the Doctoral Committee which is approved by the Dean of the Graduate Division, will be scheduled only after the successful completion of all the written examinations and other basic requirements and on the submission of a written dissertation proposal. The oral examination will focus on, but not be limited to, the dissertation proposal.

Foreign language requirement. Ph.D. candidates must offer one foreign language or a substitute program in mathematics. If the language option is chosen, the student shall be required to show a proficiency in one language – French, German, Russian, or Spanish – by passing the ETS examination with a grade of 500 or better. If the mathematics substitute is chosen, a student must show proficiency in mathematics above that ordinarily required of Ph.D. candidates. Since elementary calculus is, as noted above, considered basic for all economists, the three required language-substitute courses must be at a level "above" first-year calculus. Courses in intermediate and advanced calculus, linear algebra, differential equations, and advanced probability and mathematical statistics courses fulfill the spirit of the requirement. Specifically, the courses in UCLA Mathematics Department numbered 32 and 110 or above fulfill the requirement.

Fields for Graduate Degrees

Economic Theory (courses 201A-201B-201C, 202A-202B-202C, M203A-203B-203C, 204A-204B, 207, 241A-241B); Economic Development (211, 212, 213); Regional Economics (221, 222); Public Finance (231, 232, 234); Mathematical Economics (243A-243B-243C, 245A-245B-245C); Statistics and Econometrics (244, 246A-246B-246C, 247, 248, 249); Labor Economics (251, 252, 253, 254A-254B-254C); Money and Banking (261, 262, 263A-263B-263C); Government, Industry and Natural Resources (271, 272, 273, 275, 276, 277A-277B-277C); Economic Institutions (281, 282, 283); International Economics (291, 292, 293).

Lower Division Courses

1. Principles of Economics. Lecture, three hours; discussion, one hour. Not open to students with credit for Economics 100. An introduction to the principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on allocation of resources and distribution of income through the price system. The Staff

2. Principles of Economics. Lecture, three hours; discussion, one hour. Not open to students with credit for Economics 100. An introduction to the principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on aggregative economics, including national income, monetary and fiscal policy, and international trade. The Staff

3. Lower Division Research Seminar in Micro Economics. Prerequisite: course 1. Class enrollment limited to ten freshman or sophomore students. Seminar in which students do an intensive research project under guidance of regular faculty. Student selects topic in consultation with instructor; subjects limited to materials covered in Economics 1. Student writes paper and presents to seminar. The Staff

4. Lower Division Research Seminar in Macro Economics. Prerequisite: course 2. Class enrollment limited to ten freshman or sophomore students. Seminar in which students do an intensive research project under guidance of regular faculty. Student selects topic in consultation with instructor; subjects limited to material covered in Economics 2. Student writes paper and presents to seminar. The Staff

10. Evolution of Economic Institutions in America. Not open to students with credit for course 183. The historical development of the present American economic system and its performance over time, especially as revealed by the Quantitative data of modern research. Mr. Murphy

40. Introduction to Statistical Methods. (Formerly numbered 140.) Not open to students with credit for Mathematics 50A,50B, 150A-150B-150C, 152A-152B, or Management 115. Elements of statistical analysis. Presentation and interpretation of data; descriptive statistics; theory of probability and basic sampling distributions; statistical inference, including principles of estimation and tests of hypotheses; introduction to regression and correlation. The Staff

Upper Division Courses

Courses 1 and 2 or 100 are prerequisite to all upper division courses in economics.

100. Economic Principles and Problems. Not open to students with credit for 1 or 2. Under special circumstances an economics major in upper division standing may be permitted to substitute 100 for 1 and 2 by petition. A one-quarter course presenting the principles of economics with applications to current economic problems. The Staff

101A. Micro Economic Theory. Prerequisite: one course in calculus or consent of instructor. The laws of demand, supply, returns, and costs; price and output determination in different market situations. Mr. Hirshleifer, Mr. Ostroy, Mr. Riley

101B. Micro Economic Theory. Prerequisite: course 101A. Theory of factor pricing and income distribution; general equilibrium; implications of the pricing process for the optimum allocation of resources; interest and capital.
Mr. Hirshleifer, Mr. Lindsay, Mr. Ostroy

102. Macro Economic Theory. Prerequisite: one course in calculus or consent of instructor. Theory of income, employment, and the price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy.
Mr. Clower, Mr. Darby, Mr. Jones

Honors Sequence

101AH-BH. Micro Economic Theory.

101AH. Prerequisites: two courses in calculus and completion of Economics 1 and 2 or 100 or consent of instructor. The laws of demand, supply, returns, and costs; price and output determination in different market situations. Enrollment by consent of instructor. The Staff

101BH. Prerequisites: course 101AH or consent of instructor. Theory of factor pricing and income distribution; general equilibrium implications of the pricing process for the optimum allocation of resources; interest and capital. Enrollment by consent of instructor. The Staff

102H. Macro Economic Theory. Prerequisites: courses 101AH and 101BH or consent of instructor. Theory of income, employment, and the price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy. The Staff

103. Upper Division Research Seminar: Applications of Economic Theory. Prerequisites: courses 101A-101B, 102. Consent of instructor. A limited enrollment seminar in which the student writes a research paper on a topic chosen in consultation with instructor. The Staff

106. Economic History of American Ethnic Groups. Prerequisite: course 101A. A critical analysis of variables affecting the income, occupations, and general economic progress of American ethnic groups. Such ethnic characters ad demographic profile, regional distribution, skill level, and time of arrival will be considered, together with such societal characteristics ad discrimination and public policy. Mr. Sowell

107. History of Economic Theory. A survey of economic analysis from Grecian antiquity to the early 20th century, concentrating on the 18th and 19th centuries; special attention to selected writers, including Aristotle, the Mercantilists, the Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, Marginalists, and Marshall.
Mr. Allen, Mr. Sowell

110. Economic Problems of Underdeveloped Countries. A survey of the major issues of development economics. Economic structure of low income countries and primary causes for their limited economic growth. Economic goals and policy alternatives open to their leaders. Possible roles of developed countries. Selected case studies.
Mr. Herrick

111. Theories of Economic Growth and Development. Growth models, theory of production under constraints, relative factor prices and their impact on choice of technology, investment criteria, role of the market, economic planning in less developed areas. Mr. Herrick

112. Policies for Economic Development. Prerequisite: course 111 or 102. Suggested strategies for economic development: inflation, balanced growth, industry vs. agriculture, import substitution, export oriented expansion, foreign aid, and others will be considered. Selected case studies. Mr. Herrick

120. Introduction to Urban and Regional Economics. Prerequisite: course 101A or consent of instructor. Economic analysis as applied to significant current regional and urban problems and policy. Mr. Ellickson, Mr. Hirsch

121. Urban Economic Analysis. Prerequisite: courses 120, 101A-101B, or consent of instructor. Demand and supply of urban public services; transportation and location decisions and urban human resources analysis.
Mr. Ellickson, Mr. Hirsch

130. Public Finance. Prerequisite: courses 101A and 101B or consent of instructor. Contrast between organization of economic activity by government and by the private sector. Analysis of alternative norms for governmental activity. Methods of assessing benefits of alternative public expenditure projects and burdens of alternative forms of taxations. The use of fiscal policy to achieve economic targets. Techniques of debt management and their interaction with monetary policy.
Mr. Chen, Mr. Lindsay

131. Nonproprietary Organization. Prerequisite: courses 101A, 101B, completion of math requirement for the major. Use of economic techniques to study behavior of nonproprietary institutions such as government, cooperatives, unions, nonprofit firms, etc. Attention paid to behavior within these organizations as well as aggregates characterizing actions of the organization itself. Models of political behavior, and effect of decision rules and agenda on political outcomes studied. Mr. Lindsay

132. Financing Social Security and Transfer Expenditures. In the context of the economic behavior of the household and the performance of the economy, this course is designed to study the theories, practices, and economic effects of, and the alternatives to, such programs as OASDHI, unemployment insurance, public assistance and others. Mr. Chen

133. State and Local Finance. Prerequisite: course 130. The division of functions and revenues between state and local governments; the revenues, expenditures, and indebtedness of these governments. Analyses of state and local tax systems.
Mr. Hirsch

M135. Economic Models of the Political Process. (Same as Political Science M103.) Prerequisites: Economics 101A and a basic course in Political Science and junior-senior status. This seminar is jointly offered by Economics and Political Science Departments, and permission of the instructor is required. The course examines conceptions and applications of two different processes of political interaction, the cooperative (as in public choice) and the conflictual (as in warfare) making use of economic models of choice and equilibrium.

141. Principles of Statistical Decision. Prerequisite: course 40 or equivalent. Errors of the first and second kind; economic loss functions; prior probabilities and Bayes' Theorem. Analysis of classical and Bayesian approaches. Application to inventory and production problems. The value of information, and implications for sampling design.
Mr. Ellickson, Mr. Hirshleifer, Mr. McCall

144. Introduction to Mathematical Methods in Economics. (Formerly numbered 145.) Prerequisite: courses 101A, 101B and two courses in calculus. An introduction to the use of calculus in economic analysis. Topics covered include partial differentiation, optimization, integration and differential and difference equations with applications to the theory of the household and the firm, capital theory and economic dynamics.
Mr. Ellickson, Mr. Intriligator, Mr. Riley

145. Topics in Mathematical Economics. Prerequisite: course 144 (formerly numbered 145). Detailed course description should be obtained from the instructor. Possible topics include: theory of economic growth; competitive equilibrium analysis; examination of market failure and the role for market intervention. The Staff

146. Linear Models in Economics. Prerequisite: a course in calculus. An introduction to matrices and matrix algebra, with applications to economics, specifically input-output, Markov chains and linear models of econometrics.
Mr. Ellickson, Mr. Intriligator, Mr. Riley

NOTE: For key to symbols, see page 74

147. Introduction to Econometrics. Prerequisite: two courses in calculus and one course in statistics. An introduction to and survey of econometrics, including model specification; data collection; estimation and hypothesis testing; and the use of econometric models for structural analysis, forecasting, and policy evaluation. An integral part of the course is an original econometric study.
Mr. Ellickson, Mr. Intriligator

150. Wage Theory. Prerequisite: courses 101A and 101B or consent of instructor. The supply and demand for labor. Analysis of government, union and other constraints on the competitive system of wage determination. Wage level and structure. Wages and human capital theory.
Mr. Cotterman, Mr. Herrick, Mr. Sowell

151. Labor, Wages and Income. Prerequisite: course 150 or consent of instructor. Selected topics in labor theory; income distribution; business cycles and unemployment; investments in human capital and life cycles; migration; human fertility; marriage and divorce, etc.
Mr. Cotterman, Mr. Herrick, Mr. Sowell

152. Economics of Trade Unions. Prerequisite: course 150 or consent of the instructor. Economic analysis of strikes, boycotts, lockouts, right to work, seniority, work-rules, pensions, fringe benefits. The evolution of trade unions and the legislative framework within which they operate are also considered. Mr. Herrick, Mr. Hilton

160. Money and Banking. Principles of money and banking in the United States; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy.
Mr. Darby, Mr. Jacobs, Mr. Jones

161. Monetary Theory. Prerequisite: course 160. The nature of money and monetary exchange; level and term structure of interest rates; level and growth rate of money; transmission of monetary shocks; theory and practice of monetary policy.
Mr. Darby, Mr. Jacobs, Mr. Jones

170. Industrial Organization: Structure and Control. Prerequisite: course 101A. Economic and institutional foundations of public regulation of industry; the measurement and control of competition, monopoly and collusion; economic examination of antitrust; determinants of market structure; empirical evidence of structure and performance of industries. Mr. Demsetz, Mr. Klein

171. Industrial Organization: Theory and Tactics. Prerequisite: course 101A. Study of pricing and output decisions of firms under conditions of less than perfect competition or monopoly; theories of oligopoly and monopolistic competition; information costs and advertising; examination of pricing practices such as price discrimination, tie-in selling, predatory pricing and resale price maintenance.
Mr. Demsetz, Mr. Klein

172. Economic Analysis of Laws and Legal Institutions. Prerequisite: course 101A. Application of economic theory to legal rule formulation: study of the economic nature and consequences of alternative legal arrangements with special reference to property rights. Application of economic theory to analysis of effects of laws relative to property, contracts, torts, crimes, taxation and constitutional issues. Analysis of the legal process.
Mr. Demsetz, Mr. Hirsch

175. Economics of Transportation. The economic characteristics of transport; the functions of the different agencies; pricing and resource allocation in transport; public regulation of transport; urban transport; the modern transport problem.
Mr. Hilton

180. Comparative Economic Systems. Prerequisite: course 101A. An analysis of capitalist and planned economies as exemplified by the United States, Soviet Union, Great Britain, etc. Alternative systems are compared with respect to the economic goals, theories of economic organization, institutions, and developmental processes. Problems of economic planning are emphasized. Mr. Murphy

181. Development of Economic Institutions in Western Europe. Prerequisite: upper division status. European economic history, 900-1914. Custom, command, and market modes of organization. Evolution of property rights, contract forms, and monetary arrangements. Decline of feudal institutions, especially serfdom. The open field village and enclosures. Crafts manufacturing and guild organization. Factories, industrial firms, and unions. Development of banking and central banking. The public finances and the role of government. Mr. Leijonhufvud

182. Economic Problems of the U.S.S.R. An introduction to the organization and policies of the economy of the U.S.S.R. Mr. Murphy

183. Development of Economic Institutions in the United States. Not open to students with credit for course 10. A study of the changing economic conditions in the U.S. from colonial times to the early 20th century and the effects of these changes on American society. Mr. Murphy

190. International Economics. Not open to students with credit for courses 191 or 192. A general introduction to international economics, based upon an examination of the theory of trade and the means and significance of balance of payments adjustments, with analysis of major issues of international commercial and monetary policy confronting national and international agencies.
Mr. Allen, Mr. Leamer

191. International Trade Theory. Prerequisite: course 101B. Not open to students with credit for course 190. The theory of international trade: the bases, direction, terms, volume, and gains of trade. The effects of tariffs, quantitative restrictions, and international integration. The effects of free and restricted trade on economic welfare and political stability. Mr. Leamer

192. International Finance. Prerequisite: course 102. Not open to students with credit for course 190. Emphasis on the interpretation of the balance of payments and the adjustment to national and international equilibria, through changes in price levels, exchange rates, and national income. Other topics include: making international payments, determination of exchange rates under various monetary standards, capital movements, exchange controls, and international monetary organization.
Mr. Allen

199. Special Studies in Economics. (½ to 1 course) Prerequisite: senior standing and consent of the instructor. A student may count this course only once in satisfying his major in economics; he may take it a second time to meet University graduation requirements.

Graduate Courses

200. Policy Applications of Economic Analysis. Prerequisites: graduate standing. Not open to students in the Department of Economics. Survey of the uses of economic theory in public policy applications. Reviews economic analysis in market and non-market systems of economic organization.
Mr. Herrick

201A. Theory of Consumption and Exchange.
Mr. Alchian, Mr. Hirshleifer

201B. Theory of Production and Distribution.
Mr. Alchian, Mr. Hirshleifer, Mr. Welch

201C. Theory of Interest and Capital.
Mr. Alchian, Mr. Hirshleifer

202A. Macroeconomics I (Macrostatics). The Keynesian income-expenditure approach. Expenditure functions. Money demand and supply functions. The IS-LM Model and its extensions. Large scale macroeconometric models.
Mr. Darby, Mr. Leijonhufvud

202B. Macroeconomics II (Macrodynamics). The neoclassical growth model. Money and growth. Adjustment dynamics. Rational expectations. Unemployment and inflation. They Keynesian-monetarist controversy. International macroeconomics. Stabilization policy.
Mr. Darby, Mr. Leijonhufvud

202C. Macroeconomics III (Disequilibrium approaches and critiques). Microfoundations. The Wicksellian theme. Keynes and the classics. Theory of effective demand failures. Critiques and critics of mainstream macroeconomics.
Mr. Darby, Mr. Leijonhufvud

M203A. Economics of Decision. (Same as Management M203A.) Prerequisites: courses 40, 101B, 102 and calculus. The Staff

M203B. Economics of Information. (Same as Management M203B.) Prerequisites: courses 40, 101B, 102 and calculus. The Staff

M203C. Economics of Organization. (Same as Management M203C.) Prerequisite: course M203A-203B. The Staff

204A-204B. Applications of Economic Theory.
The Staff

207. History of Economic Theory.
Mr. Allen, Mr. Sowell

211. Economic Growth: Measurement and Theory.
Mr. Herrick

212. Economic Development of Underdeveloped Areas: Theory and Policy. Mr. Herrick

213. Selected Problems of Underdeveloped Areas.
Mr. Herrick and the Staff

221. Urban and Regional Economic Analysis I.
Mr. Ellickson, Mr. Hirsch

222. Urban and Regional Economic Analysis II.
Mr. Ellickson, Mr. Hirsch

231. Public Finance.
Mr. Chen, Mr. Lindsay, Mr. Somers

232. Economics of Government Expenditures.
Mr. Chen, Mr. Lindsay, Mr. Somers

234. Economics of Federalism. Mr. Thompson

M240. Control and Coordination in Economics. (Same as System Science M222G.) (Formerly numbered Engineering M222G.) Prerequisite: graduate standing in Economics or Engineering, consent of instructor. Appropriate mathematics course recommended. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models, Bayesian approach to price and output rate adjustment.

241A-241B. Probabilistic Economics. Prerequisite: calculus and Introductory Probability. 241A will cover those concepts in probability theory and optimization that have been widely used in the economics of uncertainty. 241B will present a survey of the recent literature in probabilistic economics with special emphasis on information and the economics of search, optimal production under uncertainty and models of stock market behavior. Mr. McCall

243A-243B-243C. Workshop in Mathematical Economic Theory. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Paper required of students, who enroll with instructor's permission. S/U grading.
Mr. Intriligator, Mr. Ostroy, Mr. Riley

244. Mathematical Analysis in Economic Theory. Review of vectors, matrices and univariate calculus. Multivariate calculus, constrained optimization. Emphasis on learning to apply optimization techniques in economic analysis. Economic topics discussed include: Pareto-optimality, the Coase theorem, net and gross substitutes, peak load pricing, and an introduction to general equilibrium.
Mr. Riley

245A-245B-245C. Advanced Theory and Mathematical Economics. Prerequisites: course 201C or its equivalent elsewhere or consent of instructor. Selected advanced theoretical topics of current interest and an introduction to modern mathematical economics (including general equilibrium theory). Mr. Intriligator, Mr. Ostroy, Mr. Riley

246A. An Introduction to Probability, Statistical Inference, Matrix Algebra. (Formerly numbered 246A-246B-246C.) Discrete and continuous probability functions, moments, sampling theory, estimation, hypithesis testing, confidence intervals, multivariate normal distribution, matrix algebra. Mr. Ellickson

246B. Introduction to Theory of Econometrics. Least-squares regression, generalized least squares, serial correlation, errors-in-variables, simultaneous equations, multicollinearity. Mr. Intriligator, Mr. Leamer

246C. Applications of Econometrics. Selected econometric studies of consumption, investment, asset demand production functions, goods markets, factor markets, industrial organization, public finance, international trade. Course includes instruction on use of computer. Students are expected to write a research paper. Mr. Riley

247. Single Equation Econometrics. Linear regression, specification error, autocorrelation, non-normality, non-linear estimation, outliers, qualitative dependent variables, aggregation structural change. Mr. Leamer

248. Multiple Equation Econometrics. Multivariate regression, errors-in-variables, simultaneous equations, proxy variables (latest variables). Mr. Intriligator, Mr. Leamer

249. Special Topics in Econometrics. Mr. Intriligator, Mr. Leamer, Mr. McCall

251. Labor Economics I. Mr. Herrick, Mr. Welch

252. Labor Economics II. Mr. Herrick, Mr. Welch

253. Labor Problems. Mr. Herrick, Mr. Welch

254A-254B-254C. Studies in Human Resource Economics. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Paper required of students, who enroll only with instructor's permission. S/U grading. Mr. Welch

261. Monetary Economics I. Mr. Clower, Mr. Darby, Mr. Thompson

262. Monetary Economics II. Mr. Darby, Mr. Thompson

263A-263B-263C. Studies in Monetary Economics. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Paper required of students, who enroll only with instructor's permission. Mr. Clower, Mr. Darby, Mr. Thompson

271. Industrial Organization, Price Policies, and Regulation: Theory. Mr. Demsetz, Mr. Klein

272. Industrial Organization, Price Policies, and Regulation: Policy. Mr. Demsetz, Mr. Klein

273. Public Utility Regulation. Theory, practice and consequences of regulation in electric power, gas, water, telecommunications, broadcasting and other regulated industries; experience of unregulated monopoly and public enterprises by way of contrast. Mr. Hilton

275. National Transport Policy. Mr. Hilton

276. Urban Transportation. Mr. Hilton

277A-277B-277C. Workshop in Law and Economics. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Paper required of students, who enroll only with instructor's permission. S/U grading for economics majors; letter grading for law students enrolled in the Law-Economics concurrent MA-JD program. Mr. Demsetz, Mr. Klein

281. Evolution of Economic Institutions in Western Europe. Prerequisite: graduate status or consent of instructor. May be concurrently scheduled with Economics 181 lectures. Mr. Leijonhufvud

282. Soviet Economic Theory and Organization. Mr. Murphy

283. Evolution of Economic Institutions in the United States. Mr. Murphy

291. International Trade Theory. Mr. Leamer

292. International Finance. Mr. Allen

293. International Economics: Selected Topics. Mr. Allen, Mr. Leamer

299. Dissertation Research Seminar in Economics. Prerequisite: Advancement to doctoral candidacy. Discussion of research topics and results by dissertation writers and their supervisors. May be taken more than once for credit. The Staff

401. The Teaching of Economics 1. (½ course) Prerequisite: enrollment will generally be limited to teaching assistants handling one or more of the quiz sections in Economics 1. Approximately 20 hours divided between meetings of instructor with all section heads to discuss problems of exposition and structuring of course material, etc., and visits of instructor to the sections of each teaching assistant. S/U grading only. The 2 units of credit will not count towards degree requirements. Student may receive credit no more than twice for the course. The Staff

402. The Teaching of Economics 2. (½ course) Prerequisite: enrollment will generally be limited to teaching assistants handling one or more of the quiz sections in Economics 2. Approximately 20 hours divided between meetings of instructor with all section heads to discuss problems of exposition and structuring of course materials, etc. and visits of instructor to the sections of each teaching assistant. S/U grading only. The 2 units of credit will not count towards degree requirements. Student may receive credit no more than twice for the course. The Staff

Individual Study and Research

596. Individual Study. (½ to 2 courses) Directed individual study or research. The Staff

597. Individual Study: Graduate Examinations. (½ to 2 courses) Directed individual study in preparation for the M.A. comprehensive examination or the Ph.D. qualifying examination. The Staff

598. Individual Research: M.A. Thesis. (½ to 2 courses) Directed individual research in preparation of M.A. thesis. The Staff

599. Individual Research: Ph.D. Dissertation. (½ to 2 courses) Directed individual research in preparation of Ph.D. dissertation. The Staff

BUSINESS-ECONOMICS EDUCATION

Lawrence W. Erickson, Ed.D., *Professor of Education (Adviser for Major, 244 Moore Hall).*

Students wishing to prepare for teaching in the field of business-economics education should plan to complete the business-economics major shown below:

Business-Economics Major for Business Teachers

This major has been designed in accordance with the State law governing the Single Subject (Secondary) Teaching Credential with a Specialization in Secondary Teaching for business teachers. The program consists of a departmental major in economics and management.

Lower Division Requirements. (1) Mathematics: Mathematics 1A-1B (if less than three years of high school mathematics); (2) English and speech: English 3 (or proficiency examination in addition to Subject A examination) and Speech 1; (3) American History and Institutions; (4) Breadth Requirements: Satisfy breadth requirements of College of Letters and Science.

Preparation for Major. Economics 1, 2, Management 1A, 1B; one course in Calculus (e.g., Mathematics 4A, 3A, or 31A, which may be taken pass/fail).

Upper Division Requirements. (1) Economics 101A, 101B, 102, 160; three courses from Economics 107, 130, 150, 170, 180, 190; (2) Management 108, 109, 113A, 115A or Economics 40; Management 120, 130; three courses from Management 113B, 122, 135, 160, 180 or 281B, 190.

Graduate Division

Students in business-economics education may earn the following graduate degrees; Master of Business Administration or Doctor of Philosophy in the School of Management; Master of Education, Master of Arts, Doctor of Education or Doctor of Philosophy in the Graduate School of Education. For further information see the *Announcement of the Graduate School of Management*, the *Announcement of the Graduate School of Education*, and the announcement of the Graduate Division, *Graduate Study at UCLA*.

Requirements for Teaching Credentials

Students may earn credentials for teaching business, economics, and other subjects in California elementary and secondary schools. Consult with the Graduate School of Education (201 Moore Hall) for information.

Upper Division Course

199. Special Studies. (¼ to 1 course) Prerequisites: senior standing and consent of the instructor. The Staff

Professional Course

410. Case Studies in Office Management. Mr. Erickson

Individual Study and Research

596. Independent Study in Business Education. (½ to 1 course) The Staff

Related Courses in Other Departments

Education

337A. The Curriculum in Business Education. Mr. Erickson

337B. The Teaching of Secretarial Subjects. Mr. Erickson

337C. The Teaching of Bookkeeping, General Business, and Economics. Mr. Erickson

EDUCATION

(Department Office, 244 Moore Hall)

Marvin C. Alkin, Ed.D., *Professor of Education.*
Alexander W. Astin, Ph.D., *Professor of Education.*
Helen S. Astin, Ph.D., *Professor of Education.*
Eva L. Baker, Ed.D., *Professor of Education.*
James E. Bruno, Ph.D., *Professor of Education.*
Arthur M. Cohen, Ph.D., *Professor of Education.*
Sol Cohen, Ph.D., *Professor of Education.*
Charlotte A. Crabtree, Ph.D., *Professor of Education and Associate Director of the University Elementary School (Vice Chairman of the Department).*
Lawrence W. Erickson, Ed.D., *Professor of Education.*
Norma J. Feshbach, Ph.D., *Professor of Education.*
Clarence Fielstra, Ph.D., *Professor of Education.*
John I. Goodlad, Ph.D., L.H.D., LL.D., *Professor of Education and Director of the University Elementary School.*
C. Wayne Gordon, Ph.D., *Professor of Education and Sociology (Chairman of the Department).*
Frank M. Hewett, Ph.D., *Professor of Education and Psychiatry.*
Evan R. Keislar, Ph.D., *Professor of Education and Head of Supervised Teaching.*
Barbara K. Keogh, Ph.D., *Professor of Education.*
Frederick C. Kintzer, Ed.D., *Professor of Education.*
John D. McNeil, Ed.D., *Professor of Education.*
C. Robert Pace, Ph.D., *Professor of Education.*
W. James Popham, Ed.D., *Professor of Education.*
Harry F. Silberman, Ed.D., *Professor of Education.*
Rodney W. Skager, Ph.D., *Professor of Education.*
A. Garth Sorenson, Ph.D., *Professor of Education.*
Louise L. Tyler, Ph.D., *Professor of Education.*
Carl Weinberg, Ed.D., *Professor of Education.*
Charles Z. Wilson, Ph.D., *Professor of Education.*
Merlin C. Wittrock, Ph.D., *Professor of Education.*
Melvin L. Barlow, Ed.D., *Emeritus Professor of Education.*

NOTE: For key to symbols, see page 74

Jesse A. Bond, Ed.D., *Emeritus Professor of Education.*
William S. Briscoe, Ed.D., *Emeritus Professor of Education.*
Watson Dickerman, Ph.D., *Emeritus Professor of Education.*
Wilbur H. Dutton, Ed.D., *Emeritus Professor of Education.*
Claude W. Fawcett, Ph.D., *Emeritus Professor of Education.*
John A. Hockett, Ph.D., *Emeritus Professor of Education.*
David F. Jackey, Ph.D., *Emeritus Professor of Education.*
B. Lamar Johnson, Ph.D., *Emeritus Professor of Education.*
Wendell P. Jones, Ph.D., *Emeritus Professor of Education.*
George F. Kneller, Ph.D., Litt.D., LL.D., D.Sc., *Emeritus Professor of Education.*
Dorothy M. Leahy, Ed.D., *Emeritus Professor of Education.*
Erick L. Lindman, Ph.D., *Emeritus Professor of Education.*
William H. Lucio, Ph.D., *Emeritus Professor of Education.*
F. Dean McClusky, Ph.D., *Emeritus Professor of Education.*
Lynne C. Monroe, Ed.D., *Emeritus Professor of Education.*
Lloyd N. Morrisett, Ph.D., *Emeritus Professor of Education.*
Frances M. Obst, Ed.D., *Emeritus Professor of Education*
Rosemary Park, Ph.D., LL.D., Litt.D., L.H.D., *Emeritus Professor of Education.*
May V. Seagoe, Ph.D., *Emeritus Professor of Education.*
Paul H. Sheats, Ph.D., LL.D., *Emeritus Professor of Education.*
Lorraine M. Sherer, Ed.D., *Emeritus Professor of Education.*
Samuel J. Wanous, Ph.D., *Emeritus Professor of Education.*
Frederic P. Woellner, Ph.D., Litt. D., LL.D., *Emeritus Professor of Education.*
Gordon L. Berry, Ed.D., *Associate Professor of Education.*
Simon Gonzalez, Ed.D., *Associate Professor of Education.*
Charles C. Healy, Ph.D., *Associate Professor of Education.*
Marilyn H. Kourilsky, Ph.D., *Associate Professor of Education.*
Thomas J. LaBelle, Ph.D., *Associate Professor of Education (Vice Chairman of the Department).*
David O'Shea, Ph.D., *Associate Professor of Education and Sociology.*
Val D. Rust, Ph.D., *Associate Professor of Education.*
Richard J. Shavelson, Ph.D., *Associate Professor of Education.*
James W. Trent, Ph.D., *Associate Professor of Education.*
Richard C. Williams, Ph.D., *Associate Professor of Education.*
Beatriz Arias, Ph.D., *Assistant Professor of Education.*
Leigh Burstein, Ph.D., *Assistant Professor of Education.*
Kenyon S. Chan, Ph.D., *Assistant Professor of Education.*
Charles W. Cheng, Ed.D., *Assistant Professor of Education.*
Frederick S. Ellett, Jr., Ph.D., *Assistant Professor of Education.*
John N. Hawkins, Ph.D., *Assistant Professor of Education.*
Antoinette Krupski, Ph.D., *Assistant Professor of Education.*
Gerald J. Mahoney, Ph.D., *Assistant Professor of Education.*
Laura Miller, J.D., *Assistant Professor of Education.*
Gary L. Riley, Ph.D., *Assistant Professor of Education.*
Kathleen R. Rockhill, Ph.D., *Assistant Professor of Education.*
Deborah J. Stipek, Ph.D., *Assistant Professor of Education.*
Ruby Takanishi, Ph.D., *Assistant Professor of Education.*
Romeria Tidwell, Ph.D., *Assistant Professor of Education.*
Concepcion Valadez, Ph.D., *Assistant Professor of Education.*
Noreen M. Webb, Ph.D., *Assistant Professor of Education.*
Wellford Wilms, Ph.D., *Assistant Professor of Education.*
David P. Wright, Ph.D., *Assistant Professor of Education.*
Julia C. Wrigley, Ph.D., *Assistant Professor of Education and Sociology.*

•

Byron H. Atkinson, Ed.D., *Lecturer in Education.*
James C. Coleman, Ph.D., *Professor of Education and Psychology.*
Marjorie S. Day, Ph.D., *Lecturer in Education.*
Carlos M. Haro, Ph.D., *Lecturer in Education.*
Robert B. Kindred, Ed.D., *Lecturer in Education.*
Claire B. Kopp, Ph.D., *Associate Professor of Education in Residence.*
Judith S. Margolis, Ph.D., *Adjunct Assistant Professor of Education.*
Lewis C. Solmon, Ph.D., *Associate Professor of Education in Residence.*
George D. Thayer, Ed.D., *Lecturer in Education.*

AREA I: SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION

Fields of Specialization:

Comparative and International Education

Philosophy and History of Education

Sociology and Anthropology of Education

COMPARATIVE AND INTERNATIONAL EDUCATION

204A. Topics and Issues in International and Comparative Education. Analysis of basic topics and issues in comparative and international education. Emphasis is placed on those topics and issues that cut across national boundaries and are at the forefront of educational policy and practice in both developed and developing nations.
Mr. Hawkins, Mr. LaBelle, and Staff

204B. Introduction to Comparative Education. An examination of conceptual and methodological questions underlying comparative education. Particular attention is given to the development of the field and to styles of social analysis which may be applied to comparative and cross-national studies in education.
Mr. Hawkins, Mr. LaBelle, Mr. Rust

204C. Education and National Development. Application of social science perspectives and methodologies to education in the international context. Emphasis on relevant research literature and development processes and strategies for international development education with concentration on so-called less developed countries.
Mr. Hawkins, Mr. LaBelle, Mr. Rust

204D. Minority Education in Cross-Cultural Perspective. Historical and contemporary analyses of educational policies with regard to ethnic, religious, and linguistic minorities through selected national and international case studies. Introduction to cross-cultural education in representative countries in relation to social, political, and economic systems. The Staff

204E. International Efforts in Education. Analysis of problems and concepts related to diffusion, borrowing, and adaptation across cultural and national boundaries. Activities of bilateral and multilateral agencies in promoting international education are examined, as well as conceptual and practical curricular efforts which intend to increase international understanding. The Staff

204F. Nonformal Education in Comparative Perspective. A comparative and international study of organized and systematic educational activity for children, youth and adults carried on outside of schools. The types of programs studied include, among others, consciousness raising, community action, skills training, literacy, and extension programs.
Mr. Hawkins, Mr. LaBelle, Mr. Rust

204G. Planning Educational Language Policy Internationally. Analysis of problems and issues involved in formulating a language education policy. Particular attention is given to planning for the use of vernacular languages in education as well as analyzing models and research for multilingual/bilingual education in various countries.
Ms. Arias

253A. Seminar: Current Problems in Comparative Education. The Staff

253B. Seminar: African Education. The Staff

253C. Seminar: Asian Education. Mr. Hawkins

253D. Seminar: Latin American Education. Ms. Arias, Mr. LaBelle

253E. Seminar: European Education. Mr. Rust

253F. Seminar: Education in Revolutionary Societies. A multidisciplinary and comparative study of socialist educational theory is examined through the writings of Marx, Lenin, Mao, and others. The implementation of this theory in specific case studies along with comparative assessments of nonsocialist nations will be explored.
Mr. Hawkins, Mr. LaBelle, Mr. Rust

PHILOSOPHY AND HISTORY OF EDUCATION

200A. Historical Research and Writing. Techniques of historical research and writing. For students who are or who will be engaged in research, and report or paper or thesis writing, regardless of their field of interest. Mr. S. Cohen

201A. History of Western Education. The rise of the Western educational tradition; major ideas, institutions, personalities. From the world of the Greeks to that of the Twentieth Century.
Mr. S. Cohen

201B. History of American Education to 1860. Development of American education from the 17th Century to the Civil War. The emergence of the public school system in the context of social, intellectual and political change. Mr. S. Cohen

M201C. History of American Education. (Same as History M264.) The aim is to depict the social forces impinging on American education from the 1860's to the present, and to analyze the relation between these social forces and the philosophy, curriculum, structural organization, and functions of education at all levels. Mr. S. Cohen

206A. Philosophy of Education: Introduction. Systematic introduction to the field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values.
Mr. Ellett, Mr. Weinberg

206B. Philosophy of Education: Existentialism and Humanism. Examination of existentialist ideas and their application in contemporary humanistic movements in school and society.
Mr. Ellett, Mr. Weinberg

206C. Philosophy of Education: Logic and Language. Conceptual analysis of recurrent and contemporary themes in the field. Emphasis is on the development of logical and linguistic skills used in the analysis of educational problems and issues.
Mr. Ellett, Mr. Weinberg

206D. Philosophy of Education: Ethics and Values. A study of ethics and value theory in teaching and learning, educational organization and policy, and curriculum design and validation. Mr. Ellett

206E. Philosophy of Education: Introduction to Humanism in Education. Examines the philosophical foundations of humanism and their relationships to educational theory and practice.
Mr. Weinberg

250A. Seminar: History of Education. Selected topics in History of Education: discussion, research, and writing. Mr. S. Cohen

250B. Seminar: History of Education. To be given alternate years. Advanced seminar in bibliography and historiography in history of education.
Mr. S. Cohen

251A. Seminar: Philosophy of Education, Epistemology. Prerequisite: consent of the instructor. Mr. Weinberg

251B. Seminar: Philosophy of Education, Behaviorial Science Problems in Education—Humanistic Perspectives. Prerequisite: course 206E or consent of the instructor. Mr. Weinberg

251C. Seminar: Philosophy of Education, Behaviorial Science Problems — Methodological Perspectives. Prerequisite: course 206C or consent of the instructor. Mr. Ellett, Mr. Weinberg

251D. Seminar: Philosophy of Education, Problems in Ethics and Values. Prerequisite: course 206D or consent of the instructor. Mr. Ellett

251E. Seminar: Philosophy of Education, Selected Issues. The Staff

SOCIOLOGY AND ANTHROPOLOGY OF EDUCATION

M108. Sociology of Education. (Same as Sociology M143.) Prerequisite: Sociology 1A or 101. Study of social processes and interaction patterns in educational organizations; the relationship of such organizations to aspects of society, social class and power; social relations within the school, college and university; formal and informal groups, subcultures in educational systems; roles of teachers, students and administrators.
Mr. O'Shea, Ms. Wrigley

200B. Survey Research Methods in Education. Prerequisite: course 210A or the equivalent. Problems of conceptualization, organization and gathering nonexperimental and quasi-experimental quantitative and qualitative data. Mr. O'Shea

200C. Analysis of Survey Data in Education. Three class hours, two hours of laboratory. Prerequisite: course 200B. Introduction to techniques of processing and analyzing nonexperimental and quasi-experimental quantitative data. Mr. O'Shea

203. Educational Anthropology. Prerequisite: Anthropology 22 recommended. Study of education through the research and method of the cultural anthropologist. Interdependence of culture and education with emphasis placed on cross-cultural studies of enculturation, schooling, values, cognition, language, and cultural change. Mr. LaBelle

207. Politics and Education. Course explores the political dimensions of both formal and nonformal educational enterprises in a national and international perspective. Political theory will be explored in the context of such educational issues as policy formation, pressure groups, and public and private elites. Mr. Cheng, Mr. Hawkins and Staff

208A. Perspectives on the Sociology of Education. Designed to introduce students to sociological perspectives on current issues in educational policy and practice. Issues addressed include desegregation, decentralization, equality of educational opportunity, structure of educational organization, teacher-student relationships, reform in education at the elementary, secondary, post-secondary levels. Mr. Gordon, Mr. O'Shea, Ms. Wrigley

208B. Issues in Education: Sociological Perspectives. Prerequisite: course 208A or the equivalent. Exploration of educational issues, and the structure and processes of formal schooling, from sociological perspectives such as functionalism, conflict theory, symbolic interactionism, ethomethodology, and critical sociology. Mr. O'Shea

252A. Seminar: Educational Organizations. Prerequiste: course 208A or consent of the instructor. Mr. Gordon, Mr. O'Shea, Ms. Wrigley

252B. Seminar: Education and Social Change. Prerequisite: course 208A or consent of instructor. Mr. LaBelle, Mr. O'Shea

275. Seminar: School Desegregation. Prerequisite: consent of the instructor. Analysis of the social/political response to desegregation programs in Northern and Southern school districts; review of court decisions and development of legal policy on school desegregation. Consideration of effects of integration on school achievement and inter-racial attitudes. Ms. Wrigley

AREA II: EDUCATIONAL PSYCHOLOGY

Fields of Specialization:

Counseling

Early Childhood Development

Learning and Instruction

Research Methods and Evaluation

Special Education

COUNSELING

213A. Fundamentals of Student Personnel Work. Prerequisite: graduate student or consent of the instructor. Analysis and in-class application of student and pupil personnel service methods, with emphasis on task groups and evaluation. Mr. Healy, Mr. Sorenson

213B. Legal and Ethical Bases of Student Personnel Work. Prerequisite: course 213A. Ethical and legal codes relevant to pupil personnel services; relation of value systems and personality; case studies in the implications of personal values in counseling situations. Mr. Berry, Mr. Sorenson

213C. Group Process in Education. Group productivity, leadership, social perception and attitude formation, decision-making, determination of group interaction variables and the effect of behavior changes in individuals and groups. Mr. Berry, Mr. Sorenson

214A. Counseling Theory and Practice. Application of concepts drawn from cognitive psychology to the non-academic problems which people encounter in everyday life, such as finding suitable employment, achieving satisfying interpersonal relationships, and making productive use of leisure time. Mr. Sorenson

214B. Advanced Counseling Theory and Practice. Prerequisite: limited to candidates for advanced degrees whose major interest is counseling, and to selected high school and college counselors. Counseling procedures, educational planning, and methods for helping students handle personal problems that interfere with school progress; critical evaluation of procedures. Mr. Sorenson

214D. Vocational Guidance. Depth study of current interests and needs in vocational guidance; principles, problems, and practices of vocational guidance. Mr. Berry, Mr. Healy

216. Counseling in the Urban School and Community. Prerequisite: course 213A or 214A and consent of the instructor. Research related to the psychological, educational, and sociological characteristics of urban students and the implications for counseling models. Development and evaluation of counseling procedures through practicum-type experiences dealing with school and community groups will be systematically covered. Mr. Berry

257. Seminar: Pupil Personnel Services. Mr. Berry, Mr. Healy, Ms. Tidwell

413A-413B-413C. Internship in School Psychology. Prerequisite: consent of the instructor; courses 413A-413B-413C must be completed in three consecutive quarters; limited to students enrolled in the Counseling specialization. Two class hours, sixteen hours of field experience. Working in public schools or comparable setting performing duties of a school psychologist — psychodiagnosis, integrating case material, staffing cases, developing educational plans, working with teachers and parents, and establishing evaluative criteria. Mr. Healy, Ms. Tidwell

415A. The Appraisal of Intelligence. Prerequisites: courses 210A and 211A. Concepts and theories leading to development of individual cognitive assessment instruments; issues and implications relating to the application and current practices of utilizing such tests in a multi-cultural society. Laboratory experience includes administration and interpretation of standardized instruments; case studies. Mr. Healy, Ms. Tidwell

415B. Human Appraisal in School Counseling and School Psychology. Prerequisites: course 415A and consent of the instructor. Survey and demonstration of the major techniques of cognitive, affective and achievement appraisal and their applicability to problems found in the school setting. Research and theoretical issues concerned with appraisal will also be discussed. Ms. Tidwell

EARLY CHILDHOOD DEVELOPMENT

217A. Child Development and the Educational Process. Biological and familial, school, and other influences on the child; development in the context of current research and theoretical models; consideration of theoretical and methodological research on family and school; application of developmental theory and research to educational practice. Ms. Stipek, Ms. Takanishi

217B. Intellectual Development and School Performance. Prerequisite: course 217A or equivalent. Developmental, behavioral, environmental, genetics, structural, cross-cultural, and methodological approaches to the study of intellectual functioning and educational performance in preschool and school children. Ms. Stipek

M217C. Personality Development and Motivation in Education. (Same as Psychology M245.) Personality development and environmental conditions which form motivational patterns; self-concept, moral behavior, aggression; creativity, sex differences, empathy, research and personality theory bearing on motivational problems in school settings and curricula development. Ms. Feshbach

217D. Language Development and Education. Research and theory on how children develop their first language. Sociolinguistic and psycholinguistic issues in preschool and primary years. Bilingual and dialectical issues. The Staff

217E. Developmental Problems in Early Childhood. Prerequisite: two core courses in development and learning. Problems of atypical development during early childhood viewed from an interactional position which has significance for later learning and education. Topics include early identification; implications for school learning; impact of disability on parent-child interactions; and early intervention programs. Ms. Keogh

217F. Human Development and the Educational Process. Learning and cognitive-developmental theories of human development and learning; cultural, family and schooling influences on human development; application of developmental theory and research to educational practice. Ms. Stipek

256B. Seminar: Special Topics in Development. Prerequisite: consent of instructor. Ms. Feshbach, Ms. Stipek, Ms. Takanishi

261A. Seminar: Early Childhood Education. Prerequisite: courses 421A-421B. Ms. Feshbach, Ms. Takanishi

421A. Programs, Models and Research in Early Childhood Education. Prerequisite: one course in the development series and one quarter field placement. Introduction to programs and research in early childhood. Observation of preschool programs (cooperative nurseries, Headstart, private nurseries, Montessori preschools, day care centers). The organization and evaluation of educational research and its relation to goals of early childhood education. The Staff

421C. Research and Evaluation of Early Childhood Programs. Prerequisite: course 421A or equivalent. Critical review and evaluation of the various preventive and remedial programs for the young child. Analysis of relevant research findings and methodological issues; cross-cultural research on early childhood education programs. Ms. Takanishi

421D. Parents and Community Agents in Childhood Development. Prerequisite: two courses from the development sequence and one course from early childhood education, or equivalent. Parents and community agents as resources for childhood education. Training parents of preschoolers and elementary school children. Role of preschool programs in the community. Development of culturally significant school programs derived from examination of experiences of young children. Ms. Feshbach

421F. Current Perspectives in Early Childhood Development for the Professional. Prerequisite: recommended for professionals in Early Childhood Education. Critical issues and recent developments in the field and practice of Early Childhood: Organization, curricula and program evaluation; policy and legislative factors; day care; parent programs; community participation in programs, cognitive, emotional and exceptional development; early intervention and mental health. Ms. Feshbach and Staff

LEARNING AND INSTRUCTION

205. Computers in the Educational Process. Introduction to the theory, experimentation, evaluation and the future of computer systems in education, with emphasis on computer-assisted instruction (CAI), computer-managed instruction (CMI), and the use of computers by educational administrators for scheduling, student records, and student performance assessment. The Staff

NOTE: For key to symbols, see page 74

212A. Learning and Education. Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences and instruction. Mr. Silberman, Mr. Wittrock

212B. Motivation and Affect in the Educative Process. Prerequisites: courses 210A and 212A. A review of the theoretical and empirical literature on motivational factors in school settings and the conditions for the acquisition of affective outcomes. Mr. Keislar

212C. Cognition and Creativity in Education. Prerequisite: course 212B. A review of the theoretical and empirical literature on cognitive processes in school learning, including concept learning, problem solving, learning to learn, and creativity. Mr. Wittrock

M215. Experimental Research in Personality. (Same as Psychology M239.) Course will focus upon the perceived causes of success and failure, the antecedent conditions that give rise to various casual ascriptions, and the consequences of attributions on affect, expectancy, interpersonal evaluation, and overt action. The Staff

256A. Seminar: Special Topics in School Learning. Prerequisite: consent of instructor. Mr. Keislar, Mr. Wittrock

258A. Seminar: Problems in Instructional Research. Mr. Keislar, Mr. Wittrock

258B. Seminar: Problems in Instructional Development. Ms. Baker, Mr. Keislar

267. Seminar: Educational Technology. Prerequisite: course 433A, 433B recommended. Ms. Baker, Mr. Silberman

418. Instructional Analysis. (Formerly numbered 420B.) Prerequisite: consent of the instructor. Analysis of instructional variables as they relate to diverse types of instructional strategies. The student acquires skill in techniques of conducting instructional research. Ms. Baker

419A. Experimentation on Media of Communication and Instruction. Prerequisite: course 210A. Analysis of basic methods used and results obtained in experiments on the development of knowledge, skills and attitudes through audio-visual communication media and other instructional programs. The Staff

419B. Experimental Analysis of Instructional Program Variables. Two class hours, four hours of laboratory. Prerequisite: courses 210A, 212A, 419A; 210B and 212B or 212C recommended. Advanced problems of methodology and rationale in the planning and conduct of experiments on the effects of psychologically defined variables in instructional programs; theory and techniques of laboratory and field experiments on instructional media. The Staff

433A. Instructional Product Development. Prerequisite: consent of instructor. An examination of the procedures employed in the systematic development of instructional products. Students acquire competencies associated with those procedures. Ms. Baker, Mr. Popham

433B. Technological Development in Educational Media. Two class hours, four hours of laboratory. Prerequisite: course 433A; 210A and 212A recommended. Theory, current problems, and anticipated trends in instrumentation and systems development for instructional applications and research; including computer-aided instruction, communication satellites, and other advanced systems; theory and laboratory practice with instrumentation in educational research. Mr. Silberman

RESEARCH METHODS AND EVALUATION

210A. Basic Concepts in Educational Research. Fundamentals of research. The language of research. Basic statistical concepts. Planning of research. Interpretation of research outcomes. Introduction to descriptive statistics; mean, median, mode, variance. Introduction to normal curve. It is strongly recommended that all students have this background as a minimum. Mr. Burstein, Mr. Shavelson, Mr. Skager

210B. Experimental Design in Educational Research. Prerequisite: knowledge of descriptive statistics. Inference. Randomization test or t-test. Normal curve tests. Analysis of variance: one way and factorial designs. Internal and external threats to the validity of research conclusions. Mr. Shavelson, Mr. Skager, Ms. Webb

210C. Experimental Design: Advanced Topics. Prerequisite: course 210B or equivalent work. Completely randomized designs, randomized block designs, nested designs, and their combinations into advanced factorial designs using fixed, random, and mixed models. Analysis of covariance, introduction to multiple regression and quasi-experimental designs. Mr. Shavelson, Ms. Webb and Staff

210D. Experimental Design: Multivariate Analysis. Prerequisite: course 210C or equivalent work. Review of multiple regression analysis, analysis of covariance. Introduction to matrix algebra. Introduction to multivariate normal distribution. Multivariate analysis of variance. Linear discriminant function. Analysis of repeated measurements. Canonical correlation. Principal components. Ms. Webb

211A. The Measurement of Educational Achievement and Aptitude. Prerequisite: course 210A. A critical study of tests of achievement and aptitude with an emphasis on group tests; the relation of achievement to aptitude; social implications of the measurement of intelligence; elements of validity and reliability. Mr. Alkin, Mr. Popham, Mr. Skager

211B. Measurement in Education: Underlying Theory. Prerequisite: course 211A. Measurement theory as applied to testing, focusing primarily on classical test theory; implications of theories for test construction and selection; current status of validity and reliability theory. Mr. Burstein, Mr. Shavelson

211C. Problems in Measurement. Prerequisite: courses 210C and 211B or equivalent work. Generalizability theory and some other statistical theories of mental test scores; implications for the design and interpretation of generalizability and decision studies; advanced topics in validity. Mr. Burstein, Mr. Shavelson, Ms. Webb

218A. Multiple Regression Analysis. Prerequisite: course 210B. Regression-based techniques for analyzing quantitative data; multiple regression methods, multiple correlation, partial correlation; introduction to the general linear model; with direct application to educational inquiry. Mr. Burstein, Ms. Webb

218B. Quasi-Experimental Models in Educational Research. Prerequisites: course 218A or the equivalent and consent of the instructor. Study of the assumptions and limitations inherent in quasi-experimental research designs. The time-series intervention design will be stressed. The students will be able to design an appropriate quasi-experiment to assess the impact of a particular educational intervention. The Staff

218C. Causal Models in Non-Experimental Research. Prerequisites: course 218A or the equivalent and consent of the instructor. Study of the inferential bases for the construction and validation of causal models in settings where true experiments are not appropriate. Statistical models from sociology, biology, and econometrics will be discussed. Assumptions and limitations of these models will be stressed. Mr. Burstein and Staff

219. Laboratory: Advanced Topics in Research Methodology. (½ course) Provides assistance in the design of research and interpretation of data to advanced students from other specializations. Coverage of special topics not included in other courses on research methods. Mr. Burstein, Mr. Shavelson, Ms. Webb

221. Critical Analysis of Empirical Research in Education. Prerequisites: course 210A and 210B or equivalent background, and consent of the instructor. A course examining comtemporary empirical research in education and its relevance to educational practice. Designed to develop critical skills in reviewing substantive and methodological aspects of research. Mr. Shavelson

255. Seminar: Special Topics in Measurement and Research Design. Prerequisite: courses 210C and 211C or consent of the instructor. The Staff

410A. Procedural Problems in Curriculum Evaluation. Assessment methodologies appropriate for curriculum evaluation problems. Writing evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design strategies, coping with ethical considerations in evaluation, framing the decision context, and reporting evaluation results. Mr. Alkin, Mr. Popham

410B. Assessment Problems in Curriculum Evaluation. An examination of problems and alternative solutions associated with the task of evaluating curriculum enterprises. Consideration is given to criterion-referenced measurement, domain-referenced achievement testing, and unobtrusive measurement strategies as these topics relate to the assessment of curricular programs. Ms. Baker, Mr. Popham

420C. Evaluation of Curriculum and Instruction. Prerequisite: consent of instructor. Ways of evaluating the effectiveness of curriculum and instruction, including assessment and improvement of teacher behavior and accomplishment. Mr. Alkin, Mr. Popham, Ms. Tyler

460. Seminar: Special Issues in Curriculum Evaluation. Mr. Alkin, Mr. Popham, Ms. Tyler

SPECIAL EDUCATION

125A. The Education of Exceptional Children. Prerequisite: Psychology 10 or the equivalent. The psychology of individual difference with emphasis on the learning characteristics of exceptional children and application of research and theory to special education programs. Mr. Chan, Mr. Hewett, Mr. Mahoney

125B. Principles for Teaching Exceptional Children. Prerequisite: consent of the instructor. Examines approaches for teaching exceptional children in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management. Observations in schools. Mr. Hewett

225. Issues in the Education of Exceptional Children. Prerequisite: limited to students in graduate degree programs. Analysis of major research regarding contemporary trends, issues, and programs for the exceptional; consideration of commonalities and differences among exceptional children. The Staff

226A. Medical-Biological Aspects of Mental Retardation. Research on physical and psychiatric aspects of mental retardation as they affect learning in children; instructional modifications based on such factors. Ms. Krupski

226B. Psychosocial Aspects of Mental Retardation. Prerequisite: course 225 or equivalent. Research on the psychological and sociological aspects of mental retardation as they affect learning in children; instructional modifications based on such factors. Mr. Chan

227A. Research on the Education of the Emotionally Disturbed. Prerequisite: course 225 or equivalent. Research on the emotionally disturbed and their learning characteristics; instructional modifications based on such factors. Mr. Hewett

227B. Research on the Education of Children with Learning Disabilities. Prerequisite: course 225 or equivalent; Psychology 132A-132B recommended. Research on learning disorders with special refer-

ence to minimal neurological impairment; instructional modifications based on such factors.
Ms. Keogh

280A. Seminar: Exceptional Children. Prerequisite: course 225, or 226A, or 227A and admission to a doctoral program.
Mr. Chan, Ms. Krupski, Mr. Mahoney

280B. Seminar: The Mentally Retarded. Prerequisite: course 225, or 226A, or 227A and admission to a doctoral program.
Ms. Krupski, Mr. Mahoney

280C. Seminar: The Educationally Handicapped. Prerequisite: courses 225, or 226A, or 227A and admission to a doctoral program.
Mr. Hewett, Ms. Keogh

M280D. Seminar: Children with Learning Disorders. (Same as Psychology M276A.) Prerequisite: course 225, or 226A, or 227A and admission to a doctoral program. Mr. Coleman

325A. Introductory Laboratory in the Education of Exceptional Children. (½ to 1 course) Prerequisite: course 125A or consent of the instructor. Four to eight hours per week field work in the UCLA Neuropsychiatric Institute School, other campus facilities, or public school special education programs. Emphasis on observation and study of children who have learning disabilities, are emotionally disturbed, or are mentally retarded.
The Staff

325B. Advanced Laboratory in the Education of Exceptional Children. (½ to 1 course) Prerequisite: course 325A or consent of the instructor. Four to eight hours per week field work in the UCLA Neuropsychiatric Institute School, other campus facilities, or public school special education programs. Emphasis on teaching children who have learning disabilities, are emotionally disturbed, or are mentally retarded. The Staff

425A. Appraisal of Exceptional Children. Prerequisite: course 225 and 415A or the equivalent. Individual appraisal of exceptional children with emphasis on the physically handicapped, mentally retarded, educationally handicapped, and gifted; analysis of tests and diagnostic procedures; case studies. The Staff

425B. Guidance of Exceptional Children. Prerequisite: course 225 or the equivalent. Educational, vocational, and personal guidance of the exceptional; parent counseling; career and training opportunities; community referrals. The Staff

426. Analysis of Programs for the Mentally Retarded. Prerequisite: course 225 or the equivalent. Evaluation of instructional practice in relation to current research; formulation of model programs. Mr. Mahoney

427A. Analysis of Programs for the Emotionally Disturbed. Prerequisite: course 225 or the equivalent. Evaluation of instructional practice in relation to current research; formulation of model programs. Mr. Hewett

427B. Analysis of Programs for Children with Learning Disabilities. Prerequisite: course 225 or the equivalent. Evaluation of instructional practice in relation to current research; formulation of model programs. Mr. Chan, Ms. Keogh

501. Cooperative Program in Special Education. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman, and Graduate Dean. Limited to UCLA doctoral students in Special Education. This course is used to record the enrollment of UCLA doctoral students in practicum courses taken under cooperative arrangements with California State University, Los Angeles. To be graded S/U. The Staff

AREA III: ORGANIZATIONAL AND ADMINISTRATIVE STUDIES IN EDUCATION

Fields of Specialization:

Administrative and Policy Studies in Education

Curriculum and the Study of Schooling

Education and Work

Higher Education

ADMINISTRATIVE AND POLICY STUDIES IN EDUCATION

147. Social Science Methods and the Law. Prerequisite: upper division undergraduate, two years of college level mathematics, or consent of the instructor. A quantitative orientation for understanding and critically analyzing the emerging impact of social science methods and the law. Fundamental skills in statistical and economic analysis of data will be provided along with illustrations of their use in landmark legal cases. Mr. Bruno

240A. School Administrative Practices Since 1900. An examination of school administration since 1900 as it has responded to social, political, and economic pressures exerted on schools. Development of sensitivity to current pressures and alternatives for administrative response. Mr. Williams

241. Research Methodology in School Administration. Prerequisite: consent of the instructor. Examination of research problems and strategies in school administration. Mr. Cheng, Mr. Williams

242. Economic Analysis for Educational Policy and Planning. (Formerly numbered 242F). Prerequisite: graduate standing. The applications of economics-based methodologies for analysis of issues in educational policy and planning. Techniques addressing educational problems of organization of activities, classification, prediction, optimization, goal setting, and measuring inequalities are discussed.
Mr. Bruno

244. Economics of Education. An introductory course in micro and macro economic techniques applied to education. Methodologies as marginal analysis, linear programming, Leontief I-O models, Lorenz curve analysis are discussed with application to school finance, underdeveloped countries, equality of educational opportunity and credentialing. Mr. Bruno, Mr. Solmon

246A. Seminar: Mathematical Modeling in Educational Policy Analysis. Prerequisite: course 242, two years of college level mathematics, knowledge of computer programming, or consent of the instructor. Mathematical modeling of educational processes and problems. Deterministic modeling techniques, in addition to stochastic modeling techniques, are discussed. A mathematics review and instruction in the use of the MPS 360 (Mathematical Programming Code) are provided. Mr. Bruno

246B. Seminar: Operations Research—Systems Analysis in Education. Prerequisite: courses 242 and 246A, two years of college level mathematics, computer programming, or consent of the instructor. Advanced topics in the application of quantitative analysis to educational policy and planning. Methodologies such as logit models, Bayesian analysis, game theory, differential equation growth models and advanced topics in production and human capital theories will be discussed.
Mr. Bruno

246C. Strategic Planning in Education. Problems of goal formulation; interorganizational competition; and control of environmental forces affecting resource utilization, with particular attention to the utility of open-planning models in providing alternative resource-allocation patterns. Mr. Bruno

440B. Problems in Educational Government and Finance. (Formerly numbered 240B.) Intensive study of problems and issues affecting the governance and finance of schools. The Staff

440C. Administration of the Instructional Program. (Formerly numbered 240C.) Examination of current educational problems in the society and the strategies of their solution through curriculum policy and practice; instructional design and operation; and in-service training of teaching staffs.
The Staff

442A. Administration of Large Systems and Individual Schools. (Formerly numbered 242A.) Prerequisite: consent of the instructor. Theoretical and functional problems in the administration of large systems and decentralized individual schools.
The Staff

442B. Legal Aspects of Educational Management and Practice. Examination of the structures and kinds of law governing educational systems in the United States; constitutional dimensions of church/state relations; employees' civil rights and legal aspects of hiring, firing, and negotiating procedures; student attendance, control, and civil rights. Ms. Miller

442D. Educational Finance. (Formerly numbered 242D.) Historical and theoretical background of educational finance: considers principles related to federal and state participation in educational finance; considers other economic factors related to the provision and utilization of financial resources in schools. The Staff

442E. Administration of In-Service Education. (Formerly numbered 242E.) Emphasis on the development of knowledge, skills, and attitudes essential to exercising leadership in the facilitation of the professional growth of teachers, school administrators, and other educational personnel, especially as such growth contributes to instructional improvement and relevant curriculum development. The Staff

443. Introduction to Policy Analysis in Education. (Formerly numbered 243.) Prerequisite: consent of the instructor. An overview of the political, economic, and legal context of educational policy formation. Included in this examination will be issues that impact on minorities; e.g., bilingual education, desegregation, affirmative action, the role of subdominants in the policy-making process.
Mr. Cheng

444A. Legal Aspects of Access to a Public Education. Prerequisite: course 442B or consent of the instructor. A study of access to public education focused on the issues of affirmative action, testing, tracking, bilingual/bicultural education, special education, correctional education, and malpractice suits. Ms. Miller

444B. Equality of Educational Opportunity through Desegregation and Finance Case Law. Prerequisite: course 442B or consent of the instructor. A concentrated review of the definition of equality of educational opportunity as it is being developed by the courts in cases concerning desegregation and educational finance.
Ms. Miller

447. Seminar: Educational Policy and Planning, Special Studies. (Formerly numbered 247.) Prerequisite: consent of the instructor. The Staff

448A. Urban School Leadership. Prerequisite: consent of the instructor. Analysis of the problems of urban school leadership. Emphasis is on the changing nature of the urban principalship; however, considerable attention is given to the role of other school and community agencies that interact with the urban school leader. Mr. Williams

448B. Urban Leadership Laboratory. Prerequisite: consent of the instructor. Analysis of and opportunity to practice human and technical skills requisite for success as an urban school leader. Topics include negotiations, conflict resolution, applied computer technology, and effective communication. Activities include gaming, simulation, computer programming and group dynamics.
The Staff

470A. Seminar: Large Systems and Individual Schools. (Formerly numbered 270A.) Prerequisite: consent of the instructor. The Staff

470B. Seminar: Educational Government. (Formerly numbered 270B.) Prerequisite: consent of the instructor. The Staff

NOTE: For key to symbols, see page 74

CURRICULUM AND THE STUDY OF SCHOOLING

220A. Inquiry into Schooling: Organization and Change. Critical analysis of issues in the reconstruction of schooling; concepts of function and structure of schooling; organization theory; systems approaches in the analysis of organization development and change.
Miss Crabtree, Mr. Goodlad, Mrs. Tyler

220B. Inquiry into Schooling: Curricular Problems. Inquiry into the curriculum of schooling. Critical analysis of the relationship of curricular decision-making to social system and contextual variables. Miss Crabtree, Mr. Goodlad, Mrs. Tyler

224. Problems and Issues in Bilingual and Multicultural Education. Introduction to the development and implementation of bilingual and multicultural programs in the U.S. Analysis of program goals, models, typologies and effectiveness.
Ms. Arias, Ms. Valadez

260. Seminar: Principles of Curriculum and Instruction.
Mr. Goodlad, Mr. McNeil, Mrs. Tyler

261B. Seminar: Elementary Education.
Miss Crabtree, Mr. Goodlad, Mr. Wright

261C. Seminar: Secondary Education.
Mr. McNeil, Mr. Silberman

262A. Seminar: The Social Studies.
Miss Crabtree

262B. Seminar: Reading. Mr. McNeil

262D. Seminar: Language Arts and English.
The Staff

262F. Seminar: Research Topics in Bilingual/Multicultural Education. Prerequisite: consent of the instructor. Ms. Arias, Ms. Valadez

268. Seminar: Instructional Analysis. Prerequisite: course 420A. Critical examination of theories of instruction; problems in conceptualizing and researching related instructional, learner, and social-system variables in classroom learning; problems in instructional decision-making and change. Mr. Silberman, Mrs. Tyler, Mr. Wright

420A. Principles of Curriculum. Critical examination of the basic concepts underlying the determination of objectives, the selection and organization of learning experiences, and the evaluation process. Miss Crabtree, Mr. McNeil, Mrs. Tyler

420D. Curriculum: Principles and Practice. An examination and application of various curricular perspectives to questions of purpose, learning opportunities and evaluation.
Mr. McNeil, Mrs. Tyler

422. Inquiry into Schooling: Basic Issues. Critical examination of basic issues and problems in the organization and reconstruction of precollegiate schooling. Consideration of historical development and changing functions of schooling in American society; school organization; schooling alternatives; problems in the management of educational change. Mr. Goodlad, Mr. McNeil, Mrs. Tyler

423. The Humanistic Curriculum. A consideration of the philosophical and cultural foundations of humanistic curricular strategies. Reviews techniques and procedures of affective education with a view to their place in an overall theory of teaching and learning. Mr. Weinberg

424A. The Social Studies in the Curriculum. Advanced study in social studies curriculum development; problems in defining objectives and organizing single and multidisciplinary programs; critical review of literature on cognitive and affective learning in social science, with emphasis on experimental study of instructional programs.
Miss Crabtree, Mr. Wright

424B. Reading in the Curriculum. Prerequisite: courses 210A and 313. Study of reading curricula and instructional procedures, with emphasis on the rationale and research underlying their development and the research comparing their effectiveness. Mr. McNeil, Mr. Wright

424C. Language in the Curriculum. Advanced study in the school language curriculum; application to the improvement of the curriculum in the field. The Staff

424F. Curricular Design for Multicultural Education. Prerequisite: course 224 or consent of the instructor. Critical analysis of curriculum models currently implemented in multicultural programs. The course will provide a framework for developing and evaluating multicultural curricula. Examination of teaching strategies to meet multicultural needs. Ms. Arias, Ms. Valadez

424G. Curriculum Design for Bilingual Education. Prerequisite: consent of the instructor. Advanced study of curriculum design for bilingual educational programs. Philosophical basis for bilingual programs; theories of learning and instruction applied to the bilingual learner; language assessment; development of instructional component; program evaluation. Ms. Arias, Ms. Valadez

EDUCATION AND WORK

214C. Principles of Career Planning. Examination of the nature of careers across ages and ethnic and sexual groups in order to determine implications for career planning in post-industrial society.
Mr. Healy

231. The Structure of Occupations. Will explore shifts in the occupational structure of the United States, changing skill requirements for jobs, the effects of automation on work environments, and the role of formal and informal education in preparing people for occupations.
Mr. O'Shea, Ms. Wrigley

232. Industrialism, Work and Education. Study of the relationship between education and the making of a working class in the new urban industrial America: 1860 to the present. Mr. S. Cohen

233. American Values in the Development of Vocational Education. Course traces social values that supported early vocational education, reviews relevant research, and analyzes potential future directions for vocational education. Mr. Wilms

235. Education and Work. A review of the theoretical and empirical literature on issues concerning the interface of education and work. A review of alternatives in the school-to-work transition of youth and an appraisal of present vocational training and manpower development programs.
Mr. Silberman

248. Perspectives on Lifelong Learning. From an interdisciplinary perspective, lifelong learning is studied theoretically, and as an area of educational research, policy and practice. Conceptual distinctions are drawn among the major proponents of lifelong learning and implications for schooling are considered. Ms. Rockhill and Staff

261E. Seminar: Education and Work. The Staff

262I. Seminar: Contemporary Issues in Education and Work. Mr. Wilms

262G. Seminar: Business Education.
Mr. Erickson

262J. Seminar: Economic Education.
Ms. Kourilsky

337A. The Curriculm in Business Education. The curriculum in business education in secondary schools, including instructional techniques, course content, prognosis of achievement, standards, error analyses, transfer of training, remedial techniques, and evaluation. Mr. Erickson

337B. The Teaching of Secretarial Subjects. A survey and evaluation of procedures and materials used in teaching typewriting, secretarial subjects, office practice and business machines.
Mr. Erickson

337C. The Teaching of Bookkeeping, General Business, and Economics. A survey and evaluation of the procedures and materials used in teaching bookkeeping, general business, and economics in secondary schools. Mr. Erickson

436A. Principles and Problems of Business Education. Historical development and principles, practices, and problems in business education in secondary schools and colleges. Mr. Erickson

436B. Business Education in Secondary and Higher Education: Advanced. Advanced study in business education with a critical analysis of significant research applicable to curriculum and teaching practices. Mr. Erickson

436C-436D. Education in Family Finance. Prerequisite: credit toward advanced degrees by petition only. Theories, principles, concepts and research relating to sound personal and family financial management. Mr. Erickson

436E. Evaluation and Field Research in Family Finance Education. (¼ to 1 course) Concepts and principles relating to family finance education and their application to teaching situations.
Mr. Erickson

437A. Principles of Curriculum in Economic Education. Theories, principles and concepts relating to an understanding of the business and economic system; their application to teaching in the secondary school. Ms. Kourilsky

437B. Corporate Educational Programs. History and scope of corporate training programs; current educational problems in training programs within industry as they are affected by automation and technological change. The Staff

461A. Seminar: Adult Education. Ms. Rockhill

HIGHER EDUCATION

M148. Women in Higher Education. (Same course as Women's Studies Program M148.) Prerequisite: upper division standing. The course examines the education and career development of women in higher education. Specifically, it focuses on undergraduate and graduate women; women faculty and administrators; curricula, programs, and counseling services designed to enhance women's educational and career development, affirmative action, and other recent legislation. Ms. Astin

180. Social Psychology of Higher Education. An overview of significant studies in the Social Psychology of Higher Education. Focusing on institutional characteristics and students' interpersonal and intrapersonal processes, special emphasis is upon identifying and explaining the effects of the college experience upon student development and achievement. Mr. Trent

209A. History of Higher Education. An examination of the development of post-secondary education in the United States with attention to the social context and to the scope and variety of institutions.
Mr. A. Cohen, Mr. Pace, Ms. Rockhill

209B. Issues in Higher Education. Identification, analysis, and discussion of current issues, innovations, trends, and policies in post-secondary education. Ms. Astin, Mr. A. Cohen

209C. Problems in Research and Evaluation in Higher Education. A critical review of research and evaluation studies of higher education with special attention to the need for studies of new programs and problems, and to the design and methodology of evaluative research. Mr. Astin, Mr. Pace

209D. The System of Higher Education. An analysis of the structure and function of American post-secondary education from a systems perspective. Emphasis is given to the structure of the system and to comparative characteristics (faculties, student bodies, finances, outputs) of different types of institutions. Mr. Astin

239. The Organization and Governance of Educational Systems. Academic organizations, precollegiate and post-secondary are most appropriately studied as complex, professionalized organizations. This course provides a basic understanding of the characteristics of educational institutions and systems as organizations: environmental relations, governance structures and processes, and patterns of decision making. Mr. Riley

249A. Seminar: National Evaluations of Post-Secondary Education. Critical review of national evaluation studies of higher education including programs of general education, and professional and graduate school programs; emphasis on the design, methodology, and interpretation of large-scale evaluation studies. Mr. Astin

249B. Seminar: Institutional Research and Program Evaluation. Critical review of institutional evaluation studies with consideration of the scope of information needed for various purposes and the problems of interrelating this information to appraise overall institutional functioning and effectiveness. Mr. Riley, Mr. Trent

259A. Seminar: Research on Characteristics of Students. Mr. Trent

259B. Seminar: Research on Characteristics of Educational Environments. Mr. Pace

261D. Seminar: The Community College. Mr. A. Cohen, Mr. Kintzer

261F. Seminar: Higher Education. Ms. Astin, Mr. Riley, Mr. Solmon

334. Supervised Teaching: Junior College. Prerequisite: course 431B taken prior to or concurrent with 334. Mr. A. Cohen

431A. Administration in Higher Education. An overview of college and university administration. Case studies of administrative problems, policies, and practices. Management information systems, resource allocations, and issues related to responsibility, authority, and participation in administrative decisions. Mr. Riley

431B. Curriculum and Instruction in Higher Education. Principles of curriculum and instruction in post-secondary programs. Theory and practices in goal-setting, testing, media selection, and related instructional responsibilities. Preparing to teach college level students. Mr. A. Cohen

431C. Innovative Forms and Practices in Higher and Continuing Education. New Institutional forms, e.g., external degree programs and other nontraditional approaches to higher education, neighborhood learning centers, and peoples' colleges. Methodological innovations such as computer-assisted instruction, credit by examination, and independent study. Ms. Astin, Ms. Rockhill

432. Seminar: Professional Topics in Higher Education. Ms. Astin, Mr. Solmon

461B. Seminar: Adult Education in Other Countries. The Staff

461C. Seminar: Community Service and Development Programs in Post-Secondary Education. Mr. Kintzer

TEACHER EDUCATION

For courses 324A-324B-324C-324D, and 330A-330B-330C-330D; all candidates must (1) secure the approval of the Office of Student Services at least one quarter prior to assignment, including formal recommendation of Student Health Service and evidence of suitable scholastic averages; and (2) apply to the Head of Supervised Teaching by the middle of the quarter preceding the assignment.

100A. Cultural Foundations of Education. (½ course) Prerequisite: consent of the instructor. Analysis of significant problems and issues in contemporary American education using historical, philosophical, sociological and organizational perspectives. Examines the politics of schooling, the organizational structure of school systems, and philosophical concepts of the aims and functions of schooling and education. The Staff

100B. Cross-Cultural Foundations of Education. (½ course) Prerequisite: consent of the instructor. Analysis of significant problems and issues in the history, culture and current affairs of particular ethnic minority groups in the United States. Patterns of intergroup and school-community relations, and methods for teaching minority students. Includes field experiences. The Staff

102. The Mexican-American and the Schools. Prerequisite: consent of the instructor. Review of research and teaching strategies. Analysis of school policies and practices, and their effect on the development of Mexican-American and Chicano youth and communities. The Staff

112. Psychological Foundations of Education. Prerequisite: consent of the instructor. Analysis of learning processes in school situations. Examines processes of human motivation, the affective, cognitive, social and personal development of children and adolescents, the evaluation of learning, individual differences, and the implications of relevant theory and research for instructional practices. The Staff

264. Seminar: Teacher Education. Prerequisite: consent of the instructor. Examines research, issues and practices in preservice and inservice teacher preparation, evaluation and certification. Social, philosophical and methodological issues, and current trends in America and abroad are studied. Opportunities to observe, participate in and discuss teacher education programs are provided. Mr. Keislar

312. Basic Principles of Curriculum and Instruction. Prerequisite: consent of the instructor. Analysis and practice of basic principles and concepts for planning, conducting and evaluating units of curriculum and instruction. Emphasis on the study and utilization of a variety of instructional strategies, and their application in elementary and secondary schools. The Staff

315AB. Principles and Methods of Teaching Reading: K-12. Prerequisites: consent of the instructor. 315A is prerequisite to 315B. Analysis of reading problems and programs; study of relationships between language, culture, cognition and reading. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Observation and participation in schools. Mr. Keislar

315A-315B. Principles and Methods of Teaching Reading: K-12. (½ course each) Prerequisites: consent of the instructor. 315A is prerequisite to 315B. Analysis of reading problems and programs; study of relationships between language, culture, cognition and reading. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Observation and participation in schools. Mr. Keislar

318A-318B. Principles and Methods for Multiple Subject Instruction. (½ course each) Prerequisites: consent of the instructor. 318A is prerequisite to 318B. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Focus on subjects commonly taught in elementary schools. Observation and participation in schools. Mr. Keislar

320A-320B. Principles and Methods for Single Subject Instruction. (½ course each) Prerequisites: consent of the instructor. 320A is prerequisite to 320B. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Focus on subjects commonly taught in secondary schools. Observation and participation in schools. Mr. Keislar

324A. Observation and Participation: Multiple Subject Instruction. (½ to 1½ courses) Prerequisite: consent of the instructor. Six hours per week of observation and participation in classrooms in which multiple subjects are taught, normally in elementary schools. Preparation for supervised teaching. Mr. Keislar

324B. Supervised Teaching: Multiple Subject Instruction. (½ to 1½ courses) Prerequisites: course 324A and consent of the instructor. Practice teaching under the daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. Mr. Keislar

324C. Supervised Teaching: Multiple Subject Instruction. (½ to 1½ courses) Prerequisites: course 324B and consent of the instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. Mr. Keislar

324D. Supervised Teaching: Multiple Subject Instruction. (½ to 1½ courses) Prerequisites: course 324C and consent of the instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. Mr. Keislar

330A. Observation and Participation: Single Subject Instruction (½ to 1½ courses) Prerequisite: consent of the instructor. Six hours per week of observation and participation in classroom in which single subjects are taught, normally in secondary schools. Preparation for supervised teaching. Mr. Keislar

330B. Supervised Teaching: Single Subject Instruction. (½ to 1½ courses) Prerequisites: course 330A and consent of the instructor. Practice teaching under the daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. Mr. Keislar

330C. Supervised Teaching: Single Subject Instruction. (½ to 1½ courses) Prerequisites: course 330B and consent of instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. Mr. Keislar

330D. Supervised Teaching: Single Subject Instruction. (½ to 1½ courses) Prerequisites: course 330C and consent of the instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. Mr. Keislar

480. Learning and Development in Childhood and Adolescence. Prerequisite: consent of the instructor. Research and theory from psychology of learning and instruction, and psychology of child and adolescent development applied to practical issues in classroom teaching. Emphasis on intellectual and cognitive development, achievement motivation, self-concept, concept learning, problem solving, and individual differences. Mrs. Feshbach, Mr. Wittrock

481. Knowledge and Inquiry in the Classroom. Prerequisite: consent of the instructor. Examines the logical features of instruction, and demonstrates their application to inquiry techniques in teaching and learning. Analyzes various conceptions of truth, belief, fact and opinion, and studies their application to classroom learning situations. Mr. Ellett, Mr. Weinberg

482. Society and the Organization of School and Classroom. Prerequisite: consent of the instructor. Analysis and resolution of problems of socialization in the classroom. Case study methods will be used to employ social and cultural concepts and social evaluation to the diagnosis and interpretation of classroom teaching problems. Mr. Gordon, Mr. O'Shea

483. Cognitive Processes in Reading. Critical analysis of scholarly studies, theoretical and applied, treating relationships between reading and the mind. Considers implications for teaching of reading. Opportunities for student interaction with foremost scholars in the field, whose studies represent the "growing edge" of research. Mrs. Valadez

484. The Enhancement of Motivation in the School. Comparative study of motivation in the school including behavioristic, cognitive, developmental, humanistic approaches. Critical review, with special reference to teaching of reading, of (1) motivational methods to heighten school performance, (2) procedures to foster enduring patterns of constructive motivation in the school. Mr. Keislar

489. Instructional Strategies in Education. Prerequisite: consent of the instructor. Analyzes methods for academic instruction, including

NOTE: For key to symbols, see page 74

research and active participation in the adversary approach, forms of debate, role playing, interaction process analysis, and feedback instruments. Practical emphasis on social sciences and humanities instruction, K-12. Mrs. Kourilsky

490A. Instructional Decision-Making. (½ to 1½ courses) Prerequisite: consent of the instructor. Analysis of instructional models relevant to public school education. Assumptions, procedures, and constraints of each strategy considered in terms of learner and task variables. Laboratory experiences in classroom settings permit students systematically to apply and evaluate alternative instructional strategies.
Mrs. Baker, Mrs. Kourilsky

491A. Curricular Decision-Making. (½ to 1½ courses) Prerequisite: consent of the instructor. Examination of alternative solutions for the practical problems that classroom teachers face in making curricular decisions. Analysis of the influence of psychological, societal, and institutional factors in curricular decisions. Miss Crabtree, Mr. Wright

492. Evaluation of Teaching and Learning. Prerequisite: consent of the instructor. Examines relationship between appraisal instruments and information required for making decisions about teachers, pupils, and materials. Introduces recent developments in the evaluation of teaching and learning, and demonstrates the use of modern appraisal techniques in classroom settings.
Mr. McNeil, Mr. Popham, Mr. Skager

INDEPENDENT STUDY, RESEARCH, AND INTERNSHIP

199. Special Studies. (½ to 2 courses) Prerequisite: senior standing and consent of the instructor. Independent study of individual problems. The Staff

299A-299B-299C. Research Practicum in Education. May be repeated once for credit. The Staff

498A-498B-498C. Directed Field Experience. May be repeated once for credit. The Staff

499A-499B-499C. Advanced Directed Field Experience. May be repeated once for credit.
The Staff

596. Directed Independent Study. (½ to 2 courses) Individual study or research for graduate students. Maximum credit, three courses. The Staff

597. Preparation for the Master's Comprehensive Examination or the Doctoral Qualifying Examination. Individual study for master's degree comprehensive examinations or for qualifying examinations on the Ph.D., or Ed.D. Maximum credit, two courses. The Staff

598. Thesis Research. Research for and preparation of the master's thesis. Maximum credit, two courses. The Staff

599. Dissertation Research. (1 or 2 courses) Research for and preparation of the doctoral dissertation. Maximum credit, no limit. The Staff

ENGINEERING AND APPLIED SCIENCE

(Office of the Dean, 7400 Boelter Hall)

Russell R. O'Neill, Ph.D., *Dean.*
Russell A. Westmann, Ph.D., *Associate Dean.*
Alfred C. Ingersoll, Ph.D., *Associate Dean.*
Richard Stern, Ph.D., *Assistant Dean.*
Ahmed R. Wazzan, Ph.D., *Assistant Dean.*
Alan N. Willson, Jr., Ph.D., *Assistant Dean.*

CHEMICAL, NUCLEAR, AND THERMAL ENGINEERING DEPARTMENT

(Department Office, 5531 Boelter Hall)

Douglas N. Bennion, Ph.D., *Professor of Engineering and Applied Science.*
Harry Buchberg, M.S., *Professor of Engineering and Applied Science.*
Ivan Catton, Ph.D., *Professor of Engineering and Applied Science.*
Vernon E. Denny, Ph.D., *Professor of Engineering and Applied Science.*
Donald K. Edwards, Ph.D., *Professor of Engineering and Applied Science.*
Traugott H.K. Frederking, Ph.D., *Professor of Engineering and Applied Science.*
Sheldon K. Friedlander, Ph.D., *Professor of Engineering and Applied Science.*
William E. Kastenberg, Ph.D., *Professor of Engineering and Applied Science.*
Eldon L. Knuth, Ph.D., *Professor of Engineering and Applied Science.*
Joseph W. McCutchan, M.S., *Professor of Engineering and Applied Science.*
Anthony F. Mills, Ph.D., *Professor of Engineering and Applied Science.*
Ken Nobe, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
David Okrent, Ph.D., *Professor of Engineering and Applied Science.*
Richard L. Perrine, Ph.D., *Professor of Engineering and Applied Science.*
Gerald C. Pomraning, Ph.D., *Professor of Engineering and Applied Science.*
Lawrence B. Robinson, Ph.D., *Professor of Engineering and Applied Science.*
Ahmed R. Wazzan, Ph.D., *Professor of Engineering and Applied Science.*
Vijay K. Dhir, Ph.D., *Associate Professor of Engineering and Applied Science.*
George E. Apostolakis, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Nasr M. Ghoniem, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Owen I. Smith, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Alan Z. Ullman, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Vincent L. Vilker, Ph.D., *Assistant Professor of Engineering and Applied Science.*

•

Manuel M. Baizer, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Leslie Cave, B.Sc., *Adjunct Professor of Engineering and Applied Science.*
Carl Gazley, Jr., Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Julius Glater, M.S., *Adjunct Associate Professor of Engineering and Applied Science.*
Irving M. Pearson, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Milton S. Plesset, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
A.M.O. Smith, D.Sc., *Adjunct Professor of Engineering and Applied Science.*
Chauncey Starr, Ph.D., *Adjunct Professor of Engineering and Applied Science.*

COMPUTER SCIENCE

(Department Office, 3732 Boelter Hall)

Algirdas A. Avizienis, Ph.D., *Professor of Engineering and Applied Science.*
Bertram Bussell, Ph.D., *Professor of Engineering and Applied Science.*
David G. Cantor, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
Wesley W. Chu, Ph.D., *Professor of Engineering and Applied Science.*
Kenneth M. Colby, M.D., *Professor of Psychiatry and Engineering and Applied Science.*
Gerald Estrin, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
[18]Joseph J. DiStefano, III, Ph.D., *Professor of Engineering and Applied Science and Medicine.*
Walter J. Karplus, Ph.D., *Professor of Engineering and Applied Science.*
Leonard Kleinrock, Ph.D., *Professor of Engineering and Applied Science.*
Allen Klinger, Ph.D., *Professor of Engineering and Applied Science.*
David F. Martin, Ph.D., *Professor of Engineering and Applied Science.*
Lawrence P. McNamee, Ph.D., *Professor of Engineering and Applied Science.*
Michel A. Melkanoff, Ph.D., *Professor of Engineering and Applied Science.*
Richard R. Muntz, Ph.D., *Professor of Engineering and Applied Science.*
[16]Jacques J. Vidal, Ph.D., *Professor of Engineering and Applied Science.*
[18]Chand R. Viswanathan, Ph.D., *Professor of Engineering and Applied Science.*
Thomas A. Rogers, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Antonin Svoboda, D. Tech. Sci., *Emeritus Professor of Engineering and Applied Science.*
Daniel M. Berry, Ph.D., *Associate Professor of Engineering and Applied Science.*
Alfonso F. Cardenas, Ph.D., *Associate Professor of Engineering and Applied Science.*
Joseph A. Goguen, Jr., Ph.D., *Associate Professor of Engineering and Applied Science.*
Gerald J. Popek, Ph.D., *Associate Professor of Engineering and Applied Science.*
Milos D. Ercegovac, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Emily P. Friedman, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Mario Gerla, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Robert C. Uzgalis, *Assistant Professor of Engineering and Applied Science.*

•

Thelma Estrin, Ph.D., *Adjunct Professor of Engineering and Applied Science and Anatomy.*
[16]John Hanley, M.D., *Professor of Psychiatry in Residence and Engineering and Applied Science.*
William B. Kehl, A.M., *Lecturer in Engineering and Applied Science.*
Leon Levine, M.S., *Senior Lecturer in Engineering and Applied Science.*
D. Scott Parker, Jr., Ph.D., *Assistant Professor of Engineering and Applied Science in Residence.*
David A. Rennels, Ph.D., *Acting Assistant Professor of Engineering and Applied Science.*
Michael Rhodes, Ph.D., *Visiting Assistant Professor of Engineering and Applied Science.*

ELECTRICAL SCIENCES AND ENGINEERING

(Department Office, 7732 Boelter Hall)

Frederick G. Allen, Ph.D., *Professor of Engineering and Applied Science.*
Francis F. Chen, Ph.D., *Professor of Engineering and Applied Science.*
Robert S. Elliott, Ph.D., *Professor of Engineering and Applied Science.*
A. Theodore Forrester, Ph.D., *Professor of Engineering and Applied Science and Physics.*
H. J. Orchard, M.Sc., *Professor of Engineering and Applied Science. F. W. Schott, Ph.D., Professor of Engineering and Applied Science.*
Gabor C. Temes, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
Chand R. Viswanathan, Ph.D., *Professor of Engineering and Applied Science.*
Alan N. Willson, Jr., Ph.D., *Professor of Engineering and Applied Science.*
Cavour W. Yeh, Ph.D., *Professor of Engineering and Applied Science.*
Louis L. Grandi, M.S., *Emeritus Professor of Engineering and Applied Science.*
W. D. Hershberger, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Ellis F. King, M.S., *Emeritus Professor of Engineering and Applied Science.*
Nicolaos G. Alexopoulos, Ph.D., *Associate Professor of Engineering and Applied Science.*
Lee W. Casperson, Ph.D., *Associate Professor of Engineering and Applied Science.*
David A. Hammer, Ph.D., *Associate Professor of Engineering and Applied Science.*
Neville C. Luhmann, Jr., Ph.D., *Associate Professor of Engineering and Applied Science.*
Oscar M. Stafsudd, Jr., Ph.D., *Associate Professor of Engineering and Applied Science.*
Jack Willis, B.Sc., *Associate Professor of Engineering and Applied Science.*
Rodolfo F. Cordero, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Siegfried G. Knorr, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Dee-Son Pan, Ph.D., *Assistant Professor of Engineering and Applied Science.*

•

Aldo G. DiLoreto, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Clifford E. Gilbert, B.Sc., *Lecturer in Engineering and Applied Science.*
Douglas A. Pinnow, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
George Szentirmai, Ph.D., *Adjunct Professor of Engineering and Applied Science.*

ENGINEERING SYSTEMS

(Department Office, 7619 Boelter Hall)

Joseph J. DiStefano, III, Ph.D., *Professor of Engineering and Applied Science and Medicine.*
John A. Dracup, Ph.D., *Professor of Engineering and Applied Science.*
Cornelius T. Leondes, Ph.D., *Professor of Engineering and Applied Science.*
John H. Lyman, Ph.D., *Professor of Engineering and Applied Science and Psychology (Chairman of the Department).*
[18]Joseph W. McCutchan, M.S., *Professor of Engineering and Applied Science.*
Herbert B. Nottage, Ph.D., *Professor of Engineering and Applied Science.*
Philip F. O'Brien, M.S., *Professor of Engineering and Applied Science.*
Russell R. O'Neill, Ph.D., *Professor of Engineering and Applied Science.*
Judea Pearl, Ph.D., *Professor of Engineering and Applied Science.*
[18]Richard L. Perrine, Ph.D., *Professor of Engineering and Applied Science.*
Allen B. Rosenstein, Ph.D., *Professor of Engineering and Applied Science.*
Moshe F. Rubinstein, Ph.D., *Professor of Engineering and Applied Science.*
Allen R. Stubberud, Ph.D., *Professor of Engineering and Applied Science, Resident at Irvine.*
William D. Van Vorst, Ph.D., *Professor of Engineering and Applied Science.*
William W.G. Yeh, Ph.D., *Professor of Engineering and Applied Science.*
Morris Asimow, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Ralph M. Barnes, Ph.D., *Emeritus Professor of Engineering and Applied Science and Production Management.*
Edward P. Coleman, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
J. Morley English, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
Warren A. Hall, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
W. Julian King, M.E., *Emeritus Professor of Engineering and Applied Science.*
Russell L. Perry, M.E., *Emeritus Professor of Engineering and Applied Science, Resident at Riverside.*
Arthur F. Pillsbury, Engineer, *Emeritus Professor of Engineering and Applied Science.*
Bonham Campbell, E.E., *Associate Professor of Engineering and Applied Science.*
L. Arthur Campfield, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Michael K. Stenstrom, Ph.D., *Assistant Professor of Engineering and Applied Science.*

•

Norman C. Dalkey, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Gary L. Gasca, B.A., *Lecturer in Engineering and Applied Science.*
Alfred C. Ingersoll, Ph.D., *Professor of Engineering and Applied Science in Residence.*
Melvin W. Lifson, Ph.D., *Lecturer in Engineering and Applied Science.*
Kenneth R. Pfeiffer, Ph.D., *Lecturer in Engineering and Applied Science and Psychology.*
Robert V. Phillips, B.S., *Adjunct Professor of Engineering and Applied Science.*
Arnold M. Ruskin, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Ran Vas, D.Sc., *Adjunct Associate Professor of Engineering and Applied Science.*

MATERIALS

(Department Office, 6531 Boelter Hall)

Alan J. Ardell, Ph.D., *Professor of Engineering and Applied Science.*
Rointan F. Bunshah, D.Sc., *Professor of Engineering and Applied Science.*
David L. Douglass, Ph.D., *Professor of Engineering and Applied Science.*
William J. Knapp, Sc.D., *Professor of Engineering and Applied Science.*
John D. Mackenzie, Ph.D., *Professor of Engineering and Applied Science.*
Kanji Ono, Ph.D., *Professor of Engineering and Applied Science.*
Aly H. Shabaik, Ph.D., *Professor of Engineering and Applied Science.*
George H. Sines, Ph.D., *Professor of Engineering and Applied Science.*
Christian N. J. Wagner, Dr. rer. nat., *Professor of Engineering and Applied Science.*
Alfred S. Yue, Ph.D., *Professor of Engineering and Applied Science.*
Daniel Rosenthal, Ph.D., *Emeritus Professor of Engineering and Applied Science.*
William Klement, Jr., Ph.D., *Associate Professor of Engineering and Applied Science.*

•

Samuel B. Batdorf, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Stephen L. Cannon, Ph.D., *Adjunct Assistant Professor of Engineering and Applied Science.*
Ryoichi Kikuchi, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Martin H. Leipold, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
George Martin, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Morris A. Steinberg, D.Sc., *Adjunct Professor of Engineering and Applied Science.*
James R. Varner, Ph.D., *Acting Assistant Professor of Engineering and Applied Science.*

MECHANICS AND STRUCTURES

(Department Office 6731 Boelter Hall)

Andrew F. Charwat, Ph.D., *Professor of Engineering and Applied Science.*
Julian D. Cole, Ph.D., *Professor of Engineering and Applied Science and Mathematics.*
Steven C. Crow, Ph.D., *Professor of Engineering and Applied Science.*
Stanley B. Dong, Ph.D., *Professor of Engineering and Applied Science.*
C. Martin Duke, M.S., *Professor of Engineering and Applied Science.*
Kurt Forster, Ph.D., *Professor of Engineering and Applied Science.*
Michael E. Fourney, Ph.D., *Professor of Engineering and Applied Science.*
Robert E. Kelly, Sc.D., *Professor of Engineering and Applied Science.*
Chung-Yen Liu, Ph.D., *Professor of Engineering and Applied Science.*
Ajit K. Mal, Ph.D., *Professor of Engineering and Applied Science.*
William C. Meecham, Ph.D., *Professor of Engineering and Applied Science.*
Antony J. A. Morgan, Ph.D., *Professor of Engineering and Applied Science.*
Rokuro Muki, Ph.D., *Professor of Engineering and Applied Science.*
Richard B. Nelson, Sc.D., *Professor of Engineering and Applied Science.*
Lucien A. Schmit, Jr., M.S., *Professor of Engineering and Applied Science.*
[18]George H. Sines, Ph.D., *Professor of Engineering and Applied Science.*
Richard Stern, Ph.D., *Professor of Engineering and Applied Science.*
Edward H. Taylor, M.S., *Professor of Engineering and Applied Science.*
Russell A. Westmann, Ph.D., *Professor of Engineering and Applied Science.*
Joseph S. Beggs, D.Ing., *Emeritus Professor of Engineering and Applied Science.*
Walter C. Hurty, M.S., *Emeritus Professor of Engineering and Applied Science.*
Tung Hua Lin, D.Sc., *Emeritus Professor of Engineering and Applied Science.*
William T. Thomson, Ph.D., *Emeritus Professor of Engineering and Applied Science, Resident at Santa Barbara.*
Steven J. Barker, Ph.D., *Associate Professor of Engineering and Applied Science.*
Steven Dubowsky, Sc.D., *Associate Professor of Engineering and Applied Science.*
Lewis P. Felton, Ph.D., *Associate Professor of Engineering and Applied Science.*
Peretz Friedmann, Sc.D., *Associate Professor of Engineering and Applied Science.*
Gary C. Hart, Ph.D., *Associate Professor of Engineering and Applied Science.*
Poul V. Lade, Ph.D., *Associate Professor of Engineering and Applied Science.*
D. Lewis Mingori, Ph.D., *Associate Professor of Engineering and Applied Science.*
Dixon Rea, Ph.D., *Associate Professor of Engineering and Applied Science.*
Sanford B. Roberts, Ph.D., *Associate Professor of Engineering and Applied Science.*
Lawrence G. Selna, Ph.D., *Associate Professor of Engineering and Applied Science.*
Ross R. Allen, Ph.D., *Assistant Professor of Engineering and Applied Science.*
James S. Gibson, Ph.D., *Assistant Professor of Engineering and Applied Science.*
David Y. Tan, Ph.D., *Assistant Professor of Engineering and Applied Science.*

•

Richard S. Chadwick, Ph.D., *Adjunct Associate Professor of Engineering and Applied Science.*
Robert E. Englekirk, Ph.D., *Adjunct Associate Professor of Engineering and Applied Science.*
George J. Tauxe, M.S., *Emeritus Senior Lecturer in Engineering and Applied Science.*
Edward R. Wood, D.Engr., *Adjunct Professor of Engineering and Applied Science.*
Harold T. Yura, Ph.D., *Adjunct Professor of Engineering and Applied Science.*
Moche Ziv, Ph.D., *Adjunct Associate Professor of Engineering and Applied Science.*

SYSTEM SCIENCE

(Department Office, 4532 Boelter Hall)

Masanao Aoki, Ph.D., *Professor of Engineering and Applied Science.*
A. V. Balakrishnan, Ph.D., *Professor of Engineering and Applied Science and Mathematics.*
Jack W. Carlyle, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Department).*
Hector O. Fattorini, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
Sheila A. Greibach, Ph.D., *Professor of Engineering and Applied Science.*
James L. Massey, Ph.D., *Professor of Engineering and Applied Science.*
Jimmy K. Omura, Ph.D., *Professor of Engineering and Applied Science.*
Paul K. C. Wang, Ph.D., *Professor of Engineering and Applied Science.*
Donald M. Wiberg, Ph.D., *Professor of Engineering and Applied Science and Anesthesiology.*
Kung Yao, Ph.D., *Professor of Engineering and Applied Science.*
Stephen E. Jacobsen, Ph.D., *Associate Professor of Engineering and Applied Science.*
Nhan Levan, Ph.D., *Associate Professor of Engineering and Applied Science.*
Bruce L. Miller, Ph.D., *Associate Professor of Engineering and Applied Science.*
Richard E. Mortensen, Ph.D., *Associate Professor of Engineering and Applied Science.*
Izhak Rubin, Ph.D., *Associate Professor of Engineering and Applied Science.*
[18]Emily P. Friedman, Ph.D., *Assistant Professor of Engineering and Applied Science.*
Eduardo J. Subelman, Ph.D., *Assistant Professor of Engineering and Applied Science.*

•

Jan M. Chaiken, Ph.D., *Adjunct Associate Professor of Engineering and Applied Science.*

Undergraduate Required Courses

Lower Division: 10

Upper Division: The student is to select 8 core courses (32 units) from the 5 subject areas as listed below. The minimum and maximum number of units allowed in each of the 5 subject areas is also given.

Subject Areas (5)

Courses (12)

(1) *Computer Processes*
Courses: M124A
Units: 0-4

(2) *Electrical Sciences*
Courses: 100, 100B
Units: 4-8

(3) *Mechanics*
Courses: 102, 103A, 108
Units: 8-12

(4) *Systems*
Courses: 106B, 121C, 127B
Units: 4-8

(5) *Thermal and Materials Science*
Courses: 14†, 105A, 105D
Units: 8-12

†Not open for credit for students who have taken Engineering 107B.

Students following pre 1976/77 catalogs are referred to the respective catalogs for further information.

NOTE: For key to symbols, see page 74

School Courses

5, 11, 12, 104, 104CD, 192A, 192B, 192C, 193A, 196A, 291A, 291B, 291C, 470A-470D,* 471A-471C,* 472A-472D,* 473A-473B,* 596, 597A, 597B, 597C, 598, 599.

*Open only to Engineering Executive Program students.

Departmental Course Offerings

Chemical, Nuclear, and Thermal Engineering Courses

130A, 131A, 131C, 132A, 133A, 134A, 134B, 134C, 135A, 135AL, 135B, 135BL, 135C, 135D, 135E, 136A, 136B, 136C, 137, 137A, 137B, 137C, 137D, 138A, 139A, 139B, 199C, 230A, 230B, 230C, 230D, 231A, 231B, 231C, 231D, 231E, 231F, 232B, 233A, 234A, 235A, 235B, 235C, 235D, 236A, 236B, 236C, 236D, 236E, M236G, 236H, 237A, 237B, 237C, 237D, 237E, 238, 238A, 238B, 238C, 238D, 238E, 239AA-AZ, 239BA-BZ, 239CA-CZ, 239DA-DZ, 239EA-EZ, 239S.

Computer Science Courses

20, 30, 99, 111, M123B, M124A, 131, 132, 141, 151A, 151B, 152A, 152B, 171, 172, 173, 174, 199, 201, 202, 211A, 212A, 212B, 212C, 219, 221, 231A, 231B, 232A, 232B, 234B, 234C, 239, 241A, 241B, 242A, 243B, 249, 252A, 253A, 254A, 255A, 257A, 259, 271A, 271B, 273A, 275A, 276A, 276B, 276C, 279, M285A, 286A, M287A, 288A, 289, 479D, 479E, 596, 597A, 597B, 597C, 598, 599.

Electrical Sciences and Engineering Courses

110A, 110B, 110C, 111A, 111B, 113A, 113B, 115A, 115B, 115C, 115D, 115E, 115F, 116A, 116B, 116C, 116D, 116L, 116M, 116N, 117A, 117B, 117C, 117D, 117L, M118, 195A, 199B, 210A, 210B, 210C, 210D, 210E, 210-F, 213A, 213B, 213C, 213S, 214A, 214B, 214C, M214E, 215A, 215B, 215C, 215D, 216A, 216B, 216C, 217A-217B, 217C, 217E, 219A, 219B, 219C, 219D, 219E, 219X.

Engineering Systems Courses

106A, 106C, 106D, M107A, 109, 171A, 171C, 173, 174A, 176A, 177A, 177B, 180A, 180B, 181A, 184A, 184B, 184D, 184E, 193B, M196B, 199D, 270A, 271A, 271B, 271C, 271D, 272D, 274A, 274B, 274C, 274K, 276A, 277A, 277B, 280A, 280B, 284A, 284B, 284C, 284D, 284E, 284F, 284G, 284H, M288A, M288B, M288C, M296A, M296B, M296C.

Materials Courses

140D, 140E, 140L, 141, 142A, 142L, 143A, 143L, 144A, 144L,145A, 145L, 146A, 146B, 146D, 146E, 146L, 147A, 147B, 147E, 147L, 147M, 148, 149C, 199E, 240A, 240B, 240C, 241, 242A, 243A, 243B, 243C, 244, 245C, 246A, 246B, 246D, 247A, 247B, 247C, 248A.

Mechanics and Structures Courses

150A, 150B, 151, 152, 153A, 153B, 153C, 154A, 154B, 155, 156A, 157, 157A, 157B, 158A, 160, 161A, 162A, 162B, 162C, 163, 164, 165A, 165B, 165C, 165L, 166, 167A, 167B, 167C, 167L, 169A, 185A, 185B, 186A, 191A, 199F, 250A, 250B, 250C, 251A, 251B, 251C, 252A, 252B, 252D, 253A, 253B, 253C, 254A, 254B, 255A, 255B, 256A, 256B, 256C, 256F, M257A, M257B, 258A, 258B, 259A, 259B, 262A, 263A, 263B, 264A, 264B, 265A, 265B, 265C, 266A, 266B, 267A, 267B, 267C, 267E, 267S, 268A, 268B, 269A, 269B, 269C, 269D, 285A, 285B, 285C, 285D, 285E, 285L, 286A, 286B, M291A, M291B, M292A, M292B.

System Science Courses

120A, 120B, M120C, 122A, M123B, 128A, 128D, 128L, 129A, 129L, 201A-201ZZ, 220A, 220B, 220G, 221, 222A, 222B, 222C, 222EA-222EZ, M222F, M222G, 227A, 227B, 227C, 227EA-227EZ, 227F, 227G, 228A, 228B, 228CA-228CZ, 228D, 229A, 229B, 229C, 229EA-229EZ, 229J-K-L, 272A, 272BA-272BZ, 272C, 273A, M273B, 273CA-273CZ, 275A, 275B, M284A, 284XA-284XZ, M285A, M287A, M291A, M291B.

ENGINEERING

Lower Division Courses

5. Computers in the Man-Made World. An introduction to computers and computing for non-mathematically oriented students. How a computer functions and how one can "talk" to it will be explained through a study of logical circuits, memory, control, arithmetic, computer organization, and programming. Mr. Bussell (W)

10C. Introduction to Computing. (Formerly numbered 10.) Recommended for Math/Computer Science majors; (emphasis on numerical problems). Open to graduate students on a S/U basis only. Not open to students who have completed Engineering 10, 10F, or 10S. Algorithms and programming languages. Description and use of PL/1 programming language. Selected topics in numerical analysis. Organization and characteristics of digital computers. Machine language. Programming and running of several numeric and non-numeric problems. Mr. Levine (F,W,Sp)

10F. Introduction to Programming/FORTRAN. (Formerly numbered 10.) Recommended for Chemical, Nuclear and Thermal Engineering Department and Mechanics and Structures Department majors; (emphasis on numerical problems). Open to graduate students on S/U grade basis only. Not open to students who have completed Engr. 10, 10C or 10S. Description and use of FORTRAN programming language. Selected topics in programming techniques. Programming and running of several numeric problems. Mr. Levine (F,W,Sp)

10S. Introduction to Programming for Life and Social Sciences. (Formerly numbered 10.) Recommended for all majors except Math/Computer Science, and Engineering; (emphasis on non-numerical problems). Open to graduate students on S/U grade basis only. Not open to students who have completed Engr. 10, 10C or 10F. Description and use of PL/1 programming languages. Selected topics in numerical analysis and data processing. Programming and running of several numeric and non-numeric problems. Mr. Levine (F,W,Sp)

11. Patterns of Problem Solving. An introduction to patterns of reasoning in the process of problem solution and decision making. Exposure to concepts, theories and techniques in the analysis and synthesis of total systems in our complex technological civilization. Mr. Elliott, Mr. Hart, Mr. Rubinstein (F,W,Sp)

12. Applied Patterns of Problem Solving. Prerequisite: course 11. An application of the tools and methods discussed in Engineering 11, to three specific problems of a social and technical nature. Mr. Rubinstein (W,Sp)

14. Science of Engineering Materials. Prerequisite: Chemistry 11A, 11B, 11B1; Physics 8A and 8B; Physics 8C (may be taken concurrently). (Not open for credit to students who have taken Engr. 107B.) General introduction to different types of materials used in engineering designs: metals, ceramics, plastics and composites, relationship between structure (crystals and microstructure) and properties of technological materials. Illustration of their fundamental differences, and their applications in engineering. Mr. Ono (F,W,Sp)

Upper Division Courses

100. Electrical and Electronic Circuits. Lecture, four hours; recitation, one hour. Prerequisite: Mathematics 32C, may be taken concurrently; Physics 8C. Electrical quantities, circuit principles, signal wave-forms, A.C. circuits, semiconductor devices, small signal models, amplifiers, electrical and electronics instruments. Mr. Luhmann (F,W,Sp)

100L. Circuit Analysis Laboratory. (1/2 course) Prerequisite: Physics 8C; Engineering 100, which should be taken concurrently. Experiments with circuits containing linear and nonlinear devices; transient and steady state behavior of circuits. Mr. Willis (F,W,Sp)

100B. Engineering Electromagnetics. Lecture, four hours; recitation, one hour. Prerequisite: Physics 8C, Mathematics 32C. Electromagnetic field concepts; Maxwell's Equations; static and quasistatic fields; field energy; energy flow and the Poynting vector; electromechanical interactions; waves in unbounded media and on two-wire transmission lines; reflection and refraction; lossy media; skin effect; analogs to electromagnetic fields. Mr. Alexopoulos (F,W,Sp)

102. Mechanics of Particles and Rigid Bodies. Lecture, three hours; recitation, two hours. Prerequisite: Mathematics 32C (may be taken concurrently). Newtonian mechanics (statics and dynamics) of particles and rigid bodies. Fundamental concepts of mechanics. Statics, kinematics, and kinetics of particles and rigid bodies. Impulse-momentum and work-energy relationships. Applications. Mr. Mingori (F,W,Sp)

103A. Elementary Fluid Mechanics. Prerequisite: Mathematics 32C; Engineering 102 recommended. An introductory course dealing with the application of the principles of mechanics to the flow of compressible and incompressible fluids. Mr. Kelly, Mr. Liu (F,W,Sp)

104. Introduction to Experimental Techniques. (½ course) Principles of simple machining operations, engineering drawing practices, soldering and welding techniques, vacuum systems, glassblowing, American standard sizes and color-codes, effective presentation of results. One lecture-demonstration per week. May be taken before junior year. To be graded on P/NP basis. Mr. Stern (F,Sp)

104C-104D. Undergraduate Research Laboratory. Laboratory, eight hours. Prerequisite: senior standing. Two quarter comprehensive projects in experimental engineering – research or design – involving laboratory work. Students may submit projects of their own choosing. May serve as basis for graduate research. Will satisfy Engineering laboratory requirement. Qualified non-engineering students are encouraged to enroll. Mr. Campfield, Mr. Stern, Mr. Ullman (F,W,Sp)

105A. Introduction to Engineering Thermodynamics. Prerequisite: Physics 8B and Mathematics 32A. Phenomenological thermodynamics. Concepts of equilibrium, temperature and reversibility. First law and concept of energy; second law and concept of entropy. Equations of state and thermodynamic properties. Engineering applications of these principles in the analysis and design of closed and open systems. Mr. Nobe, Mr. Robinson (F,W,Sp)

105D. Transport Phenomena. Prerequisites: Physics 8B and Mathematics 32C. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control. Mr. Edwards, Mr. Vilker (F,W,Sp)

106A. Principles of Engineering Economy. Prerequisite: upper division standing. Economic analysis of engineering projects; value systems; economic decisions on capital investment and choice of engineering alternatives; new projects, replacement and abandonment policies; risky decisions including make/buy policies and research investment; corporate financial practices and accounting. Mr. English (F,W,Sp)

106B. Introduction to Design and Systems Methodology. Prerequisite: course 10; Mathematics 32C. Theory of engineering design and synthesis. Models and modeling. Analysis, test and evaluation. Methods for design optimization. Elementary decision theory. Student's design projects. Mr. Rosenstein (F,W,Sp)

106C. Experimental Design Laboratory. Laboratory, eight hours. Prerequisite: course 106B or equivalent. Creative experimental projects for student designs in any engineering domain where individual students have preparation and interest, exemplifying the professional method. Predicted idealized performance is compared to experimen-

tally achieved realities. Student prize competition entries are encouraged.
Mr. Nottage, Mr. O'Brien (W)

106D. Engineering Systems Design Laboratory. Recitation, one hour; laboratory, eight hours. Prerequisite: course 106C. 104 recommended. Advanced senior standing required. Similar to 106C and normally a continuation thereof. Design projects generally emphasizing productivity, energy, environments, and process cost-benefit studies.
Mr. Nottage, Mr. O'Brien (F,Sp)

M107A. Principles of Biotechnology. (Same as Psychology M153.) Prerequisite: third quarter sophomore or higher standing. The principles of biological science are developed in an engineering context. An emphasis is placed on how physiological, psychological, and sociological factors affect the integration of man into environmental, informational and managerial systems by engineering means. Mr. Lyman (F,W,Sp)

108. Introduction to Mechanics of Deformable Solids. Prerequisite: Mathematics 32C (may be taken concurrently); Engineering 102 is recommended. Review of equilibrium principles. Concepts of stress and strain. Material constitution (stress-strain relations). Energy in deformable bodies. Structural applications to trusses, beams, shafts, columns and pressure vessels.
Mr. Nelson, Mr. Westmann, (F,W,Sp)

109. The Engineer and Society. Prerequisite: senior standing. Selected lectures, discussions, oral and written reports related to creative engineering, its sociological and ecological impacts, present, future, and past relationships. Maximum student participation in topical selection and class structuring. Creativity and original thinking is emphasized.
Mr. Ingersoll (F,W,Sp)

110A. Basic Circuit Theory I. Prerequisite: course 100. The zero-input, zero-state, transient, steady-state, and complete response of first-order and second-order circuits. Linear time-invariant networks; step response, impulse response, convolution integral. Sinusoidal steady-state analysis. Coupling elements and coupled circuits. The Laplace transform. Mr. Willson (F,W)

110B. Basic Circuit Theory II. (Formerly numbered 110A.) Prerequisite: course 110A. Elementary graph theory, general methods of analyzing electric circuits. Introduction to state equations, natural frequencies. Properties of network functions. Network theorems. Methods of characterizing two-port networks. Mr. Orchard (W,Sp)

110C. Passive Network Synthesis. (Formerly numbered 110B.) Prerequisite: course 110B or equivalent. Properties of positive real functions and tests for positive realness. Synthesis of one and two-port RLC and two-element kind networks.
Mr. Temes (F,Sp)

111A. Electric Power Systems. Prerequisite: course 100. Overall electric power system requirements; typical systems; one-line diagrams. Per-unit quantities; characteristics of machines, transformers, overhead lines and cables; steady-state analysis of systems. Power limits and stability; fault calculations; relays and relay systems. Mr. Schott (W)

111B. Electromechanical Energy Conversion. Prerequisite: course 100. Energy conversion and power flow in electromechanical interactions; electromechanics of actuators and rotating a.c. synchronous and induction machines and d.c. machines. Linear machines. Mr. Schott (F)

113A. Introduction to Lasers and Quantum Electronics. Prerequisite: course 100B or equivalent or consent of the instructor. Physical principles and applications of lasers and other quantum electronic devices. Interferometers, crystal optics, gain and saturation phenomena, and gas discharges.
Mr. Casperson, Mr. Stafsudd (F)

113B. Laser Laboratory. (½ course) Recitation, one hour; laboratory, three hours. Prerequisite: course 100B or equivalent or consent of the instructor. Properties of lasers including saturation, mode-locking and relaxation effects, and laser applications including optics, modulation, communication, holography, interferometry and nonlinear effects. Mr. Casperson, Mr. Stafsudd (F)

115A. Fundamentals of Solid State I. Prerequisite: junior standing in Engineering; course 130A or equivalent is recommended. Introductory atomic concepts, quantum mechanical principles, energy level in complex atoms, quantum statistics, crystal structure, energy levels in solids, band theory.
Mr. Viswanathan (F,Sp)

115B. Fundamentals of Solid State II. Prerequisite: course 115A. A discussion of the solid state properties, lattice vibrations, thermal properties, dielectric, magnetic, and super-conducting properties. Mr. Stafsudd, Mr. Viswanathan (W)

115C. Semiconductor Physical Electronics. Prerequisite: course 115B. Band structure of semiconductors, homogeneous semiconductors, excess carriers in semiconductors, semiconductor surfaces, optical and thermal properties.
Mr. F.G. Allen, Mr. Viswanathan (Sp)

115D. Physics of Semiconductor Devices. Prerequisite: senior standing in Engineering. Semiconductor technology, Schottky barrier, p-n junction, MOS capacitance, transistor fundamentals, drift transistor, high frequency properties, field effect transistors, integrated electronics.
Mr. Viswanathan (F,W)

115E. Solid State Electronics Laboratory. (½ course) Prerequisite: course 115C. Experiments on magnetic dielectric properties of solids; measurement of electronic properties of both p and n type semi-conductors; thermal electronic properties of p-n junction; optical properties of semiconductors.
Mr. F.G. Allen, Mr. Viswanathan (W)

115F. Semiconductor Devices Laboratory. (½ course) Prerequisite: course 115D. Design, fabrication and characterization of junction, field effect and other semiconductor devices. In particular the student will perform various processing tasks such as wafer preparation, oxidation, impurity diffusion, metallization, sintering and photolithography.
Mr. F.G. Allen, Mr. Viswanathan (F)

116A. Electronics I. Prerequisite: course 100. Equivalent circuit modeling of electron devices. Device-circuit-environment interactions. Design of single-stage amplifiers. Introduction to cascaded stages, coupling problems and frequency response.
Mr. Knorr (F,W,Sp)

116B. Electronics II. Prerequisite: course 116A. Electron device-circuit-environment interactions with emphasis on multistage amplifiers. Tuned amplifier considerations. Nonlinear situations requiring graphical method of solution. Emphasis on design techniques including economics, reliability and realization of performance specifications. Mr. Willis (F,W,Sp)

116C. Pulse and Digital Methods. Prerequisite: courses 116A, 116B. Analysis and design of switching-mode electronic circuits and systems including pulse generation, logic operations, timing and frequency counting. Mr. Knorr (W,Sp)

116D. Electronic Signal Processing. Prerequisite: courses 116B, 121C. Signals and spectra. Signal distortion in transmission filters, transmission bandwidth requirements. Random signals and noise, linear modulation, exponential modulation circuits and characteristics. Commercial communication systems. Mr. Willis (F,Sp)

116L. Electronics I Laboratory. (½ course) Prerequisite: course 100L; 116A recommended. Experimental determination of device characteristics, resistive diode circuits, single-stage amplifiers, compound transistor stages, effect of feedback on single-stage amplifiers. Mr. Knorr (F,W,Sp)

116M. Electronics II Laboratory. (½ course) Prerequisite: course 116L; 116B recommended. Experimental and computer studies of multistage, wide-band, tuned and power amplifier, and multiloop feedback amplifiers. Introduction to Thick Film Hybrid Techniques. Construction of amplifier using hybrid thick film techniques.
Mr. Willis (F,W,Sp)

116N. Pulse and Digital Methods Laboratory. (½ course) Prerequisite: course 116M; 116C to be taken concurrently. Experimental and computer studies of diode and transistor switching and timing circuits. Linear and nonlinear wave shaping techniques. Waveform generation. Mr. Knorr (Sp)

117A. Electromagnetic Waves I. Prerequisite: course 100B. Review of transmission line theory; guided waves in enclosed waveguide and on surfaces; Smith Chart; excitation of guided waves; phase and group velocity; cavity resonators; concept of Q; perturbation theory; waves in complex media (ferrites, crystals, semiconductors, plasmas).
Mr. Schott (F,Sp)

117B. Electromagnetic Waves II. Prerequisite: course 117A. Retarded potentials; dipole radiation; radiation from wire antennas; near-field and far-field phenomena; aperture antennas; spherical antennas; simple arrays scattering from spheres and cylinders; radar cross-sections.
Mr. Elliott (W)

117C. Modern Optics. (Formerly numbered 117D.) Prerequisite: course 117A or equivalent. Two dimensional transforms. Diffraction methods. Geometrical optics and applications. Gaussian beams. Coherent and incoherent imaging systems. Optical processing methods. Holography and applications. Mr. Alexopoulos, Mr. Casperson, Mr. Cordero (Sp)

117D. Electromagnetic Waves III. (Formerly numbered 117C.) Prerequisite: course 117A. Special relativity; relativistic kinematics; field transformations; particle trajectories in electromagnetic fields; radiation from accelerated changes; waves in active media, microwave sources.
Mr. C.W. Yeh (F, even years)

117L. Electromagnetics Laboratory. (½ course) Prerequisite: course 117A; course 117B may be taken concurrently. Experimental investigation of microwave and millimeter wave sources; coaxial, waveguide strip line transmission systems; detectors and power measuring devices; cavity resonator studies; antenna impedance and radiation characteristics. Mr. Luhmann, Mr. Schott (W)

M118. Plasma Physics. (Same as Physics M122.) Prerequisite: course 100B or Physics 110A. Senior level introductory course to physics of plasmas and ionized gases and fundamentals of controlled fusion. Particle motion in magnetic fields; fluid behavior, plasma waves; resistivity and transport; equilibrium and stability; kinetic effects. Illustrative laboratory experiments will be discussed.
Mr. Chen (F,Sp)

120A. Probability. Prerequisite: Mathematics 32B or consent of the instructor. An introduction to the theory and application of probability, including random variables and vectors, distributions and densities, characteristic functions, limit theorems, preliminary concepts of stochastic processes.
Mr. Carlyle, Mr. Massey, Mr. Subelman (F,W)

120B. Stochastic Processes. Prerequisite: course 120A or comparable background in probability (e.g., Mathematics 150A-150B), course 121C or equivalent recommended (may be taken concurrently). An introduction to the theory and application of stochastic models, emphasizing stationary processes and filtering. Random signals and noise, correlation, linear systems; mean-square estimation, the orthogonality principle, Weiner and Kalman filters. Mr. Mortensen, Mr. Yao (W,Sp)

M120C. Stochastic Processes. (Same as Mathematics M151.) Prerequisite: course 120A or Mathematics 150A-150B, or Mathematics 152A and consent of the instructor. An introduction to the theory and application of stochastic models, emphasizing Markov chains and pure jump processes; illustrations from queueing systems, point processes, birth and death processes, renewal theory; Poisson processes, Brownian motion.
Mr. Miller, Mr. Rubin (F,Sp)

121C. Systems and Signals. Lecture, three hours; recitation, two hours. Prerequisites: Mathematics 31A, 31B, 31C or Mathematics 3A, 3B, 3C, Physics

NOTE: For key to symbols, see page 74

8C or 6B, or consent of the instructor. Introductory course with illustrations from physical and life sciences. Input-output descriptions of systems, linearity; impulse and frequency responses, Fourier methods; transforms, analysis of signals. Introduction to digital filtering and Fast Fourier Transform. Computational aspects of system modelling and identification. Mr. Carlyle, Mr. Levan (F,W,Sp)

122A. Principles of Feedback Control. Prerequisite: course 121C or consent of the instructor. Classical methods of analysis and design of feedback control systems, as applied to problems selected from engineering, biology and related areas.
Mr. Aoki, Mr. Wiberg (W)

M123B. Theoretical Models in Computer Science. (Same as Computer Science M123B; formerly numbered Engineering 123B.) Prerequisite: senior standing or consent of the instructor. Sets, strings, and languages. Phrase-structure languages. Finite-state languages and finite-state automata. Context-free languages and pushdown store automata. Unrestricted phrase-structure languages and Turing machines. Context-sensitive languages and linear-bounded automata. Elementary decision problems of automata and languages.
Ms. Friedman, Ms. Greiback, Mr. Martin (F,W,Sp)

M124A. Applied Numerical Computing. (Same as Computer Science M124A; formerly numbered Engineering 124A.) Prerequisite: Engineering 10C and Mathematics 32C or equivalents. An introduction to scientific computing and an application-oriented survey of computing techniques for several important classes of problems, including matrix computations, root-finding, ordinary differential equations, interpolation and approximation. Student computing exercises.
Mr. Carlyle, Mr. Karplus (F,W,Sp)

127B. Elements of Probability and Information. Prerequisite: Mathematics 31B, 11B or 3B, or Mathematics 2B and consent of the instructor. An introduction to finite systems for coding and transmission of messages as character strings. Basic laws of probability and decision in finite systems. Information sources, entropy, noisy channels, capacity, discussion of the meaning and application of Shannons' theorems.
Mr. Massey, Mr. Mortensen, Mr. Omura (F,W)

128A. Linear Systems: The State Space Approach. Prerequisite: course 121C. State-space methods of linear system analysis and design, with application to problems in networks, control, and system modeling. Mr. Levan, Mr. Wang (F,W)

128D. Discrete Systems and Automata. Prerequisite: two quarters of lower-division mathematics or comparable experience with mathematical ideas, such as in linguistics or basic courses in logic or computer programming. An introductory course, emphasizing finite-state systems: graphs, machines, languages, regular expressions, coding, computing; memory, system identification, diagnosis; design considerations.
Ms. Greibach, Mr. Massey (Sp)

128L. System Science Laboratory. Laboratory, eight hours. Prerequisite: two courses numbered Engineering 120 through 129, and consent of the instructor. Laboratory studies such as: applications of interactive computing and online graphics; waveform generation, spectral analysis, random signals; control, servomechanisms, stability; holography, spatial signal processing. Students will have the opportunity to use computer facilities and contemporary equipment for measurement and data analysis.
The Staff, System Science Department (Sp)

129A. Introduction to Optimization Techniques. Prerequisite: Mathematics 31C and 32A or 12A and 12B and some knowledge of digital computer programming or consent of the instructor. Optimization of functions of many variables, unconstrained and with linear or nonlinear constraints. Nonlinear programming algorithms. Direct search, gradients, Lagrange multipliers, penalty functions, etc. Duality. Sample problems from engineering, economics, management, operations research. Students will solve problems on digital computers.
Mr. Aoki, Mr. Jacobsen (F,Sp)

129L. Linear Programming and Operations Research. (Formerly numbered Engineering 172A.) Prerequisite: Mathematics 31C or consent of the instructor. An introduction to the formulation and solution of linear programming problems in operations research, with application to engineering and economic systems. The simplex algorithm; duality; geometry of linear programs; decomposition; selected topics in extensions of linear programming. Ms. Greibach, Mr. Jacobsen, Mr. Subelman (F,W,Sp)

130A. Introduction to Statistical Thermodynamics. Prerequisite: course 105A. Calculations of expected values and variances of thermodynamic functions for perfect monatomic gas, Einstein monatomic crystal, photon gas, electron gas in a metal, perfect adsorbed gas, perfect diatomic gas, and Debye monatomic crystal. Calculations of gross emission rates from surfaces.
The Chemical Engineering Staff (F)

131A. Intermediate Heat Transfer. Prerequisite: course 105D. Steady conduction: two-sided, two-ended, tapered, and circular fins; buried cylinders, thick fins. Transient conduction: slabs, cylinders, products. Convection: transpiration, laminar pipe flow, film condensation, dimensional analysis, working correlations. Surface radiation. Two-stream heat exchangers. Elements of thermal design. Mr. Edwards (F,Sp)

132A. Mass Transfer. Prerequisite: course 105D or 131A. The principles of mass transfer by diffusion. Mass transfer by convection in laminar and turbulent flows. Simultaneous heat and mass transfer. Applications including combustion of solids and volatile fuels, evaporation and condensation, ablation and transpiration cooling, gas absorption and catalysis. Mr. Mills (F)

133A. Power and Process Thermodynamics. Prerequisite: courses 103A, 105A, 105D. Introduction to fundamentals of power production and process thermodynamics (ideal reference and real power cycles, compressible flow and combustion), analysis of system components (nozzles, turbomachines, combustors, cooling towers, heat exchangers), system optimization (applications of fundamentals to gas turbine and other plants).
The Staff, Chemical, Nuclear and Thermal Engineering Department (W)

134A. New Energy Technology: Resources, Conversion, Constraints. Prerequisite: course 105A or equivalent in Physics or Chemistry, or consent of the instructor. Energy resources: fossil fuels (fuel to fuel conversions), nuclear fuels, geothermal sources, solar power, etc. Conversion methods for power production and other energy uses. Consideration of thermodynamic, economic and environmental constraints.
The Staff, Chemical, Nuclear and Thermal Engineering Department (F)

134B. Solar Energy Use and Control. Prerequisite: course 105D or equivalent; or consent of the instructor. Nature and availability of solar radiation; review of selected heat transfer topics pertinent to solar energy collection and use; design analysis of nonfocusing solar energy collector-converters and methods of energy storage; selected applications. Mr. Buchberg (W)

***134C. Chemical, Nuclear and Thermal Pollution of the Environment.** (Formerly numbered 134.) Prerequisite: upper division standing. Description of the environment and the nature of environmental problems. Emphasis on the atmosphere and water as receptors of man-made and natural pollution; a description of sources of pollution, alternatives for control, and transport in the environment.
The Staff, Chemical, Nuclear and Thermal Engineering Department

135A. Nuclear Reactor Theory I. Prerequisite: junior standing. Introduction to nuclear reactor theory, basic physics, neutron cross sections, nuclear fission, elementary analysis of homogeneous reactor cores. Multi-region reactors, and one and two group diffusion theory. Mr. Pomraning (F)

135AL. Nuclear Analysis Laboratory I. (½ course) Laboratory, four hours. Prerequisite: Engineering 135A, should be taken concurrently. A laboratory course in nuclear engineering comprised of various experiments in reactor core physics and related fields. The experiments will consist of measuring and calculating reactor core physics parameters, and pertinent heat transfer/fluid flow parameters.
Mr. Catton (F)

135B. Nuclear Reactor Theory II. Prerequisite: Engineering 135A. Introduction to slowing down, thermalization, multi-group theory, heterogeneous effects, reactor kinetics, and perturbation theory.
Mr. Apostolakis (W)

135BL. Nuclear Analysis Laboratory II. (½ course) Laboratory, four hours. Prerequisite: Engineering 135B, should be taken concurrently. A laboratory course in nuclear engineering comprised of various experiments in reactor core physics and related fields. The experiments will consist of measuring and calculating reactor core physics parameters, and pertinent heat transfer/fluid flow parameters.
Mr. Catton (W)

135C. Introductory Nuclear Reactor Design. (Formerly numbered Engineering 135D.) Prerequisites: Engineering 135A, 135B. (Not the same as Engineering 135C prior to Spring Quarter 1980). Reactor physics, engineering, fuel element design for nuclear reactor cores, criticality, reactivity considerations, and effects; power distributions; differences among various power reactor systems. Introduction to the use of physics design computer codes. Mr. Okrent (Sp)

135F. Experimental Reactor Operations, Control and Safety. (½ course) Laboratory, four hours. Prerequisite: course 135A. Operation of the UCLA R-1 Argonaut reactor, measurements of various core parameters and control system responses and evaluation of various safety systems through experimentation. Experiments not included in Engineering 139A, 135B, 135C will be conducted.
Mr. Catton (Sp)

136A. Introduction to Probabilistic Risk Analysis. (Formerly numbered Engineering M136A.) Prerequisite: consent of the instructor. Probabilistic models for the failure of components and systems. Redundant systems. Maintenance models. Fault and event tree analysis. Applications to nuclear reactor systems.
Mr. Apostolakis (F, even years)

136B. Nuclear Reactor Thermal Hydraulic Design. (Formerly numbered 135E.) Prerequisites: Engineering 105A, 105D, 131A, (135A recommended). Thermohydraulic design of various nuclear power reactor concepts; power generation and heat removal; power cycle, thermal and hydraulic component design; overall plant design; steady state and transient nuclear system operation.
Mr. Dhir (W)

136C. Fundamentals of Nuclear Reactor Materials. Prerequisites: Physics 8D, Mathematics 32C, Engineering 14. Function and choice of materials in reactors. Point defects. Diffusion in solids. Fuel element thermal performance. Behavior of fission products. Fuel swelling radiation effects in metals; hardening, embrittlement and fracture; nuclear fuel equation of state; fuel element design.
Mr. Ghoniem (Sp)

137. Introduction to Chemical Engineering. Prerequisites: Chemistry 11C, Mathematics 32C (may be taken concurrently) and Engineering 105A (may be taken concurrently). Introduction to the analysis and design of industrial chemical processes. Material and energy balances.
The Chemical Engineering Staff (F,Sp)

137A. Chemical Engineering Thermodynamics. Prerequisites: 105A, 137 (or consent of the instructor). Thermodynamic properties of pure substances and solutions. Phase equilibrium. Chemical reaction equilibrium.
The Chemical Engineering Staff (F,W)

137B. Chemical Engineering Separation Operations. Prerequisites: Engineering 105D, 137A. Application of the principles of heat, mass and momentum transport to the design and operation of separation processes such as distillation, gas absorbtion, filtration and reverse osmosis.
The Chemical Engineering Staff (F,W)

137C. Chemical Engineering Kinetics. Prerequisites: Engineering 105D, 137A. Fundamentals of chemical kinetics and catalysis. Introduction to the analysis and design of homogeneous and heterogeneous chemical reactors.
The Chemical Engineering Staff (W)

137D. Chemical Engineering Design. Prerequisites: Engineering 137B, 137C. Integration of chemical engineering fundamentals such as chemical reactor design and separation operations/and simple economic principles for the purpose of designing complete chemical processes.
The Chemical Engineering Staff (Sp)

137E. Diffusion and Interfacial Transfer. Prerequisites: Engineering 105D and 137A. Brownian motion, fluxes according to irreversible thermodynamics; one-dimensional theory: membrane transport, facilitated transport; convective diffusion, concentration boundary layers, turbulent diffusion. The fundamentals will be illustrated by applications to separation processes, gas cleaning and blood oxygenation.
The Chemical Engineering Staff (Sp)

138A. Introduction to Cryogenics and Low Temperature Processing. Prerequisite: Engineering 105A. Liquefaction of gases, cooling to cryotemperatures, LNG processes, liquid hydrogen, and liquid He cryosystems for superfluids and applied superconductivity. Mr. Frederking (W)

139A. Introductory Chemical, Nuclear, and Thermal Engineering Laboratory. Laboratory, eight hours. (Not the same as Engineering 139A prior to Winter Quarter 1977.) Prerequisites: courses 103A, 105A, 105D. Basic introductory laboratory experiments illustrating the equilibrium state properties and transport response to applied driving forces in energy transformation and rate processes. Experiments include examples from thermodynamics, chemical engineering, heat and mass transfer, nuclear engineering, and environmental problems.
The Staff, Chemical, Nuclear and Thermal Engineering Department (F,W,Sp)

139B. Chemical and Thermal Engineering Laboratory. Laboratory, eight hours. (Formerly numbered 139A. Not open to students who have taken Engineering 139A prior to Winter Quarter 1977.) Prerequisites: courses 131A, or 137A and 139A. Basic laboratory practice for the study of energy transformation and rate processes. Selected experiments include examples from thermodynamics, heat and mass transfer, chemical and electrochemical processes, cryogenics, chemical kinetics, molecular dynamics, saline water conversion and environmental problems.
Mr. Mills, Mr. Nobe (W,Sp)

140D. Solid State Technology. Prerequisite: Engineering 14. Rate processes and crystal growth. Technology and preparation of single crystals. Epitaxial growth. Vapor deposition and thin film techniques. Phase diagrams. Annealing and diffusion techniques of semiconductors. Electrical properties of junctions, solar cells. Field trips.
Mr. Yue (Sp)

140E. Materials and Design. Lecture, one hour; laboratory, eight hours. Prerequisite: course 106B; senior standing in Materials. Consideration and specification of design requirements: mechanical, physical, and environmental factors. Materials selection, fabrication methods, and heat treatment. Performance evaluation and failure analysis. Integration of knowledge by treating complete problems from a list of different design projects.
Mr. Bunshah, Mr. Shabaik (W)

140L. Introductory Engineering Materials Laboratory. (½ course) Prerequisite: course 14. Introduction to several laboratory and shop techniques used in fabricating and characterizing different types of materials involved in engineering design. Mr. Klement, Mr. Yue (W,Sp)

***141. Phase Relations in Solids.** Prerequisites: courses 14, 105A. Summary of thermodynamic laws, equilibrium criteria, solution thermodynamics, mass-action law, binary and ternary phase diagrams, glass transitions.
Mr. Knapp, Mr. Klement

142A. Diffusion and Diffusion-Controlled Reactions. (Formerly numbered 142.) Prerequisite: course 141. Diffusion in metals and ionic solids, nucleation and growth theory; precipitation from solid solution, eutectoid decomposition, design of heat treatment processes of alloys, growth of intermediate phases, gas-solid reactions, design of oxidation-resistant alloys, recrystallization and grain growth. Mr. Douglass (F)

142L. Diffusion and Diffusion-Controlled Reactions Laboratory. (½ course) Prerequisite: course 142A to be taken concurrently. Not open for credit to students who have taken Engineering 142. Design of heat-treating cycles and performing experiments to study interdiffusion, growth of intermediate phases, recrystallization, and grain growth in metals. Analysis of data. Comparison of results with theory. Mr. Douglass (F)

143A. Mechanical Behavior of Materials. Prerequisite: courses 14 and 108 or equivalent. Plastic flow of metals under simple and combined loading, strain rate and temperature effects, dislocations, fracture, microstructural effects, mechanical and thermal treatment of steel for engineering applications. Mr. Ono, Mr. Shabaik (W)

143L. Mechanical Testing Laboratory. (½ course) Prerequisite: courses 14, 108; one or more of courses 143A, 158A, 166A recommended. Experimental techniques for the measurements of mechanical properties of engineering materials. Elastic constants, tensile, compression and bend testing, fracture toughness, fatigue and creep testing. Mr. Ono, Mr. Shabaik (W)

144A. Polymer Science. (Formerly numbered Engineering 149A.) Prerequisites: consent of the instructor. Polymerization mechanisms, molecular weight and distribution, chemical structure and bonding, structure crystallinity, and morphology and their effects on physical properties. Glassy polymers, spring polymers, elastomers, adhesives. Fiber forming polymers, polymer processing technology, plasticiation. Mr. Cannon (W)

144L. Design of Specific Polymeric Systems. (½ course) (Formerly numbered 149L.) Prerequisite: course 144A or consent of the instructor. Encapsulation of circuit boards, corrosive fluid containers; compatability problems, polymeric chair bases, motor vehicle tires; compatability and bonding problems, design of fiber reinforced polymeric systems, polymer-metal articulating surfaces, passenger restraint systems. Mr. Cannon (Sp)

145A. Introduction to Materials Characterization. Prerequisite: course 140C or equivalent. Modern methods of materials characterization; X-ray diffraction and spectroscopy; principles of metallography; scanning and transmission electron microscopy; analysis and evaluation of engineering materials. Mr. Ardell, Mr. Wagner (Sp)

145L. Materials Characterization Laboratory. (½ course) Prerequisite: course 145A. Modern laboratory techniques for the microstructural characterization of materials; X-ray powder method; X-ray spectroscopy (wavelength and energy dispersive) for chemical analysis; optical and electron microscopy, quantitative metallography; surface typography.
Mr. Ardell, Mr. Wagner (Sp)

146A. Introduction to Ceramics and Glasses. Prerequisite: course 14 or equivalent. An introduction to ceramics and glasses being used as important materials of engineering, processing techniques and unique properties. Examples of design and control of properties for certain specific applications in engineering. Mr. Mackenzie (W)

146B. Processing of Ceramics and Glasses. Prerequisite: course 146A or equivalent. A study of the processes used in fabrication of ceramics and glasses, relationship to structure and properties. Processing operations including materials preparation, forming, sintering and melting. Design of processing to achieve desired characteristics of structure, properties and cost. Mr. Knapp (Sp)

146D. Structure and Properties of Ceramics and Glasses. Prerequisite: course 146A or equivalent. Relationship between crystal structure and microstructure of ceramics and properties. Defects and impurities. Correlation of composition, structure, and properties of glasses. Phase transformations. Factors controlling properties such as strength, electrical resistivity, ferrimagnetism, ferroelectricity, optical transmission, and thermal expansion. Mr. Mackenzie (F)

146L. Laboratory in Ceramics. (½ course) Prerequisite: course 146A or equivalent; 146B recommended to be taken concurrently. Processing of common ceramics and glasses. Attainment of specific properties through process control for engineering applications. Quantitative characterization and selection of raw materials. Slip casting and extrusion of clay bodies. Sintering of powders. Glass melting and fabrication. Determination of chemical and physical properties.
Mr. Knapp (Sp)

147A. Introduction to Metallurgy. Prerequisite: course 14. Introduction to metallic alloys used in engineering design. Processing of metals, phases in metal systems, phase diagrams, metal forming, steels and cast iron, nonferrous alloys, design of metallic alloys for specific applications.
Mr. Bunshah, Mr. Wagner (F)

147B. Metal Fabrication Processes. Prerequisite: course 14. Theoretical basis for cold forming and hot forming processes; rolling, extrusion and forging. Conventional metal removal. Solidification processes and casting. Powder metallurgy.
Mr. Shabaik (Sp)

147E. Vacuum Metallurgy. Prerequisite: course 141 or equivalent. Metallurgical processes carried out in vacuum including melting, purification, heat treatment, degassing of liquid metals, joining. Properties and applications of these materials.
Mr. Bunshah (W)

147L. Metal Fabrication Processes Laboratory. (½ course) Prerequisite: course 147B. Experimental investigation and analysis of metal forming processes (forging, extrusion, drawing and rolling). Force measurements and energy calculations in metal cutting. Experimental investigation of hot and isostatic pressing of powder.
Mr. Shabaik (Sp)

147M. Metallurgy Laboratory. (½ course) Prerequisite: course 147A. Design of preparation and heat-treatment cycles of alloys for specific applications. Casting, fabrication, metallography, equilibrium diagrams, precipitation-hardening, heat-treatment of steels.
Mr. Klement, Mr. Wagner (Sp)

148. Nondestructive Evaluation of Materials. Lecture, three hours; demonstration, one hour. Prerequisite: one or more of Engineering 143A, 145A, 146A,147A, 147B. Interaction of acoustic wave and electromagnetic radiation with solids. Ultrasonic pulse-echo and spectroscopy. Radiography, magnetic particle, eddy current and fluid penetrant techniques. Practical applications of flaw detection in castings, forgings and pressure vessels. Potential methods including acoustic emission and holography. Mr. Ono (F)

149C. Properties of Art Ceramic Materials. (Formerly numbered Engineering 146C. Lecture, three hours; laboratory, three hours. Composition and properties of art ceramics and glazes. Ceramic raw materials and their functions in bodies and glazes. Design of glazes and methods of expressing composition. Laboratory projects will be included (Not intended for Engineering Majors.)
Mr. Knapp (F)

NOTE: For key to symbols, see page 74

149E. Ceramic Materials in History and Archaeology. (Formerly numbered Engineering 146E.) Lecture, two hours; laboratory, four hours. Prerequisite: consent of the instructor. A technical introduction to the origins and evolution of ceramics and related materials, with emphasis on fabrication processes and raw materials. Laboratory exercises are aimed at the development of skills necessary for analytical studies. (For students in the Humanities and Sciences.) Mr. Knapp (W)

150A. Applied Fluid Mechanics I. Prerequisite: course 103A or consent of the instructor. The course will provide students with a working knowledge of incompressible fluid mechanics. Equations of motion will be derived and applied to a variety of engineering fields. These will include flow over bodies, turbulent flow in pipes, open channel flow, ocean waves, and porous media.
Mr. Barker (F,W)

150B. Applied Fluid Mechanics II. Prerequisite: course 103A or equivalent, or consent of the instructor. Gas dynamics: isentropic flow in nozzles, normal and oblique shocks, Prandtl-Meyer expansion fan, effects of friction and heat transfer in channel flows, thin airfoils in supersonic flow. Viscous flow; exact solutions of Navier-Stokes equations, boundary layer theory, instability, turbulence, separation.
Mr. Charwat, Mr. Kelly (W,Sp)

151. Performance of Vehicles. Prerequisite: courses 103A, 105A. Preliminary design analysis of the performance of a variety of vehicles, including automobiles, trains, aircraft, rocket-powered vehicles, ground effect machines, ships and sailboats; performance parameters will include speed, range, payload, efficiency, dynamics and stability, noise, and air or water pollution. Mr. Charwat (F)

***[1]152. Hydraulics and Flow Machinery.** Prerequisite: course 103A. Flow in open and closed conduits; distribution and dispersion (mixing) problems. Unsteady effects: transients, resonances. Fluid energy sources: winds, waves, tides, rivers. Design of turbines, pumps and fans. Activators and fluidic logic elements. Mr. Charwat

153A. Engineering Acoustics. Prerequisite: upper division standing in Engineering or consent of the instructor. Fundamental course in acoustics. Includes: the ear and hearing; basic acoustical instrumentation; propagation of sound; sources of sound; architectural reverberation; selected subjects. Mr. Stern (F)

***[1]153B. Acoustics Laboratory.** Laboratory, eight hours. Prerequisite: course 153A (may be taken concurrently) or consent of the instructor. Experimental studies in the field of acoustics, including audiometry, noise and noise control, acoustical filters, impedance measurements, transducer characteristics and interferometry. Occasional field trips may be necessary to obtain data. Mr. Stern

153C. Noise and Noise Control Design. Prerequisite: course 153A or consent of the instructor. Practical concepts in design, construction, measurement and analysis of noise suppression techniques. Includes equipment, transducers, environmental factors in sound propagation, enclosures, properties of materials, sound interaction in structures, mufflers, isolators, damping of panels, ducts, aerodynamic noise, noise criteria and standards. Mr. Stern (W, even years)

154A. Aerodynamic Design. (Formerly numbered 150C.) Prerequisites: courses 103A, 150A. This course presents the classical ideas of aircraft aerodynamics. Lift, drag, thrust, and power are duscussed, then aircraft performance and stability. The quarter assignment is the preliminary design of an aircraft satisfying specifications set by the instructor. Mr. Crow (W)

154B. Design of Aerospace Structures. (Formerly numbered 168.) Prerequisites: courses 154A, 166. Design of aircraft, helicopter, spacecraft and related structures. External loads, internal stresses. Applied theory of thin-walled structures. Material selection, design using composite materials. Design for fatigue prevention and structural optimization. Field trips to aerospace companies.
Mr. Friedmann (Sp)

155. Intermediate Dynamics. Prerequisite: course 102 or equivalent. Not open for full credit to students having taken 102B. The axioms of Newtonian mechanics, generalized coordinates, Lagrange's equations, variational principles; central force motion; kinematics and dynamics of a rigid body, Euler's equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations, the vibrating string.
Mr. Forster (Sp)

156A. Advanced Strength of Materials. Prerequisite: course 108. Columns and beam columns. Torsion; Airy's stress functions, stress concentrations. Loads on balls, rollers. Rotating disks, thick hollow spheres, thick hollow circular cylinders, curved beams, coiled springs.
Mr. Lin, Mr. Nelson (Sp)

157. Experimental Techniques in Mechanics. Laboratory, eight hours. Methods of measurement in mechanics and fluid mechanics. Primary sensors, transducers (motion, force, fluid flow, temperature). Signal processing, analogue and digital recording. Theory of data analysis. Course consists of lectures and laboratory sessions.
Mr. Barker, Mr. Charwat (F,W,Sp)

157A. Fluid Mechanics Laboratory. Laboratory, eight hours. Prerequisite: courses 103A, 157. Course provides a background in experimental techniques in fluid mechanics. Most work will be in the laboratory. Students will take part in three experiments, each of which will study a practical problem while giving hands-on experience with various measurement techniques.
Mr. Barker, Mr. Charwat (Sp)

157B. Experimental Fracture Mechanics. Lecture, two hours; laboratory, six hours. Prerequisite: course 157 or equivalent. Elementary introduction to fracture mechanics and experimental techniques used in fracture, crack tip stress fields, strain energy release rate, fracture characterization, compliance calibration, surface flaws, fatigue crack growth and fatigue life of structural components, mixed mode fracture and individual projects.
Mr. Fourney, Mr. Westmann (W)

158A. Elasticity and Plasticity. Prerequisite: Mathematics 32B. Three-dimensional stress and strain. Criteria for prediction of mechanical failure. Differential equations in three dimensions; analytical, numerical, and experimental solutions of plane state and torsion problems. (Stress function, iteration, strain gages, photoelasticity.) Homogeneous plastic flow, plastic tensile instability.
Mr. Westmann (F,W)

160. Introduction to Biostructural Mechanics. Prerequisite: course 108 or equivalent. An introduction to Biostructural Mechanics of the human musculoskeletal system. Structural characteristics and behavior of skeletal members. Response to mechanical trauma. Elastic and viscoelastic properties of hard and soft tissues. Mathematical modeling. Mr. Roberts (Sp)

***[1]161A. Introduction to Astronautics.** (Not the same as Engineering 161A prior to Fall Quarter 1975.) Prerequisite: course 102. The space-environment of earth, near-earth orbits and trajectories, step rockets and staging, the two-body problem, orbital transfer and rendezvous, elementary perturbation theory, influence of earth's oblateness.
The Staff, Mechanics and Structures Department

162A. Introduction to Mechanism and Mechanical Systems. (Formerly numbered 178A.) Prerequisite: course 102. The analysis and synthesis of mechanisms and mechanical systems are studied including both kinematics and dynamics aspects. Mechanisms from a wide range of applications including automatic machinery, transportation systems and computer peripheral equipment are introduced.
Mr. R.R. Allen, Mr. Dubowsky (F)

162B. Fundamentals of Mechanical System Design. (Formerly numbered 178B.) Lecture, three hours; laboratory, three hours. Prerequisite: course 102. Techniques of modern design and development of mechanical systems. Application and analysis of basic components and sub-systems such as gear trains, bearings, hydraulic and pneumatic sub-systems. The dynamics of high-speed machines. Students will create a design of their choice.
Mr. R.R. Allen, Mr. Dubowsky (W)

162C. Electromechanical Systems Laboratory. Lecture, one hour; laboratory, five hours. Prerequisite: course 162B or consent of the instructor. Laboratory course for students interested in research, design or development of complex mechanical and electromechanical systems. Student, with consent of instructor, will select a system which he will develop, build and instrument. Behavior of this system is studied in detail.
Mr. R.R. Allen, Mr. Dubowsky (Sp)

163. Dynamics and Control of Physical Systems. Prerequisites: courses 171A and either 155 or 169A; (concurrent enrollments satisfactory). Application of the principles of dynamics and classical control theory to a wide range of physical systems, including simplified models of machines and electromechanical devices, space and ground transportation vehicles, and biomechanical systems. Mathematical modeling and computer simulation are emphasized.
Mr. Dubowsky, Mr. Mingori (W, even years)

***[1]164. Engineering System Dynamics.** Prerequisites: courses 171A, 169A (either of which may be taken concurrently). Computable models of dynamic systems with interacting mechanical, electrical, hydraulic, and thermodynamic elements: component models; subsystem interactions; system equations in state-variable form; computer simulation. Rigid and flexible body dynamics; transducers; control systems; nonlinear electromechanical devices; machine, vehicle and biological systems. Mr. Allen

165A. Elementary Structural Analysis. Prerequisite: course 108. Equilibrium of structures; deformation analysis of structures by differential equation method, moment-area method and the principle of virtual work; influence lines; analysis of statically determinate and indeterminate structures such as beams, frames, arches and trusses; introduction to slope-deflection equations.
Mr. Dong, Mr. Schmit (F,Sp)

165B. Intermediate Structural Analysis. Prerequisite: course 165A. Classical force, displacement methods of structural analysis; three moment equation, slope deflection equations, moment distribution; virtual work, minimum potential, complementary potential theorems; Castigliano's theorems, generalized displacements, forces; Rayleigh-Ritz method; introduction to matrix methods; stiffness, flexibility matrices for bars, beams. Mr. Nelson, Mr. Schmit (F,W)

165C. Computer Analysis of Structures. (Formerly numbered 165N.) Prerequisite: course 165A. Development of algorithms and FORTRAN coding for matrix manipulation, inversion; solution of the linear algebraic equations, eigenvalue problems; structural applications; matrix displacement method for planar trusses, frames, direct assembly of system stiffness; matrix force method for planar frames. Mr. Dong, Mr. Nelson (Sp)

165L. Structural Design and Testing Laboratory. (½ course) Lecture, one hour; laboratory, four hours. Prerequisite: courses 157, 165A. Design, construction, instrumentation, and test of a small scale model of a structure for comparison with theoretically predicted behavior. Mr. Felton (Sp)

166. Elementary Structural Mechanics. Prerequisite: course 108. Analysis of stress, strain; phenomenological material behavior, fatigue, cumulative damage; bending, extension of beams, unsymmetrical sections, stiffened shell structures; torsion of beams, stress function, warping, thin-walled cross-sections; shear stresses; plate analysis; instability, failure of columns, plates, approximate

methods, empirical formulas.
Mr. Friedmann, Mr. Schmit (F,W)

167A. Design of Steel Structures. Lecture, three hours; recitation, three hours. Prerequisite: course 165A. Allowable stress design of tension members, compression members, beams, beam-columns, and tension splices according to AISC specifications for buildings. Mr. Rea, Mr. Selna (F)

167B. Design of Reinforced Concrete Structures. Lecture, three hours; recitation, three hours. Prerequisite: course 165A. Design of reinforced concrete buildings. Reinforced concrete beams, columns, and slabs. Working stress and ultimate strength methods of analysis. Determination of loads and design constraints. Introduction to reinforced concrete structural systems.
Mr. Rea, Mr. Selna (W)

167C. Design of Prestressed Concrete Structures. Prerequisite: course 165A. Prestressing and post-tensioning techniques. Properties of concrete and prestressing steels. Loss of prestress. Analysis of sections for flexural stresses and ultimate strength. Design of beams by allowable stress and strength methods. Load balancing design of continuous beams and slabs. Mr. Rea, Mr. Selna (Sp)

167L. Reinforced Concrete Structural Laboratory. Laboratory, eight hours. Prerequisite: Engineering 167B and consent of the instructor. Experimental verification of strength design methods used for reinforced concrete elements. Full or near-full scale slab, beam, column, and joint specimens tested to failure. Mr. Selna (Sp)

169A. Introduction to Mechanical Vibrations. Prerequisite: course 102. Fundamentals of vibration theory and applications. Free, forced and transient vibration of one and two degrees of freedom systems including damping and nonlinear behavior. Normal modes, coupling and normal coordinates. Elements of vibration and wave propagation in continuous systems. Mr. Rea, Mr. Roberts (F,W)

171A. Introduction to Feedback and Control Systems: Dynamic Systems Control I. Lecture, three hours; lecture/laboratory, one hour. Prerequisite: consent of the instructor. Introduction to feedback principles, control systems and stability. Unified introductory treatment of continuous and discrete-time (digital or sample-data) systems. Control systems modeling applications in engineering and other fields. Emphasis on concepts. Computer-aided problem solving techniques for systems analysis and design.
Mr. DiStefano, Mr. Leondes (F,W)

171C. Dynamic Systems Control II. Prerequisite: either course 171A or 122A is recommended. State-space models of continuous and discrete-time dynamic systems. Linear algebra of systems; vector spaces; geometric concepts; transformations and matrices; canonical forms. Stability. Controllability and observability. State representation of nonlinear systems; linearization. Emphasis on modeling concepts, applications, and computer-aided problem solving. Mr. DiStefano (W,Sp)

173. Engineering Project Management. Prerequisites: background in design and statistics, such as Engineering 106B, 193A or equivalent, with consent of the instructor. Scientific principles and application arts for computer-compatible management in project definition, design, implementation, and evaluation. Quantitative interdisciplinary formulations exemplifying environmental, industrial, business, and administrative challenges with people influences and operational value-goal strategies. Organizational models. Project Manager as a leader. Nottage (W)

174A. Introduction to Elements of Decision Making. (Not the same as 174A prior to Fall Quarter 1974.) Prerequisite: course 193A or equivalent mathematics course. Elements of decision making and the decision process. Decision and utility theory. Formulation of utility functions and objective functions. Subjective probabilities. Bayesian approach to value of information. Risk sharing and group decisions. Methods of eliciting judgements; bias and scoring rules. Mr. Rubinstein (F)

176A. Introduction to Optimization Methods for Engineering Design. Prerequisite: course 10, Mathematics 32B, 32C. Introduction to applied optimization as an engineering design tool. Computational algorithms and chemical, civil, electrical, mechanical and structural applications. Methods for solving the general unconstrained and constrained minimization problem. Methods for converting the general inequality constrained problem to a sequence of unconstrained problems.
Mr. Rosenstein, Mr. Schmit (F,Sp)

***[1]177A. Engineering Economics I.** Prerequisite: Economics 100 or equivalent or consent of the instructor. A concise analytic development of modern microeconomic and macroeconomic theory with emphasis on a high technology society and the engineering firm.

***[1]177B. Engineering Economics II.** Prerequisite: courses 106A and 193A or equivalent or consent of the instructor. Supply of and demand for money. Equilibrium in money and bond markets. Financial instruments and institutions. Investment decision-making for engineering enterprise under certainty, risk, and uncertainty. Break-even analysis, goal programming, capital allocation, sensitivity analysis. Financing of engineering projects, public and private.

180A. Environmental Biotechnology. Prerequisite: course 107A or consent of the instructor. Physical, physiological, and psychological aspects of the interaction between man and thermal, atmospheric, radiant, and mechanical agents and energies in the environment. Biological and physical requirements for engineering control of the environment; applications to complex systems. Mr. O'Brien (F)

180B. Machine and Systems Biotechnology. Prerequisite: course 107A or consent of the instructor. Quantitative and qualitative methods for assessing man as a component in engineering design applications. Limits and optima of human psychophysiological capabilities applied to display-control design, decision-making problems, and task definition; problems of man-machine interactions in large-scale systems. Mr. Lyman (W)

181A. Air Pollution Control. Prerequisite: senior standing or consent of the instructor. Quantitative consideration of the air resource and its management. Air quality measurements and standards. Systems for pollution removal. Industrial, commercial and community air pollution problems. Data analyses and interpretations. Lectures, occasional laboratory and field trips. Mr. Perrine (Sp)

184A. Engineering Hydrology. Prerequisite: senior standing or consent of the instructor; elementary probability recommended. Precipitation, climatology, stream flow analysis, flood frequency analysis, groundwater, snow hydrology, hydrologic simulation. Possible field trips.
Mr. Dracup (F,Sp)

184B. Introduction to Water Resources Engineering. Prerequisite: course 103A or consent of the instructor. Principles of hydraulics, the flow of water in open channels and pressure conduits, reservoirs and dams, hydraulic machinery, hydroelectric power, introduction to system analysis applied to Water Resources Engineering.
Mr. W.G. Yeh (W)

184D. Water Quality Control Systems. Prerequisite: upper division standing in engineering or consent of the instructor. Water as a resource; the physical, chemical, and biological bases of pollution and treatment. Potability and chemical aspects of quality control and reclamation; analytical, economic, and performance aspects of process design for prevention and treatment. Field trips.
Mr. Dracup, Mr. Stenstrom (F,Sp)

184E. Water Quality Control Laboratory. Laboratory, eight hours. Prerequisites: course 184D, may be taken concurrently. Chemistry 11A and 11B. Basic laboratory techniques and practice for the characterization and analysis of waters and wastewaters. Selected experiments include measurement of biochemical oxygen demand, suspended solids, dissolved oxygen hardness, and other parameters used in water quality control.
Mr. Stenstrom (F)

185A. Principles of Soil Mechanics. Prerequisite: courses 108 or 108A; Geology 11 is recommended. Soil as a foundation for structures and as a material of construction. Soil formation, classification, physical and mechanical properties, compaction, bearing capacity, earth pressures, consolidation and shear strength. Mr. Lade (F,W)

185B. Soil Mechanics—Laboratory Practices. (½ course) Lecture, one hour; laboratory, three hours. Prerequisite: course 185A (may be taken concurrently). Laboratory experiments to be performed by the students to get basic data required for assigned design problems. Soil classification, Atterburg limits, permeability, compaction, shear strength and specific gravity determination.
The staff, Mechanics and Structures Department (Sp)

***[1]186A. Elements of Construction.** Lecture, two hours; special projects, field trips, four hours. Prerequisite: senior standing in engineering. Anatomy of the industry, bidding and purchasing strategies, contracts, costs and economics, operations research in construction, planning and scheduling, equipment and materials, construction methods, field engineering techniques, observation and engineering analysis of current construction projects in the vicinity. Mr. Duke

191A. Laplace Transforms and Applied Complex Variables. Prerequisite: courses 100, 102. Introduction to the Laplace Transformation: application to electrical and mechanical problems, convolution-type integral equations, difference equations and simple boundary value problems in partial differential equations. Complex variable theory, contour integrals, residues; application to transform inversion and partial differential equations. Mr. Forster (W,Sp)

192A. Mathematics of Engineering. Prerequisite: Mathematics 32C or equivalent. Application of mathematical methods to problems of interest in engineering. The main topic covered is systems of linear ordinary differential equations. Fourier series, transforms, and nonlinear effects are also discussed as related to the solutions of differential equations. Mr. Kelly, Mr. Liu, Mr. Pomraning (F,W,Sp)

192B. Mathematics of Engineering. Prerequisite: course 192A or equivalent. Applications of mathematical methods to engineering problems are considered. Eigenvalue problems for continuous systems and the related special functions are studied.
Mr. Kelly, Mr. Liu, Mr. Pomraning (F,W,Sp)

192C. Mathematics of Engineering. Prerequisite: course 192A or equivalent. Application of mathematics to engineering problems. A survey of the classical partial differential equations, wave, heat, and potential. The formulation of boundary value problems and analytical and numerical methods are studied.
Mr. Kelly, Mr. Liu, Mr. Pomraning (F, W, Sp)

193A. Engineering Probabilistics and Stochastics. Prerequisite: junior standing in engineering. Sets and set algebra; sample spaces; combinatorics; absolute and conditional probability; discrete and continuous random variables; probability distribution, increment, and density functions; Chebychev's inequality; Laplace-Fourier transforms; law of large numbers; central limit theorems; discrete and continuous stochastic processes. Mr. Apostolakis, Mr. Meecham, Mr. Pearl (F,Sp)

193B. Engineering Statistics. Prerequisite: course 193A or equivalent or consent of the instructor. Introductory concepts of statistical decision and estimation. Population parameters, samples, data, statistics. Classical tests of significance and hypotheses. OC-functions and sample sizes. Statistical estimation for one- and two-parameter populations. Bayesian inference, stopping rules. Decision theory, payoffs, losses. Applications.
Mr. Pearl (W)

NOTE: For key to symbols, see page 74

195A. Computer Aided Circuit Design. Prerequisite: course 110B; also, use of a computer will be required but not taught. Piecewise analysis of large networks. Device modeling. AC, DC and transient analysis of linear and nonlinear networks. Sensitivity and tolerance analysis. Computer-aided circuit optimization.
Mr. McNamee, Mr. Temes (W)

196A. Introduction to Topics in Bioengineering. (½ course) Prerequisite: calculus. History, motivation and current directions in bioengineering. Bioinstrumentation and measurement. Biomaterials. Biomechanics. Biosystems. Health services and patient protection. Human factors engineering. Orthotic/prosthetic systems and sensory aids. This course is graded on a passed/not passed basis. Mr. Cannon, Mr. DiStefano, Mr. Roberts (F,Sp)

M196B. Modeling and Simulation of Biological Systems. (Same as Medicine M196B; formerly numbered M171F.) Prerequisite: calculus. Introduction to classical and modern systems and modeling and simulation methods for studying biological systems. Includes multicompartmental modeling, multi-exponential curve fitting and simulation laboratory projects. Applications in physiology and medicine. Life science and medical students are encouraged to enroll.
Mr. Campfield, Mr. DiStefano (F,Sp)

199B-199G. Special Studies. (½ to 2 courses) Prerequisite: senior standing and consent of the instructor. Individual investigation of a selected topic, to be arranged with a faculty member. Enrollment request forms are available in Department Offices. Occasional field trips may be arranged. May be repeated for bachelor's degree credit.

199B. Electrical Sciences and Engineering Department. The Staff (F,W,Sp)

199C. Chemical, Nuclear, and Engineering Department. The Staff (F,W,Sp)

199D. Engineering Systems Department. The Staff (F,W,Sp)

199E. Materials Department. The Staff (F,W,Sp)

199F. Mechanics and Structures Department. The Staff (F,W,Sp)

199G. System Science Department. The Staff (F,W,Sp)

COMPUTER SCIENCE

20. Programming and Problem Solving. (Formerly numbered Engineering 20.) Prerequisite: Engineering 10C or consent of the insructor. Open to graduate students on a S/U grade basis only. Solution of numerical and nonnumerical problems of intermediate complexity, using assembly languages and several programming languages. Students will analyze, program, and run half a dozen problems. Emphasis is placed on individual ability to carry out assignments under minimum supervision.
Mr. Levine, Mr. Melkanoff, Mr. Uzgalis (F,W,Sp)

30. Introduction to Computer Operating Systems. (Formerly numbered Engineering 30.) Prerequisite: Computer Science 20; open to graduate students on S/U grade basis only. Introductory course on functions and use of modern computer systems. Overview of batch and time-sharing systems. Functional description of assemblers, compilers, linkage editors, loaders. Job control language, overlays, file structures, buffering, protection. Assignments will include problems on the computer.
Ms. Friedman, Mr. Muntz (F,W,Sp)

99. Individual Programming Projects. (½ to 1 course) Prerequisite: Engineering 10C or consent of the instructor. Course intended for students wishing to learn individually new programming languages and students wishing to make up deficiencies so as to bring them to the level of Computer Science 20. Students will design, check-out and run programs in various programming languages.
Mr. Melkanoff (F,W,Sp)

111. Systems Programming. (Formerly numbered Engineering 126C.) Prerequisites: Computer Science courses 30 and 141. Introduction to modern operating systems. Mapping and binding of addresses. The organization of multiprogramming and multiprocessing systems; interrupts, process model, and interlocks. Resource allocation models and the problem of deadlocks. Job control and system management. Mr. Muntz (F,Sp)

M123B. Theoretical Models in Computer Science. (Same as Engineering M123B; formerly numbered Engineering 123B.) Prerequisite: senior standing or consent of the instructor. Sets, strings, and languages. Phrase-structure languages. Finite-state languages and finite-state automata. Context-free languages and pushdown store automata. Unrestricted phrase-structure languages and Turing machines. Context-sensitive languages and linear-bounded automata. Elementary decision problems of automata and languages.
Ms. Friedman, Mr. Martin (F,W,Sp)

M124A. Applied Numerical Computing. (Same as Engineering M124A; formerly numbered Engineering 124A.) Prerequisite: Engineering 10C and Mathematics 32C or equivalents. An introduction to scientific computing and application-oriented survey of computing techniques for several important classes of problems, including matrix computations, root-finding, ordinary differential equations, interpolation and approximation. Student computing exercises.
Mr. Carlyle, Mr. Karplus (F,W,Sp)

131. Programming Languages. (Formerly numbered Engineering 125L.) Prerequisite: Computer Science 20. The main objective is to study, compare and evaluate programming languages, in particular commercially available languages: FORTRAN, ALGOL 60, COBOL, PL/1, and ALGOL 68. Additional topics as instructor sees fit.
Mr. Berry, Mr. Cardenas, Mr. Uzgalis (F,W,Sp)

132. Compiler Construction. (Formerly numbered Engineering 125N.) Prerequisite: Computer Science 131 or consent of instructor. Modern compiler structure. Syntax analysis. Lexical analysis. Semantic analysis and run-time environment. Program and data structure. Code optimization.
Mr. Martin, Mr. Popek (W,Sp)

141. Basic Methods of Data Organization. (Formerly numbered Engineering 123A.) Prerequisite: Computer Science 20. Fundamental techniques for organizing and manipulating data, stressing relationships to performance, time/storage tradeoffs. Sequential and linked storage allocation for linear lists, multi-linked structures. Trees: implementation, traversals, mathematical properties. Dynamic storage allocation. Topics from: sorting-searching, algorithmic analysis, graph theory, concepts underlying file management.
Mr. Klinger, Mr. Melkanoff (F,W,Sp)

151A. Computer System Architecture: I. (Introductory) (Formerly numbered Engineering 125A.) Prerequisite: College level Physics (electricity and magnetism); Engineering 10C; Computer Science 152A to be taken concurrently. Introduction to computer architecture. Description of machine organization and operation. Information: its representation and manipulation. Combinational logic design with IC's and MSI devices. Sequential circuits, storage elements and MSI packages. Arithmetic and the arithmetic-logic unit.
Mr. Avizienis, Mr. Bussell, Mr. Ercegovac (F,W,Sp)

151B. Computer System Architecture: II. (Intermediate) (Formerly numbered Engineering 125B.) Prerequisite: Computer Science 151A; Computer Science 152B to be taken concurrently. Formal description of machine organization. Effects on machine organization of: instruction sets and formats; addressing structures. Memory organization and management; control sequence generator; I/O processing and interrupts; reliability aspects.
Mr. Bussell, Mr. Ercegovac (F,W,Sp)

152A. Introductory Digital Circuits Laboratory. (½ course) (Formerly numbered Engineering 125Z.) Prerequisite: Engineering 10C; this course is to be taken concurrently with Computer Science 151A. Familiarization with design and interconnection of logic circuits and networks through implementation and debugging procedures, including experience with printed circuit design.
Mr. Bussell (F,W,Sp)

152B. Digital Systems Laboratory. (½ course) (Formerly numbered Engineering 125Y.) Prerequisite: Computer Science 151B to be taken concurrently. A computer based laboratory which probes computer architecture through construction simulation and measurement of digital subsystems.
Mr. Bussell (F,W,Sp)

171. On-Line Computer Systems. (Formerly numbered Engineering 124D.) Prerequisite: senior standing or consent of instructor. A survey of fundamentals with emphasis on hardware and systems concepts. Adapting digital computers to interfaces, including multi-programming, interrupt and time-sharing considerations. Digital communication, remote consoles, sampling, quantizing, multiplexing, analog-digital conversion, and data reconstruction.
Mr. Karplus, Mr. Levine (F,W,Sp)

172. Simulation and Models. (Formerly numbered Engineering 126A.) Prerequisite: Computer Science 20. Model formulation and programming for discrete event systems in simulation languages (e.g., GPSS, SIMSCRIPT). The simulation data base and considerations for language development. Statistical considerations: design of experiments, random number generation, analysis of model results. Computer exercises.
Mr. Karplus, Mr. McNamee (W)

173. Random Data Analysis and Measurement Procedures. Prerequisite: Engineering 121C. Provides practical aspects of random data analysis and measurement procedures. Includes statistical properties of random data, correlation, spectral density, input/output relationships, statistical errors, coherence functions, data acquisition and processing techniques. Mr. McNamee (F)

174. Elements of Computer Graphics. (Formerly numbered Engineering 124E.) Prerequisite: Computer Science courses 171, 131, 141 or consent of the instructor. Hardware and software elements of computer graphics systems, including problems of intelligent terminals, communications and graphics languages. Application areas and cost effective uses of interactive graphics. Mr. Uzgalis (W)

199. Special Studies. (Formerly numbered Engineering 199A.) Prerequisite: senior standing and the consent of the instructor. Individual investigation of a selected topic, to be arranged with a faculty member in the Computer Science Department. Enrollment request forms available in the Department office. Occasional field trips may be arranged. May be repeated for bachelor's degree credit. The Staff, Computer Science Dept. (F,W,Sp)

GRADUATE COURSES

Chemical, Nuclear, and Thermal Engineering

230A. Advanced Engineering Thermodynamics. (Formerly numbered Engineering 230A.) Prerequisites: Engineering 130A, 137A or equivalent. Phenomenological and statistical thermodynamics of chemical and physical systems with engineering applications. Presentation of the role of atomic and molecular spectra and intermolecular forces in the interpretation of thermodynamic properties of gases, liquids, solids and plasmas.
The Chemical Engineering Staff (W)

***1230B. Nonequilibrium Thermodynamics.** (Formerly numbered Engineering 230B.) Prerequisite: Chemical, Nuclear and Thermal Engineering 230A. Interpretation of non-equilibrium phenomena in terms of the Fourth Law of Thermodynamics, namely (a) linear interdependence of fluxes and

driving forces and (b) Onsager reciprocal relations. Boltzmann transport equation; diffusion; electrical and heat currents; numerical calculation of parameters. Mr. Robinson

230C. Cryogenics. (Formerly numbered Engineering 238A.) Prerequisite: Engineering 137A. The study of basic phenomena in low temperature systems including the third law, various cooling methods and superfluid systems; Meissner state, type I and type II systems; applied superconductivity cryogenics. Mr. Frederking (Sp)

230D. Thermodynamics of Phase Transitions. (Formerly numbered Engineering 239A.) Prerequisite: Chemical, Nuclear and Thermal Engineering 230A or equivalent. Phase stability criteria and separation of phases. Molecular thermodynamic treatment of multicomponent systems with chemical engineering applications. Solubility of gases and solids in liquids. Phase equilibrium properties of fluid mixtures. Mr. Robinson (Sp)

231A. Convective Heat Transfer Theory. (Formerly numbered Engineering 231A.) Prerequisite: Engineering 131A. The conservation equations for flow of real fluids. Analysis of heat transfer in laminar and turbulent, incompressible and compressible flows. Internal and external flows; free convection. Variable wall temperature; effects of variable fluid properties. Analogies among convective transfer processes. Mr. Edwards (W)

231B. Radiation Heat Transfer. (Formerly numbered Engineering 231B. Prerequisite: Engineering 131A. Radiant intensity and flux. Radiation properties of walls, gases, and particulates. Heat transfer by combined conduction, convection, and radiation in nonabsorbing and absorbing media. Applications to industrial, aerospace, energy-conversion, and environmental problems. Mr. Edwards (Sp)

***1231C. Boiling and Condensation.** (Formerly numbered Engineering 231C.) (Not the same as 231C prior to Winter Quarter 1978.) Prerequisites: Engineering 131A, 150A or equivalent. Phenomenological theories of boiling. Hydrodynamic instability of liquid-vapor interfaces and their application to predict maximum and minimum heat fluxes. Forced flow boiling of liquid metals. Film and dropwise condensation. Mr. Dhir

231D. Application of Numerical Methods to Transport Phenomena. (Formerly numbered Engineering 231D.) Prerequisite: Engineering 131B, 132A or consent of the instructor. Numerical techniques for solving selected problems in heat and mass transfer. Applications include free convection, boundary layer flow, two-phase flow, separated flow, flow in porous media. Effects of concentration and temperature gradients, chemical reactions, radiation, electric and magnetic fields. The Staff, Chemical, Nuclear and Thermal Engineering Department (F)

***1231E. Two-Phase Flow Heat Transfer.** (Formerly numbered Engineering 231E.) Prerequisites: Engineering 131A, 150A. Generalized constitutive equations for various two-phase flow regimes. Interfacial heat and mass transfer. Equilibrium and non-equilibrium flow models. Two-phase flow instability. One-dimensional wave propagation. Two-phase heat transfer applications: convective boiling, pressure drop, critical and oscillatory flows. Mr. Catton

231F. Advanced Heat Transfer. (Formerly numbered Engineering 231F.) (Not open to students who have taken 231C prior to Fall Quarter 1977.) Prerequisites: Chemical, Nuclear and Thermal Engineering 231A. Advanced topics in heat transfer from the current literature. Linear and non-linear theories of thermal and hydrodynamic instability; variational methods in transport phenomena; phenomenological theories of turbulent heat and mass transport. Mr. Dhir (Sp)

232B. Advanced Mass Transfer. (Formerly numbered Engineering 232B.) Prerequisite: Engineering 131A, 132A. The formulation of the general convective heat and mass transfer problem including equilibrium and nonequilibrium chemistry. Similar and nonsimilar solutions for laminar flows; solution procedures for turbulent flows. Multicomponent diffusion. Application to the hypersonic boundary layer, ablation and transpiration, cooling combustion. Mr. Mills (W)

***1233A. Advanced Power Production and Propulsion.** (Formerly numbered Engineering 233A.) Prerequisite: Engineering 133A or equivalent. Thermodynamic cycle analysis. Fluid mechanics and thermodynamics of compressors and turbines. Component matching. Atomization and vaporization. Flow and mixing in combustion chambers. Flame stabilization and combustion instabilities. Turbojet and ramjet engines and gas turbines. Rocket propulsion and stability of combustion processes. The Staff, Chemical, Nuclear and Thermal Engineering Department

234A. Topics in Thermal Design. (Formerly numbered Engineering 234A.) Prerequisite: Engineering 131A, 132A. Consideration of thermal design problems selected from applications such as heat exchangers, heat shields, heat pipes, thermal environment control, spacecraft temperature control and solar thermal conversion. Presentations will be made by the Staff and occasionally by invited off-campus specialists. Mr. Buchberg, Mr. Mills (F)

235A. Neutron Transport Theory. (Formerly numbered Engineering 235A.) Prerequisite: Engineering 135B. The analytical and computational methods used in one speed neutron transport theory. Spatial and angular dependent problems in various approximations; P_N, S_N and diffusion theory; the use of variational and singular eigenfunction methods. Mr. Apostolakis (F)

235B. Energy Dependent Reactor Analysis. (Formerly numbered Engineering 235B.) Prerequisite: Chemical, Nuclear and Thermal Engineering 235A. The analytical and computational methods used in multigroup and energy dependent transport theory. Bn, multigroup, finite difference and variational methods applied to slowing down, thermalization and resonance phenomena in various approximations. Mr. Pomraning (W)

235C. Nuclear Reactor Kinetics. (Formerly numbered Engineering 235C.) Prerequisite: Chemical, Nuclear, and Thermal Engineering 235A. Time dependent behavior of nuclear reactor systems. Analysis of the reactor as a lumped and distributed parameter system. Calculational methods; modal, nodal synthesis and adiabatic techniques. Mr. Apostolakis (Sp)

***1235D. Methods of Nuclear Reactor Analysis.** (Formerly numbered Engineering 235D.) Prerequisites: Chemical, Nuclear and Thermal Engineering 235A, and Engineering 135B, and consent of instructor. The analysis of nuclear reactor systems by approximation techniques, analytical methods and numerical methods. A synthesis of reactor physics and engineering with applications to various systems. Mr. Kastenberg

236A. Nuclear Fuel Element Behavior. (Formerly numbered Engineering 236A.) Prerequisite: Engineering 105A, 136C. Void swelling of cladding materials, fuel swelling due to fission gases, pore migration and fuel restructuring, fission gas release, computer codes for swelling and gas release, densification, and hot pressing, modeling of the structural behavior of fuel elements and assemblies. Mr. Wazzan

236B. Radiation Damage in Reactor Materials. (Formerly numbered Engineering 236B.) Prerequisite: Engineering 136C. Fundamentals of radiation damage; energy loss and Linhard's theory, atom displacement, the collision cascade; focusing and channeling effects, computer simulations and experiments on cascades, damage simulation techniques for material testing, bulk effects of radiation; void swelling and irradiation creep, surface effects; blistering and sputtering of surface atoms. Mr. Ghoniem

236C. Thermal Reactor Safety. (Formerly numbered Engineering 236C.) Prerequisite: Engineering 135A; and 135B (may be taken concurrently). (Not the same as Engineering 236C prior to Spring Quarter 1975.) Safety-related characteristics of boiling water, pressurized water, and high-temperature gas-cooled nuclear power reactors; design criteria and siting considerations; methods of accident analysis; probabilistic methods, general risk considerations. Mr. Catton (W)

236D. Fast Reactor Safety. (Formerly numbered Engineering 236D.) Prerequisite: Engineering 135B. Safety related characteristics of liquid-metal and gas-cooled fast power reactors; reactivity coefficients; sodium voiding and fuel-coolant interactions; super-prompt-critical behavior; generic accident codes; containment design aspects; post-accident heat removal. Mr. Kastenberg (Sp)

236E. Advanced Problems in Reactor Design. (Formerly numbered Engineering 236E.) Prerequisite: at least 4 courses from 235A-235B-235C-235D and 236A-236B-236C-236D. Methods of attack and solution for advanced problems in reactor design, including fuel elements, power reactor cores, pulsed reactors, fuel cycle and fuel management, thermal-hydraulics, shielding, and safety. Mr. Okrent (F)

M236G. Seminar in Fusion Reactor Technology. (Formerly numbered Engineering M236G.) (Same as Electrical Science and Engineering M214E.) Prerequisite: consent of the instructor. Non-plasma problems in the design of fusion reactors: environmental hazards, lithium blankets, radiation damage, first-wall materials, tritium handling, superconducting magnets, energy storage, fuel injection and ash removal, reactor stability and control, transmutation of radioactive wastes, and other current topics. Mr. Ghoniem (W, odd years)

***1236H. Probabilistic Risk Assessment.** Prerequisite: Engineering 136A. Basic concepts of risk benefit; low probability—high consequence events; methods for the evaluation of risk; fault/event tree analysis; dependent failures; data evaluation; decision theory; applications to large technological systems, e.g., nuclear power reactors, chemical process systems, dams, etc. Mr. Apostolakis

237A. Reaction Kinetics. (Formerly numbered Engineering 232C.) Prerequisites: Engineering 130A, 137C or equivalent. Macroscopic descriptions: reaction rates, relaxation times, thermodynamic correlations of reaction rate constants. Molecular descriptions: kinetic theory of gases, models of elementary processes. Applications: absorption and dispersion measurements, unimolecular reactions, photochemical reactions, hydrocarbon pyrolysis and oxidation, explosions, polymerization. The Chemical Engineering Staff

237B. Molecular Dynamics. (Formerly numbered Engineering 232D.) Prerequisite: Engineering 130A or 137C. Analysis and design of molecular-beam systems. Molecular-beam sampling of reactive mixtures in combustion chambers or gas jets. Molecular-beam studies of gas-surface interactions, including energy accommodations and heterogeneous reactions. Applications to air-pollution control and to catalysis. Mr. Knuth (W)

237C. Surface Science. (Formerly numbered Engineering 237C.) Prerequisites: Engineering 137C or consent of the instructor. Chemical processes at the gas-solid interface. Physics and chemistry of the solid surface, reconstruction, and bulk interactions. Gas scattering and trapping. Mechanism and rate of adsorption and surface reactions on clean and covered surfaces. Experimental techniques in surface science. Mr. Ullman (Sp)

237E. Combustion Processes. (Formerly numbered Engineering 232A.) Prerequisite: Engineering 132A or 137C. Fundamentals change equations for multicomponent reactive mixtures, rate laws. Applications: combustion, including burning of (a) premixed gases or (b) condensed fuels. Detonation. Sound absorption and dispersion. Mr. Knuth, Mr. Smith (Sp)

NOTE: For key to symbols, see page 74

238. Advanced Diffusion and Interfacial Transfer. Prerequisite: Engineering 137E or consent of the instructor. Advanced treatment of diffusion and interfacial transfer with applications to industrial separation processes, gas cleaning and pulmonary bioengineering; molecular and phenomenological theories of diffusion; structure of the interface: membrane transport, facilitated transport, active transport; concentration boundary layers, turbulent diffusion.
The Chemical Engineering Staff (F)

238A. Chemical Reaction Engineering. (Formerly numbered Engineering 237A.) Prerequisites: Engineering 137B and 137C or equivalent. Principles of chemical reactor analysis and design. Particular emphasis on simultaneous effects of chemical reaction and mass transfer on noncatalytic and catalytic reactions in fixed and fluidized beds.
The Chemical Engineering Staff (W)

238B. Electrochemical Kinetics. (Formerly numbered Engineering 238B.) Prerequisite: one year physical chemistry or equivalent. Study of principles of electrode kinetics and other phenomena associated with metal-electrolyte interfaces. Some applications to engineering processes of current interest such as electrochemical energy conversion (i.e., fuel cells and batteries) and corrosion processes. Mr. Nobe (Sp)

238C. Electrochemical Engineering. (Formerly numbered Engineering 238C.) Prerequisite: one year physical chemistry or equivalent. Transport phenomena in electrochemical systems; relationships between molecular transport, convection, and electrode kinetics will be discussed along with applications to industrial electrochemistry, fuel cell design, and modern battery technology.
Mr. Bennion (W)

238D. Biochemical Engineering. (Formerly numbered Engineering 237B.) Prerequisite: Engineering 137C, 137D or consent of instructor. Theoretical models and experimental techniques for describing the thermodynamics and transport behavior of solutions of biological macromolecules. Nonideal solution behavior emphasized. Applications to mass transfer problems in natural and man-made systems. Elementary theory of biochemical reactions. Mr. Vilker (W)

238E. Corrosion Science and Engineering. (Formerly numbered Engineering 138B.) Prerequisite: Engineering 137A, or a course in physical chemistry or equivalent. Fundamentals of electrochemical thermodynamics and kinetics pertinent to corrosion processes are presented. Topics such as corrosion inhibition, passivity, anodic and cathodic protection, pitting, stress corrosion and hydrogen embrittlement will be covered. Optional laboratory experiments will be offered. Mr. Nobe (F)

239AA-239AZ. Special Topics in Chemical Engineering. (½ to 1 course) (Formerly numbered Engineering 239E.) Prerequisite: consent of the instructor and additional prerequisites for each offering as announced in advance by the Chemical, Nuclear and Thermal Engineering Department. Advanced and current study of one or more aspects of chemical engineering such as chemical process dynamics and control, fuel cells and batteries, membrane transport, advanced chemical engineering analysis, polymers, optimization in chemical process design. May be repeated for credit when no duplication exists.
The Chemical Engineering Staff (F,W,Sp)

239BA-239BZ. Seminar: Current Topics in Transport Phenomena. (½ to 1 course) (Formerly numbered Engineering 239B.) Prerequisite: consent of the instructor. Lectures, discussions, student presentations and projects in areas of current interest in transport phenomena. All sections are graded S/U only, and may be repeated for credit.
The Thermal Engineering Staff (F,W,Sp)

239CA-239CZ. Seminar: Current Topics in Energy Utilization. (Formerly numbered Engineering 239C.) Prerequisite: consent of the instructor. Review of current literature in an area of energy utilization in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics.
The Thermal Engineering Staff (F,W,Sp)

239DA-DZ. Seminar: Current Topics in Nuclear Engineering. (½ to 1 course) (Formerly numbered Engineering 239D.) Prerequisites: consent of the instructor. Lectures, discussions, student presentations and projects in areas of current interest in nuclear engineering. All sections are graded S/U only, and may be repeated for credit.
The Nuclear Engineering Staff (F,W,Sp)

239EA-239EZ. Seminars in Chemical Engineering. (½ to 1 course) Prerequisite: consent of the instructor and additional prerequisites for each offering as announced in advance by the Chemical, Nuclear and Thermal Engineering Department. Lectures, discussions, student presentations and projects in areas of current interest. All sections are graded S/U only, and may be repeated for credit.
The Chemical Engineering Staff (F,W,Sp)

***[1]239S. Chemical, Nuclear, and Thermal Engineering Department Seminar. (¼ course)** (Formerly numbered Engineering 239S.) Prerequisite: graduate standing. A series of lectures by faculty and graduate students in the Department of Chemical, Nuclear and Thermal Engineering. Invited lecturers will also present topics of current interest to Chemical, Nuclear, and Thermal Engineering. To be graded on a S/U basis.
The Staff, Chemical, Nuclear and Thermal Engineering Department

Computer Science

201. Computer Science Seminar. (Formerly numbered Engineering 225S.) Prerequisite: graduate standing in computer science. Lectures on current research topics in Computer Science. To be graded on a S/U basis. (May be repeated for credit.)
Mr. Berry, Mr. Muntz, Mr. Parker (F,W,Sp)

202. Advanced Computer Science Seminar. (Formerly numbered Engineering 225X.) Prerequisite: completion of Major Field Examination in Computer Science or consent of instructor. Current computer science research into theory of, analysis and synthesis of, and applications of information processing systems. Each member will complete one tutorial and one or more original pieces of work in the specialized area. May be repeated for credit.
Mr. Estrin, Mr. Karplus (F,W,Sp)

211A. Analytic Models in Operating Systems. (Formerly numbered Engineering 226C.) Prerequisite: Computer Science courses 111 and 212A. Time-sharing system queueing models. Models of program behavior, multilevel memory allocation, paging algorithms. Analysis of file structures. I/O scheduling. Measurement techniques and analysis.
Mr. Muntz (W, even years)

212A. Queueing Systems: Theory and Applications. (Formerly numbered Engineering M223A.) Prerequisite: Engineering 120A or consent of instructor. Analysis of queueing (waiting line) systems. Discrete- and continuous-time Markov processes; birth-and-death processes; baby queueing theory. Equilibrium results for single and multiple server queues; method of stages. Priority queueing. Applications to communication systems, data-processing systems, time-shared processors, computer and communication networks. Mr. Kleinrock (F)

212B. Advanced Queueing Theory and Applications. (Formerly numbered Engineering M223B.) Prerequisite: Computer Science 212A. Advanced topics in queueing theory: including Lindley's Integral Equation; Pollaczek method; busy period; virtual waiting time; method of collective marks; inequalities, bounds, and approximations; tandem queues; and algebra for queues. Applications to communication and computer nets, computer systems and time-sharing systems.
Mr. Kleinrock (W)

212C. Computer Communications Networks. (Formerly numbered Engineering 223C.) Prerequisite: Computer Science 212A. Computer communication network models, analysis and design techniques are examined. Experience with an existing international network (the ARPANET) is discussed and the operational procedures and pitfalls are presented. Measured performance and cost effectiveness of large scale computer networks are considered. Mr. Kleinrock (Sp)

219. Current Topics in Computer System Modeling Analysis. (½ to 3 courses) Prerequisite: consent of the instructor. Review of current literature in an area of Computer System Modeling Analysis in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics. May be taken for credit more than once with consent of the instructor. The Staff, Computer Science Department (F,W,Sp)

221. Economics of Computers. Prerequisite: consent of instructor. Basic economic factors in data processing. Buyers and sellers; products; applications; major cost factors. Selection and operation of a data processing system. Mr. Melkanoff (W)

231A. Advanced Topics in Programming Languages. (Formerly numbered Engineering 225P.) Prerequisite: Computer Science 131. Presentation, analysis and discussion of specialized programming languages, new higher level languages and new and/or advanced features of programming languages. Mr. Berry, Mr. Melkanoff (W)

231B. Advanced Topics in Computer Language Design. Prerequisites: Computer Science 132, 141, M123B, 232A or 232B. Treatment of current topics in computer language including design goals of modern languages, levels of abstraction, methodologies for standardization and proposals for new problem oriented and extensible languages. Enrollment limited to allow individual application of language design principles. Mr. Uzgalis (Sp)

232A. Operational Semantics of Programming Languages. (Formerly numbered Engineering 225K.) Prerequisite: Computer Science courses 123B and 131. (May be taken concurrently.) Interpreter Models of Programming Language Semantics: information structure models, Vienna definition language, lambda calculus, LISP definition, interpreter equivalence and correctness.
Mr. Berry, Mr. Melkanoff (F)

232B. Semantics of Programming Languages. (Formerly numbered Engineering 225L.) Prerequisites: Computer Science M123B or equivalent, or consent of the instructor. Syntax-directed semantics of context-free languages. Knuthian semantic systems (K-systems) and their mathematical formulation. K-system formulation of programming language semantics; translational and denotational semantics. Properties of K-systems; equivalence of K-systems. Applications of current research interest.
Mr. Martin (F)

234A. Correctness Proofs. Prerequisite: consent of the instructor. Theoretical and practical aspects of correctness proofs. Partial correctness, total correctness, and termination. Axiomatic semantics and proof systems. Abstraction and correctness of implementations. Formulation, execution, and assessment of correctness proofs. Topics of current research interest. Mr. Martin (W)

234B. Advanced Topics in Software Engineering. Prerequisites: Computer Science 131 and Computer Science 232A or 232B. A course to explore current topics in software engineering and closely related topics, i.e., structured program, program proofs-analysis and synthesis of programs,abstract data types, modularity, debugging, programming teams.
Mr. Berry (Sp)

234C. High Level Language Computer Architecture. Prerequisites: Computer Science 131 and Computer Science 232A or 232B. A study of machine architectures to facilitate direct or nearly direct execution of high level languages: Algol-like machines including Burroughs B6700, microprogramming and microprogrammable machines, measurements and their use in architecture design.
Mr. Berry (Sp)

239. Current Topics in Computer Science-Programming Languages and Systems. (½ to 4 courses) (Formerly numbered Engineering 226Z.) Prerequisite: consent of the instructor. Review of current literature in an area of computer science programming languages and systems in which the instructor has developed special proficiency as a consequence of research interests. May be repeated for credit, provided no duplication exists.
The Staff, Computer Science Department (F,W,Sp)

241A. Data Management Systems. (Formerly numbered Engineering 226D.) Prerequisite: Computer Science 131 or Management 113A-113B, or equivalent; Computer Science 141 or equivalent. Information and file handling in higher level languages, storage devices and operating systems. Secondary index organizations. Models and architecture of data management systems. Logical and physical structures. Query languages. Commercially available generalized file management and data base management systems. Management information systems. Mr. Cardenas, Mr. Muntz, Mr. Popek (F,W,Sp)

241B. Data Base, Software, and Information Systems. Prerequisites: Computer Science 131 or Management 113A-113B, and Computer Science 241A, or equivalent. Data base systems technology. Application program development technology. Information system development cycle and methodology. Systems analysis. Feasibility and cost/effectiveness studies. Software architecture, management, costing. Automated program and data base generation. Problem statement languages. Various topics at instructor's discretion, emphasizing data base technology. Mr. Cardenas (W)

242A. Privacy and Security in Computer Information Systems. Prerequisites: Computer Science 111 or consent of the instructor. Analysis of the technical difficulties of producing secure computer information systems that provide guaranteed controlled sharing, with emphasis on software models and design. Examination and critique of current systems and practices. Possible certifiability of such systems. Relevant social issues. Mr. Popek (W)

243B. Abstract Data Types and Program Specification. Prerequisites: Computer Science 141, Computer Science M123B. The notions of abstract data type and abstract program specification permit one to understand how programs manipulate data, independently of their implementations. These notions also give powerful techniques for program structuring and verification. The class will include programming exercises. Mr. Goguen (Sp)

249. Current Topics in Data Structures. (½ to 3 courses) Prerequisite: consent of the instructor. Review of current literature in an area of Data Structures in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics. May be taken for credit more than once with the consent of the instructor.
The Staff, Computer Science Department (F,W,Sp)

251A. Advanced Computer Architecture. Prerequisites: Computer Science 151A, 151B, and 111, or consent of instructor. Functional and structural models of computer systems. Architecture and organization at microprogramming, machine language and operating system level. Processor organization and system control. Arthmetic processors: algorithms and implementation. Storage system organization: hierachy and management. Communication organization and control.
Mr. Avizienis, Mr. Ercegovac

252A. Computer Science Design: Arithmetic Processors. (Formerly numbered Engineering 225A.) Prerequisite: Computer Science 251A or consent of instructor. Concepts of number systems, digital numbers, algorithms; logic and organization of digital arithmetic processors; conventional arithmetic; algorithm acceleration; floating-point and significance arithmetics; redundant, signed-digit, residue number systems; error detecting codes for digital arithmetic; algorithm evaluation by analysis and simulation.
Mr. Avizienis, Mr. Ercegovac (F,Sp)

253A. Computer System Design: Fault Tolerance. (Formerly numbered Engineering 225C.) Prerequisite: Computer Science 251A. Specification of fault-tolerance: fault classes, measures of reliability. Fault masking, fault detection, and system recovery algorithms. Methodology of implementation. Analytic modeling and evaluation. Design of fault-tolerance systems. Tolerance of man-made faults. Fault-tolerant software.
Mr. Avizienis, Mr. Rennels (W)

253B. Advanced Topics in Fault-Tolerant Computing. Prerequisite: Computer Science 253A. Analysis and discussion of the modeling, design, and evaluation of fault-tolerant computer systems. Emphasis on current research results and new systems in the stages of design and development. May be repeated for credit, provided no duplication exists.
Mr. Avizienis, Mr. Rennels (Sp)

254A. Computer Memories and Memory Systems. (Formerly numbered Engineering 225D.) Prerequisite: Computer Science 251A or consent of instructor. Generic types of memory systems; control, access modes, hierarchies and allocation algorithms. Characteristics, system organization and device considerations of ferrite memories, thin film memories and semiconductor memories.
Mr. Chu (F)

255A. Data Communications in Computer Systems. (Formerly numbered Engineering 225F.) Prerequisite: Engineering 120A and Computer Science 251A or consent of instructor. Intraprocessor Communications: communication between processor, memory and input/output. Multiprocessor communication, switching and multiplexing. Multicomputer systems: interprocess communications, synchronization, flow control, file allocation and dead lock problems. Communications with remote multiple terminals: measurements and modeling, error detection and handling, optimal block size, line control protocol, and multiplexing.
Mr. Chu (W)

257A. Computer System Design: Comparative Architecture and Synthesis Methods. (Formerly numbered Engineering 225B.) Prerequisite: Computer Science 252A. Advanced topics in Computer System Architecture, Elucidate important properties of computer systems and study methods for modeling, evaluating, and synthesizing them.
Mr. Estrin (W)

259. Current Topics in Computer Science-System Design (Architecture). (½ to 4 courses) (Formerly numbered Engineering 225Z.) Prerequisite: consent of the instructor. Review of current literature in an area of Computer Science System Design, in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics. May be repeated for credit, provided no duplication exists.
The Staff, Computer Science Department (F,W,Sp)

271A. Computer Methodology: Continuous Systems Simulation. (Formerly numbered Engineering 224A.) Prerequisite: Computer Science courses M124A and 171. The organization, operation and areas of application of analog-digital computer systems. Error analysis, numerical analysis aspects, digital simulation languages for continuous systems characterized by ordinary differential equations. Mr. Karplus, Mr. Levine (Sp)

271B. Computer Methodology: Distributed Parameter Systems. (Formerly numbered Engineering 224B.) Prerequisite: Computer Science M124A. A survey of the mathematical formulation and computer solution of engineering field problems governed by partial differential equations. Emphasis on digital simulation methods, including finite difference approximations, Monte Carlo methods and the use of modern problem-oriented languages. Mr. Karplus, Mr. Vidal (F)

273A. Digital Processing of Engineering and Statistical Data. Prerequisite: Computer Science 173. Computer methods for processing engineering and statistical data. Algorithms to evaluate recursive filter functions, Fourier series, power spectral, analyis correlation computations, and statistical testing. Mr. McNamee (W)

***[1]274A. Interactive Computer Graphics.** Prerequisites: Computer Science 174 or equivalent. Current topics in interactive computer graphics system design, development, and application.
Mr. Bussell

275A. Information Processes in Nervous Systems. (Formerly numbered Engineering 223K.) Prerequisite: consent of the instructor. Conceptual discussion of acquisition and transfer of information in the nervous system and of the role of computers in the analysis and interpretation of neurophysiological data. Mr. Vidal (W)

276A. Statistical Pattern Recognition. (Formerly numbered Engineering 225M.) Lecture, four hours; Prerequisites: some background in probability such as Engineering 120A, Mathematics 150A or consent of the instructor. Computer methodology in the processing of large data sets. Multidimensional measurements. Adaptation and learning the mean of a normal distribution. Bayesian statistics and loss functions. Learning algorithms and clustering processes. Mr. Klinger (F)

276B. Structural Pattern Recognition. Prerequisite: some background in Computer Science such as Computer Science 141, M123B or consent of the instructor. Descriptive methods in computer processing of patterened data. Formal languages and pattern description languages. Syntactic analysis and recognition. Introduction to scene analysis. Applications to pictures, alphabetic characters, speech and chromosome data. Mr. Klinger (Sp)

276C. Machine Pattern Analysis. (½ course) Prerequisite: Computer Science 276A or the equivalent. Advanced research topics in machine processing of patterned data. Topics in pattern recognition, image processing, artifical intelligence, e.g., scene analysis and data structure. May be repeated once for credit, provided no duplication exists.
Mr. Klinger (F,W,Sp)

279. Current Topics in Computer Science-Methodology. (¼ to 4 courses) (Formerly numbered Engineering 224Z.) Prerequisite: consent of the instructor. Review of current literature in an area of Computer Science Methodology in which the instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit, provided no duplication exists.
The Staff, Computer Science Department (F,W,Sp)

M284A. Context-Free Languages. (Same as System Science M284A.) (Formerly numbered Engineering 228E.) Prerequisite: Computer Science M123B or Engineering M123B. Detailed study of context-free languages and their restrictions and generalizations, including: grammars, derivation trees, ambiguity, normal forms; operations, closure properties, pushdown acceptors; topics from parsing, deterministic machines and languages, LR (k) grammars, macro grammars.
Ms. Friedman, Ms. Greibach (W)

***[1]M285A. Automatic Deduction: Theory and Applications.** (Same as System Science M285A.) (Formerly numbered Engineering 223D.) Prerequisite: some knowledge of logic, list-processing languages and programming. Historical development of automatic deduction programs. The resolution principle. Program structure and efficiency strategies. Fundamental meta theorems. Rules of inference for equality and decision procedures. Formalization and axiomatization.
Mr. Goguen, Mr. Melkanoff

286A. Heuristic Programming and Artificial Intelligence. (Formerly numbered Engineering 223E.) Prerequisite: Computer Science course 141 or 131 or consent of instructor. Survey of a body of computer programs which successfully perform tasks generally agreed to require some intelligence.

NOTE: For key to symbols, see page 74

The objective is to develop understanding of current research and possibilities of limitations implied by existing experiments in automating intelligent behavior. behavior.
Mr. Goguen, Mr. Klinger (W)

M287A. Theory of Program Structure. Prerequisite: Computer Science (Same as System Science M287A; formerly numbered Engineering 223F.) M123B or Engineering M123B. Models of computer programs and their syntax and semantics; emphasis on programs and recursion schemes; equivalence, optimization, correctness and translatability of programs; expressive power of program constructs and data structures; selected current topics.
Ms. Friedman, Mr. Melkanoff (F)

288A. Algebraic Foundations of Computer Science. Prerequisite: Mathematics 112B or equivalent, or consent of the instructor. A systematic algebraic approach to certain basic problems in computer science, including: verification of program and hardware correctness; data structures; compiler correctness; structured programming; tree manipulation; automata; program schemes; recursiveness; and various approaches to semantics.
Mr. Goguen (F)

289. Current Topics in Computer Theory. (½ to 3 courses) (Formerly numbered Engineering 223Z.) Prerequisite: consent of the instructor. Review of current literature in an area of Computer Theory in which the instructor has developed special proficiency as a consequence of research interests. Student reports on selected topics.
The Staff, Computer Science Department (F,W,Sp)

497D-497E. Field Projects in Computer Science. Prerequisite: consent of the instructor. Students will be divided into teams led by the instructor; each team will be assigned an external company or organization which they will investigate as a candidate for possible computerization. They will submit a team report of their findings and recommendations. This course is offered on an In Progress basis which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.
Mr. Melkanoff (497D, F; 497E, W)

596. Directed Individual or Tutorial Studies. (½ to 2 courses) Prerequisite: graduate status in Engineering; consent of instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Supervised investigation of advanced technical problems. To be graded on a S/U basis.
The Staff, Computer Science Department (F,W,Sp)

597A. Preparation for M.S. Comprehensive Examination. (½ to 3 courses) Prerequisite: graduate status in Engineering; consent of instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Reading and preparation for M.S. comprehensive examination. To be graded on a S/U basis. The Staff, Computer Science Department (F,W,Sp)

597B. Preparation for Ph.D. Preliminary Examinations. (½ to 4 courses) Prerequisite: graduate status in Engineering; consent of instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. To be graded on a S/U basis.
The Staff, Computer Science Department (F,W,Sp)

597C. Preparation for Ph.D. Oral Qualifying Examination. (½ to 4 courses) Prerequisite: graduate status in Engineering; consent of instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Preparation for Oral Qualifying Examination, including preliminary research on dissertation. To be graded on a S/U basis.
The Staff, Computer Science Department (F,W,Sp)

598. Research for and Preparation of the Master's Thesis. (½ to 3 courses) Prerequisite: graduate status in Engineering; consent of the instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Supervised independent research for M.S. candidates, including thesis prospectus. To be graded on a S/U basis.
The Staff, Computer Science Department (F,W,Sp)

599. Research for and Preparation of the Doctoral Dissertation. (½ to 4 courses) Prerequisite: graduate status in Engineering; consent of instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. To be graded on a S/U basis.
The Staff, Computer Science Department (F,W,Sp)

Electrical Sciences and Engineering

210A. Advanced Circuit Theory I. (Formerly numbered Engineering 210A.) Prerequisite: Engineering 110B; concepts of linear algebra and complex function theory. State equations for linear circuits. Characterization of n-ports and multi-terminal elements. Introduction to, and applications of, the scattering matrix, and related topics.
Mr. Orchard (F)

210B. Advanced Circuit Theory II. (Formerly numbered Engineering 210B.) Prerequisite: Electrical Sciences and Engineering 210A. Analytical techniques for active circuits: return difference, Blackman's formula for an active impedance. Characterization of nonlinear elements. State equations for nonlinear circuits. Stability of nonlinear circuits: Liapunov's direct method. Theory of nonlinear transistor circuits. Mr. Willson (W)

210C. Advanced Network Synthesis. (Formerly numbered Engineering 210C.) Prerequisite: Engineering 110C. Theory and practical development of lossless ladder networks. Lattice and constant-resistance networks. Loss-phase relations in minimum-phase networks. The Hilbert transform. Allpass functions and networks. Design of linear-phase polynomials.
Mr. Orchard, Mr. Temes (W)

210D. Active, Passive, and Digital Filters. (Formerly numbered Engineering 210D.) Prerequisite: Electrical Sciences and Engineering 210C or consent of the instructor. Approximation theory. Realization of passive filters. Electro-mechanical filters. Active filters with lumped and/or distributed elements. Switched and digital filters.
Mr. Orchard, Mr. Temes (Sp)

210E. Digital Signal Processing. (Formerly numbered Engineering 210E.) Prerequisite: Engineering 110B. Relationship between continuous-time and discrete-time signals. The z-transform. The discrete Fourier transform. The fast Fourier transform. State equations for discrete-time systems. Network structures for digital filtering. Introduction to digital filter design techniques. Mr. Willson (F)

210F. Theory and Design of Digital Filters. Prerequisite: Electrical Sciences & Engineering 210E. Approximation of filter specifications. Use of design charts. Structures for recursive digital filters. FIR filter design techniques. Comparison of IIR and FIR structures. Implementation of digital filters. Limit cycles. Overflow oscillations. Discrete random signals. Wave Digital filters. Distributed arithmetic structures. Mr. Willson (W)

213A. Quantum Electronics I. (Formerly numbered Engineering 215C.) Prerequisite: Electrical Sciences and Engineering 215A or consent of the instructor. (Not open to students who have taken course 215C prior to Winter Quarter 1973.) Optical beams and resonators, interaction of light with atoms including amplification and saturation, properties of lasers including power output and mode effects.
Mr. Casperson, Mr. Stafsudd (W)

213B. Quantum Electronics II. (Formerly numbered Engineering 215E.) Prerequisite: graduate status, or consent of the instructor. (Not open to students who have taken course 215E prior to Spring Quarter 1973.) Quantum electronic systems, modulation, non-linear optics, and some advanced laser topics. Mr. Casperson, Mr. Stafsudd (Sp)

213C. Quantum Electronics III. (Formerly numbered Engineering 213C.) Prerequisite: Electrical Sciences and Engineering 213A or consent of the instructor. Properties of laser oscillators including transient phenomena, quantum mechanical effects, and behavior of high gain laser media.
Mr. Casperson, Mr. Stafsudd (Sp)

213S. Quantum Electronics Seminar. (½ course) (Formerly numbered Engineering 213S.) Prerequisite: Electrical Sciences and Engineering 213A or consent of the instructor. A series of lectures and student presentations on topics of current research interest in quantum electronics, modern optics, and laser physics. May be repeated for credit. To be graded on an S/U basis.
Mr. Casperson, Mr. Stafsudd (F,W,Sp)

214A. Plasma Waves and Instabilities. (Formerly numbered Engineering 214A.) Prerequisite: Engineering 100B and M118 or Physics M122. Wave phenomena in plasmas described by the macroscopic fluid equations. Emphasis on homogeneous plasmas in uniform magnetic fields. Microwave propagation, plasma oscillations, ion acoustic waves, cyclotron waves, hydromagnetic waves, whistlers and helicon waves, and their classification. Illustrative experiments.
Mr. Chen (W)

214B. Advanced Plasma Waves and Instabilities. (Formerly numbered Engineering 214B.) Prerequisite: Engineering M118 or Physics M122, and Electrical Sciences and Engineering 214A or Physics 222. Interaction of intense electromagnetic waves with plasmas: waves in inhomogeneous and bounded plasmas, nonlinear wave coupling and damping, parametric instabilities, anomalous resistivity, shock waves, echoes, laser heating. Emphasis on experimental considerations and techniques. Mr. Chen (Sp)

214C. Principles of Thermonuclear Fusion. (Formerly numbered Engineering 214B.) Prerequisite: Engineering M118 or Physics M122 and consent of the instructor. Principles of confinement and heating of plasmas in magnetic fields. Field configurations: pinches, magnetic mirrors and wells, toruses. Methods of plasma stabilization. Plasma production and heating. Advantages of thermonuclear reactors and considerations in their design.
Mr. Chen (F, odd years)

M214E. Seminar in Fusion Reactor Technology. (Formerly numbered Engineering M214E.) (Same as Chemical, Nuclear and Thermal Engineering M236G.) Prerequisite: consent of the instructor. Non-plasma problems in the design of fusion reactors: environmental hazard, lithium blankets, radiation damage, first-wall materials, tritium handling, super-conducting magnets, energy storage fuel injection and ash removal, reactor stability and control, transmutation of radioactive wastes, and other current topics. Mr. Chen (W, odd years)

215A. Solid State Electronics I. (Formerly numbered Engineering 215A.) Prerequisite: Engineering 115A, 115B, 115C. Review of quantum mechanics, matrix methods, approximation methods, crystal field theory, interaction of radiation and matter.
Mr. Viswanathan (F)

215B. Solid State Electronics II. (Formerly numbered Engineering 215B.) Prerequisite: Electrical Sciences and Engineering 215A. Energy band theory, equilibrium in semiconductors, transport properties, high frequency (microwave and optical frequencies) properties, superconductors.
Mr. Pan (W)

215C. Microwave Semiconductor Devices. (Formerly numbered Engineering 215C.) Prerequisite: Engineering 115D or consent of the instructor. Physical principles and design considerations of

microwave solid-state devices: IMPATT and TRAPATT diodes, BARRITT diodes, transferred electron devices, tunnel diodes, optoelectronic devices and acoustic surface wave devices.
Mr. F.G. Allen (Sp)

215D. Physics of Solid State Devices. (Formerly numbered Engineering 215D.) Prerequisite: Engineering 115D. Physical principles and design considerations of modern solid state devices; minority carrier devices; field effect devices; optoelectronic devices; acoustic electric devices.
Mr. F.G. Allen, Mr. Viswanathan (W)

216A. Advanced Electronics. (Formerly numbered Engineering 216A.) Prerequisite: Engineering 110B, 116B. Active network theory with particular reference to linear integrated circuits. Design of multistage low pass amplifier. Multistage feedback amplifier, high frequency band pass amplifier, and coupling and matching networks.
Mr. Willis (F,Sp)

216B. Modern Electronic and Parametric Devices. (Formerly numbered Engineering 216B.) Prerequisite: Engineering 116B. Critical examination of modern electron devices, with emphasis upon basic operating principles and behavior and performance in system usage. Specific devices to be analyzed may be grouped as follows: semiconductor microwave, parametric, and quantum electronic devices.
Mr. Willis (W)

216C. Integrated Circuit Design. (Formerly numbered Engineering 216C.) Prerequisite: Engineering 116B, 116C, 115D; Electrical Sciences and Engineering 216A. Integrated circuit device components, layout and interaction; optimization of processes and system performance, reliability, yield; competing IC technologies, high-speed linear and logic circuits, memories, converters, special function IC's, hardware/software tradeoffs. Mr. Knorr (Sp)

217A-217B. Advanced Engineering Electrodynamics. (Formerly numbered Engineering 217A-B.) Prerequisite: Engineering 117A, 117B or equivalent. Advanced treatment of concepts in electrodynamics and their applications to modern engineering problems. Waves in anisotropic, inhomogeneous and dispersive media. Guided waves in bounded and unbounded regions. Radiation and diffraction, including optical phenomena. Partially coherent waves, statistical media.
Mr. Alexopoulos, Mr. C.W. Yeh
(217A-F; 217B-W)

217C. Microwave Circuits. (Formerly numbered Engineering 217C.) Prerequisite: Engineering 117A. Transmission line review; application to strip line and microstrip. Multiport microwave networks; scattering and immittance matrices; devices. Inhomogeneously filled guides. Surface guides. Excitation of guided waves. Periodic structures and filters. Mr. Elliott, Mr. Schott (Sp)

217E. Antenna Theory and Design. Prerequisite: Engineering 117B. Antenna pattern synthesis. Sum and difference patterns. Optimum designs for rectangular and circular apertures. Arbitrary side lobe topography. Discrete arrays. Mutual coupling. Design of feeding networks. Mr. Elliott (Sp)

219A. Seminars on Advanced Topics in Electromagnetics. (Formerly numbered Engineering 219A.) Prerequisite: Engineering 117A, 117B or equivalent. Current topics in electromagnetics, such as wave interaction with ferrites, moving media, data processing antennas, waves in statistically varying media, numerical methods applied to electromagnetic problems, holograms and partially coherent waves. May be repeated for credit. Staff, Electrical Sciences and Engineering Department (Sp)

219B. Seminars on Advanced Topics in Solid State Electronics. (Formerly numbered Engineering 219B.) Prerequisite: Electrical Sciences and Engineering 215A, 215B. Current research areas, such as radiation effects in semiconductor devices, diffusion in semiconductors, optical and microwave semiconductor devices, nonlinear optics, and electron emission. Staff, Electrical Sciences and Engineering Department (W)

219C. Seminar: Special Topics in Applied Electronics. (Formerly numbered Engineering 219C.) Prerequisite: Electrical Sciences and Engineering 216C or consent of the instructor. Current topics in applied electronics and electronic systems, such as: Fourier optics, optical data processing, communication systems and techniques, parametric electronics and devices. May be repeated for credit. Staff, Electrical Sciences and Engineering Department (F)

219D. Special Topics in Electric Circuit Theory. (Formerly numbered Engineering 219D.) Prerequisite: Electrical Sciences and Engineering 210B or 210C or 210D. Advanced treatment of topics chosen from research areas in electric circuit theory.
Staff, Electrical Sciences and Engineering Department (Sp)

219E. Special Topics in Quantum Electronics. (Formerly numbered Engineering 219E.) Prerequisite: Electrical Sciences and Engineering 213A or consent of the instructor. Advanced treatment of topics chosen from research areas in quantum electronics such as guided wave optics, unconventional laser systems, optical detection, and coherent optical imagery. May be repeated for credit.
Mr. Casperson, Mr. Cordero
Mr. Stafsudd (Sp)

219X. Advanced Electrical Science and Engineering Seminar. (½ course) (Formerly numbered Engineering 219X.) Prerequisite: passing of the Ph.D. major field examination or instructor's approval. Seminar on current research topics in solid state and quantum electronics (Section 1) or in electronic circuit theory and applications (Section 2). Each student will report on a tutorial topic and on a research topic in his dissertation area. May be repeated for credit. To be graded on S/U basis.
Mr. Viswanathan (F,W,Sp)

Engineering Systems

270A. Synthesis of Industrial Engineering Systems. (Formerly numbered Engineering 270A.) Prerequisite: design background and Engineering 173 or equivalent. The logic and quantitative formulations for the transdisciplinary design of engineering systems to meet advanced industrial requisites in productivity, profitability, environments, and resource conservation. Facilities, energy, processes, equipment, operations, cost-benefit, and safety considerations. Application areas will vary from year to year. Mr. Nottage, Mr. O'Brien (Sp)

271A. Dynamic Systems Optimal Control. (Formerly numbered Engineering 271A.) Prerequisite: Engineering 171C, or consent of the instructor. Optimal control problem formulation. Performance criteria for deterministic dynamic systems. Variational methods and Pontryagin's maximum principle for continuous and discrete-time models. Inequality constraints. Sensitivity analysis. Numerical computation methods for solving boundary value problems of optimal control. Applications in various fields.
Mr. DiStefano, Mr. Leondes (F,Sp)

271B. Dynamic Systems Stochastic Estimation and Control. (Formerly numbered Engineering 271B.) Prerequisite: Engineering 171C, 193A; Engineering Systems 271A, or consent of the instructor. Applied treatment of optimal state estimation and stochastic control problems for continuous and discrete time dynamic models with state-space descriptions. Kalman filtering, smoothing and prediction algorithms. Stochastic optimal controllers; the separation principle. Emphasis on efficient numerical computations. Applications in various fields.
Mr. DiStefano, Mr. Leondes (F,W)

271C. Dynamic Systems Identification, Stability and Adaptive Control. (Formerly numbered Engineering 271C.) Prerequisite: Engineering Systems 271A; 271B is recommended; or consent of the instructor. Nonlinear system stability. Dynamic systems modeling, identification and parameter estimation techniques. Combined identification and control and self-adaptive control.
Mr. Leondes (W)

271D. Seminar and Special Topics in Dynamic Systems Control. (Formerly numbered Engineering 271D.) Prerequisite: consent of the instructor. Seminar on current research topics in dynamic systems modeling, control and applications. Topics selected from process control, differential games, nonlinear estimation, adaptive filtering, industrial and aerospace applications, etc.
Mr. Leondes (Sp)

***[1]272D. Advanced Topics in Operations Research and Large Scale Systems.** (Formerly numbered Engineering 272D.) Prerequisite: System Science 272A, 272BA-BZ, 272C or consent of the instructor. Advanced topics of current interest in operations research chosen from among identification and optimization problems for static and dynamic systems, sensitivity theory, aggregation of stochastic systems, controllability, resource allocation, modeling techniques and other topics. Mr. Leondes

274A. Problem Solving and Decision Making (I). (Formerly numbered Engineering 274A.) Prerequisite: Engineering 193A or 174A or consent of the instructor. Formal models of problem structures. Heuristic techniques for mechanized problem-solving. Foundations of quantitative coding of qualitative information. Theories of subjective-probabilities and utility. Relation between artificial-intelligence and decision-analysis. Information-processing models of human decision-making and problem-solving behavior
Mr. Pearl, Mr. Rubinstein (W)

274B. Problem Solving and Decision Making (II). (Formerly numbered Engineering 274B. Prerequisite: Engineering Systems 274A. Topics and projects in the methodology of problem solving and knowledge representation by humans and machines. Foundation of homorphisms between qualitative, numerical and symbolic relational structures. Value of information and the processing of judgmental data. Computerized theory formation, knowledge acquisition and knowledge-based systems. Mr. Goguen, Mr. Pearl (Sp)

274C. Computer Methods of Data-Analysis and Model Formation. (Formerly numbered Engineering 274C.) Prerequisite: Engineering 193A or 120A or consent of the instructor. Techniques of using computers to interpret, summarize and form theories of empirical observations. Mathematical analyses of tradeoffs between the computational complexity, storage requirements and precision of computerized models.
Mr. Pearl, Mr. Vidal (Sp)

274K. Perspectives on Systems Representation for Analysis and Synthesis. (Formerly numbered Engineering 274K.) Prerequisite: Engineering Systems 274A or consent of the instructor. Mathematical and conceptual models used in analysis and synthesis of Engineering, Socio-Technical systems. Mathematical representations of interpretative models. Decomposition using tools of graph theory and information theory. Guides to choice of models. Interaction of human and computer in the modeling process. Mr. Rubinstein (Sp)

276A. Computer-Aided Design. (Formerly numbered Engineering 276A.) Prerequisite: Engineering 106B or equivalent and 129L. Seminar in computer-aided design of engineering systems and products. Organization of the design process, its decision points and back-up information, for automatic machine processing of the specifications to provide full design data for a family of products.
Mr. Rosenstein (Sp)

***[1]277A. Advanced Engineering Economics I.** (Formerly numbered Engineering 277A.) Prerequisite: Engineering 177A and 177B or equivalent or consent of the instructor. Optimal investment decisions. Advanced theory of capital and its relationship to economic growth. Role of technology in economic development. Theoretical basis for cost of capital and discount rates in private and public sectors. Working capital decisions. Applications to engineering projects.

***[1]277B. Advanced Engineering Economics II: Seminar.** (Formerly numbered Engineering 277B.)

NOTE: For key to symbols, see page 74

Prerequisite: Engineering Systems 277A or equivalent or consent of the instructor. The economics of engineering and social systems. Long-range investment concepts. Physical analogy to Walras' model. An entropy approach to financial decision making. Term projects.

280A. Advanced Biotechnology. (Formerly numbered Engineering 280A.) Prerequisite: Engineering 180A or 180B or consent of the instructor. Review and analysis of contemporary bioscience research which bears on problems of engineering component and system design. Emphasis is on methodological and scientific factors underlying man-machine-environment interactions.
Mr. Lyman (W)

280B. Advanced Biotechnology. (Formerly numbered Engineering 280B.) Prerequisite: Engineering 180A or 180B or consent of the instructor. Specialized coverage of "human factors" and "human engineering" with orientation toward obtaining design optimization of the functions of humans in relation to engineering parameters of environment, communication and control.
Mr. Lyman (Sp)

284A. Surface Water Hydrology. (Formerly numbered Engineering 284A.) Prerequisite: Engineering 184A or consent of the instructor. In-depth study of the surface water components of the hydrologic cycle. Instantaneous units hydrograph, dynamic wave equations, rainfall-runoff models using system investigation and physical hydrology. Stochastic hydrology: time series analysis, Markovian streamflow generating models, and generation of multivariate synthetic streamflows. Applications. Mr. W.G. Yeh (W)

284B. Groundwater Hydrology. (Formerly numbered Engineering 284B.) Prerequisite: Engineering 184A or consent of the instructor. Theory of the movement and occurrence of water in subterranean aquifiers. Steady flow in confined and unconfined aquifiers. Mechanics of wells; steady and unsteady radial flows in confined and unconfined aquifiers. Theory of leaky aquifiers. Sea Water intrusion. numerical methods. Applications.
Mr. W.G. Yeh (Sp)

284C. Water Resources Systems Engineering. (Formerly numbered Engineering 284C.) Prerequisite: Engineering 129L, 184B. Application of mathematical programming techniques to water resources systems. Topics include reservoir regulation, optimal timing, sequencing and sizing of water resources projects and real-time conjunctive operation of ground water and surface water resource systems. Emphasis is on the management of water quantity. Mr. Dracup, Mr. W.G. Yeh (Sp)

284D. Advanced Water Quality Control Systems. (Formerly numbered Engineering 284D.) Prerequisite: Engineering 184D. Physical, chemical and biological bases for design of advanced water and wastewater quality control systems. Includes treatment processes, standards and requirements; concepts in physical, organic and colloidal chemistry; bacteriology and limnology; reservoir, stream, estuary, and ocean outfall management; water quality modeling. Field trips.
Mr. Dracup, Mr. Stenstrom (W)

284E. Saline Water Conversion. (Formerly numbered Engineering 284E.) Prerequisite: Engineering 137A and Chemistry 110A-110B or equivalent. Current research and development in saline water conversion, in the fields of distillation, electrodialysis, freezing, reverse osmosis and chemical extraction. A study of process optimization and economics of combined water power systems.
Mr. McCutchan, Mr. Van Vorst (W)

284F. Selected Topics in Water Resources. (½ course) (Formerly numbered Engineering 284F.) Prerequisite: graduate status; consent of the instructor. Review of recent research and development in the management of resources. Water and hydroelectric supply systems. Water quality management. Water law and institutions. Economic planning and optimization of water resources development. May be repeated twice for credit.
Mr. Dracup (F)

284G. Engineering Economics of Water and Related Natural Resources. (Formerly numbered Engineering 284G.) Prerequisite: one or more of the following courses recommended: Engineering 177A, Economics 1, 2, 100, 101A, 101B, or consent of the instructor. Economic theory and applications in the management of water and related natural resources; application of price theory to water resource management, electric power supply, petroleum and natural gas management and renewable resources; benefit-cost analysis with applications to water resources planning.
Mr. Dracup (W)

284H. Mathematical Models for Water Quality Management. (Formerly numbered Engineering 284H.) Prerequisite: Engineering 129L, 184D. Development of mathematical models relating pollutant inputs to water quality. Scheduling of treatment plants capacity expansion. Regional water quality system models. Emphasis is on use of analytical and simulation techniques to manage water quality in streams, lakes, and estuaries.
Mr. Dracup, Mr. Stenstrom (Sp)

M288A. Urban Transportation Planning I. (Same as Architecture and Urban Planning M241A, formerly numbered Engineering M288A.) Historical development of urban transportation planning and the current political and administrative frameworks for planning; the relationship between transportation systems and urban form, historical review of automobile and public transit systems; urban highway and transit planning programs; the financing of urban transportation; environmental and social impacts of transportation systems; current policy dilemmas: controlling the automobile, promoting mass transit, energy issues, needs of elderly and handicapped. Mr. Campbell (F)

M288B. Urban Transportation Planning II. (Same as Architecture and Urban Planning M241B, formerly numbered Engineering M288B.) Prerequisites: (or corequisites): AUP 241A, 220A, 220B or equivalent. Economic and social basis for travel; basic data sources for examing urban travel and transportation; techniques of forecasting and analyzing travel; mathematical models of travel; trip generation, trip distribution, modal split, traffic assignment and route choice; uses of forecasts and approaches to transportation system and project evaluation. Mr. Campbell (W)

M288C. Urban Transportation Planning III. (Same as Architecture and Urban Planning M241C.) Prerequisites: and corequisites: AUP 241A-241B; 220A-220B-220C. Recent experience and case studies in transportation planning and policy. Planning a rail system and downtown people mover for Los Angeles; community dial-a-ride services; express buses on freeways; the Santa Monica Freeway Diamond Lane project; decision-making in the case of the Century Freeway; a Parking Management Program for Los Angeles; carpooling and vanpooling programs; field trips and guest speakers. Mr. Campbell (Sp)

M296A. Biocybernetics I. (Formerly numbered Engineering M296A.) (Same as Medicine M296A.) Prerequisite: Engineering 171C or equivalent; M196B (may be taken concurrently). Development of modern systems/biocybernetic methods applicable to problems in life sciences and medicine. Emphasis on dynamical modeling, advanced analysis methods and their limitations, biological system quantification (identification), experimental design and hypothesis testing, the limitations of biological data, and computational methods.
Mr. Campfield, Mr. DiStefano (F)

M296B. Biocybernetics II. (Formerly numbered Engineering M296B; Same as Medicine M296B.) Prerequisite: Engineering Systems M296A. Physiology 100 or Biology 166 or equivalent is recommended. Continued development of modern systems/biocybernetics methodology and identification of biological systems. Critical survey of their application in the life sciences. The systems viewpoint of regulation in selected biological systems. Applications to human pathophysiology, diagnosis and therapy.
Mr. Campfield, Mr. DiStefano (W)

M296C. Seminar: Advanced Topics in Biocybernetics. (Formerly numbered Engineering M296C; same as Medicine M296C.) Prerequisite: consent of the instructor. Interactive seminar on current research topics in biocybernetics. Dynamic systems modeling of physiological processes, with emphasis on specific applications in physiology and clinical medicine. Students will be involved in one or more class projects.
Mr. Campfield, Mr. DiStefano (Sp)

Materials

240A. Principles of Materials Science A (Microstructural Thermodynamics). Prerequisite: Engineering 105A or equivalent; Engineering 141 or equivalent. Thermodynamical equilibrium criteria for multicomponent materials in electric, magnetic and stress fields. Relationship between crystal symmetry and general stiffness and compliance tensor components. Stability analysis, first and second order transitions. Thermodynamics of nonuniform solutions; diffuse interface and critical nucleus. The diffusion equation in concentrated solutions. Mr. Knapp (F)

240B. Principles of Materials Science B (Structure of Materials). Prerequisite: Engineering 145A or equivalent. Atomic, electronic, and crystalline structure of materials; particles and waves, free electron model, binding in solids; crystal structure, real and reciprocal lattices; amorphous solids, kinematical theory of scattering, electrons in a periodic potential, pseudopotentials, conduction of electrons in solids. Mr. Wagner (W)

240C. Principles of Materials Science (Theory of Imperfections). (Formerly numbered Engineering 245A.) Prerequisite: Engineering 143A or equivalent. Topics in theory of lattice defects: continuum and atomistic treatments of point defects, dislocations and planer faults; interactions between various defects; selected applications to physical and mechanical behavior of solids. Mr. Ono (Sp)

***1241. Oxidation of Metals.** (Formerly numbered Engineering 241.) Prerequisite: Engineering 141, or equivalent, or consent of the instructor. The kinetics and mechanism of gas-solid reactions. Adsorption and phase-boundary reactions. Nucleation of reaction products, defect structure of oxides, crystal structure and morphology of oxide films, factors influencing adherence of surface films.
Mr. Douglass

242A. Plasticity Theory Applied to Metal Working I. (Formerly numbered Engineering 242A.) Prerequisite: Engineering 158A. Fundamental concepts describing the mechanics of plastic deformation of homogeneous solids. Yield criteria. Methods of solution, including slip line field, of problems involving plastic deformation, with examples involving plane strain and axisymmetric deformation. Extrusion problem. Application of methods of solution. Mr. Shabaik (Sp)

243A. Fracture of Structural Materials. (Formerly numbered Engineering 243A.) Prerequisite: Engineering 158A or equivalent. The engineering and scientific aspects of crack nucleation, slow crack growth and unstable fracture. Fracture mechanics, dislocation models, fatigue, fracture in reactive environments, alloy development, fracture-safe design. Mr. Sines (W)

243B. Design for Fatigue Reliability. (Formerly numbered Engineering 243B.) Prerequisite: Engineering 14 or equivalent and consent of the instructor. The prediction of fatigue life of machines and vehicles with a statistical confidence. Probabilistic consideration of service loads and life. Design concepts to accommodate fatigue behavior. Detail design concepts to improve fatigue life.
Mr. Sines (Sp, odd years)

243C. Strengthening Mechanisms in Solids. (Formerly numbered Engineering 243C.) Prerequisite: Materials 240C. Dislocation mechanisms of yielding, work hardening and other strengthening methods. Creep and grain boundary sliding. Microstructure-strength correlations and thermomechanical treatments in steels, superalloys,

and high strength non-ferrous-alloys.
Mr. Ono (F, even years)

244. Electron Microscopy. (Formerly numbered Engineering 244.) Prerequisite: Engineering 145A or equivalent. Essential features of the electron microscope, geometry of electron diffraction, kinematical and dynamical theories of electron diffraction including anomalous absorption, applications of theory to defects in crystals, Moire fringes, direct lattice resolutions, Lorentz microscopy, laboratory applications of contrast theory.
Mr. Ardell (F, odd years)

245C. Diffraction Methods in Science of Materials. (Formerly numbered Engineering 245C.) Prerequisite: Engineering 145A or equivalent. Theory of the diffraction of waves (x-rays, electrons, and neutrons) in crystalline and non-crystalline materials, Long- and short-range order in crystals, structural effects of plastic deformation, solid-state transformations, arrangements of atoms in liquids and amorphous solids.
Mr. Wagner (F, even years)

246A. Mechanical Properties of Nonmetallic Crystalline Solids. (Formerly numbered Engineering 246A.) Prerequisite: Engineering 146A. Material and environmental factors affecting the mechanical properties of nonmetallic crystalline solids, including atomic bonding and structure, atomic-scale defects, microstructural features, residual stresses, temperature, stress state, strain rate, size, and surface conditions. Methods for evaluating mechanical properties.
Mr. Mackenzie, Mr. Sines (F, odd years)

246B. Structure and Properties of Glass. (Formerly numbered Engineering 246B.) Prerequisite: Engineering 146A. Structure of amorphous solids and glasses. Conditions of glass formation and theories of glass structure. Mechanical, electrical and optical properties of glass, and relationship to structure. Mr. Mackenzie (Sp, even years)

246D. Electronic and Optical Properties of Ceramics. (Formerly numbered Engineering 246D.) Prerequisite: Engineering 146A. Principles governing electronic properties of ceramic single crystals and glasses and effects of processing and microstructure on these properties. Electronic conduction, ferroelectricity, and photochromism. Magnetic ceramics. Infrared, visible, and ultraviolet transmission. Unique application of ceramics.
Mr. Mackenzie (Sp, odd years)

247A. Solid State Reactions. (Formerly numbered Engineering 247A.) Prerequisite: Engineering 142. Phenomenology and atomistic mechanisms of solid-state diffusion. Nucleation theory. Theory of diffusional growth processes, kinetics of diffusional transformations in solids. Precipitation in solids. Spinodal decomposition. Mr. Ardell (W)

247C. Advanced Solidification. (Formerly numbered Engineering 247C.) Prerequisite: Materials 247A or equivalent. Liquid state concept of constitutional supercooling; nucleation from the liquid phase; solute redistribution during liquid-solid transformation; fluid motion; interface morphology; eutectic growth; determination of phase diagrams; student reports on current topics in solidification. Mr. Yue (F, even years)

248A. Experimental Methods in Materials Synthesis. (Formerly numbered Engineering 248A.) Prerequisite: a bachelor's degree in chemistry, physics, or engineering. Techniques used in materials synthesis temperature measurement, vacuum techniques, methods of heating and quenching, consolidation and refining of metals, crystal growth, thin film deposition and thick film deposition. Laboratory experiments and demonstrations carried out. Mr. Bunshah (F)

Mechanics and Structures

250A. Foundations of Fluid Dynamics. (Formerly numbered Engineering 250A.) Prerequisite: Engineering 150A or consent of the instructor. The course develops and applies the fundamental theorems of fluid dynamics. Ideal fluids, potential flow, vortex motion, and viscous flow are treated. The history of fluid dynamics is illustrated with problems drawn from mechanics, aerodynamics, and geophysics. Mr. Cole, Mr. Crow (F)

250B. Viscous and Turbulent Flows. (Formerly numbered Engineering 250B.) Prerequisite: Engineering 150A or consent of the instructor. The course applies the fundamental principles of fluid dynamics to the study of fluid resistance. States of fluid motion are discussed in order of advancing Reynolds number; wakes, boundary layers, instability, transition, and turbulent shear flows.
Mr. Cole, Mr. Crow (W)

250C. Compressible Flows. (Formerly numbered Engineering 250C.) Prerequisite: Engineering 150A or 150B or consent of the instructor. Effects of compressibility in viscous and inviscid flows. Steady and unsteady inviscid subsonic and supersonic flows; method of characteristics; small disturbance theories (linearized and hypersonic). Shock dynamics. Mr. Charwat, Mr. Cole (Sp)

***[1]251A. Stratified and Rotating Fluids.** (Formerly numbered Engineering 251A.) Prerequisite: Engineering 150A or equivalent or consent of the instructor. Fundamentals of fluid flows with density variations or rotation, illustrated by examples with environmental, geophysical or technical importance. Linear and finite amplitude wave motion. Flow past bodies; blocking phenomena. Viscous effects. Instabilities. Turbulent shear flows, wakes, plumes, and gravity currents. Mr. Kelly

***[1]251B. Marine Hydrodynamics.** (Formerly numbered Engineering 251B.) Prerequisite: Engineering 150A or equivalent; or consent of the instructor; Engineering 193A-193B or equivalent. Basic hydrodynamics; small amplitude and shallow water theories; waves on beaches; ship waves; mathematical hydraulics; breaking of a dam.
Mr. Barker, Mr. Cole

251C. Fluid Dynamics of Pollution. (Formerly numbered Engineering 251C.) Prerequisite: Engineering 150A or consent of the instructor. The course is designed to introduce to engineers and/or scientists of various disciplines the fluid mechanical aspect of pollution problems. The lectures will discuss in depth the fluid dynamics of photochemical smog, oil slicks and pollution in waterways.
Mr. Liu (Sp, even years)

***[1]252A. Stability of Fluid Motion.** (Formerly numbered Engineering 252A.) Prerequisite: Engineering 150A or equivalent or consent of the instructor. Mechanisms by which laminar flows can become unstable and lead to turbulence of secondary motions. Linear stability theory; thermal, centrifugal, and shear instabilities; boundary layer instability. Nonlinear aspects: sufficient criteria for stability, subcritical instabilities, supercritical states, transition to turbulence. Mr. Kelly

252B. Statistical Theory of Turbulence. (Formerly numbered Engineering 252B.) Prerequisite: Engineering 150A or consejt of the instructor. The course develops statistical methods of wide utility in engineering, then applies them to turbulent flows. Topics covered are stochastic processes, kinematics of turbulence, energy decay. Kolmogorov similarity, analytical theories, and origins of Reynolds stress.
Mr. Crow, Mr. Meecham (Sp, even years)

252D. Engineering Magnetohydrodynamics. (Formerly numbered Engineering 252D.) Prerequisite: Engineering 117A and Mechanics and Structures 250A or consent of the instructor. Continuum theory of the motion of a conducting fluid in a magnetic field; typical solutions for incompressible and compressible flow; elements of the theory of conductivity in a plasma; propulsion and power generation applications.
Mr. Kelly, Mr. Meecham (Sp, even years)

253A. Advanced Engineering Acoustics. (Formerly numbered Engineering 253A.) Advanced studies in Engineering Acoustics includes: three-dimensional wave propagation; propagation in bounded media; Ray acoustics; attenuation mechanisms in fluids.
Mr. Stern (F)

253B. Fundamentals of Aeroacoustics. (Formerly numbered Engineering 253B.) Prerequisite: Engineering 150A or consent of the instructor. Detailed discussion of plane waves, point sources. Nonlinearity, layered and moving media, multiple reflections. Inhomogeneous wave equation. Monopole, dipole, quadrupole source fields from scattering inhomogeneities and turbulence; Lighthill's theory; moving sources. Similarity methods. Selected detailed applications.
Mr. Meecham (W)

***[1]253C. Sound and Vibration.** (Formerly numbered Engineering 253C.) Prerequisite: Engineering 153A or 155A, or consent of the instructor. Theoretical analysis of the interaction of sound and structures; acoustic transmission through fluid layers and walls; structural wave propagation; multidimensional random processes using wave number and frequency space; response and radiation of infinite and finite structures; statistical energy analysis.
Mr. Meecham

254A. Special Topics in Aerodynamics. (Formerly numbered Engineering 254A.) Prerequisite: Engineering 150A-150B, 192A-192B-192C or equivalent or consent of the instructor. Special topics of current interest in advanced aerodynamics. Examples are transonic flow, hypersonic flow, sonic booms, and unsteady aerodynamics.
Mr. Cole (F)

254B. Experimental Techniques in Fluid Mechanics. (Formerly numbered Engineering 254B.) Prerequisites: one of Engineering 150AB or Mechanics and Structures 250AB. Course will study the design and operating ranges of wind tunnels, water tunnels and unsteady flow facilities. This will include laboratory demonstrations and field trips. Modern instrumentation techniques and typical fluids experiments will be studied and criticised.
Mr. Barker, Mr. Charwat (Sp)

255A. Advanced Dynamics. (Formerly numbered Engineering 255A.) Prerequisite: Engineering 155 and 169A, or consent of the instructor. Variational principles and Lagrange's equations. Kinematics and dynamics of rigid bodies; procession and nutation of spinning bodies. Mr. Mingori (F)

255B. Mathematical Methods in Dynamics. (Formerly numbered Engineering 255B.) Prerequisite: Mechanics and Structures 255A. (Not the same as 255B prior to Spring Quarter 1973.) Concepts of stability; state space interpretation; stability determination by simulation, linearization, and Liapunov's Direct Method; the Hamiltonian as a Liapunov function; nonautonomous systems; averaging and perturbation methods of nonlinear analysis; parametric excitation and nonlinear resonance. Application to mechanical systems.
Mr. Gibson, Mr. Mingori (W)

256A. Mechanics of Deformable Solids. (Formerly numbered Engineering 256A.) Prerequisite: Engineering 158A or consent of the instructor. Stress and strain tensors, indicial notation, compatibility conditions, equations of motion. Work and energy, uniqueness of solution and extremum principles. Constitutive laws of isotropic elastic solids, thermoelasticity, linear viscoelasticity and incremental plasticity. Mr. Mal, Mr. Muki (F)

256B. Elasticity. (Formerly numbered Engineering 256B.) (Not the same as course 256B prior to Winter Quarter 1974.) Prerequisite: Mechanics and Structures 256A, or consent of the instructor. Formulation of elastostatic problems; general, plane strain, plane stress. Reciprocal theorems and variational theorems. Airy's stress function and Papkovich-Neuber solution. Fundamental singular solutions, stress concentration, thermal stresses, elastic contact, load transfer, St. Venan's principle and applications. Mr. Muki, Mr. Nelson (W)

256C. Plasticity, Creep and Thermal Stresses. (Formerly numbered Engineering 256C.) Prerequisites: Engineering 156A or 158A or consent of the instructor. Incremental plastic stress-strain relations. Stress-strain-time relations commonly used in structural analysis. Unified treatment of plastic

NOTE: For key to symbols, see page 74

strain, creep strain and thermal strain. Elastic-plastic and creep analyses of beams, columns, shafts, frames and plates.
Mr. Lin (Sp, even years)

***[1]256F. Analytical Fracture Mechanics.** (Formerly numbered Engineering 256F.) Prerequisites: Materials 243A; Engineering 156A, 158A or 166. Review of modern fracture mechanics, elementary stress analyses; analytical and numerical methods for calculation of crack tip stress intensity factors; engineering applications in stiffened structures, pressure vessels, plates and shells.
Mr. Westmann

M257A. Elastic Wave Propagation I. (Formerly numbered Engineering M257A.) (Same as Earth and Space Sciences M224A.) Prerequisite: Engineering 158A or 159A, or consent of the instructor. Elastic wave equation and elementary solutions; wave motions in elastic half-spaces; reflection and refraction of elastic waves; surface waves; vibrations of rods and plates.
Mr. Mal (W, even years)

M257B. Elastic Wave Propagation II. (Formerly numbered Engineering M257B.) (Same as Earth and Space Sciences M224B.) Prerequisite: consent of the instructor. Wave propagation in layered media; Green's functions for various geometrics; diffraction and scattering of elastic waves; attenuation; inversion problems. Mr. Mal (Sp, even years)

258A. Continuum Mechanics I. (Formerly numbered Engineering 258A.) Prerequisite: Mechanics and Structures 256A or 256B, Engineering 291A, or consent of the instructor. Bodies. Motions: referential, spatial and relative description; polar decomposition theorem. Cauchy-Green, stretching spin (vorticity), stress, and couple-stress tensor. Balance principles, mass, linear and angular momentum energy. Entropy production. Mr. Morgan (F)

258B. Continuum Mechanics II. (Formerly numbered Engineering 258B.) Prerequisite: Mechanics and Structures 258A. Principle of constitutive invariance. Material symmetries. *Simple* fluids and solids, sub-fluids, liquid crystals. Thermo *dynamics* of *simple* materials; the Clausius-Duhem inequality. Elastic (nonlinear) materials: problems of equilibrium, exact solutions. Contact with classical linear elasticity theory. Mr. Morgan (W)

***[1]259A. Seminar on Advanced Topics in Fluid Mechanics.** (Formerly numbered Engineering 259A.) Prerequisite: consent of the instructor. To study advanced topics in fluid mechanics with intensive student participation, involving assignments in research problems leading to a term paper or an oral presentation and possible help from guest lecturers. Mr. Cole, Mr. Kelly

***[1]259B. Seminar on Advanced Topics in Solid Mechanics.** (Formerly numbered Engineering 259B.) Prerequisite: consent of the instructor. Advanced study in various fields of solid mechanics on topics which may vary from term to term. Topics cover dynamics, elasticity, plasticity and stability of solids. Mr. Lin, Mr. Muki

262A. Advanced Mechanisms and Mechanical Systems. (Formerly numbered Engineering 262A.) Prerequisite: Engineering 162A. The kinematic analysis and synthesis of mechanisms and mechanical systems with special emphasis on use of modern analytical methods are considered. The use of computer techniques is discussed. A broad group of example systems are studied.
Mr. Dubowsky (Sp, even years)

***[1]263A. Dynamics and Control of Machines and Electromechanical Systems.** (Formerly numbered Engineering 263A.) Prerequisite: Engineering 163 or consent of the instructor. The analysis of complex machines and electromechanical systems. Emphasis of the performance and dynamic response of systems containing gears, elastic compliances, active feedback elements, and other complex components and subsystems. Both classical methods and modern computer-based techniques are applied. Mr. Dubowsky

263B. Vehicle Dynamics and Control. (Formerly numbered Engineering 263B.) Prerequisite: Engineering 163; Mechanics and Structures 255B recommended. Application to a variety of vehicles of advanced methods of dynamics and motion stability analysis, incorporating both classical and modern control theory. Paricular emphasis is given to space vehicles and ground transportation vehicles, with special attention to current topics in these fields. Mr. R.R. Allen (Sp, even years)

264A. Theory of Plates and Shells. (Formerly numbered Engineering 264A.) Prerequisite: Engineering 158A, 166, or consent of the instructor. Small and large deformation theories of thin plates; energy methods; free vibrations; membrane theory of shells; axisymmetric deformations of cylindrical and spherical shells including bending.
Mr. Nelson, Mr. Roberts (W)

***[1]264B. Advanced Theory of Shells.** (Formerly numbered Engineering 264B.) Prerequisite: Mechanics and Structures 264A or consent of the instructor. Elements of differential geometry for surfaces; fundamental field equations for small deformations of thin shells; applications to shells of revolution; free vibrations; selected current topics in shell theory research.
Mr. Nelson, Mr. Roberts

265A. Advanced Structural Analysis. (Formerly numbered Engineering 265A.) Prerequisite: Engineering 165B. Review of elasticity theory; theorem on virtual work, stationary value of potential and complementary potential; Castigliano, Maxwell-Betti theorems; stiffness, flexibility matrices for truss, beam elements; matrix force and displacement analysis of trusses, frames; introduction to finite element methods.
Mr. Nelson, Mr. Schmit (F)

265B. Finite Element Analysis of Structures. (Formerly numbered Engineering 265B.) Prerequisites: Engineering 166; Mechanics and Structures 265A or consent of instructor. Direct energy formulations for deformable systems; solution methods for linear equations; analysis of structural systems with one dimensional elements; introduction to variational calculus; discrete element displacement, force, and mixed methods for membrane, plate, shell structures; instability effects.
Mr. Dong, Mr. Schmit (W)

265C. Nonlinear Structural Analysis. (Formerly numbered Engineering 265C.) Prerequisite: Mechanics and Structures 265B or consent of instructor. Classification of nonlinear effects; material nonlinearities; conservative, nonconservative material behavior; geometric nonlinearities, Lagrangian, Eulerian description of motion; finite element methods in geometrically nonlinear problems; postbuckling behavior of structures; solution of nonlinear equations; incremental, iterative, programming methods.
Mr. Nelson (Sp, even years)

266A. Stability of Structures I. (Formerly numbered Engineering 266A.) Prerequisite: Engineering 165B, 166 or equivalent. Elastic buckling of bars. Different approaches to stability problems. Inelastic buckling of columns and beam columns. Columns and beam columns with linear, nonlinear creep. Combined torsional and flexural buckling of columns. Buckling of plates.
Mr. Dong, Mr. Schmit (Sp)

***[1]266B. Stability of Structures II.** (Formerly numbered Engineering 266B.) Prerequisite: Mechanics and Structures 266A. Continuation of the structural stability theory of course 266A, applied to rings, plates, and shells, dynamic stability of elements subject to transient and periodic forces.
Mr. Dong, Mr. Nelson

267A. Optimum Structural Design. (Formerly numbered Engineering 267A.) Prerequisite: Mechanics and Structures 265A. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures.
Mr. Felton, Mr. Schmit (W)

***[1]267B. Advanced Topics in Optimum Structural Design.** (Formerly numbered Engineering 267B.) Prerequisite: Mechanics and Structures 267A. Recent advances in structural synthesis, hybrid methods and approximation concepts; optimum prestressing; optimum design of laminates; configuration and topological considerations; aeroelastic and dynamic response constraints; applications, and current research.
Mr. Felton, Mr. Schmit

267C. Advanced Reinforced Concrete Design. (Formerly numbered Engineering 267C.) Prerequisite: Engineering 167B. Ultimate strength and seismic design considerations. Concrete mechanical properties. Columns: stability, biaxial bending. Slab design. Slab yield line theory. Footings. Joint design. Bracing systems: diaphragms, trusses and shear walls. Braced and unbraced frame design for gravity, wind and earthquake loads.
Mr. Selna (Sp)

267E. Structural Loads and Safety for Civil Structures. (Formerly numbered Engineering 267E.) Prerequisite: Engineering 167A or 167B or 167C, and 169A which may be taken concurrently. Concept of structural safety. Factors of safety and quantification of loads in building codes. Probability of failure and quantification of loads in probabilistic approaches to structural safety. Relationships between factor of safety and probability of failure.
Mr. Hart (F, odd years)

267S. Advanced Steel Design. (Formerly numbered Engineering 267S.) Prerequisites: Engineering 167A. Working and ultimate load methods. Emphasis on seismic design. Brittle fracture, fatigue and local buckling. Compression members. Element design for complex loading including torsion. Braced and unbraced frames. Drift requirements. Steel frame design for gravity, wind and earthquake loads. Mr. Rea (W)

***[1]268A. Experimental Structural Analysis.** (Formerly numbered Engineering 268A.) Prerequisite: consent of instructor. Study of modern techniques in experimental mechanics, including dimensional analysis, measurement theory and measurement techniques. Emphasis will be placed on techniques of modern optics, e.g., holography, Moire analysis, photoelasticity and speckle interferometry.
Mr. Felton, Mr. Fourney

***[1]268B. Failure of Structural Systems.** (Formerly numbered Engineering 268B.) Prerequisite: Engineering 165B. Philosophy of structural safety. Principles of design for prevention of failure (other than buckling). Fatigue, brittle failure, delayed cracking, creep, design of efficient joints, environmental effects. Emphasis on current problems in actual structures. Mr. Sines

269A. Dynamics of Structures. (Formerly numbered Engineering 269A.) Prerequisite: Engineering 169A. Principles of dynamics. Determination of normal modes and frequencies by differential and integral equation solutions. Transient and steady state response. Emphasis on derivation and solution of governing equations using matrix formulation. Mr. Dong, Mr. Friedmann (F)

269B. Advanced Dynamics of Structures. (Formerly numbered Engineering 269B.) Prerequisite: Mechanics and Structures 265A, 269A. Analysis of linear and nonlinear response of structures to dynamic loadings. Stresses and deflections in structures. Structural damping and self-induced vibrations. Mr. Dong, Mr. Friedmann (W)

269C. Introduction to Probabilistic Dynamics. (Formerly numbered Engineering 269C.) Prerequisite: Engineering 169A. Response of structural and mechanical systems to random vibrations. Stationary and nonstationary excitations. Response of systems with random parameters. Discrete and continuous linear systems. Applications to earthquakes, wind sway of buildings, gust response, vibrations due to gearing inaccuracies, train vibrations.
Mr. Friedmann, Mr. Hart (Sp, even years)

*1269D. **Aeroelastic Effects in Structures.** (Formerly numbered Engineering 269D.) Prerequisite: Mechanics and Structures 269A. Presentation of field of aeroelasticity from unified viewpoint applicable to flight structures, suspension bridges, buildings and other structures. Derivation of aeroelastic operators and unsteady airloads from governing variational principles. Flow induced instability and response of structural systems.
Mr. Friedmann

285A. Shear Strength of Soil and Stability of Slopes. (Formerly numbered Engineering 285A.) Prerequisite: Engineering 185A. Detailed study of fundamental concepts of shear strength of soils, strength determining factors, methods of strength measurement. Slope stability and stability analysis techniques using circular and noncircular failure surfaces, effect of side forces, total and effective stress analyses. Mr. Lade (F)

285B. Foundation Engineering. (Formerly numbered Engineering 285B.) Prerequisite: Engineering 185A; Mechanics and Structures 285A. Principles of foundation design including theory of consolidation, impeded drainage, stress distribution, settlement analysis, allowable bearing capacity for shallow foundations, piles and piers; laterally loaded piles. Mr. Lade (W)

285C. Soil Dynamics. (Formerly numbered Engineering 285C.) Prerequisites: Engineering 185A; Mechanics and Structures 285A. Design of foundation for vibrating equipment. Strength and stress-strain relations for soil under cyclic loading conditions. Fundamentals of earthquakes as applied to seismic response of earth structures and foundations. Design of embankments, retaining walls, and foundations for earthquake loading.
The Staff, Mechanics and Structures Department (Sp, even years)

285D. Earth Pressures and Earth Retaining Structures. (Formerly numbered Engineering 285D.) Prerequisite: Engineering 185A; graduate standing. The basic concepts of the theory of earth pressures behind retaining structures is presented with special application to the design of retaining walls, bulkheads and excavation bracing; the effects of flexibility of bulk bulkheads, creep in soils and construction techniques are also discussed in detail.
The Staff, Mechanics and Structures Department (F, odd years)

*1285E. **Seminar on Advanced Topics in Soil Mechanics.** (Formerly numbered Engineering 285E.) Prerequisites: graduate standing in Engineering and consent of the instructor. Topics may vary from term to term to cover subjects as earth dam design, seepage through soils, consolidation, constitutive laws, finite difference and finite element methods with special application in soil mechanics, theories of elasticity and plasticity, and case histories. Mr. Lade, Mr. Westmann

*1285L. **Advanced Soil Mechanics Laboratory.** (Formerly numbered Engineering 285L.) Lecture, one hour; laboratory, six hours. Prerequisites: Engineering 185A, 185B; Mechanics and Structures 285A, 285B. Lectures and laboratory studies of advanced aspects of soil properties and their application to design. Permeability, consolidation, strength testing, pore water pressure measurements, advanced instrumentation and measurement techniques. Preparation of engineering reports. Mr. Lade

286A. Earthquake Engineering. (Formerly numbered Engineering 286A.) Prerequisites: Mechanics and Structures 256A or 265A or 285A or Engineering 169A. Engineering seismology: strong earthquake motion, microtremors, wave velocity and damping, induced vibrations, spectral analysis. Risk of earthquakes and fault breaks. Site evaluation. Structure-earth system response. Introduction to earthquake resistive design of buildings, bridges and dams. Theory and field experiments.
Mr. Duke, Mr. Hart (W)

286B. Structural Response to Ground Motions. (Formerly numbered Engineering 286B.) Prerequisite: Mechanics and Structures 269A or consent of the instructor. Spectral analysis of ground motions; response, time and Fourier spectra. Response of structures to ground motions due to earthquakes and nuclear explosions. Computational methods to evaluate structural response. Response analysis including evaluation of contemporary design standards. Limitations due to idealizations. Mr. Duke, Mr. Rea (Sp)

M291A. Analytical Methods of Engineering I. (Formerly numbered Engineering 291A.) (Same as Systems Science M291A.) Prerequisite: Mathematics 131A and 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration, L_2-theory—linear spaces and operators. Eigenvalue problems. Introduction to Spectral theory—elementary distribution theory. Applications to problems in engineering. Mr. Morgan (F,W)

M291B. Analytical Methods of Engineering II. (Formerly numbered Engineering 291B.) (Same as System Science M291B.) Prerequisite: Mechanics and Structures M291A or Systems Science M291A or consent of the instructor. Application of modern mathematical methods to engineering problems. Review of spectral theory. Green's functions and eigenvalue problems for second order ordinary differential equations and their adjoints. Discrete and continuous spectra for ordinary and partial differential equations. Initial and boundary value problems. Mr. Cole (W,Sp)

M292A. Asymtotic and Perturbation Methods I. (Formerly numbered Engineering M292A.) (Same as Mathematics M274A.) Prerequisite: Engineering 192A or equivalent; Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase, Watson's lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems. Mr. Cole, Mr. Muki (F)

M292B. Asymptotic and Perturbation Methods II. (Formerly numbered Engineering M292B.) (Same as Mathematics M274B.) Prerequisite: Engineering 192A or equivalent; Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, limit process expansions, regular and singular perturbation problems, matching of asymptotic expansions, multiple scale methods, application to partial differential equations, near and far fields. Mr. Cole, Mr. Muki (W)

System Science

201A-201ZZ. Seminars in System Science. Prerequisite: consent of the instructor, and additional prerequisites for each offering as announced in advance by the Department of System Science. Lectures, discussions, student presentations and projects in areas of current interest. Some sections are intended for advanced students in a particular field and for students undertaking doctoral dissertations in the field. All sections are graded S/U only, and may be repeated for credit.
The Staff, System Science Department (F,W,Sp)

220A. Stochastic Theory of Queueing Systems I. (Formerly numbered Engineering 220A.) Prerequisite: Engineering M120C or consent of the instructor. Stochastic Point Processes. Topics in the theory of queues; the Imbedded Markov Chain Method; equilibrium results for multiple server queues; method of stages; applications to communication, control, and systems optimization, operations research. Mr. Miller, Mr. Rubin (W)

220B. Stochastic Theory of Queueing Systems II. (Formerly numbered Engineering 220B.) Prerequisite: System Science 220A. Advanced topics in queueing theory and systems; transient behavior, virtual waiting time and busy period, integral equation method, series of queues and priority queues. Inventories, communication, control and systems problems. Mr. Rubin (Sp)

220G. Graphs and Network Flows. (Formerly numbered Engineering 220G.) Prerequisite: Engineering 129L recommended or consent of instructor. Solution to analysis and synthesis problems which may be formulated as flow problems in capacity constrained (or cost constrained) networks. Tools of network flow theory are developed using graph theoretic methods and are applied to communication, transportation and transmission problems.
Ms. Greibach, Mr. Jacobsen, Mr. Rubin (W)

221. Linear Optimal Control. (Formerly numbered Engineering 221.) Prerequisite: Engineering 128A; Engineering 122A or equivalent (may be taken concurrently) or consent of the instructor. An introduction to optimal control, with emphasis on detailed study of LQR, or linear regulators with quadratic cost criteria. Relationships to classical control system design.
Mr. Balakrishnan, Mr. Mortensen
Mr. Wang (W,Sp)

222A. Nonlinear Control. (Formerly numbered Engineering 222A.) Prerequisite: System Science 221. Techniques for studying nonlinear control systems, with emphasis on their stability; Liapunov's direct method; input-output stability; Popov's method; linearization. Mr. Aoki, Mr. Wang (F)

222B. Stochastic Control. (Formerly numbered Engineering 222B.) Prerequisite: Engineering 120B and System Science 221. Estimation and control of linear discrete-time and continuous-time stochastic systems; separation theorem and applications; Kalman filtering. Mr. Aoki, Mr. Balakrishnan, Mr. Mortensen (F,Sp)

222C. Optimal Control. (Formerly numbered Engineering 222C.) Prerequisite: System Science 221. Applications of variational methods. Pontryagin's maximum principle, dynamic programming and nonlinear programming to problems of optimal control theory and practical systems.
Mr. Balakrishnan, Mr. Wang, Mr. Wiberg (W)

222EA-222EZ. Topics in Control. (Formerly numbered Engineering 222E.) Prerequisite: consent of the instructor, and additional prerequisites for each offering as announced in advance by the Department of System Science. Thorough treatment of one or more aspects of control theory and applications, such as: computational methods for optimal control; stability of distributed systems; identification; adaptive control; nonlinear filtering; differential games; applications to flight control, nuclear reactors, process control, biomedical problems. May be repeated for credit when no duplication exists.
Mr. Balakrishnan (F,W,Sp)

M222F. Biological Control Systems. (Formerly numbered Engineering M222F.) (Same as Anesthesiology M222.) Prerequisite: Engineering 122A or equivalent. Introduction to the application of control theory to the modeling and analysis of biological control systems, such as the respiratory system, cardiovascular system and neuromuscular system. Emphasis on solving problems of current interest in biomedicine. Mr. Wiberg (Sp)

M222G. Control and Coordination in Economics. (Formerly numbered Engineering M222G.) (Same as Economics M240.) Prerequisite: graduate standing in Economics or Engineering, consent of the instructor. Appropriate mathematics course recommended. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models, Bayesian approach to price and output rate adjustment. Mr. Aoki (Sp)

227A. Signal Detection and Digital Communication. (Formerly numbered Engineering 227A.) Prerequisite: Engineering 120B or consent of the instructor. Applications of statistical decision theory to signal detection in radar and communication; coherent and noncoherent detection of known

NOTE: For key to symbols, see page 74

signals in noise; detection of stochastic signals; binary and multiple-signal digital communication; sequential detection. Mr. Carlyle, Mr. Yao (F)

227B. Information Theory and Coding. (Formerly numbered Engineering 227B.) Prerequisite: System Science 227A. Information theory and coding from the viewpoint of digital communication systems; digital transmission and block coding; linear codes; convolutional codes, maximum likelihood decoding, and sequential decoding; ensemble error performance bounds of block and convolutional codes.
Mr. Massey, Mr. Omura, (W)

227C. Estimation and Filtering. (Formerly numbered Engineering 227C.) Prerequisite: Engineering 120B; System Science 227A recommended. Methods of determination of optimal statistical estimators, applied to problems in stochastic processes, communication systems, analog modulation and demodulation.
Mr. Balakrishnan, Mr. Mortensen, Mr. Yao (Sp)

227EA-227EZ. Topics in Communication. (Formerly numbered Engineering 227E.) Prerequisite: consent of the instructor, and additional prerequisites for each offering as announced in advance by the Department of System Science. Topics in one or more special aspects of communication systems, such as phase-coherent communication systems, optical channels, time-varying channels, feedback channels, broadcast channels, networks, coding and decoding techniques. May be repeated for credit when no duplication exists.
Mr. Massey (W,Sp)

227F. Algebraic Coding Theory. (Formerly numbered Engineering 227F.) Prerequisite: System Science 227B or consent of the instructor. Fundamentals of linear or parity-check codes and decoding algorithms based on the algebraic theory of finite groups and fields; cyclic codes; Hamming; Reed-Muller, Bose-Chaudhuri-Hocquenghem, and Reed-Solomon codes, and corresponding decoding algorithms. Mr. Massey (F)

***[1]227G. Rate Distortion Theory and Data Compression.** (Formerly numbered Engineering 227G.) Prerequisite: System Science 227B or consent of the instructor. Sources and distortion measures, rate distortion function and its evaluation for discrete and continuous sources, source coding theorems, block and tree source encoding techniques, and application to data compression. Student presentations of current research. Mr. Omura

228A. Foundations of Continuous-State System Theory. (Formerly numbered Engineering 228A.) Prerequisite: Engineering 128A and 291A. Fundamental characterization of "state" for systems described in input-output sets, and consequences; relation to system identification problems.
Mr. Levan (W)

228B. Computability and Complexity. (Formerly numbered Engineering 228B.) Prerequisite: consent of the instructor; Engineering 128D or M123B or comparable background recommended. Concepts fundamental to the study of discrete information systems and theory of computing, with emphasis on: regular sets of strings, Turing-recognizable (recursively enumerable) sets, closure properties, machine characterizations, nondeterminism, decidability, unsolvable problems, "easy" and 'hard' problems, PTIME/NPTIME.
Mr. Carlyle, Ms. Friedman (Sp)

228CA-228CZ. Topics in Algorithms and Computational Complexity. (Formerly numbered Engineering 228C.) Prerequisite: consent of the instructor, and additional prerequisites for each offering as announced in advance by the Department of System Science. Topics selected from the design, analysis, and implementation of algorithms for numerical and combinatorial problems, details of computational practice in systems applications, theories of computational complexity, and evaluations or bounds for complexities of problems, functions, systems, and processes. May be repeated for credit when no duplication exists.
Mr. Carlyle, Mr. Yao (F, W)

228D. Discrete State Systems. (Formerly numbered Engineering 228D.) Prerequisite: consent of the instructor; Engineering 128D recommended. Finite-state machines, transducers and their generalizations; regular expressions, transduction expressions, realizability; decomposition, synthesis, and design considerations; topics in state and system identification and faulty diagnosis, linear machines, probabilistic machines, applications in coding, communication, computing, system modeling and simulation.
Mr. Carlyle, Mr. Massey (W)

229A. Numerical Techniques in Systems Optimization. (Formerly numbered Engineering 229A.) Prerequisite: Engineering 291A; Engineering 129A or System Science 272A or similar background recommended. Computational methods for constrained extrema of functionals.
Mr. Balakrishnan, Mr. Karplus (F)

229B. Functional Analysis and Optimization. (Formerly numbered Engineering 229B.) Prerequisite: Engineering 291A and consent of the instructor. Functional analysis approach to optimization problems for dynamic systems—lumped and distributed. Emphasis on computational aspects.
Mr. Balakrishnan, Mr. Levan (W)

229C. Stochastic Differential Systems. (Formerly numbered Engineering 229C.) Prerequisite: Engineering 120B, System Science M273B, Engineering 291A or equivalent, and consent of the instructor. Integration with respect to continuous-parameter martingales; Radon-Nikodym derivatives in metric spaces; applications to filtering and stochastic control.
Mr. Balakrishnan, Mr. Mortensen (Sp)

229EA-229EZ. Topics in Optimization. (Formerly numbered Engineering 229E.) Prerequisite: consent of the instructor, and additional prerequisites for each offering as announced in advance by the Department of System Science. Comprehensive treatment of one or more selected topics in such areas as system optimization theory and numerical techniques, system identification, stochastic systems, finite graphs, network flows, queueing systems, etc. May be repeated for credit when no duplication exists.
Mr. Balakrishnan, Mr. Jacobsen (W,Sp)

229J-229K-229L. Public Systems Analysis. (Formerly numbered Engineering 229J-229K-229L.) Prerequisite: graduate standing or consent of the instructor. Exploration of the relevance of system science methodologies to research activities directed toward improvements in the systems that provide education, health care, transportation, communication, housing, environmental quality, and public safety services in urban areas.
Mr. Chaiken, Mr. Rubin
(229J F; 229K W; 229L Sp)

272A. Nonlinear Programming. (Formerly numbered Engineering 272A.) Prerequisite: Engineering 129A and 129L or equivalent, or consent of the instructor. Basic graduate course in nonlinear programming. Convex sets and functions and their basic properties. Kuhn-Tucker saddle-point, and nonlinear or conjugate duality theory. Development of algorithms and convergence theory.
Mr. Jacobsen, Mr. Miller, Mr. Subelman (W)

272BA-272BZ. Topics in Operations Research. (Formerly numbered Engineering 272B.) Prerequisite: consent of the instructor, and additional prerequisites for each offering as announced in advance by the Department of System Science. Treatment of one or more selected topics from areas such as: integer programming; combinatorial optimization; network synthesis; scheduling, routing, location and design problems; implementation considerations for mathematical programming algorithms; stochastic programming; applications in engineering, computer science, economics. May be repeated for credit when no duplication exists.
Mr. Jacobsen, Mr. Subelman (F,Sp)

272C. Optimization Methods for Large-Scale Systems. (Formerly numbered Engineering 272C.) Prerequisite: Engineering 129L and System Science 272A or consent of the instructor. Theory and computational procedures for decomposing large-scale mathematical programming problems. Generalized linear programming, decomposition algorithms, column generation, economic implications. Application to stochastic programming and optimal control. Topics in nonconvex programming; minimizing concave functions on convex polyhedra, reverse convex programming. Mr. Jacobsen (Sp)

273A. Dynamic Programming. (Formerly numbered Engineering 273A.) Prerequisite: Engineering 120A and 129L or equivalent. Introduction to the mathematical analysis of sequential decision processes. The finite horizon model in both the deterministic and stochastic cases. The finite state infinite horizon model. Methods of solution. Detailed examples from inventory theory, finance, and transportation systems.
Mr. Miller, Mr. Subelman (F,Sp)

M273B. Probability Theory for Applications. (Formerly numbered Engineering M273B.) (Same as Math M282A.) Prerequisite: Mathematics 131A, and either Engineering 120A or Mathematics 150A-150B or Mathematics 152A-152B; or consent of the instructor. This course is not open for credit to students with credit in Mathematics 275A. This course is designed to prepare students for graduate courses in statistics and applied stochastic processes. Summary of measure and integration as applicable to probability theory, distribution and characteristic functions, conditioning, independence, convergence of random variables, limit theorems.
Mr. Carlyle (Sp)

273CA-273CZ. Topics in Stochastic Processes. (Formerly numbered Engineering 273C.) Prerequisite: consent of the instructor, and additional prerequisites for each offering as announced in advance by the Department of System Science. Selected topics in such areas as: renewal processes; Markov decision processes; optimization in stochastic processes; applications in operations research, system analysis, inventory and replacement problems; random fields; point process theory with application to signal detection, queueing and communication networks. May be repeated for credit when no duplication exists.
Mr. Carlyle (F)

***[1]275A. Statistical Design of Engineering Experiments.** (Formerly numbered Engineering Systems M275A.) Prerequisite: Engineering 193A, 193B. Matrix treatment of linear hypotheses in engineering experimentation. Statistical estimation, tests of hypotheses, analysis of variance, regression models. Randomized blocks, factorial, Latin square, multiple factor and level experiments. Principles of orthogonality, confounding, fractional replication, incomplete block designs with engineering applications. Mr. Carlyle

275B. Reliability Theory with Applications. (Formerly numbered Engineering Systems 275B.) Prerequisite: Engineering 120A, or equivalent. Basic graduate course in reliability theory. Reliability models for complex systems, coherent structures, modular decomposition, reliability bounds. Constant, monotone hazard functions. Optimization problems in reliability: redundancy allocations, maintenance policies, stress-strength and safety considerations in engineering design. Statistical problems, current topics.
Mr. Miller, Mr. Subelman (Sp)

M284A. Context-Free Languages. (Formerly numbered Engineering 228E.) (Same as Computer Science M284A.) Prerequisite: Computer Science M123B or Engineering M123B. Detailed study of context-free languages and their restrictions and generalizations, including: grammars, derivation trees, ambiguity, normal forms; operations, closure properties; pushdown acceptors; topics from parsing, deterministic machines and languages, LR (k) grammars, macro grammars.
Ms. Friedman, Ms. Greibach (W)

284XA-284XZ. Topics in Automata and Languages. (Formerly numbered Engineering 228K.) Prerequisite: consent of the instructor, and additional

prerequisites for each offering as announced in advance by the Department of System Science. Comprehensive treatment of one or more topics from areas such as: families of formal languages and operators; realtime computation; resource-bounded computation; theories of machines, grammars, data structures, programs, semantics; picture grammars and pattern recognition; biological models and development systems. May be repeated for credit when no duplication exists.
Mr. Carlyle, Ms. Greibach (Sp)

***[1]M285A. Automatic Deduction: Theory and Applications.** (Formerly numbered Engineering 223D.) (Same as Computer Science M285A.) Prerequisite: some knowledge of logic list-processing languages and programming. Historical development of automatic deduction programs. The resolution principle. Program structure and efficiency strategies. Fundamental meta theorems. Rules of inference for equality and decision procedures. Formalization and axiomatization. Ms. Friedman

M287A. Theory of Program Structure. (Same as Computer Science M287A.) (Formerly numbered Engineering 223F) Prerequisite: Computer Science M123B or Engineering M123B. Models of computer programs and their syntax and semantics; emphasis on programs and recursion schemes; equivalence, optimization, correctness and translatability of programs; expressive power of program constructs and data structures; selected current topics. Ms. Friedman, Ms. Greibach

M291A. Analytical Methods of Engineering I. (Formerly numbered Engineering 291A.) (Same as Mechanics and Structures M291A.) Prerequisite: Mathematics 131A and 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration, L_2-theory—linear spaces and operators. Eigenvalue problems. Introduction to Spectral theory—elementary distribution theory. Applications to problems in engineering. Mr. Levan, Mr. Morgan (F,W)

M291B. Analytical Methods of Engineering II. (Formerly numbered Engineering 291B.) (Same as Mechanics and Structures M291B.) Prerequisite: Mechanics and Structures M291A or System Science M291A or consent of the instructor. Application of modern mathematical methods to engineering problems. Review of spectral theory. Green's functions and eigenvalue problems for second order ordinary differential equations and their adjoints. Discrete and continuous spectra for ordinary and partial differential equations. Initial and boundary value problems.
Mr. Cole, Mr. Levan (W,Sp)

Interdisciplinary Courses

291C. Integral Equations in Engineering. Prerequisite: Mathematics 250B. Introduction to generalized function theory and Green's functions. Conversion of partial equations to integral equations and classification of integral equations. Solution to integral equations with degenerate kernels; discussions of successive approximations and Fredholm and Hilbert-Schmidt theory.
Mr. Westmann (Sp)

298. Seminar in Engineering. (½ to 1 course) Prerequisite: graduate status in engineering; consent of the instructor. Seminars may be organized in advanced technical fields. Course may be repeated provided no duplication exists. If appropriate, field trips may be arranged.
The Staff, the School of Engineering and Applied Science

495. Teaching Assistant Training Seminar. Prerequisite: graduate standing in Engineering and appointment as a Teaching Assistant. Seminar on communication of Engineering principles, concepts and methods, preparation, organization of material, presentation, use of visual aids, grading, advising and rapport with the students. To be graded on S/U basis only. Mr. Willson (F)

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

***[18]470A-470D. The Engineer in the Technical Environment. (¾ course each)** Prerequisite: acceptance in the Engineering Executive Program. Theory and application of quantitative methods in the analysis and synthesis of engineering systems for the purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information and manpower. Includes case studies and individual projects. Mr. O'Neill

***[18]471A-471B-471C. The Engineer in the General Environment. (¾, ¾, 1½ courses)** Prerequisite: acceptance in the Engineering Executive Program. Influences of human relations, laws, social sciences, humanities, and fine arts on the development and utilization of natural and human resources. The interaction of technology and society past, present and future. Change agents and resistance to change. 471B-471C is offered on an In Progress basis, which requires students to complete the full 2-quarter sequence, at the end of which time a grade is given for all quarters of work. Mr. Campbell

***[18]472A-472B-472C-472D. The Engineer in the Business Environment. (¾, ¾, ¾, 1½ courses)** Prerequisite: acceptance in the Engineering Executive Program. The language of business for the engineering executive. Accounting, finance, business economics, business law, and marketing. Laboratory in organization and management problem-solving. Analysis of actual business problems of the firm, the community, and the nation, provided through cooperation and participation with California business corporations and government agencies. 472A-B and 472C-D are offered on an In Progress bases, which requires two full two-quarter sequences; at the end of each sequence a grade will be given. Mr. Ruskin

***[18]473A-473B. Analysis and Synthesis of a Large-Scale System. (¾ course each)** Prerequisite: acceptance in the Engineering Executive Program. Credit to be given only upon completion of 473B. A problem area of modern industry or government is selected as a class project and its solution is synthesized using quantitative tools and methods. The project also serves as a laboratory in organization for a goal oriented technical group. IP grading.
Mr. Campbell

596. Directed Individual or Tutorial Studies. (½ to 2 courses) Prerequisite: graduate status in engineering; consent of the instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. Supervised investigation of advanced technical problems. To be graded on a S/U basis. The Staff (F,W,Sp)

597A. Preparation for M.S. Comprehensive Examination. (½ to 3 courses) Prerequisite: graduate status in engineering; consent of the instructor. Reading and preparation for M.S. comprehensive examination. To be graded on a S/U basis.
The Staff (F,W,Sp)

597B. Preparation for Ph.D. Preliminary Examinations. (½ to 4 courses) Prerequisite: graduate status in engineering; consent of the instructor.
The Staff (F,W,Sp)

597C. Preparation for Ph.D. Oral Qualifying Examination. (½ to 4 courses) Prerequisite: graduate status in engineering; consent of the instructor. Preparation for Oral Qualifying Examination, including preliminary research on dissertation. To be graded on a S/U basis. The Staff (F,W,Sp)

598. Research for and Preparation of the Master's Thesis. (½ to 3 courses) Prerequisite: graduate status in engineering; consent of the instructor. Supervised independent research for M.S. candidates, including thesis prospectus. To be graded on a S/U basis. The Staff (F,W,Sp)

599. Research for and Preparation of the Doctoral Dissertation. (½ to 4 courses) Prerequisite: graduate status in engineering; consent of the instructor. Usually taken after student has been advanced to candidacy. To be graded on a S/U basis.
The Staff (F,W,Sp)

ENGLISH

(Department Office, 2225 Rolfe Hall)

Calvin Bernard Bedient, Ph.D., *Professor of English.*
Vinton A. Dearing, Ph.D., *Professor of English.*
Robert William Dent, Ph.D., *Professor of English.*
Robert A. Georges, Ph.D., *Professor of English.*
Gerald Jay Goldberg, Ph.D., *Professor of English.*
George Robert Guffey, Ph.D., *Professor of English.*
Charles Bennett Gullans, Ph.D., *Professor of English.*
Paul Alfred Jorgensen, Ph.D., *Professor of English.*
Henry Ansgar Kelly, Ph.D., *Professor of English and of Medieval-Renaissance Studies.*
Jascha Kessler, Ph.D., *Professor of English.*
Robert Starr Kinsman, Ph.D., *Professor of English.*
Murray Krieger, Ph.D., *University Professor of English.*
Richard Alan Lanham, Ph.D., *Professor of English.*
Richard D. Lehan, Ph.D., *Professor of English.*
Blake Reynolds Nevius, Ph.D., *Professor of English.*
Maximillian Erwin Novak, D.Phil., Ph.D., *Professor of English.*
James Emerson Phillips, Jr., Ph.D., *Professor of English.*
Joseph N. Riddel, Ph.D., *Professor of English.*
Florence Ridley, Ph.D., *Professor of English.*
Alan Henry Roper, Ph.D., *Professor of English.*
George S. Rousseau, Ph.D., *Professor of English and Eighteenth-Century Studies.*
William David Schaefer, Ph.D., *Professor of English.*
Paul Roland Sellin, Ph.D., *Professor of English.*
Paul Douglas Sheats, Ph.D., *Professor of English (Chairman of the Department).*
Georg Bernhard Tennyson, Ph.D., *Professor of English.*
Peter Larsen Thorslev, Jr., Ph.D., *Professor of English.*
Alexander Welsh, Ph.D., *Professor of English.*
D.K. Wilgus, Ph.D., *Professor of English and Anglo-American Folksong.*
Robert Martin Adams, Ph.D., *Emeritus Professor of English.*
Robert Paul Falk, Ph.D., *Emeritus Professor of English.*
John Jenkins Espey, B.Litt., M.A., (Oxon.), *Emeritus Professor of English.*
Charles V. Hartung, Ph.D., *Emeritus Professor of English.*
Leon Howard, Ph.D., L.H.D., *Emeritus Professor of English.*
Claude Jones, Ph.D., *Emeritus Professor of English.*
Alfred Edwin Longueil, Ph.D., *Emeritus Professor of English.*
Ada Blanche Nisbet, Ph.D., *Emeritus Professor of English.*
Franklin Prescott Rolfe, Ph.D., *Emeritus Professor of English.*
Michael J.B. Allen, Ph.D., *Associate Professor of English.*
Walter Eldon Anderson, Ph.D., *Associate Professor of English.*
Charles Linwood Batten, Jr., Ph.D., *Associate Professor of English.*
Charles Ashton Berst, Ph.D., *Associate Professor of English.*
A. R. Braunmuller, Ph.D., *Associate Professor of English.*
Frederick Lorrain Burwick, Ph.D., *Associate Professor of English*
Daniel G. Calder, Ph.D., *Associate Professor of English.*
Edward Ignatius Condren, Ph.D., *Associate Professor of English and of Medieval Studies.*
Richard Keith Cross, Ph.D., *Associate Professor of English.*
Patrick K. Ford, Ph.D., *Associate Professor of English and of Celtic Studies.*
Ronald E. Freeman, Ph.D., *Associate Professor of English.*
Christopher Waldo Grose, Ph.D., *Associate Professor of English.*
Albert David Hutter, Ph.D., *Associate Professor of English.*
Gordon L. Kipling, Ph.D., *Associate Professor of English.*
G. Jackson Kolb, II, Ph.D., *Associate Professor of English (Vice-Chairman of the Department).*
Kenneth Robert Lincoln, Ph.D., *Associate Professor of English.*
Robert M. Maniquis, Ph.D., *Associate Professor of English.*
Raymund Arthur Paredes, Ph.D., *Associate Professor of English.*
Joyce Elaine Peterson, Ph.D., *Associate Professor of English.*
Thomas Richard Wortham, Ph.D., *Associate Professor of English.*
Ruth B. Yeazell, Ph.D., *Associate Professor of English (Vice-Chairman of the Department).*
Stephen Irwin Yenser, Ph.D., *Associate Professor of English.*
Ruth E. Armentrout, Ph.D., *Assistant Professor of English.*
James Edward Goodwin, Ph.D., *Assistant Professor of English.*
Robert H. Hirst, Ph.D., *Assistant Professor of English.*
Romey T. Keys, Ph.D., *Assistant Professor of English.*
Joseph F. Nagy, Ph.D., *Assistant Professor of English.*
Barbara Lee Packer, Ph.D., *Assistant Professor of English.*
Jonathan Post, *Assistant Professor of English.*
Karen Elizabeth Rowe, Ph.D., *Assistant Professor of English.*
Donald L. Weber, Ph.D., *Assistant Professor of English.*

NOTE: For key to symbols, see page 74

•

Jerome Cushman, A.B., B.S.L.S., *Senior Lecturer, Literature for Children and Adolescents.*
Everett L. Jones, M.A., *Senior Lecturer in English.*
David Stuart Rodes, Ph.D., *Lecturer in English.*
Peter Ladefoged, Ph.D., *Professor of Phonetics.*
Robert Paul Stockwell, Ph.D., *Professor of Linguistics.*

English as a Second Language

(Section Office, 3303 Rolfe Hall)

J. Donald Bowen, Ph.D., *Professor of English.*
Russell Norman Campbell, Ph.D., *Professor of English (Vice-Chairman of the Department).*
John Frederick Povey, Ph.D., *Professor of English.*
Clifford Holmes Prator, Ph.D., *Professor of English.*
Lois McIntosh, Ph.D., *Emeritus Professor of English.*
Marianne Celce-Murcia, Ph.D., *Associate Professor of English.*
Evelyn R. Hatch, Ph.D., *Associate Professor of English.*
Earl James Rand, Ph.D., *Associate Professor of English.*
Frances B. Hinofotis, Ph.D., *Assistant Professor of English.*
John H. Schumann, Ph.D., *Assistant Professor of English.*
Jose L. Galvan, ABD, *Lecturer in English.*

•

Peter Ladefoged, Ph.D., *Professor of Phonetics.*

Admission to Courses in English

Students must have completed the Subject A requirement before taking any courses in English (other than English A or English 1). Reference to Subject A as a prerequisite in the following pages alludes to the Subject A requirement. For regulations concerning Subject A, see index.

Preparation for the Major

Requirements: English 3, 4 or 20, 10A, 10B, and 10C taken *in the stated sequence* (each course is a prerequisite for the next course). Completion of English 3 or 4 normally satisfies the College of Letters and Science "D" requirement in English composition. Completion of English 3 *and* 4 satisfies the College of Fine Arts English composition requirement (see under College requirements for details).

Extra-Departmental Requirement for Foreign Literature or Foreign Language Background. All English majors must have completed either (1) the fifth course or its equivalent in any one foreign language or (2) any combination of five courses in foreign language and foreign literature, including Foreign Literature in Translation and Humanities (see Courses of Instruction). These courses may be taken P/NP. High school foreign language courses count toward option 1, but not option 2.

The Major

Requirements: English 141A (Chaucer), 142A and 142B (Shakespeare), 143 (Milton), at least one "Specialized Study" course from the 180 series, and a minimum of seven additional upper division English courses. At least five of the seven courses must be chosen from the series numbered 150-190. At least one of the seven courses must be in literature before 1800 (the 150 series).

All majors are encouraged to choose additional electives from the courses numbered 140 through 190. English 140 (Literary Criticism) is especially recommended for students intending graduate work in literature.

Special Programs

The Department offers special programs in American Studies and General Literature, for both of which the regular "Preparation for the Major" sequence as well as the departmental foreign language requirement apply. Because of the specialized nature of these programs, students planning to do graduate work in English should consult with the departmental adviser before selecting either of these.

American Studies: This program consists of nine upper division courses in English and six related upper division courses taken in other departments. The nine English courses must include 109 (Interdisciplinary Approaches to Literature); 142A and 142B (Shakespeare); three courses chosen from 170, 171, 172, 173, 174 (the historical sequence in American literature); 175 (Perspectives in the Study of American Culture); and one course pertaining to "American Studies" chosen from the 180 series (Specialized Studies) or the 190 offerings (Literature and Society), taken preferably in the senior year. Of the six upper division courses in other departments, four must be in a selected discipline (history, political science, art, etc.). One of these four courses must deal with the methodology of the discipline, while the other three must explicitly treat American culture. With history as the secondary discipline, for example, students could select from such courses as History 100 (History and Historians)—which would fulfill the methodology requirement—History 176A-176B (Afro-American History), History 177A-177B (Intellectual History of the United States), History 177C (History of Religion in the United States), History 180J-180K (History of American Architecture and Urban Planning), and History 182 (The Immigrant in America). These courses must be chosen in consultation with the English departmental adviser. A complete listing of acceptable courses in the various secondary disciplines may be obtained from the Department of English (Rolfe Hall 2225).

General Literature. This program consists of nine upper division courses in English or American literature, and six upper division courses in foreign literatures (at least one of which must be taught in the original language, not a study of works in translation). The nine English courses must include 142A and 142B (Shakespeare); 141A (Chaucer) or 143 (Milton); at least one course from the 150 series, one from the 160 series, and one from the 170 series; and three electives chosen from courses numbered 140 through 190 (students intending graduate work in literature are especially encouraged to take English 140). A listing of acceptable courses arranged into possible emphases under this program may be obtained from the Department of English (Rolfe Hall 2225).

Creative Writing Major

Students in this major must satisfy all requirements listed under "Preparation for the Major" including the foreign language requirement. This major consists of 142A and 142B (Shakespeare), and a minimum of ten additional upper division English courses; three creative writing courses from the 133-135 series, taken in a single genre (poetry, short story, or drama); three literature courses paralleling the creative writing specialization (the following pairings are recommended: 100A and 101B with 133; 100C and 101C with 134; and 100B and 101D with 135); and four electives chosen from courses 121, 122, and 140 through 190. Students will be admitted to this program only upon recommendation of their instructor after completing 133A, 134A, or 135A. Students planning on choosing this major are encouraged to take English 20; for further details see the Department of English (Rolfe Hall 2225).

Major for Foreign Students

The Department offers a special major in English open optionally to bona fide foreign students whose first language is other than English. Students in this major must satisfy all requirements listed under "Preparation for the Major"; they may fulfill the departmental foreign language requirement with their own native language. The following 12 courses are required for the major itself: English 103J, 106J, and 109J; two courses in the 100 series, 122K; 142A and 142B; and four additional courses from those numbered 140-199. Students who complete this major and wish to pursue graduate study should consult with the departmental adviser about programs of study and requirements for admission.

Teaching Credential Candidates

Teaching of English. Students wishing to obtain a teaching credential should declare their intention at the beginning of their junior year and seek the advice of the departmental adviser in planning a coherent program. The Department requires either 120A, 120B, or 120C and 130 as part of, or in addition to, the major. Candidates must take one course in drama (100B, 135A-135B-135C, 152, 156, 167) as part of the major; they must also complete 300 before they can be certified to begin student teaching. Candidates are encouraged to choose additional courses in language and in children's literature, literature for adolescents, American literature, and literature for minorities as some of their electives. *Note: students who enter the School of Education seeking a credential to teach English must, before beginning their required practice teaching assignment, be certified by the Department of English as prepared to teach this subject; the Department will not certify any student who has not completed 130, 300, and either 120A, 120B, or 120C.* For additional information on courses leading to the teaching credential, consult the Graduate School of Education (Moore Hall 201) and the Department of English (Rolfe Hall 2225).

The Honors Course in English

Majors with a 3.25 overall grade-point average and a 3.5 grade-point average in English courses are encouraged to enter the honors program in English. Application should be made during the second quarter of the junior year. In addition to maintaining the above grade-point averages, students who expect to graduate with departmental honors are required to take two courses in the 180 series, and one Special Study tutorial (English 199H).

Requirements for Admission to Graduate Courses

The requirement is ordinarily a distinguished undergraduate record in English. Prospective graduate students are required to take the Graduate Record Examination (both Aptitude and Advanced Test in Literature) and to have their scores reported to the Department of English. A graduate student in another department who wishes to take a graduate course in English must secure the permission of the professor teaching the course.

Requirements for the Master's Degree

1. For general requirements, see the statement of the Graduate Division (above). The master's program is not preliminary to the doctoral program and students seeking the Ph.D. should apply directly for that program. In a few cases students who have done very well in the M.A. program have successfully petitioned the Graduate Committee to enter the Ph.D. program. The Department follows the Comprehensive Examination Plan; see statement of the Graduate Division (above). Examinations for the M.A. are given three times a year.

2. *Course Requirements.* Nine courses are required for the degree, five of which must be on the graduate level (200 or above). These nine courses must include one course in literary criticism (English 140, 201, or 259) and three graduate courses in literary history (English 220-259), two of which must deal with periods before 1900, and two of which must be historically contiguous (for example, 224 and 225).

3. *Major Fields.* The course requirements for the M.A. are highly flexible, in order to permit the student to plan a course of study that reflects his or her primary interests. Recommended electives for certain special fields of interest are suggested below. Students planning to enter community college teaching should consider taking 270A and 270B, which provide supervised teaching experience in the community colleges. Since enrollment in these courses is by instructor's consent, students are advised to consult the instructor early in the fall quarter of the year in which they plan to take the course. They should also note that English 275 is a prerequisite for 270A and 270B.

(a) *Language:* English 120-123, 130, 190, 210-213, 240-242, 250K, 272, 274.

(b) *Creative Writing:* English 133-135.

(c) *English for Minority Groups:* English 109K, 114, 122, 123, 130, 190; Education 102; Linguistics 100, 170; Sociology 124, 155.

(d) *500 Series Courses:* Candidates for the master's degree are permitted to take one independent study course (595; 4 units, S/U grading) for credit toward the nine course requirement. This course requires the completion of a substantial project, creative or scholarly.

Upon successful completion of these courses (and the reading test in one foreign language), the student will take the First Qualifying Examination. This consists of four written examinations of four hours each. One of these may be taken in a genre (novel, drama, folklore, and literary criticism) or an alternate field (proposed by the student and approved by the Department's Graduate Committee). At least three of the examinations must be taken in any of the following chronological periods: the Middle Ages, the Renaissance, the Earlier Seventeenth Century; the Restoration- Eighteenth Century; the Romantic period; the Victorian period; American Literature to 1828; American Literature, 1828-1900; and *either* Twentieth-Century British Literature or Twentieth Century American Literature. No student may write on more than two American fields, and those who elect a genre or literary criticism field may choose only one field in American literature.

Breadth Requirement. With the exception of courses 200 and 210, there are no specific course requirements in this first stage of the program, but students must take at least one course (200-259) in each of two chronological periods not chosen for the qualifying examination. These courses may be taken either before or after the First Qualifying Examination, but in no case later than the second quarter in residence following that examination. In lieu of taking these two courses, a student may request an oral examination in any two chronological fields not chosen for the qualifying examination; this oral must be passed within six months after the examination.

4. *Foreign Language.* Students may fulfill the language requirement by demonstrating a reading knowledge of any foreign language. If required, the reading test should be taken at the beginning of the first quarter of residence, but in any event no later than the mid-term of the quarter in which all degree requirments are to be completed. For further details consult the Department of English (Rolfe Hall 2225).

5. *Comprehensive Examination.* Upon completion of all requirements, the candidate is given a comprehensive oral examination of no more than one and one-half hours, to test his or her comprehension of the major literary documents presented during graduate study and his or her ability to analyze a work of literature. The examining committee consists of three faculty members appointed by the Vice-Chairman for Graduate Studies. The candidate writes a paper (8-10 pages in length) on a subject set in consultation with the committee chairman, and distributes it to the committee one week in advance of the examination. During the first half of the examination the committee discusses the paper with the candidate. The remainder of the examination is devoted to the fields represented by the nine courses presented by the candidate for the degree.

The M.A. degree is also granted to eligible students who have been admitted to the doctoral program and have passed the First Qualifying Examination (see "Requirements for the Doctor's Degree," below).

Statute of Limitations for Master's Candidates

Students must conform to the following schedule in proceeding toward the M.A. degree:

1. A maximum of three and one quarter calendar years from the time of entrance to taking the oral examination.

2. A maximum of twelve courses before taking the oral examination.

Requirements for the Doctor's Degree

1. For general requirements, see the statement of the Graduate Division (above). The Ph.D. is primarily a research degree and the Department's program is designed for students intending to teach in college and at the university level. Qualifying examinations are given twice a year.

2. *Foreign Language.* In addition to fulfilling the departmental philology requirements, students will normally be expected to have a reading knowledge of two foreign languages (e.g. French, German, Italian, Spanish, Greek, or Latin). Instead of the two language requirement, students may elect to pursue study of a single language in order to attain a superior proficiency. For details about this option and the possibility of offering a second language other than those named above, the student should consult the Vice-Chairman for Graduate Studies. One of the two languages must be satisfied before the student is admitted to the First Qualifying Examination, and the second before the student is advanced to candidacy.

3. *Departmental Program, First Stage.* In the first stage, which leads to the master's degree, the student must take a minimum of nine English courses from the 200 series. Two courses, 200 and 210, are required. Students entering with an M.A. in English are presumed to have fulfilled the nine-course requirement, but must take 200 and 210 or their equivalents.

Philology Requirement. In addition to English 210, the student is required to take two other courses from those numbered 211-215 and 240-242. This so-called philology requirement may be taken at any time during the first or second stage of the program, but before the Second Qualifying Examination. Students with an interest in the fields of Anglo-Saxon or Medieval literature should take the introductory courses in this area (211-215) as early as possible.

4. *Departmental Program, The Candidate Stage.* In this stage of the program, the student must take five courses from the 200 series, and a minimum of three English seminars. The student is encouraged to take as many seminars as possible (any graduate seminar may be repeated for credit) as well as suitable courses in other departments; at some time before the Second Qualifying Examination he must have taken one seminar in some field other than that of his specialization. When through course work and independent study the student is deemed sufficiently well prepared, and after he has passed the test in a second foreign language, he takes the Second Qualifying Examination. The Second Qualifying Examination consists of an oral examination of no less than two hours (and probably more) in length, to be administered by a committee of five, including a chairman and two other members from the department, and two members from outside the department (the student should seek out a dissertation chairman for his committee as soon as possible after passing the First Qualifying Examination, so that his preparation will not be prolonged unnecessarily). The examination will be based upon a dissertation prospectus (a substantially researched document approved by the committee chairman) which must be available to all members of the committee at least one week before the scheduled examination. The student must also submit, with the chairman's approval, a list of at least ten significant scholarly or critical works that bear on his field of specialization and are directly relevant to the method or subject matter of his dissertation. The chairman of the committee is responsible for defining, in conjunction with the candidate, the degree of comprehensiveness (the related literature) for which the student is answerable during the examination.

5. *Departmental Program, the Dissertation Stage.* When a student has passed the Second Qualifying Examination, he is advanced to candidacy and proceeds with the writing of the dissertation which must be approved by the three certifying members of his Doctoral Committee (two from the English Department, one from another department). A final oral examination may also be required.

Statute of Limitations for Doctoral Candidates

Students must ordinarily conform to the following schedule in proceeding toward the Ph.D.:

1. A maximum of two calendar years from time of entrance to taking the First Qualifying Examination.

2. A maximum of one calendar year between the First and the Second Qualifying Examinations.

3. A maximum of three calendar years from advancement to candidacy to completion of the degree.

Lower Division Courses

A. Basic Review of English Usage (No credit). English A displaces 4 units on the student's study list but yields no credit toward a degree. Enrollment in English A is offered only on a P/NP basis and is required of students with low scores on the Subject A Placement Test. Instruction in standard English usage, including practice in sentence and paragraph construction, diction, punctuation, and spelling. Workshop exercises in writing and revision. Completion of this course or demonstration of minimum competence in composition on the Subject A Placement Test is a prerequisite for English 1.

1. Fundamentals of Exposition. (½ course) Prerequisite: English A or qualifying score on Subject A Placement Test. English 1 displaces 4 units on the student's study list but yields only 2 units toward a degree. A course designed to develop the proficiency in expository writing required for successful University work. Lectures, readings, class discussions, and assignments in writing and revision. Successful completion of this course meets the Subject A requirement.

3. English Composition, Rhetoric and Language. (Formerly numbered 1A-1B.) Prerequisite: completion of Subject A requirement. Principles and methods of exposition and argumentation, with readings and analysis of passages of prose. Topics vary: special interest sections are set aside in the class schedule for social science, life science, and fine arts students. Other sections concentrate on literature or on rhetoric and stylistics. Minimum of six 3-5 page papers.

4. Critical Reading and Writing. (Formerly numbered 2). Prerequisites: Subject A and English 3 (or its equivalent; see Departmental adviser for details). An introduction to literary analysis, with close reading and carefully written exposition of selections from one or more of the principal modes of literature: poetry, prose fiction, and drama. Minimum of six 3-5 page papers.

10A. English Literature to 1660. Prerequisites: Subject A, English 3, and 4 or 20. A study of selected works of the period, beginning with selections from Old English poetry and including writings by Chaucer, Spenser, Shakespeare, Donne, and Milton. Minimum of three 3-5 page papers or equivalent.

10B. English Literature, 1660-1832. Prerequisites: Subject A, English 3, 4 or 20, and 10A. A study of selected works of the period, including writings by Dryden, Pope, Swift, Wordsworth, and Keats. Minimum of three 3-5 page papers or equivalent.

10C. English Literature, 1832 to the Present. Prerequisites: Subject A, English 3, 4 or 20, 10A, and 10B. A study of selected works of the period, including writings by Tennyson, Arnold, Browning, Yeats, Joyce, and Eliot. Minimum of three 3-5 page papers or equivalent.

20. Introduction to Creative Writing. Prerequisites: Subject A and English 3 (or its equivalent). In addition, student must obtain departmental consent, following submission of samples of creative or expository writing to a screening committee. A course designed to introduce the fundamentals of creative writing. Each class will focus either on poetry, fiction, or drama, depending upon the wishes of the instructor(s) during any given quarter. Readings from assigned texts and weekly writing assignments. May be substituted in lieu of course 4 for departmental prerequisites.

70. Major British Authors before 1800. Prerequisite: Subject A. Not open for credit to English majors or students who have taken 10A or 10B. A study of selected masterpieces of English literature

NOTE: For key to symbols, see page 74

before 1800, including the works of such writers as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, Johnson, and Fielding.

75. Major British Authors, 1800 to the Present. Prerequisite: Subject A. Not open for credit to English majors or students who have taken 10B or 10C. A study of selected masterpieces of English literature, 1800 to the present, including the works of such writers as Wordsworth, Coleridge, Keats, Tennyson, Dickens, Browning, Yeats, Joyce, and Eliot.

80. Major American Authors. Prerequisite: Subject A. Not open for credit to English majors or students who have taken any courses in the 170 series. An introduction to the chief American men of letters, with emphasis upon the poetry, nonnarrative prose, and short fiction of such writers as Poe, Emerson, Whitman, Twain, Frost, and Hemingway.

85. The American Novel. Prerequisite: Subect A. Not open for credit to English majors or students who have taken 171, 172, or 174. The development, with emphasis on form, of the American novel from its beginning to the present day. Included are works of such novelists as Hawthorne, James, Fitzgerald, and Faulkner.

90. Shakespeare. Prerequisite: Subject A. Not open for credit to English majors or students who have taken 142A or 142B. A survey of Shakespeare's plays, including comedies, tragedies, and histories, selected to represent Shakespeare's breadth, artistic progress, and total dramatic achievement.
Mr. Guffey, Mr. Rodes, Ms. Rowe

Upper Division Courses

Requirements: See "Admission to Courses in English" for prerequisites for courses 100-123. In addition, English 3 and 4 or 20 are prerequisites for courses 130-135; consent of the instructor following submission of samples of creative work is required for enrollment in courses 133-135. English 3, 4 or 20, 10A, 10B, and 10C, *taken in the stated sequence*, are prerequisites for courses 140-190.

100A. Introduction to Poetry. Prerequisite: Subject A. A study of critical issues (metrics, diction, figurative, language symbolism, irony and ambiguity, form and structure) and aesthetic issues, including evaluative criteria; followed by the close critical analysis of a selection of representative poems. This course is particularly recommended for teaching credential candidates.
Mr. Batten, Ms. Packer

100B. Introduction to Drama. Prerequisite: Subject A. Examination of representative plays: readings may range from Greek to modern drama. Emphasis on critical approaches to the dramatic text; study of issues such as plot construction, characterization, special uses of language in drama, methods of evaluation. Ms. Peterson

100C. Introduction to Fiction. Prerequisite: Subject A. An introduction to prose narrative, its techniques and forms. Analysis of short and long narratives, and of critical issues such as plot, characterization, setting, narrative voice, realistic and non-realistic forms. Mr. Anderson, Mr. Keys

100D. Introduction of Special Topics and Genres. Prerequisite: Subject A. A study of a particular topic, genre, or sub-genre in literature, such as satire, biography, parody, or a specialized classification of literature. May be repeated for credit. Mr. Tennyson, Mr. Thorslev

101A. Recent British Literature. Prerequisite: Subject A. Recent trends and developments in British fiction and poetry since World War II. Mr. Keys

101B. Recent American Poetry. Prerequisite: Subject A. Recent trends and developments in American poetry since World War II. Mr. Gullans

101C. Recent American Fiction. Prerequisite: Subject A. Recent trends and developments in American fiction since World War II.
Mr. Goldberg, Mr. Weber, Mr. Wortham

101D. Recent American Drama. Prerequisite: Subject A. Recent trends and developments in American drama since World War II.
Mr. Berst, Mr. Goodwin

102. The Short Story in England and America. Prerequisite: Subject A. A historical survey of the short story as a genre from the nineteenth century to the present. Mr. Anderson, Mr. Weber

103. Jewish American Fiction. Prerequisite: Subject A. The study of the fiction of Jewish writers in America such as Bellow, Malamud, and Roth, focusing on the encounter of Jewish ethical ideals and social values with the contemporary environment. Mr. Novak

104. Afro-American Literature and Black Studies. Prerequisite: Subject A. The Black experience as reflected in the development of Black American literature and/or the portrayal of Blacks in relationship to salient cultural and social conditions. The course may explore recurrent and characteristic attitudes, themes, techniques, and genres.
Mr. Yarborough

105. The Chicano Experience in Literature. Prerequisite: Subject A. The study of literature in English by and about Chicanos. The course surveys the depiction of the Chicano experience in American literature generally and focuses on the development of Chicano literature itself, its cultural backgrounds, and distinctive uses of language.
Mr. Paredes

106. Native American Literary Studies. Prerequisite: Subject A. The study of Native American oral cultures through translated documents (song-poems, life-stories, myths, tales, dream visions, speeches) and/or the images in writing about Native Americans (poetry, fiction, history, anthropology, sociology). Mr. Lincoln

M107. Women in Literature. (Same as Women's Studies M107.) Prerequisite: Subject A. A survey of literary works by and about women; the course examines the delineation of women in English and American literature, studies in historical and contemporary themes, and the evolution of forms and techniques in poetry, fiction, and biography.
Ms. Rowe, Ms. Yeazell

108A-108B. The English Bible as Literature. Prerequisite: Subject A. The principal literary monuments of the Old and New Testaments in the King James Version. English 108A deals with the Old Testament; 108B with the New Testament.
Mr. Dearing

109. Interdisciplinary Approaches to Literature. Prerequisite: Subject A. The study of British or American literature in relation to other disciplines, such as history, politics, philosophy, psychology. May be repeated for credit.
Mr. Condren, Mr. Hutter

110. Studies in Individual Authors. Prerequisite: Subject A. The specialized study of the work of a single poet, dramatist, prose writer, or novelist. May be repeated for credit.

M111A. The Literature of Myth and Oral Tradition. (Same as Folklore M111.) Prerequisite: Subject A. A study of myth, dramatic origins, oral epic, folktale, and ballad, emphasizing Indo-European and Semitic examples. Mr. Nagy

M111B. Anglo-American Folk Song. (Same as Folklore M106.) Prerequisites: Subject A, junior standing. A survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values. Mr. Wilgus

M111C. British Folklore and Mythology. (Same as Folklore M121.) Prerequisites: Subject A, junior standing. A survey of the folklore of the peoples of Britain, with attention to their history, function, and regional differences.
Mr. Georges, Mr. Nagy

M111D. Celtic Mythology. (Same as Folklore M122.) Prerequisite: Folklore 101 or permission of the instructor. A survey of the early materials, chiefly literary, for the study of the mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales. Mr. Ford

M111E. Survey of Medieval Celtic Literature. (Same as Folklore M112.) Prerequisite: Subject A. A general course dealing with Celtic literature from the earliest times to the fourteenth century. No knowledge of Irish or Welsh is required. Mr. Ford

M111F. Celtic Folklore. Prerequisite: Folklore 101 or permission of the instructor. The folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research. Mr. Nagy

112. Children's Literature. Prerequisite: Subject A. A study of the historical backgrounds and development of types of children's literature, folklore and oral tradition, levels of interest, criticism and evaluation, illustration and bibliography.
Mr. Cushman

113. Literature for Adolescents and Young Adults. Prerequisite: Subject A. This course will analyze and evaluate the literature intended mainly for students in junior and senior high schools. It will also review mature books that are popularly suggested for this age group, and study the interests and reading habits of young adults. Mr. Cushman

114. World Literatures in English. Prerequisites: Subject A, consent of the instructor. A survey of contemporary literature from English speaking regions of the world, reviewing the major genres from several countries and making cross-comparisons with the literatures. Generalizations concerning the nature of the English used by such writers will be examined. May be repeated for credit.
Mr. Povey

115. American Popular Literature. Prerequisite: Subject A. A study of the main currents of popular and cultural taste as reflected in such genres as dime novels, detective fiction, and Western stories.
Mr. Nagy, Mr. Paredes

116. Science Fiction. Prerequisite: Subject A. A study of science fiction and speculative literatures.
Mr. Guffey

117. Detective Fiction. Prerequisite: Subject A. A study of British and American detective fiction and the literature of detection. Mr. Hutter

118. Film and Literature. Prerequisite: Subject A. A study of the interdisciplinary relationships between film and literature, including theme and structure, and focusing on cinematic adaptations of literary works. Mr. Goodwin

120A. Language Study for Teachers: Elementary School. Prerequisite: Subject A. A survey of topics in English linguistics of special interest to elementary school teachers. Subjects include: approaches to English grammar; language acquisition and development; language attitudes; regional and social dialects of American English; bilingual schooling; contribution of English language study to the teaching of reading, writing, spelling, and literature.

120B. Language Study for Teachers of English: Secondary and Post-Secondary. Prerequisite: Subject A. A rapid review of English grammar and an introduction to basic concepts in socio-linguistics, dialectology, and stylistics, applied to the analysis and evaluation of writing samples from students in junior and senior high school and junior college.

120C. Language Study for Teachers of Subjects Other Than English: Secondary and Post-Secondary. Prerequisite: Subject A. A course designed to introduce teachers of subjects other than English to basic concepts in language acquisition, dialectology, socio-linguistics, and composition.

121. The History of the English Language. Prerequisite: Subject A. A study directed toward English majors of the main features in the grammatical, lexical, and phonetic condition of the English language from Indo-European up to the present time.
Mr. Calder, Mr. Condren

122. Introduction to the Structure of Present-Day English. Prerequisite: Subject A. An introduction to the techniques of linguistic description as applied to the pronunciation, grammar, and vocabulary of modern English. Ms. Armentrout

123. Afro-American English. Prerequisites: Subject A and English 120A, 120B, 120C or Linguistics 100; pre- or co-requisite: English 122 or equivalent. A detailed study, involving the analysis of tapes and documents, of the characteristics of urban Afro-American speech and writing.

130. Composition for Teachers. Prerequisites: Subject A, English 3, and 4 or 20. Preparation for future teachers of English composition in the writing and criticism of the kinds of prose discourse usually taught in primary and secondary schools and in junior college.

131. Exposition. Prerequisites: Subject A, English 3, and 4 or 20. Further work in expository composition, designed especially to meet the needs of upper-division students, including transfer students, who desire training beyond that offered in freshman composition courses.
Mr. Kipling, Ms. Peterson

133A-133B-133C. Creative Writing: Poetry. Prerequisites: Subject A, English 3, 4 or 20, and consent of instructor, following submission of samples of writing. Weekly exercises in the writing of poetry, with practice in the standard forms and metres and the study of techniques. Classroom discussion based upon student work.
Mr. Gullans, Mr. Kessler, Mr. Yenser

134A-134B-134C. Creative Writing: Short Story. Prerequisites: Subject A, English 3, 4 or 20, and consent of instructor, following submission of samples of writing. The completion of three stories of average length during each quarter. Some of these may, with the instructor's permission and the student's wish, be a substantial revision of the other stories presented. Classroom discussion based upon student stories. Mr. Goldberg, Mr. Kessler

135A-135B-135C. Creative Writing: Drama. Prerequisites: Subject A, English 3, 4 or 20, and consent of the instructor, following submission of samples of writing. An exploration of the capacity of each student to write for the theater. Class discussion of student writing, individual conferences, rehearsed readings and laboratory productions.
Mr. Kessler, Mr. Rodes

136A-136B-136C. Journal and Textbook Editing. Prerequisites: Subject A, consent of instructor. Editing in the field of humanistic approaches to professional problem-solving and in preparation of school texts and anthologies; including writing, soliciting contributors, evaluating and editing submissions, layout, and integration.

140. Criticism. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. An introduction to some types of literary criticism. The student will study such matters as reader's response and rationales of literary description, analysis, and evaluation. He will read literary works in the context of both practical and theoretical criticism.
Mr. Anderson, Mr. Kolb, Ms. Peterson

141A. Chaucer. The Canterbury Tales. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. Introductory study of Chaucer's language, versification, and historical and literary background, including analysis and discussion of his long major poem, *The Canterbury Tales.*
Mr. Calder, Mr. Condren, Ms. Ridley

141B. Chaucer. Troilus and Criseyde and Selected Minor Works. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, 10C, and 141A. Intensive study of *Troilus and Criseyde* and selected minor works of Chaucer, such as *The Book of the Duchess, The House of Fame, The Parliament of Fowls,* etc.
Mr. Condren, Mr. Kelly, Ms. Ridley

142A. Shakespeare: The Poems and Early Plays. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. An intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet.*
Mr. Allen, Mr. Dent, Mr. Jorgensen

142B. Shakespeare: The Later Plays. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, 10C, and 142A. An intensive study of representative problem plays, major tragedies, Roman plays, and romances.
Mr. Braunmuller, Mr. Hutter, Mr. Kipling

142C. Shakespeare: Selected Topics. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, 10C, 142A, and 142B. This course is designed for students interested in further study of Shakespeare. Limits of investigation will be set by the individual instructor. Mr. Allen, Mr. Rodes

143. Milton. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of the major works of Milton with emphasis on *Paradise Lost.*
Mr. Grose, Mr. Guffey, Ms. Rowe

150. Later Medieval Literature. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. Reading and historical exploration of the major writers of the fourteenth and fifteenth centuries; e.g. the Gawain-poet, Langland, Gower, Malory, miracle and morality plays, prose, lyrics, and the minor poems of Chaucer. The more difficult texts will be read in modernized form.
Mr. Condren, Mr. Kinsman, Mr. Kipling

151. Elizabethan Literature. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of English literature of the sixteenth century, with special emphasis on the development and interrelationships of poetry, prose, fiction, and literary theory and criticism during the reign of ElizabethI.
Mr. Dent, Mr. Kipling

152. The Drama to 1642. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of the English drama, excluding Shakespeare, from its beginning to the closing of the theaters, with special emphasis on plays of the Elizabethan and Jacobean periods. Mr. Braunmuller, Mr. Dent

153. Literature of the Early Seventeenth Century (1600-1660). Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of the major works as literary documents and as products of seventeenth-century thought. The work of Milton is excluded. Mr. Grose, Mr. Guffey, Mr. Sellin

154. Literature of the Restoration and Earler Eighteenth Century (1660-1730). Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of major works as literary documents and as products of Restoration and earlier eighteenth-century thought. Mr. Batten, Mr. Roper, Mr. Rousseau

155. Literature of the Later Eighteenth Century (1730-1798). Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of major works as literary documents and as products of later eighteenth century thought.
Mr. Batten, Mr. Roper, Mr. Rousseau

156. The Drama, 1660-1842. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A survey of the English drama from the Restoration to the Licensing Act.
Mr. Batten, Mr. Novak, Mr. Rodes

157. The Novel to 1832. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A survey of the works of the major English novelists from Defoe through Scott.
Mr. Lehan, Mr. Novak, Mr. Rousseau

160. Earlier Romantic Poetry and Prose. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. An intensive study of the poetry and prose of Blake, Wordsworth, and Coleridge, with collateral readings from such authors as Godwin, Burke, Paine, Burns, Southey, Lamb, DeQuincey, and Scott. Mr. Maniquis, Mr. Sheats

161. Later Romantic Poetry and Prose. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. An intensive study of the poetry and prose of Keats, Shelley, and Byron, with collateral readings from such authors as Hazlitt, Hunt, Landor, Clare, Moore, and Peacock.
Mr. Burwick, Mr. Maniquis, Mr. Thorslev

162. Earlier Victorian Poetry and Prose. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of the poetry and prose of the Victorian age from the passage of the first Reform Bill through the high Victorian period, including such authors as Tennyson, Browning, Arnold, Carlyle, Mill, and Newman.
Mr. Freeman, Mr. Kolb, Mr. Tennyson

163. Later Victorian Poetry and Prose. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of the poetry and prose of the later Victorian age from Pre-Raphaelitism through the Aesthetic and Decadent Movements, along with other intellectual trends, including such authors as Ruskin, Swinburne, Pater, Hopkins, Hardy, Wilde, and Yeats.
Mr. Freeman, Mr. Kolb, Mr. Tennyson

164. The Novel, 1832-1900. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A survey of the major English novelists from Dickens through Hardy. Mr. Anderson, Mr. Keys, Ms. Yeazell

165. Twentieth-Century British Poetry and Prose. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A study of the dominant trends of twentieth century poetry and prose, with emphasis on experimental work in short fiction, poetry, and the contemporary critical sensibility.
Mr. Bedient, Mr. Keys, Mr. Lincoln

166. The Novel, 1900 to the Present. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A survey of the major English novelists from Conrad to the present.
Mr. Keys, Mr. Lehan, Mr. Lincoln

167. The Drama, 1842 to the Present. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C (for Theater Arts majors, the prerequisite of courses 10A, 10B, and 10C is waived). A survey of British and American drama with its principal continental influences.
Mr. Berst, Mr. Braunmuller, Mr. Goodwin

170. American Literature to 1800. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A historical survey of American literature through the Colonial and Early National periods.
Mr. Weber

171. American Literature, 1801-1865. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A historical survey of American literature, including fiction, from the beginning of the nineteenth century to the end of the Civil War.
Mr. Hirst, Ms. Packer, Mr. Weber

172. American Literature, 1866-1912. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. A historical survey of American literature from Whitman to the founding of *Poetry* magazine.
Mr. Hirst, Mr. Nevius, Mr. Wortham

173. Twentieth-Century American Poetry. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. The development of American poetry since 1912, including the works of Frost, Eliot, Pound, and Stevens.
Mr. Bedient, Mr. Riddel, Mr. Yenser

174. Twentieth-Century American Fiction. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. The development of the American novel and short story since 1912, including the works of Hemingway, Fitzgerald, and Faulkner.
Mr. Goodwin, Mr. Paredes, Mr. Wortham

175. Perspectives in the Study of American Culture. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. An interdisciplinary study of American literature in its relationships to other disciplines, including art, architecture, film, history, music, politics, and various social sciences. It will concentrate upon the application of literary methodology to a historical survey of American culture.
Mr. Goodwin, Mr. Paredes, Mr. Weber

Specialized Studies

These courses (180X through 189) are designed to permit a small number of students (normal limit:

NOTE: For key to symbols, see page 74

15) to engage in concentrated study in an area in which they have a particular interest, and in which they have taken adequate upper division background courses. *Prerequisites:* Subject A, English 3, 4 or 20, 10A, 10B, and 10C. For the author, period, genre, or subject to be studied, see the Schedule of Classes for any given quarter. Enrollment for specialized studies courses is handled through the Department of English (Rolfe Hall 2225) at the time of preenrollment in the quarter *preceding* that in which the course is offered. For further details, see the Departmental adviser. Specialized studies courses may be repeated for credit.

180X. Specialized Studies in Literature. Studies in genres, themes, problems, and relationships of literature to other disciplines.

180. Specialized Studies in Medieval Literature.

181. Specialized Studies in Renaissance Literature.

182. Specialized Studies in Seventeenth-Century Literature.

183. Specialized Studies in Eighteenth-Century Literature.

184. Specialized Studies in Romantic Literature.

185. Specialized Studies in Victorian Literature.

186. Specialized Studies in Twentieth Century British Literature.

187. Specialized Studies in Colonial American Literature.

188. Specialized Studies in Nineteenth Century American Literature.

189. Specialized Studies in Twentieth Century American Literature.

190. Literature and Society. Prerequisites: Subject A, English 3, 4 or 20, 10A, 10B, and 10C. The intensive study of some aspect of the relationship between literature and social, economic, or political history. May be repeated for credit.

199. Special Studies in English (½ to 1 course). Prerequisite: consent of instructor. An intensive directed research project. To enroll or obtain information, see Departmental adviser.

199H. Honors Tutorial. Prerequisite: consent of instructor. A tutorial course for students enrolled in the Honor Program in English. Each student will be expected to complete a substantial critical or research paper for credit in the course.

Graduate Courses

200. Approaches to Literary Research. The bibliographical tools of English and American literary scholarship; an introduction to descriptive bibliography, and basic methods of research.
Mr. Batten, Mr. Gullans, Mr. Kipling

201. Approaches to Literary Criticism. The study of the various applications, approaches, and pre-suppositions of literary criticism as it relates to the interpretation and evaluation of texts.
Mr. Krieger

202. Enumerative and Descriptive Bibliography. Problems in bibliography, texts, and editions, with practical application in compiling bibliographies, editing texts, and approaching literature through textual criticism. Mr. Dearing

203. Computer and Literary Research. Practice in writing and using computer programs for the analysis of literary style, content, and authorship. No previous knowledge in this area is necessary.
Mr. Dearing

M205. Perspectives in American Folklore Research. (Same as Folklore and Mythology M205.) Prerequisite: Folklore 101 and one other upper-division folklore course. An examination of American folklore studies compared and contrasted with investigations in other countries, with emphases upon the principal conceptual schemes and research orientations employed in the study of folklore in American society.

210. History of the English Language. A detailed study of the history, characteristics, and changing forms of the language from its origin until about 1900. Ms. Armentrout, Mr. Condren

211. Old English. Study of Old English grammar, lexicon, phonology, and pronunciation to enable the student to read the literature silently and aloud. Reading of as much of the more interesting Old English prose and poetry as can be read in a quarter. Mr. Calder, Mr. Condren

212. Middle English. Prerequisite: course 211. Detailed study of the linguistic aspects of Middle English and of representative examples of the better prose and poetry. Mr. Condren, Ms. Ridley

213. Modern English. Detailed study of the language's history and characteristics since 1500. Phonological, grammatical and lexicographical developments will be studied in relation to accompanying intellectual, political and social changes.
Ms. Armentrout

215. The Structure of Present-day English. Prerequisite: course 122K or 122. Investigation in depth of the basic constructs and sub-systems of English structure as described by grammarians of various theoretical persuasions. Ms. Celce–Murcia

216A-216B. Old Irish. Prerequisite: consent of instructor. Studies in grammar. Readings in the glosses and other texts. Comparative considerations. Mr. Ford

217A-217B. Medieval Welsh. Prerequisite: consent of instructor. Studies in grammar. Readings in the Mabinogl and other texts. Comparative considerations. Mr. Ford

218. Celtic Linguistics. Prerequisite: consent of instructor. A survey of salient features of the Celtic linguistic stock in its Gaelic and British branches, with reference to the position of Celtic within Indo-European languages. Mr. Ford

Graduate Readings

These courses stress wide reading in major works and their cultural background. Students with adequate undergraduate preparation in a period may proceed directly to a seminar.

220. Readings in Medievalism.
Mr. Kelly, Ms. Ridley

221. Readings in the Renaissance.
Mr. Jorgensen, Mr. Kinsman, Mr. Lanham

222. Readings in the Earlier Seventeenth Century.
Mr. Guffey, Mr. Gullans, Mr. Sellin

223. Readings in the Restoration and Eighteenth Century.
Mr. Dearing, Mr. Novak, Mr. Rousseau

224. Readings in Romanticism.
Mr. Burwick, Mr. Maniquis, Mr. Sheats

225. Readings in Victorian Literature.
Mr. Freeman, Mr. Tennyson, Mr. Welsh

226A. Readings in American Literature to 1828.
Mr. Weber

226B. Readings in American Literature: 1828-1900.
Mr. Nevius, Ms. Packer

227. Readings in Twentieth-Century American Literature: 1912 to the Present.
Mr. Lehan, Mr. Riddel

228. Readings in Twentieth-Century British Literature.
Mr. Bedient, Mr. Cross, Mr. Kessler

Graduate Seminars

Seminars are open to all graduate students with adequate preparations, and may be repeated for credit. Enrollment is by consent of the instructor, and continuing students must sign up for seminars before the end of the preceding quarter. A prospectus announcing topics for all seminars will be available in the department office by June 1 for the ensuing academic year.

240. Studies in the History of the English Language. Individual seminars will deal with: any single historical period from the Old English period to the present; or the development of a particular linguistic characteristic, phonology, syntax, semantics, dialectology, through various periods.
Ms. Armentrout, Mr. Calder

241. Studies in the Structure of the English Language. Prerequisite: consent of the instructor. Topics in various aspects of the structure of Modern English, especially syntax and semantics.
Mr. Dillon

242. Language and Literature. The application of linguistics to literary analysis. Individual seminars will deal with: a historical period, Medieval and Renaissance, Neo-classical, or nineteenth century and modern; specific authors; or the contributions of specific groups of linguists to literary analysis.
Mr. Lanham

M243A. The Ballad. (Same as Folklore M243A.) Prerequisite: consent of the instructor. A study of the English and Scottish popular ballads and their American derivatives, with some attention to European analogues.

M243B. Problems in Ballad Scholarship. (Same as Folklore M243B.) Prerequisites: course M243A or consent of the instructor. Intensive investigation of a problem or problems in the study of the popular ballad. Mr. Wilgus

244. Old and Medieval English Literature. Studies in the poetry and prose of Old and Medieval English Literature; limits of investigation to be set by the individual instructor.
Mr. Calder, Mr. Kelly, Ms. Ridley

245. Chaucer.
Mr. Condren, Mr. Kelly, Ms. Ridley

246. Renaissance Literature. Studies in the poetry and prose of Renaissance English Literature, exclusive of Shakespeare; limits of investigation to be set by the individual instructor.
Mr. Dent, Mr. Kinsman, Mr. Lanham

247. Shakespeare. Mr. Dent, Mr. Jorgensenen

248. Earlier Seventeenth-Century Literature. Studies in the poetry and prose of seventeenth-century English Literature up to the Restoration; limits of investigation to be set by the individual instructor. Mr. Guffey, Mr. Gullans, Mr. Sellin

249. Milton. Studies in the poetry and prose of John Milton; particular emphases to be set by the individual instructor. Mr. Grose, Mr. Sellin

250. Restoration and Eighteenth-Century Literature. Studies in English poetry and prose, 1669-1800; limits of investigation to be set by the individual instructor.
Mr. Novak, Mr. Roper, Mr. Rosseau

251. The Romantic Writers.
Mr. Burwick, Mr. Sheats, Mr. Thorslev

252. Victorian Literature. Studies in English poetry and prose of the Victorian period; limits of investigation to be set by the individual instructor.
Mr. Freeman, Mr. Tennyson, Mr. Welsh

253. Contemporary British Literature.
Mr. Bedient, Mr. Kessler

254. American Literature to 1900. Studies in colonial and nineteenth-century American Literature; limits of investigation to be set by the individual instructor. Mr. Nevius

255. Contemporary American Literature. Studies in contemporary American poetry and prose; limits to be set by the individual instructor.
Mr. Lehan, Mr. Riddel, Mr. Yenser

256. Studies in the Drama. Studies in the drama as a genre from its beginning to the present; limits of investigation to be set by the individual instructor.
Mr. Berst, Mr. Dent

257. Studies in Poetry. Studies in various themes and forms of poetry from Old English to the present; limits of investigation to be set by the individual instructor.
Mr. Bedient, Mr. Kessler, Mr. Riddel

258. Studies in the Novel. Studies in the evolution of the genre from its beginnings to the present;

limits of investigation to be set by the individual instructor. Mr. Lehan, Mr. Novak, Mr. Welsh

259. Studies in Criticism
Mr. Krieger, Mr. Riddel

Special Courses for the Master's Degree

270A-270B. English for the Two-Year College. Prerequisite: course 120. The courses will involve both discussion and practice of two-year college instruction in reading and composition. They are offered on an "in Progress" basis which requires students to complete the full two quarter sequence, at the end of which time a grade is given for all quarters of work. Ms. Peterson

271. Studies in African Literature in English. Prerequisite: English 114 or consent of the instructor. Continuation of English 114. Special problems and trends of African literature in English. Mr. Povey

272. Current Issues in the Teaching of English. Prerequisite: course 120 or Linguistics 100. The course will focus each time on one of a variety of topics of special current interest. Mr. Lanham

273. Studies in Afro-American Literature. Intensive research and study of major themes, issues, and writers in Afro-American Literature. Discussions and research on the esthetic, cultural, and social backgrounds of Afro-American writing.

274. Teaching English to Minority Groups. Pre- or co-requisite: course 120 or Linguistics 100. The special cultural, social, psychological, and methodological considerations involved in the English instruction of minority groups in American schools and colleges.

Professional Courses in Method

275. Stylistics and the Teaching of English. An introduction to the study of language and style and its application to the teaching of English, including rhetoric, linguistics, and grammar. Required of all applicants for the Teaching Assistantship in English. Graded S/U. Mr. Dillon

300. The Teaching of English. Required of candidates for the single subject credential in English. Study of theories of rhetoric, composition, reading, and literature as they apply to the secondary school English curriculum.

495. Supervised Teacher Preparation. Prerequisite: Teaching assistant, involved in freshman composition program. Seminar for teaching assistants who are associated with the freshman composition program. Required for first quarter assistants. May be repeated for credit. Mr. Jones

496. Directed Individual Study in Pedagogy. (½ course) Prerequisite: must be teaching assistant working under member of the faculty. Supervised individual instruction in teaching, including monitoring of teaching assistant's pedagogical activities and regular consultation with assistant concerning all of his teaching responsibilities.

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean; and approval of host campus Instructor, Department Chairman, and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

595. Directed Individual Study for Master's Candidates. An independent study course for Master's Candidates, which involves the completion of a substantial piece of work, creative or scholarly. Four units will be accepted toward the nine courses required for the degree. Graded S/U. The Staff

596. Directed Individual Study. For first-state doctoral students preparing for the first Qualifying Examination. May be taken only once (four units). May not be used to satisfy any course requirement for the degree. The Staff

597. Preparation of the Doctoral Examination. Ph.D. Candidates restricted to one course (four units) before the Second Qualifying Examination.
The Staff

599. Dissertation Research. (1 or 2 courses) Enrollment restricted to Ph.D. Candidates unable to enroll in seminars in their fields, or candidates concurrently enrolled in such seminars. (Exception to this rule must be requested by petition). To be graded S/U. The Staff

English as a Second Language

Undergraduate Courses

Courses 33A-33B-33C, 34, 36, 103J, 106J, and 109J are only for students whose first language was other than English. Courses 33A-33B-33C are not open to those who have received a satisfactory grade in English 1 at the University of California. Permission to enroll in these three courses is given on the basis of the Entrance Examination in English as a Second Language which students whose mother tongue is not English must take instead of the Subject A examination (see Subject A in this bulletin). Depending on the result of this examination, entering students are: (1) exempted from any special English requirement; (2) required to take course 33C; (3) required to take course 33B followed by course 33C; (4) required to take course 33A followed by courses 33B and 33C; or (5) required to spend a quarter studying elementary English exclusively.

Certificate in the Teaching of English as a Second Language (or Dialect)

To qualify for this certificate students must meet the following requirements: (1) All students, those educated in the United States, as well as those educated in other countries, must have an educational background sufficient to qualify them for teachers training in their home state or country. They will normally be admitted to the University as graduate students. With the approval of the Dean of the Graduate Division and the Vice Chairman of the Department of English, graduate admission may be granted to students solely for the purpose of pursuing the courses leading to this certificate, provided they meet general graduate admission requirements. Students who do not meet these requirements may, upon recommendation of the Vice Chairman of the Department of English, be admitted to limited status to pursue the course of study leading to the certificate. (2) Courses normally taken in the fall quarter are English 370K, Linguistics 100 and an elective (appropriate courses in education, folklore, speech, and the structure of the student's mother tongue are especially recommended). Depending on the results of the Entrance Examination in English as a Second Language, nonnative speakers of English may be required to take English 33C in lieu of this elective. Courses normally completed in the winter quarter are English 250K, English 122K, and an elective (English 103J, 106J, 109J, 261K, 270K, or an appropriate course in English or American literature are recommended). Courses for the spring quarter are English 380K, English 103K (native and some nonnative speakers will be allowed to substitute Linguistics 103 or Linguistics 200A for this), and English 106K or English 107K, English 109K.

Special Language Requirement for Native Speakers of English

Students whose mother tongue is English will not be held for the first two electives. Instead they must fulfill a special requirement designed to help them acquire or perfect a knowledge of the native language or dialect of the pupils to whom they expect to teach English. This can be done by taking any one of four combinations of two courses: (1) two foreign-language courses; (2) one foreign-language course plus the corresponding course in the Linguistics 220 or 225 series; (3) one foreign-language course plus English 274; (4) English 111K plus an unrestricted elective. Those particularly interested in working with Mexican-American, Oriental American, or American Indian pupils will normally choose the third of these alternatives. In case there is doubt as to which foreign language will be most appropriate, a non-European language should be selected.

Students are urged to fulfill the language requirement by courses taken after admission to the Certificate Program. Exemption from the courses may be granted, however, to those who can demonstrate a strong need to take other electives and who have an unusually extensive background of previous foreign-language study. Information regarding the circumstances under which a petition for exemption may be approved can be obtained from the TESL Counselor.

Requirements for the Master's Degree

To be admitted to the M.A. program, students must have completed the requirements for the Certificate in the Teaching of English as a Second Language with at least a 3.25 grade-point average at UCLA. Provisional admission can be obtained by a petition presented upon completion of six of the nine Certificate courses. If a student has completed the Certificate requirements while in limited status and has maintained a grade-point average of 3.25, he may, upon recommendation of the Vice Chairman of the Department of English, be simultaneously given graduate status, admitted to candidacy for the master's degree, and allowed graduate credit for the Certificate courses which are to be counted toward the M.A.: Linguistics 100, English 103K or Linguistics 103, English 122K, and English 250K. *Limitations of staff and facilities make it necessary to restrict the number of applicants admitted each year to around 24.* In the event that there are more than that number of eligible applicants in a given year, those with the highest grade-point average, the most promising informal statement of research intentions, and the best recommendations from professors with whom they have taken TESL Seminars will be selected. Thus no definite assurance can be given to students, at the time they are originally admitted to the Certificate Program, that they will be able to go on to complete the M.A. in TESL at UCLA. Plan I as established by the Graduate Division (see the Graduate Division), the thesis plan, will be followed for the M.A. in Teaching English as a Second Language. Nine upper division and graduate-level courses, of which at least five must be in the 200 and 500 series, and a thesis are required. These include the four Certificate courses mentioned above, English 400, 598K, and three electives. English 598K should be taken as soon as possible. The electives will be selected as a sequence of three courses related among themselves and relevant to the thesis topic. Among the recommended fields for subspecialization are: teaching English to minority groups, language policy, the teaching of literature , the structure of the English language, the linguistics of a particular geographical area, phonetics, dialectology, psycholinguistics and language learning, and sociolinguistics. There are no special language requirements for the M.A. other than those included among the Certificate requirements.

Except under the most extraordinary circumstances candidates will be expected to fulfill all the M.A. requirements, including the filing of the completed thesis, within three years of the beginning of the quarter in which, having completed the Certificate in TESL, they first enroll in courses required for the M.A.

Lower Division Courses

33A. Intermediate English as a Second Language. Meets ten hours weekly. Intensive drill in pronunciation, structural patterns, vocabulary, conversation, and composition. Each day one hour is devoted to class lectures, demonstrations, etc. and one to supervised study. The Staff

33B. Intermediate English as a Second Language. Prerequisites: course 33A or proficiency demonstrated by Entrance Examination in English as a Sec-

NOTE: For key to symbols, see page 74

ond Language. Meets five hours weekly. Emphasizes reading comprehension, vocabulary development and writng effective paragraphs. The Staff

33C. Intermediate English as a Second Language. Prerequisites: course 33B or proficiency demonstrated by Entrance Examination in English as a Second Language. Meets five hours weekly. Emphasizes composition skills and reading unsimplified academic materials. The Staff

34. Oral Communication Skills for Foreign Students. Prerequisite: exemption on the English as a Second Language Placement Examination or successful completion of English 33C, plus the consent of the instructor. English 34 will develop oral language skills that will prepare non-native speakers of English to participate in class discussions, make oral presentations (lectures, debates, thesis defense, etc.) before an audience and respond to questions, and continue to improve through self-evaluation of speech. Ms. Hinofotis

36. Intermediate Composition for Foreign Students. Prerequisites: successful completion of English 33C or by examination. A course designed to improve English language writing skills for non-native speakers of English. Especial attention is given to grammatical structures, principles and methods of exposition and writing for academic purposes. The Staff

Upper Division Courses

103J. Phonetics for Foreign Students. Prerequisite: course 33C or the equivalent. A detailed and systematic study of the sounds of American English and the way in which they are put together in connected speech, applied to the improvement of the student's own accent. Language laboratory. The Staff

103K. Phonetics for Teachers of English as a Second Language. Prerequisite: consent of the instructor. Analysis of the phonological structure of contemporary English, with attention to the differences between British and American speech. Drill directed toward individual needs. Mr. Bowen

106J. Advanced Composition for Foreign Students. Prerequisite: course 33C or the equivalent. Exercises in writing based on readings dealing with American life and thought, with the aim of developing control of idiomatic expression. Mr. Povey

106K. Writing in the ESL Context. Limited to TESL Certificate or M.A. Candidates. Provides opportunities for practice and improvement in writing skills and thus fulfills the composition requirement for the TESL Certificate. Surveys important theoretical and methodological issues related to the teaching of writing/composition to ESL students and examines appropriate classroom materials. Mr. Schumann

107K. Reading in the ESL Context. Limited to TESL Certificate or M.A. Candidates. Provides opportunities for practice and improvement in writing skills and thus fulfills the composition requirement for the TESL Certificate. Surveys important theoretical and methodological issues related to the teaching of reading to ESL students and examines appropriate classroom materials. Ms. Hatch

109J. Introduction to Literature (for Foreign Students). Prerequisite: course 33C or the equivalent. Selections from English and American literature presented so as to make full allowance for the students' linguistic and cultural problems and to contribute to an increasing mastery of the English language. Mr. Povey

109K. Literature in the ESL Context. Limited to TESL Certificate or M.A. Candidates. Provides opportunities for practice and improvement in writing skills and thus fulfills the composition requirement for the TESL Certificate. Surveys important theoretical and methodological issues related to the teaching of literature to ESL students and examines appropriate classroom materials. Strongly emphasizes the cultural basis for literature. Mr. Povey

111K. Background Language for Teachers of English as a Second Language. Prerequisite: consent of the instructor. Fulfills the foreign-language requirement for the Certificate in the Teaching of English as a Second Language. Beginning course in a non-Indo-European language taught as a demonstration of recommended pedagogical techniques and designed to acquaint prospective language teachers with a wide variety of linguistic structures. Mr. Anderson

122K. Introduction to the Structure of Present-Day English (for Teachers of English as a Second Language). Prerequisites: Linguistics 100 or consent of the instructor. Introductory study of those grammatical structures of English most important in the ESL classroom. Aims to provide insights from traditional, structural, and particularly transformational grammar. Ms. Celce–Murcia

Graduate Courses

210K. Role of English as a Second Language in Bilingual Education. Prerequisites: Linguistics 100, course 370K or consent of instructor. Research and study of major problems and issues in designing and evaluating bilingual, bi-cultural programs in the United States and abroad. Mr. Galvan

250K. Contrastive Analysis and Error Analysis in the ESL Context. Prerequisites: Linguistics 100, course 370K. Analysis of English and other languages at the phonological, grammatical, lexical,and cultural levels. Preparation of lesson plans for helping specific groups of students overcome common errors identified through the analyses. Observation of ESL classes.
Mr. Anderson, Mr. Campbell, Mr. Galvan

251K. Bilingual Comparative Studies. Seminar. Prerequisite: courses 215 and 250K. The relationship of two languages in an incipient bilingual speaker. Further study of the techniques of contrastive analysis as a means of predicting interference between linguistic systems with application to original research projects. Mr. Bowen

260K. Psycholinguistics and Language Teaching. Seminar. Prerequisite: courses 370K and 103K and Linguistics 100, or consent of the instructor. An exploration of those areas of psycholinguistics covering foreign language acquisition; types and theories of bilingualism; learning theories underlying the current methods of teaching foreign languages; basic experimental designs to test existing assumptions about learning and teaching foreign languages. Ms. Hatch, Mr. Schumann

261K. Language Testing for Teachers of English as a Second Language. Prerequisites: Linguistics 100, course 370K. Theory of testing language competence and performance. Elementary statistical concepts. Functions of a testing program. Construction of various tests. Ms. Hinofotis

262K. Second-Language Acquisition. Prerequisite: consent of instructor. The literature on child and adult second-language acquisition forms the basis for this research class. Language variables (phonological, morphological, sentential, and discourse levels) and social and psychological variables which may account for differences in learning are considered. Research on classroom language learning and/or learning in 'natural' environments is required. Mr. Schumann

270K. Language Policy in Developing Countries. Seminar. Prerequisite: consent of the instructor. Use of and need for English in countries such as Nigeria and the Philippines; factors affecting language policy in their school systems; applicability of research techniques of socio- and psycholinguistics to problems of language policy. Mr. Prator

272K. Current Issues in Applied Linguistics. Prerequisites: or Co-requisites: Linguistics 100, English 370K. Each time it is given the course will focus on one of a variety of topics of special interest to graduate students in TESL and Applied Linguistics. The Staff

Professional Courses

370K. The Teaching of English as a Second Language. Meets six hours weekly. Prerequisite: consent of the instructor. Bibliography, survey, and evaluation of methods and materials. The nature of language learning. Analysis of the differences between two languages as a basis of instruction.
Ms. Hatch, Ms. Celce–Murcia, Mr. Schumann

380K. Supervised Teaching: English as a Second Language or Dialect. Prerequisite: course 370K. Team teaching at the elementary, secondary, or adult level under the supervision of a senior staff member. Graded on a S/U basis for graduate students, and a Passed/Not Passed basis for undergraduate students. The Staff

400K. TESL Colloquium. Prerequisite: consent of TESL M.A. advisor. Candidates for the M.A. in Teaching English as a Second Language present and defend the results of their thesis research. Enrollment in course in spring quarter required of all candidates but does not count for credit toward degree. Candidates for the Ph.D. in Applied Linguistics may also choose to use this channel to report on their dissertation. Graded satisfactory/unsatisfactory. The Staff

495KA-495KB. Training and Supervision of Teaching Assistants. Prerequisite: concurrent appointment as a teaching assistant or Extension-Division instructor. Orientation, preparation, and supervision of graduate students who have the responsibility for teaching ESL courses at UCLA. Syllabus revision and materials preparation. Two or more hours per week for fall and winter quarters. Credit for a total of four units for the two quarters is given but does not count toward M.A. or Certificate in TESL or Ph.D. in Applied Linguistics. Graded Satisfactory/Unsatisfactory. The Staff

Individual Study and Research

596K. Directed Individual Study. Prerequisite: graduate standing. Credit (one course) allowed only once. Independent study in an area related to English as a Second Language. The Staff

598K. Research and Thesis Preparation for Candidates for M.A. in Teaching English as a Second Language. (1 to 2 courses) Prerequisite: admission to M.A. program. Survey of research needs and thesis preparation. In fall includes optional section on experimental design and statistical methods. Credit (four units) toward degree allowed only once, but all M.A. candidates must enroll in the course each quarter they are registered and engaged in thesis preparation. Graded Satisfactory/Unsatisfactory. Mr. Rand

ENVIRONMENTAL SCIENCE AND ENGINEERING (INTERDEPARTMENTAL)

(Office: 3677 Geology Building)

Orson L. Anderson, Ph.D., *Professor of Geophysics.*
James G. Edinger, Ph.D., *Professor of Meteorology.*
Christopher S. Foote, Ph.D., *Professor of Chemistry.*
Malcolm S. Gordon, Ph.D., *Professor of Biology.*
Chung-Yen Liu, Ph.D., *Professor of Engineering and Applied Science.*
Robert A. Mah, Ph.D., *Professor of Public Health.*
Richard L. Perrine, Ph.D., *Professor of Engineering and Applied Science (Chairman of the Interdepartmental Committee).*
Morton G. Wurtele, Ph.D., *Professor of Atmospheric Dynamics.*
Willard F. Libby, Ph.D., *Emeritus Professor of Chemistry.*
Mario E. Baur, Ph.D., *Associate Professor of Chemistry.*
John A. Dracup, Ph.D., *Associate Professor of Engineering and Applied Science.*
Jane Valentine, Ph.D., *Assistant Professor of Public Health*
Climis A. Davos, Ph.D., *Assistant Professor of Public Health and Environmental Science and Engineering in Residence.*
William Dritschild, Ph.D., *Adjunct Assistant Professor of Environmental Science and Engineering.*
Leona M. Libby, Ph.D., *Adjunct Professor of Environmental Science and Engineering.*
Robert G. Lindberg, Ph.D., *Lecturer in Environmental Science and Engineering.*

Paul M. Merifield, Ph.D., *Lecturer in Engineering and Environmental Geology.*

Bart B. Sokolow, D. Env., *Adjunct Assistant Professor of Environmental Science and Engineering.*

Undergraduate Program

Although no undergraduate major is offered encompassing the broad area of environmental science and engineering, studies which readily lead to advanced work or employment in these fields can be arranged along several routes. Students with majors in the natural sciences, public health, or engineering, who have environmental or energy problem-solving as a professional goal, may wish to supplement their course preparation in consultation with the faculty of the Environmental Science and Engineering Program. In preparation for graduate study, attention should be given to requirements for the doctoral program in Environmental Science and Engineering.

Master's Program

Preparation for Environmental Science and Engineering is provided through Master of Arts, Master of Science and Master of Public Health degree programs conducted by the academic departments participating in the Program. These departments include Biology, Chemistry, Earth and Space Sciences, and Atmospheric Sciences within the College of Letters and Science; the School of Public Health; and Chemical, Nuclear and Thermal Engineering, Engineering Systems, and Mechanics and Structures within the School of Engineering and Applied Science.

Master's students anticipating eventual progress toward a doctoral degree should plan their programs carefully in advance. Faculty members from the student's own participating department who are actively involved in the interdepartmental program should be consulted, and preferably should form the nucleus of the student's committee. It is recommended that the student's program be planned with a view toward the course requirements of the doctoral curriculum. This will ensure both adequate preparation and a smooth transition to more advanced studies.

The Doctor of Environmental Science and Engineering Program

Formal entry to the D. Env. program requires a Master's degree in a field within the natural sciences, public health or engineering. The intent of this requirement is to insure that the student have adequate competence within an established discipline.

The program of study for the D. Env. is supervised by the Interdepartmental Committee for Environmental Science and Engineering. Broadly stated, this program has as its objective the preparation at the highest level of competence of professionals who will evaluate, devise and implement solutions for complex, multidisciplinary environmental and energy problems. In contrast to environment-related research scientists, these individuals will be problem-solvers. Thus the traditional program of study and research culminating in the Ph.D. dissertation has been replaced by a rigorous clinical curriculum involving course work in appropriate disciplines, a year of problem-solving, applied research experience, and an 18-month to two-year professional internship, requiring in total approximately four years beyond the Master's Degree.

Areas of Concentration and Breadth

Four areas of concentration are available within the D. Env. program: Air Quality, Water Quality, Energy Utilization, and Urban Problems. Adequate course preparation beyond the Master's degree is required in order to provide the disciplinary and breadth depth required to solve major environmental problems in the four areas of concentration. The time span occupied in satisfying these requirements varies considerably with the preparation of the individual student; the average is about four quarters.

Breadth areas include biology, chemistry, earth and atmospheric sciences, engineering and applied mathematics, and social science (law, political science, economics). A list of current suggested "Breadth Requirement" courses is available from the Program Office. Students are guided in their preparation by their faculty committees.

Problems Courses

The completion of breadth requirements is followed by a further year of study to satisfy Problems Course requirements. Problems Courses constitute intensive multidisciplinary, applied team research directed toward the solution of current environmental problems. Often these studies are conducted at the request of a public agency or other interested organization. Usually three or four faculty from different disciplines closely supervise eight to ten students. The rationale for the problems course is that environmental managers should experience as early as possible the rigors of real-time decision making. They learn also the demands that the up-to-date, innovative use of more basic research places on problem solvers. Thus the Problems Courses require students to quantify and measure necessary parameters, perform critical evaluations, edit and process technical and socio-economic information, meet deadlines, and finally, to communicate, through a final report on a complex policy-related science subject, to the competent layperson as well as to the technical specialist.

During this period satisfactory progress must be made in passing cumulative examinations. Before being advanced to candidacy and to the clinical internship, the student must pass an oral qualifying examination.

Internships: Clinical Practice

In the internship, doctoral candidates perform as full-time, salaried professional staff members in local, state, and federal agencies, international organizations, consulting firms, and other private industries. The required period is 18 months to two years. The work is performed under supervision from their doctoral committees as well as day-by-day supervision by appropriate individuals within the host institutions. Thus candidates are exposed to a type and range of experience suited to their needs. Students arrange for their own internship organization according to their interests and geographical preferences, with assistance and guidance from their faculty committee.

Final Requirements

A final quarter in residence is required subsequent to the internship to complete requirements for the award of the degree. During this period the students participate in ongoing Problems Courses, demonstrating their proficiency and maturity as problem-solvers. They must also prepare a final report for the University Archives on their work as interns, and pass a final oral examination. Thus the internship experience and the report documenting this work replace the traditional doctoral research and dissertation.

Graduate Courses

400A. Environmental Science and Engineering Problems Course. (2 courses) Prerequisite: consent of instructor and program chairman; primarily intended for students enrolled in the Environmental Science and Engineering doctoral program. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

400B. Environmental Science and Engineering Problems Course. (2 courses) Prerequisite: satisfactory completion of 400A, consent of instructor and program chairman. Continuation of 400A. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

400C. Environmental Science and Engineering Problems Course. (2 courses) Prerequisite: satisfactory completion of 400B; consent of instructor and program chairman. Continuation of 400B. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

400D. Environmental Science and Engineering Problems Course. (2 courses) Prerequisite: satisfactory completion of 400C and of an internship approved by the Environmental Science and Engineering Interdepartmental Committee. Multidisciplinary technical and socio-economic analysis and prognosis of significant current environmental problems.

410. Environmental Science and Engineering Workshop. (½ course) Prerequisite: consent of instructor; primarily intended for students enrolled in the Environmental Science and Engineering doctoral program. Development of analytical or experimental skills essential to the solution of environmental problems studied within courses 400A, 400B, 400C and 400D.

411. Environmental Science and Engineering Seminar. (½ course) Prerequisite: consent of instructor and limited to graduate students in Environmental Science and Engineering and participating departments. Current topics in environmental science and engineering. To be given on a S/U basis. May be repeated more than once for credit.

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Advisor, PrkcramA Chairman, and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual or Tutorial Studies. (½ to 2 courses) Prerequisite: consent of instructor and the Chairman, Environmental Science and Engineering Interdepartmental Committee. Supervised investigation of advanced environmental problems. To be graded on Satisfactory/Unsatisfactory basis.

ETHNIC ARTS (INTERDEPARTMENTAL)

(Coordinator's Office, 205 Women's Gym)

Committee in Charge. Philip Newman, Anthropology; ____ Art; Elsie Dunin, Dance; Judy Susilo, Dance; D. K. Wilgus, Folklore and Mythology; Robert Georges, Folklore and Mythology; Michael Jones, Folklore and Mythology; Marie Louise Göllner, Music; William Hutchinson, Music; Max Harrell, Music; David Draper, Music; Mel Helstien, Theater Arts; Phillip Zarrilli, Theater Arts; Theater Arts; Allegra Fuller Snyder, Dance, (Coordinator).

The major provides a program of interdisciplinary studies designed to facilitate the cultural and cross-cultural investigation of man's artistic expression. The flexibility of the program allows the student to focus on a particular medium of expressive behavior after having been exposed to general problems and perspectives in the study of art forms of peoples throughout the world.

The major includes: a core of seven courses from Anthropology, Art, Dance, Folklore and Mythology, Music, and Theater Arts; a concentration consisting of nine courses in one of the disciplines; a senior colloquium; and three upper division elective courses.

Foreign Language Requirement: At least three quarters in one foreign language at the college level are required of all students. All courses in foreign language, except foreign literature in English translation, may be applied to this requirement.

Students who plan to take the "concentration" in music are advised to select French, German, or Italian.

General College Requirements: The student will satisfy the general college requirements (other than foreign language) of his college (Fine Arts or Letters

NOTE: For key to symbols, see page 74

and Science) regardless of the department in which his concentration is located.

Students who wish to see a counselor regarding program planning and major requirements should see Wendy Urfrig, 205 Women's Gym.

Requirements for the Bachelor of Arts Degree

1. A core of seven interdepartmental courses: Dance 46A-46B-46C, Folklore 101, Music 5A-5B-5C, Theater Arts 102E, Anthropology 5A, and either Art 55 or Art 56.

2. A concentration of nine courses in one of the following areas: (The student will declare a "concentration" by the beginning of the Junior year.)

Anthropology 5C, 143, 144, 150A, and any five upper division anthropology courses from group one through eight and including one area course from group one.

Art one course from 50, 51, 52, 53, 54, 55, 56; eight courses from 102, 103A-103B-103C, 103D-103E,114A-114B-114C-114D, 115A-115B-115C, 117A-117B-117C, 118A-118B-118C-118D, 119A-119B-119B. 118A-118B-118C-118D, 119A-119B.

*Dance*38B, 47A-47B-47C, 70A, 151A-151B; two courses from 140A-140B-140C; one course from 142, 143, 144, 145, 146; and three courses from 171A-171P.

Folklore and Mythology one course from M111, 118, M180; two courses from M106, M123B, 124, M181, Classics 168; six courses from M112, M121, M122, M123A, M125, M126, M128, M129, 130, M149, M150, 190, German 134.

*Music*17A-17B-17C, 26A-26B-26C, 140A-140B-140C.

Theater Arts five courses from 20, 118, 120, 140A-140B, 141A-141B, 142A-142B, 160A, 170; four courses from 5A-5B-5C, 102A, 103A-103B, 104A-104B, 106C, 110A-110B, 117, 119, Classics 142; English 90, 104, 167; Scandinavian 144, 145; Humanities 111.

3. **Ethnic Arts** 190A-190B. Senior Colloquium. Prerequisite: restricted to senior standing, Ethnic Arts major. Studies of a comparative and integrative nature in the ethnic arts.

4. Three elective courses which may be chosen from the list below. Other courses might also be appropriate. In order to meet degree requirements the electives must be related to the major and approved by the concentration advisor. The three courses chosen to meet this requirement must be upper division courses and from three different areas outside the area of concentration.

Upper Division Electives

Anthropology 143. The Individual in Culture.

144. Aesthetic Anthropology.

150A-150B. Social Anthropology.

179. Ethnography on Film.

Any upper division Anthropology course

Art 101A-101B-101C. Egyptian Art and Archaeology.

102. Art of the Ancient Near East.

103A. Greek Art.

103B. Hellenistic Art.

103C. Roman Art.

103D. Etruscan Art. 103E. Late Roman Art.

104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages.

114A. The Early Art of India.

114B. Chinese Art.

114C. Japanese Art.

114D. The Later Art of India.

115A. Advanced Indian Art.

115B. Advanced Chinese Art.

115C. Advanced Japanese Art.

117A-117B-117C. Mideastern Art.

118A. The Arts of Oceania.

118B. The Arts of Pre-Columbian America.

118C. The Arts of Sub-Saharan Africa.

118D. The Arts of Native North America.

119A. Advanced Studies in African Art: The Western Sudan.

119B. Advanced Studies in African Art: The Guinea Coast.

Classics 161. Introduction to Classical Mythology.

168. Introduction to Comparative Mythology.

Dance 111A-111B-111C. Analysis of Human Movement.

128. Dance as Culture in Education.

140A-140B-140C. Dance Cultures of the World.

142. Dance in the Balkans.

143. Dance in India.

144. Dance in Indonesia.

145. Dance in Japan.

146. Dance in Latin America.

151A. History of Dance in Western Culture, Origins to 1600.

151B. History of Dance in Western Culture, Early Baroque to the Present.

158A-158B. Philosophical Bases and Trends in Dance.

159. Advanced Dance Notation.

171A-171P. Performance Courses in Ethnic Dance: A-Bali; B-Ghana; E-India; F-Israel; G-Japan; H-Java; J-Mexico; L-Scotland; M-Spain; P-Yugoslavia.

Folklore and Mythology M106. Anglo-American Folksong. (English M111B.)

M111. Literature of Myth and Oral Tradition. (English M111A.)

M112. Survey of Medieval Celtic Literature.

118. Folk Art and Technology.

M121. British Folklore and Mythology. (English M111C.)

M122. Celtic Folklore and Mythology. (English M111D.)

M123A. Introduction to Finnish Folklore and Mythology. (Scandinavian Languages M123A.)

M123B. Finnish Folksong and Ballad. (Scandinavian Languages M123B.)

124. Finnish Folk Art and Technology.

M125. Folklore and Mythology of the Lapps. (Scandinavian Languages M125.)

M126. Baltic and Slavic Folklore and Mythology. (Slavic Languages M179.)

M128. Introduction to Hungarian Folklore and Mythology. (Hungarian M135.)

M129. Folklore and Mythology of the Ugric Peoples. (Hungarian M136.)

130. North American Indian Folklore and Mythology Studies.

M149. Folk Literature of the Hispanic World. (Spanish M149.)

M150. Russian Folk Literature. (Russian M150.)

M154A-154B. The Afro-American Musical Heritage. (Music 154A-154B.)

M180. Transcription, Analysis, and Classification of Folk Music. (Music M180.)

M181. Folk Music of Central and Western Europe. (Music M181.)

190. Selected topics in Folklore and Mythology Studies.

199. Special Studies in Folklore.

German 134. German Folklore.

Kinesiology 145. Analysis of Expressive Movement.

Music 108. Acoustics.

130. Music of the United States.

131A-131B. Music of Hispanic America.

132A-132B. Development of Jazz.

135A-135B-135C. History of Opera.

137A-137B. Political Influence on Music.

138. Aesthetics of Music.

139. History and Literature of Church Music.

140A-140B-140C. Musical Cultures of the World.

141. Survey of Music in Japan

142A-142B. Music of the Balkans.

143A-143B. Music of Africa.

M144. American Folk and Popular Music.

145. History of Chinese Opera.

146A-146B-146C. Studies in Chinese Instrumental Music.

147A-147B. Music of China.

148. Folk Music of South Asia.

149. The Anthropology of Music.

152. Survey of Indian Music.

153A-153B-153C. Music of the American Indian.

M154A-154B. The Afro-American Musical Heritage.

157. Music of Brazil.

158. New Orleans Jazz.

M180. Transcription, Analysis, and Classification of Folk Music.

M181. Folk Music of Central and Western Europe.

187. Problems in Musical Aesthetics.

Spanish 151. Folk Song in Spain and Spanish America.

Theater Arts 102A-102B. History of European Theater.

103A-103B. Black Peoples Theater in America.

104A-104B. History of the American Theater.

106C. History of African, Asian and Latin American Film.

110A-110B. History of Television and Radio.

117. The Puppet Theater.

118A. Creative Dramatics.

119. Theater for the Child Audience.

120. Intermediate Acting for the Stage.

122. Makeup for the Stage.

140A. Scenic Techniques for the Stage.

140B. Advanced Scenery for the Stage.

141A. Lighting Techniques for the Stage.

141B. Advanced Lighting for the Stage.

142A. Theater Costuming Techniques.

142B. Advanced Costuming for the Stage.

143A. Scenic Design for the Theater.

143B. Advanced Scenic Design for the Theater.

144A. Theater Sound Techniques.

144B. Advanced Theater Sound.

146B. Scene Painting Techniques.

149A. Basic Drafting Techniques for the Stage.

160A. Fundamentals of Play Direction.

190A. The Role of Management in Theater.

FOLKLORE AND MYTHOLOGY (INTERDEPARTMENTAL)

(Department Office, 1041 Graduate School of Management)

Shirley L. Arora, Ph.D., *Professor of Spanish.*
Margherita Cottino-Jones, Ph.D., *Professor of Italian.*
Robert A. Georges, Ph.D., *Professor of English and Folklore.*

Marija Gimbutas, Ph.D., *Professor of European Archaeology.*
Nazir A. Jairazbhoy, *Professor of Music.*
Vladimir Markov, Ph.D., *Professor of Slavic Languages.*
Jaan Puhvel, Ph.D., *Professor of Classics and Indo-European Studies.*
Stanley L. Robe, Ph.D., *Professor of Spanish.*
Julio Rodriguez-Puertolas, Ph.D., *Professor of Spanish.*
Robert M. Stevenson, Ph.D., *Professor of Music.*
Donald J. Ward, Ph.D., *Professor of German and Folklore.*
D. K. Wilgus, Ph.D., *Professor of English and Anglo-American Folksong (Chairman, Folklore and Mythology Committee).*
Johannes Wilbert, Ph.D., *Professor of Anthropology.*
Wayland D. Hand, Ph.D., *Emeritus Professor of German and Folklore.*
Charles Speroni, Ph.D., *Emeritus Professor of Italian.*
Patrick K. Ford, Ph.D., *Associate Professor of English and Celtic Studies.*
Michael Owen Jones, Ph.D., *Associate Professor of History and Folklore.*
James Porter, M.A., *Associate Professor of Music and Folklore.*
Joseph Nagy, *Assistant Professor of English and Folklore.*
David E. Draper, Ph.D., *Acting Assistant Professor of Music.*

•

Marianna D. Birnbaum, Ph.D., *Adjunct Associate Professor in Hungarian.*
Inkeri Rank, M.A., M.Ed., *Lecturer in Finnish Studies.*

•

Alexander Badawy, Ph.D., *Professor of Art.*
Henrik Birnbaum, Ph.D., *Professor of Slavic Languages.*
Kees W. Bolle, Ph.D., *Professor of History.*
Kenneth G. Chapman, Ph.D., *Professor of Scandinavian Languages.*
Jerome Cushman, B.S.L.S., *Senior Lecturer in Literature for Children and Adolescents.*
Elsie Dunin, M.A., *Associate Professor of Dance.*
Charlotte Heth, Ph.D., *Assistant Professor of Music.*
Melvyn Helstien, Ph.D., *Professor of Theater Arts.*
Boris A. Kremenliev, Ph.D., *Emeritus Professor of Music.*
Steven Lattimore, Ph.D., *Associate Professor of Classics and Classical Archaeology.*
Jacques Maquet, Ph.D., *Professor of Anthropology.*
James R. Massengale, Ph.D., *Associate Professor of Scandinavian Languages.*
Michael Moerman, Ph.D., *Professor of Anthropology.*
Philip Newman, Ph.D., *Associate Professor of Anthropology.*
Wendell H. Oswalt, Ph.D., *Professor of Anthropology.*
Pier-Maria Pasinetti, Ph.D., *Professor of Italian and Comparative Literature.*
Douglas Price-Williams, Ph.D., *Professor of Anthropology and Psychiatry in Residence.*
Florence H. Ridley, Ph.D., *Professor of English.*
Arnold Rubin, Ph.D., *Associate Professor of Art.*
Georges Sabagh, Ph.D., *Professor of Sociology.*
Allegra Snyder, M.A., *Associate Professor of Dance.*
Eli Sobel, Ph.D., *Professor of German.*
Paul O. W. Tanner, M.A., *Lecturer in Music.*
Erik Wahlgren, Ph.D., *Emeritus Professor of Scandinavian and Germanic Languages.*
Dean S. Worth, Ph.D., *Professor of Slavic Languages.*

Although no undergraduate degree program is offered in folklore and mythology, those majoring in the Ethnic Arts Interdisciplinary Studies program may select folklore and mythology as their area of concentration. A variety of undergraduate courses, offered by departments or by faculty participating in the interdepartmental program is also available to all university students. Those with undergraduate preparation in folklore and mythology studies may continue their work on the graduate level. For planning course work, students should consult departmental advisers and the Chairman of the Committee which administers the interdepartmental program.

M.A. in Folklore and Mythology

The program leading to the degree of Master of Arts in Folklore and Mythology is administered by the interdepartmental Committee on Folklore and Mythology. It is open to students desiring a knowledge of the materials of folklore and mythology and the theoretical bases and techniques of research. Students completing the degree may continue folklore study in conjunction with a program leading to a degree in an allied field.

Admission to the Program. In addition to meeting the requirements of the Graduate Division, the student should have (1) an A. B. Degree, preferably in a field of the humanities or social sciences, and (2) Folklore 101, Introduction to Folklore (or equivalent), and (3) another upper-division course in folklore. (These course requirements may be completed during the first quarter in residence at UCLA, following admission to the program.) Upon admission to graduate status, the student should consult with the Chairman of the Committee which administers the interdepartmental program.

Requirements for the Master's Degree

General Requirements. As throughout the Graduate Division; see Minimum Requirements.

Language Requirement. A reading knowledge of French or German. The ETS examination must be taken in or before the third quarter in residence and must be successfully completed by the end of the fifth quarter in residence.

Program. All candidates, whether electing the Thesis Plan or the Comprehensive Examination Plan, must complete the following: Folklore 200, 201A-201B, 216; and at least one course chosen from each of the following groups:

Group 1. Folklore M106, M123B, M154A-154B, M181; M183; Music 140A-140B-140C, 142A-142B, 143A-143B, 147, 153A-153B-153C, German 240B.

Group 2. Folklore M121, M122, M123A, M125, M126, M128, M129, 130, 131, M149, M150, M205, M230A-230B, M241, M249, M257; African Languages 150A-150B; German 134, 240A; Scandinavian 141.

Group 3. Anthropology 141, 266; Classics 161; German M245A (or Scandinavian M245); History 124D; Classics 168; Classics 268.

Group 4. Folklore 213, 217, M243A, M243B, 251, M258, 259, M286A-286B-286C; German 262; English 220, Music 255, 280; Spanish 262B.

Thesis Plan. The candidate must complete a minimum of ten courses (six in the 200 series) and submit an acceptable thesis, prepared under the direction of a member of the Folklore and Mythology program. Submission of the thesis will be followed by an oral examination covering the fields of folklore and mythology studies.

Comprehensive Examination Plan. The candidate must complete a minimum of ten courses (six in the 200 series). After completion of the course work, the candidate will be expected to demonstrate competence in written examinations requiring a grasp of theoretical bases, major documents, and research methods and techniques of folklore and mythology studies; two forms of folklore and mythology; and the folklore and mythology of a specific country, continent, or geographical area. A final oral comprehensive examination will cover the fields of folklore and mythology studies.

Financial aid and research opportunities are available to qualified graduate students in the form of fellowships, research assistantships, teaching assistantships, and collecting stipendia. For further information, students should consult the Director of the Center for the Study of Comparative Folklore and Mythology.

Lower Division Course

15. Introduction to American Folklore Studies. Lecture and discussion. A cultural-historical survey of the role of folklore in the development of American civilization and of the influence of the American experience in shaping folklore in American society; attention will also be given to representative areas of inquiry and analytical procedures. Mr. Jones

Upper Division Courses

101. Introduction to Folklore. Prerequisite: junior standing. A survey of the various forms of folklore and an examination of their historical and social significance. The Staff

M106. Anglo-American Folk Song. (Same as English M111B.) Prerequisite: Subject A, junior standing. A survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values. Mr. Wilgus

M111. The Literature of Myth and Oral Tradition. (Same as English M111A.) Prerequisite: Subject A. A study of myth, dramatic origins, oral epic, folktale, and ballad, including Indo-European and Semitic examples. Mr. Nagy, Mr. Wilgus

M112. Survey of Medieval Celtic Literature. (Same as English M111E.) Prerequisite: Subject A. A general course dealing with Celtic literature from the earliest times to the fourteenth century. No knowledge of Irish or Welsh is required. Mr. Ford

118. Folk Art and Technology. Prerequisite: junior standing. A general course concerned with the material manifestations of folk culture and the theoretical concepts and methodologies utilized in their analysis. Mr. Jones

M121. British Folklore and Mythology. (Same as English M111C.) Prerequisite: Subject A, junior standing. A survey of the folklore of the people of Britain, with attention to their history, function, and regional differences. Mr. Nagy, Mr. Porter

M122. Celtic Mythology. (Same as English M111D.) Prerequisite: Folklore 101 or permission of the instructor. A survey of the early materials, chiefly literary, for the study of the mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales. Mr. Ford

M123A. Finnish Folklore and Mythology. (Same as Scandinavian Languages M123A.) The methods and results of Finnish folklore studies and the mythic traditions of the Finns. Special attention is paid to the oral epic, beliefs and legends. Ms. Rank

M123B. Finnish Folksong and Ballad. (Same as Scandinavian Languages M123B.) Course M123A is not prerequisite to M123B. A survey of Finnish balladry and folksong, with attention to historical development, ethnic background, and poetic and musical values. Ms. Rank

124. Finnish Folk Art and Technology. Material manifestations of Finnish folk culture: village layout and architecture, folk technology, arts and crafts, textiles, costumes and design. Ms. Rank

M125. Folklore and Mythology of the Lapps. (Same as Scandinavian Languages M125.) Survey of Lappish beliefs, customs, and various genres of oral tradition including tales, legends, songs and music. Attention is also paid to the material manifestations of Lappish culture: arts and crafts, textiles, costume, folk technology. Ms. Rank

M126. Baltic and Slavic Folklore and Mythology. (Same as Slavic Languages M179.) A general course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities. Ms. Gimbutas

M127. Celtic Folklore. (Same as English M111F.) Prerequisite: Folklore 101 or permission of the instructor. The folkloric traditions of modern Ireland, Scotland, and other Celtic Countries, with attention to current techniques of folkloristic research. Mr. Nagy

M128. Hungarian Folklore and Mythology. (Same as Hungarian M135.) A general course for the student in folklore and mythology, with emphasis on types of folklore and varieties of folklore research. Ms. Birnbaum

M129. Folklore and Mythology of the Ugric Peoples. (Same as Hungarian M136.) Survey of the traditions of the smaller Ugric nationalities (Voguls, Ostyaks). Ms. Birnbaum

130. North American Indian Folklore and Mythology Studies. Prerequisite: course 101 or consent of the instructor. An examination of folkloristic and mythological data recorded from various North American Indian peoples within the contexts of the principal ideological frameworks which have been evolved historically for the analysis of such data. Mr. Georges

131. Folklore of India. Prerequisite: Course 101 or permission of the instructor. A survey of the folklore of India, with special reference to the content and dissemination of oral epics, ballads, legends, and beliefs. Mr. Jairazbhoy

NOTE: For key to symbols, see page 74

M140. From Boccaccio to Basile (in English). (Same as Italian M140.) A study of the origins and the development of the Italian novella in its themes, in its structure, in its historical context, and in its European ramifications. The course is designed for students in other departments who wish to become acquainted with either the premises or the growth of similar literary genres. It is also intended for students majoring in Folklore and Mythology, who will be given an insight into Italian popular tales when these (as in the case of Boccaccio) were translated into highly sophisticated literary forms, as well as when (as in the case of Basile) they become embedded into the folk tradition of the Western world. Ms. Cottino–Jones

M149. Folk Literature of the Hispanic World. (Same as Spanish M149.) A study of the history and present dissemination of the principal forms of folk literature throughout the Hispanic countries. Ms. Arora, Mr. Robe

M150. Russian Folk Literature. (Same as Russian M150.) Four hours weekly. Lectures and readings in Russian.

M154A-154B. The Afro-American Musical Heritage. (Same as Music M154A-154B.) Prerequisite: Music 1 or consent of the instructor. 154A is prerequisite to 154B. A study of Afro-American rhythm, dance, music, field hollers, work songs, spirituals, blues, and jazz; the contrast between West Africa, Afro-American and Afro-Brazilian musical traditions.

M180. Analytical Approaches to Folk Music. (Same as Music M180.) Prerequisite: Music 5A-5B-5C or consent of the instructor. An intensive study of the methods and techniques necessary to the understanding of Western folk music. Mr. Porter

M181. Folk Music of Central and Western Europe. (Same as Music M181.) Prerequisites: Music 5A-5B-5C, or Music 140A, or Music 140B, or Music 140C, or consent of the instructor. An analysis of the folk musical styles of Europe, excluding the Balkans and Soviet Russia. Particular attention will be paid to the comparative study of European folk music. Mr. Porter

190. Selected Topics in Folklore and Mythology Studies. Prerequisite: course 15 or course 101 and consent of instructor. A proseminar focusing upon selected problems, data, or themes in folklore and mythology studies. The Staff

199. Special Studies in Folklore. (½ to 1 course) Prerequisite: senior standing and consent of the instructor. The Staff

Graduate Courses

200. Folklore Bibliography, Theory and Research Methods. Prerequisites: course 101 and one other folklore course in the 100 series. Mr. Georges, Mr. Ward

201A. Folklore Collecting and Field Research. Prerequisites: course 200. Discussion-demonstration concerning the theoretical concepts, methods, and techniques of data gathering and field research in folklore. Mr. Jones, Mr. Wilgus

201B. Folklore Collecting and Field Research. Prerequisite: course 201A. The supervised completion of a fieldwork project developed in Folklore 201A. Mr. Jones, Mr. Wilgus

202A-202B. Folklore Archiving. (½ course each) Prerequisite: course 200. One quarter of lecture-demonstration in the principles and techniques of the classification and preservation of folklore collectanea, followed by one quarter of directed experience in archiving. Mr. Georges

M205. Perspectives in American Folklore Research. (Same as English M205.) Prerequisites: Folklore 101 and one other upper-division folklore course. An examination of American folklore studies compared and contrasted with investigation in other countries, with emphasis upon the principal conceptual schemes and research orientations employed in the study of folklore in American society. Mr. Jones

213. Folk Belief and Custom. Prerequisites: course 101 and any one of the following courses: 118, M121, M122, M123A-123B, 124, M125, M126, M128, M149, M150; Anthropology 102, 140; German 134, 240. Mr. Jones, Mr. Ward

216. The Folktale. Prerequisite: course 200 or consent of the instructor. Mr. Georges, Mr. Ward

217. Folk Speech. Prerequisites: course 101, M106, or M111; also recommended: Anthropology M146, English 121, or Linguistics 100. A study of the ethnography of communication and its relevance to the study of social and regional dialects, proverbs, riddles, onomastics, folk poetry and verse, and traditional humor. Mr. Georges

M230A-230B. Folk Tradition in Italian Literature. (Same as Italian M230A-230B.)

M241. Folklore and Mythology of the Near East. (Same as Near Eastern Languages M241.)

M243A. The Ballad. (Same as English M243A.) Prerequisite: consent of the instructor. A study of the English and Scottish popular ballads and their American derivatives, with some attention to European analogues. Mr. Wilgus

M243B. Problems in Ballad Scholarship. (Same as English M243B.) Prerequisite: course M243A or consent of the instructor. Intensive investigation of a problem or problems in the study of the popular ballad. Mr. Wilgus

***1248. Theory and Method in Latin American Folklore Studies.** A historical survey of folklore scholarship in Latin America, with emphasis on the theoretical bases and methods and techniques employed in the study of and analysis of traditional tales, songs, music, linguistic expression.

M249. Hispanic Folk Literature. (Same as Spanish and Portuguese M249.) Prerequisite: graduate standing. An intensive study of folk literature as represented in a) ballad and poetry; b) narrative and drama; c) speech. Ms. Arora, Mr. Robe

251. Seminar in Finno-Ugric Folklore and Mythology.

M257. South American Folklore and Mythology Studies. (Same as Anthropology M252.) Prerequisite: Anthropology 105A or consent of the instructor. An examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these peoples. Mr. Wilbert

M258. Seminar in Folk Music. (Same as Music M258.) Prerequisite: consent of instructor. Mr. Porter, Mr. Wilgus

259. Seminar in Folklore. Prerequisite: course 200 and consent of the instructor. The Staff

M286A-286B-286C. Studies in Hispanic Folk Literature.

M286A. Studies in Hispanic Folk Literature—The Romancero. (Same as Spanish M286A.) Mr. Rodriguez–Puertolas

M286B. Studies in Hispanic Folk Literature—Narrative and Drama. (Same as Spanish M286B.) Ms. Arora, Mr. Robe

M286C. Studies in Hispanic Folk Literature—Ballad, Poetry, and Speech. (Same as Spanish M286C.) Mr. Robe

Individual Study and Research

596. Directed Studies in Folklore. (½ to 1½ courses) The Staff

597. Preparation for Comprehensive Examinations. (½ to 1½ courses.) This course may not be used in fulfillment of minimum course requirements for the M.A. degree. The Staff

598. Master's Thesis Preparation. (½ to 1 course) The Staff

Related Courses in Other Departments Upper Division Courses

African Languages 150A-150B-150C. African Literature in English Translation.

Anthropology 102. World Ethnography.

140. Comparative Religion.

141. Social and Psychological Aspects of Myth and Ritual.

144. Aesthetic Anthropology.

Art 101D. Art of the Ancient Near East.

117A. Advanced Studies in Pre-Columbian Art: Mexico.

117B. Advanced Studies in Pre-Columbian Art: Central America.

117C. Advanced Studies in Pre-Columbian Art: The Andes.

118A. The Arts of Oceania.

118B. The Arts of Pre-Columbian America.

118C. The Arts of Sub-Saharan Africa.

118D. The Arts of Native North America.

119A. Advanced Studies in African Art: The Western Sudan.

119B. Advanced Studies in African Art: The Guinea Coast.

119C. Advanced Studies in African Art: The Congo.

Bulgarian 130. Introduction to Bulgarian Civilization.

Classics 161. Introduction to Classical Mythology.

162. Classical Myth in Literature.

166A. Greek Religion.

166B. Roman Religion.

168. Introduction to Comparative Mythology.

Dance 140A-140B-140C. Dance Cultures of the World.

142. Dance in the Balkans.

143. Dance in India.

144. Dance in Indonesia.

145. Dance in Japan.

146. Dance in Latin America.

151A. History of Dance.

English 112. Children's Literature.

French 115A-115B-115C. Medieval French Literature.

German 134. German Folklore.

History 124D. History of Religions: Myth.

Music 132A-132B. Development of Jazz.

140A-140B-140C. Musical Cultures of the World.

141. Survey of Music in Japan.

142A-142B. Music of the Balkans.

143A-143B. Music of Africa.

147A-147B. Music of China.

148. Folk Music of South Asia.

149. Anthropology of Music.

152. Music of India.

153A-153B-153C. Music of the American Indians.

158. New Orleans Jazz.

190A-190B. Proseminar in Ethnomusicology.

Romanian 130. Introduction to Romanian Civilization.

Scandinavian 40. The Heroic Journey in Northern Myth and Legend.

141. Viking Civilization and Literature.

Slavic 99A-99B. Slavic Peoples and Cultures.

Sociology 124. Ethnic and Status Groups.

130. Social Processes in Africa.

131. Latin American Societies.

132. Population and Society in the Middle East.

133. Comparative Sociology of the Middle East.

Theater Arts 117. The Puppet Theater.

Spanish 151. Folk Song in Spain and Spanish America.

Graduate Courses

Anthropology

M247A. Seminar in Ethnographic Film.

250. Indians of South America.

254. African Cultures.

255. Cultures of the Middle East.

267B-267C. Ethnographic Film Direction.

269F. Selected Topics in Ethnology.

269Q. Myth and Ritual

269R. Aesthetic Anthropology.

269U. African Cultures.

269V. Arctic Cultures.

269Y. Cultures of the Pacific Islands.

269Z. Ethnography of the Mexican/Chicano People in North America.

Art 216. Topics in African Art.

217. Topics in Oceanic Art.

218. Topics in Pre-Columbian Art.

219. Topics in Native North American Art.

220. The Arts of Africa, Oceania and Pre-Columbian America.

Classics 268. Seminar in Comparative Mythology.

Comparative Literature M229. Archetypal Heroes in Literature.

Dance 226A-226B-226C. Dance Expressions in Selected Cultures.

English 220. Readings in Medievalism.

French 215A-215D. The Medieval Language and Literature.

German 240A. Theories, Methods and History of Germanic Folklore.

240B. Folksong and Ballad.

240C. Oral Prose Genres.

M245A. Germanic Religions and Mythology.

245B. Germanic Antiquities.

262. Seminar in Germanic Folklore.

Italian 214E. *The Decameron.*

217B. Commedia dell'arte and the Theatre.

218C. The Theater, Especially Metastasio, Goldoni, C. Gozzi.

Music 253. Seminar in Notation and Transcription in Ethnomusicology.

254A-254B. Seminar in Field and Laboratory Methods in Ethnomusicology.

255. Seminar in Musical Instruments of the Non-Western World.

280. Seminar in Ethnomusicology.

281A-281B. Music of Indonesia.

282. Music of Persia.

283. Music of Thailand.

285. Music of Tibet.

287. Seminar in African Music.

288. Seminar in North American Indian Music.

Russian 251A-251B. Old Russian Literature.

291A. Seminar in Old Russian Literature.

Spanish 262B. Epic Poetry.

FOREIGN LITERATURE IN TRANSLATION

The following courses offered in the departments of language and literature do not require a reading knowledge of any foreign language:

African Languages 150A-150B-150C. African Literature in English Translation.

Ancient Near Eastern 150A, 150C. Survey of Ancient Near Eastern Literatures in English.

Arabic 150A-150B. Survey of Arabic Literature in English.

Armenian 150A-150B. Survey of Armenian Literature in English.

Classics 141. A Survey of Greek Literature in English.

142. Ancient Drama.

143. A Survey of Latin Literature in English.

Czech 155A-155B. Survey of Czech Literature.

Dutch-Flemish and Afrikaans 112. Dutch, Flemish, Afrikaans Literature in Translation.

English 108A-108B. The English Bible as Literature.

French 142. Contemporary French Theater in Translation.

143. Modern French Thought.

144A-144C. The French Novel in Translation.

145. Topics in French Literature.

German 121A. Older German Literature in Translation.

121B. Classical German Literature in Translation.

121C. Special Problems in Literature.

121D. Modern German Literature in Translation-Narrative Prose I.

121E. Modern German Literature in Translation-Narrative Prose II.

121F. Modern German Literature in Translation-Drama and Lyrics.

121G. Modern German Jewish Literature in Translation.

Humanities 1A-1B. World Literature.

Hungarian 121A-121B. Survey of Hungarian Literature in Translation.

Iranian 150A-150B. Survey of Persian Literature in English.

Italian 100A-100B-100C. Main Trends in Italian Literature and their Relation to Other European Literatures (in English).

110A-110B. The Divine Comedy in English.

M140. From Boccaccio to Basile (in English).

150. Modern Italian Fiction in Translation.

Jewish Studies 151A-151B. Modern Jewish Literature in English.

Oriental Languages 140A-140B-140C. Chinese Literature in Translation.

141A-141B. Japanese Literature in Translation.

Polish 152A-152B. Survey of Polish Literature.

Russian 119. Survey of Russian Literature to Pushkin.

120A-120B. Survey of Russian Literature.

124A-124F. Studies in Russian Literature.

125. The Russian Novel in its European Setting.

126. Survey of Russian Drama.

Scandinavian 40. The Heroic Journey in Northern Myth and Legend.

138. Survey of Finnish Literature.

141. Viking Civilization and Literature.

142. Scandinavian Literature of the 18th and 19th Centuries.

143. Modern Scandinavian Literature.

144. Ibsen.

145. Strindberg.

146. Kierkegaard.

147. Hamsun.

Serbocroatian 154A-154B. Survey of Yugoslav Literature.

Spanish 160A. Spanish and Portuguese Literature.

160B. Spanish American and Brazilian Literature.

Yiddish 121A. 20th Century Yiddish Poetry in English Translation.

121B. 20th Century Yiddish Prose and Drama in English Translation.

FRENCH

(Department Office, 160 Haines Hall)

Marc Bensimon, Ph.D., *Professor of French.*
Eric Gans, Ph.D., *Professor of French.*
Hassan el Nouty, Docteur ès Lettres, *Professor of French.*
Oreste F. Pucciani, Ph.D., *Professor of French.*
Francis J. Crowley, Ph.D., *Emeritus Professor of French.*
Milan S. La Du, Ph.D., *Emeritus Professor of French.*
Stephen D. Werner, Ph.D., *Associate Professor of French (Chairman of the Department).*
Mary-Ann Burke, Ph.D., *Assistant Professor of French.*
Patrick Coleman, Ph.D., *Assistant Professor of French.*
Sara Melzer, Ph.D., *Assistant Professor of French.*
Delphine Perret, Docteur IIIe cycle, *Assistant Professor of French.*
Shuhsi Kao, *Acting Assistant Professor of French.*

•

Colette Brichant, Docteur de l'Université de Paris, *Lecturer in French.*
Jacqueline Hamel, Licencieé-ès-Lettres, *Lecturer in French.*
Madeleine Korol-Ward, Ph.D., *Lecturer in French.*
Padoue de Martini, B.A., *Lecturer in French.*

Preparation for the Major

Required: French 1, 2, 3, 4, 5, 6 (or 7), 12, 15.

Before undertaking Upper Division work in *grammar, composition, advanced phonetics or civilization,* the student will be required to take French 1, 2, 3, 4, 5, 6 (or 7) and 15 or their equivalents. Students receiving less than a grade of B in French 6 will take French 7 (minimum grade for continuation C).

Before undertaking Upper Division work in *literature,* the student will, in addition to the above courses, be required to take French 12, "Introduction to the Study of French Literature." The student will normally take French 6 before undertaking French 12 or French 15; highly qualified students who have obtained the grade of A in French 5 may enroll in French 12 concurrently with French 6 *with the permission of the instructor.*

The Major

Four majors are offered by the Department.

Plan A: Leading to the Bachelor of Arts in French and subsequently to the Master's degree, Plan A, or to the standard elementary or secondary credential. Required: 15 full courses of upper division work, including French 100A-100B-100C, 103, 114A-114B-114C; two quarters from the offerings French 132-135*, 3 courses in French literature chosen from the offerings 115-120**; three elective courses normally to be chosen from upper division offerings in the Department of French in language, civilization or literature. A maximum of one upper division course outside the Department may be included in the major program with the approval of the major adviser.

*A course in French History may be substituted for one of these with the permission of the major adviser.

Plan B: With emphasis on literature, leading to the Bachelor of Arts in French and subsequently to the Master's degree, Plan B. Required: 15 full courses of upper division work including French 100A-100B-100C, 103, 114A-114B-114C; 6 courses in French literature chosen from the 115-120 offerings**; 2 elective upper division courses to be chosen upon consultation with the major adviser, either from offerings of the Department of French, from the Humanities or Social Sciences Division of the College of Letters and Science, or from the College of Fine Arts.

Plan C: French Studies: A core program in French allowing, in addition, for individual selection of relevant courses in related fields in the Humanities, the Social Sciences, Linguistics, etc. Required: 15 full courses of upper division work, including French 100A-100B-100C, 103, 114A-114B-114C; 3 courses of French literature chosen from the offerings 115-120**; 5 upper division elective courses in the fields relevant to French Studies to be chosen in

NOTE: For key to symbols, see page 74

or out of the Department of French upon consultation with the major adviser. This program does not normally prepare admission to the Master's program in French at UCLA (see Plans A and B).

**In all Major Plans one course from the 121 series and/or one undergraduate seminar (French 150-160 not including 157) may be substituted for courses in the 115-120 offerings.

Plan D: French and Linguistics: In addition to the normal preparation for the major, students are required to complete the sixth quarter of work in one other foreign language or the third quarter in each of two other foreign languages. Required: French 100A, 100B, 100C, 103, 114A, 114B, 114C; two courses from French 105, 106, 107, 108A; Linguistics 100, 103, 110, 120A, 120B, 164 or 165A or 165B.

It is strongly advised that students who intend to pursue advanced degrees begin preparation for the language requirements at the undergraduate level. Students whose knowledge of French exceeds the preparation usually received in courses preparing for the Major and who demonstrate the requisite attainment in French 100A, 100B, or 100C will substitute for those courses in grammar and composition an equivalent number of upper division courses in the Department of French upon consultation with the major adviser. All prospective French majors who are native or quasi-native speakers of French must see the major adviser before beginning upper division work in the Major.

All major students must complete a minimum of 9 courses of appropriate upper division work in the Department of French.

Course work taken on a Passed/Not Passed basis is *not acceptable* in any area of the Major program.

Students who fail to maintain a C average or better in all upper division work undertaken in fulfillment of their French Major will, upon approval of the Dean of the College of Letters and Science, be excluded from the major in French.

Students intending to major in French must consult a major adviser before registering for upper division courses in fulfillment of the major.

The Honors Program in French

Majors with a 3.6 grade point average in the Department of French and a 3.3 overall grade point average will be eligible to apply for the Honors Program in French. Interested students should contact the Professor in charge of French 140A, 140B near the end of their Junior year and should make application at that time if they wish to enter the program. Applications should include: (1) a letter in French describing the student's field of interest in French literature and culture; (2) the student's final examination in French 100B, 100C, 103 or a final examination or term paper from a literature course. If these materials meet with approval, the student will be called for an interview. Students admitted to the program will enroll in French 140A-140B. French 140A is a seminar taught by a member of the professorial staff. 140B is to be devoted to the preparation of an individual project, normally related to the topic of 140A; this work will be undertaken under the guidance of a faculty member (not necessarily the instructor of 140A).

Teaching Credential Requirements

Students desiring a single-subject teaching credential in French must have the approval of the French Department in order to gain admission to student teaching. For the Single Subject Instruction Credential, this approval is contingent upon a major (or the equivalent) in French and the successful completion of French 370 and 495. French 370 and 495 should be taken prior to student teaching. Under exceptional circumstances, the Department may allow the student to enroll in these courses concurrently with a student teaching assignment.

Multiple subject instruction credential candidates who select French in partial fulfillment of the Special Program in Diversified Liberal Arts must complete 310A and 310B prior to student teaching.

For additional information, consult the Graduate School of Education (Moore Hall 201) and the Department of French (Haines Hall 160).

Graduate Programs

For the purposes of all graduate programs in the Department, the corpus of French literature is considered to be divided into three chronological periods: I Medieval-Renaissance; II Classical (roughly the 17th and 18th centuries); III Modern (since 1800) (with Franco-African literature as an option).

Requirements for the Master's Degree (M.A.)

The Department offers three Master's programs: Plan A, designed for teachers of French at the secondary and junior college levels; Plans B (comprehensive examination plan) and C (thesis plan), leading to the Ph.D. in French.

General requirements. (1) Language: For all candidates for the M.A. in French, the foreign language requirement will be fulfilled by passing a course of at least level 3 in either German, Latin, Spanish, or Italian (Plan A only), or by passing the University reading examination in one of these languages. In special cases, substitution of another foreign language will be accepted, if approved by the Chairman of the Department. Students are required to fulfill this foreign language requirement before taking the M.A. examination (Plans A or B). All candidates for the M.A. must satisfy the Department as to their proficiency in spoken French. (2) All entering graduate students will take a departmental examination to determine whether they will be required to take French 201D.

Plan A: *Course requirements:* At least 12 courses in French including normally 201D, and 310A/310B or 370/495 (or any combination of one theory and one observation course). Among these twelve courses, the student will take at least seven courses in literature including at least three courses in each of two periods (one of which must be the modern period). To meet general University requirements, at least six courses must be of graduate level.

Comprehensive Examination. Written examinations of three hours in length in each of the two periods prepared, a two-hour examination in translation and literary composition, a two-hour *explication de texte*, and an oral examination in French. At the discretion of the Department, a candidate may be permitted to take this examination a second (but not a third) time.

Plans B and C

Course requirements. At least 12 courses in French, including normally 201D, at least three courses in each of two periods, and at least one course from 202-207. At least eight of these courses must be of graduate level. Students in Plan C may include 4 units of 598 credit for work on the thesis.

Plan B: *Comprehensive Examination.* Written examinations of four hours in length in each of the two periods prepared, a two-hour *explication de texte*, and an oral examination in French. At the discretion of the Department a candidate may be permitted to take this examination a second (but not a third) time.

Plan C: *Admission Requirements and Oral Qualifying Examinations.* Students may apply to the Chairman of the Department for admission into Plan C after completion of at least six courses of graduate level (200 series), at least four of which must be literature courses in the French Department. The minimal admission requirements are: (1) 3.5 graduate G.P.A. in French (2) letters from two graduate professors in the Department specifically recommending admission into this plan.

Permission to write the thesis is contingent upon passing the *Oral Qualifying Examination.* This is a one-hour oral examination in the two periods prepared, to be administered by a committee established by the candidate, consisting of three graduate professors in the French Department, including normally at least one specialist in each period. If the candidate fails this examination, the Committee will determine whether he be permitted another attempt, or whether he be advised to take the written comprehensive examination (Plan B).

Thesis. The thesis should demonstrate proficiency in the methods and concepts of literary research; a suitable length will normally be about 50 pages.

After passing the Oral Qualifying Examination the candidate should establish a three-member Thesis Committee (normally but not necessarily the same body that administered the Oral), to be appointed by the Dean of the Graduate Division. A tentative outline of the proposed thesis must be approved by all three members *in writing* before work on the thesis is begun. Final approval of the thesis by all three members is also required.

Requirements for the Ph.D.

Admission: Candidates will be considered for admission to the doctoral program upon completion of all requirements for the M.A. Plan B or C. The candidate's entire graduate record, as well as his performance on the examination or thesis will be taken into account.

Language requirements. Two languages up to level 5 and 6 respectively; to be chosen upon approval of the Guidance Committee among the four following: Latin, German, Russian and Spanish. The substitution of another language when warranted by the nature of the student's specialization must be recommended by the student's guidance committee, and approved by the Chairman of the Department. When the nature of the student's specialization requires the knowledge of a third language (aside from the two normally required) the guidance committee is expected to take into account the extra work implied in making its other recommendations.

Doctoral Guidance Committee. Upon admission to the doctoral program, the student will establish a Doctoral Guidance Committee consisting of at least three graduate professors, including (1) the Chairman, normally in the student's proposed period of specialization and (2) a specialist in the period not covered at the M.A. level. This committee will administer the written Doctoral Qualifying Examinations.

Course requirements. (1) At least three courses from 202-207, including at least one from the 203 series (2) at least four seminars, two of which should be in the candidate's proposed area of specialization (3) at least two graduate courses in other departments related to his area of specialization. In addition, the candidate is expected to follow the Guidance Committee's suggestions in taking courses in preparation for the Doctoral Qualifying Examination.

Written Doctoral Qualifying Examination. (1) Four written examinations of four hours each as follows: (a) Focused specifically in the area of the prospective dissertation topic (e.g. an author, a specifically defined theme or genre over a limited period (one generation)). (b) Dealing with a more general subject related to the dissertation topic (i.e., the period of the author, the development of the theme or genre over one or more centuries). (c) In a cognate field related to the methodology or approach the candidate proposes to employ in the dissertation. (d) In the period not covered at the M.A. level.

It is understood that the topics to be dealt with in parts a, b, and c shall be determined by prior consultation of the candidate with the Doctoral Guidance Committee.

Upon passing the written examinations the candidate will be admitted to the *Oral Candidacy Examination,* where the Departmental members of his Doctoral Committee will be joined by two members from other departments. This examination, normally of two hours duration, will bear chiefly on parts (a) and (b) of the written examination, and on the proposed dissertation subject. The candidate is expected to submit a written outline of research plans before the oral examination.

Final Oral Examination: (Defense of dissertation): No longer required (this does not prevent individual Doctoral Committees from imposing this examination on a candidate.)

Candidates holding an M.A. from another institution must pass a screening exam on two literary periods within the first year of their residence.

Lower Division Courses

The ordinary prerequisites for each of the lower division courses are listed under the description of these courses. Students who have had special advantages in preparation may, upon examination or by recommendation of the instructor, be permitted a more advanced program. No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

1. Elementary French. Sections meet five hours weekly. Not available for academic credit for those students who have completed more than one year of high school French or the equivalent. The student will, however, be credited with four units toward their minimum progress requirement. Ms. Hamel in charge

1R. Introduction to the Reading of French. (¾ course) Classes will meet three times a week. This course is intended to enable students to acquire basic reading skills in French. Attention will be given at an early stage to the specialized vocabulary of particular scientific and humanistic disciplines. (Should not be taken concurrently with French I. Credit cannot be received for both courses.) Ms. Brichant in charge

1G. Elementary French for Graduate Students. (No credit) Sections meet three hours weekly. Ms. Brichant in charge

2. Elementary French. Sections meet five hours weekly. Prerequisite: course 1 or advanced placement standing. Not available for academic credit for those students who have completed two years of high school French or equivalent. The student will, however, be credited with four units toward their minimum progress requirement. Ms. Hamel in charge

2R. Intermediate Reading of French. (¾ course) Classes will meet three times a week. This course will pursue the work begun in 1R. It will gradually introduce texts of a more specialized nature in the various disciplines. (Should not be taken concurrently with French II. Credit cannot be received for both courses.) Ms. Brichant in charge

2G. Elementary French for Graduate Students. (No credit) Sections meet three hours weekly. Prerequisite: course 1G or the equivalent. Ms. Brichant in charge

3. Elementary French. Sections meet five hours weekly. Prerequisite: course 2 or two years of high school French or advanced placement standing. Ms. Hamel in charge

3R. Advanced Reading of French. (¾ course) Classes will meet three times a week. This course will pursue the work begun in 1R and 2R. It will be conducted in groups arranged according to field of study. (Should not be taken concurrently with French III. Credit cannot be received for both courses.) Ms. Brichant in charge

4. Intermediate French. Sections meet five hours weekly. Prerequisite: course 3 or three years of high school French or advanced placement standing. The Staff

4G. Conversational French for Graduate Students. (No credit) Classes meet three hours weekly. The Staff

5. Intermediate French. Sections meet five hours weekly. Prerequisite: course 4 or four years of high school French or advanced placement standing. The Staff

6. Intermediate French. Sections meet five hours weekly. Prerequisite: course 5 or advanced placement standing. The Staff

7. Advanced French. Sections meet five hours weekly. Prerequisite: course 6 or advanced placement standing. The Staff

10A-10D. French Conversation. (½ course each) Sections meet three hours weekly. Prerequisite: course 3 with grade A or B or permission of the Department. The Staff

12. Introduction to the Study of French Literature. Classes meet three hours weekly. Prerequisite: course 6 (or 7) or the equivalent or permission of the instructor. Principles of literary analysis as applied to selected texts in poetry and prose. The Staff

15. Theory and Correction of Diction. Classes meet four hours weekly. Prerequisite: course 6 or consent of instructor. French pronunciation, diction, intonation in theory and practice; phonetic transcription, phonetic evolution of the modern language; remedial exercises; recordings. Ms. Korol–Ward in charge

31A-31B-31C. France Through the Ages (in English.) A survey of French civilization with emphasis on social, intellectual and artistic trends. Ms. Brichant

31A. From the origins through the Renaissance.

31B. From the Renaissance to the 20th century.

31C. Contemporary France.

Upper Division Courses

The prerequisites to all upper division courses taken in partial fulfillment of the French Major are French 6 with a grade of B or better (otherwise French 7 with a grade of C or better), French 12, French 15 or their equivalents. All upper division courses except as otherwise indicated are conducted in French. Credit will ordinarily not be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition. French 104, 105, 106, 107 and 108A are not sequential and may be taken in any order, provided the prerequisites for each course are fulfilled.

100A. Advanced Grammar I. Prerequisite: course 6 and (normally) course 15, or the equivalent. A placement examination will be administered and qualified students will be advanced to French 100B or 100C. The Staff

100B. Advanced Grammar II. Prerequisite: course 100A or the equivalent. A placement examination will be administered and qualified students will be advanced to French 100C or to 103. The Staff

100C. Advanced Grammar III. Prerequisite: course 100B or the equivalent. A placement examination will be administered and qualified students will be advanced to French 103. The Staff

103. Advanced Stylistics. Classes meet three hours weekly. Prerequisite: course 100C or the equivalent. This course is required of all majors as well as of all candidates for the Standard Credential in Elementary or Secondary Teaching. Ms. Korol–Ward in charge

104. Literary Composition. Classes will meet once a week for two hours. Prerequisite: course 103 or the consent of the instructor. The Staff

105. French Linguistics. Classes will meet three hours weekly. Prerequisite: consent of the instructor. Ms. Perret

106. Advanced French Phonetics. Classes meet twice weekly. Prerequisite: consent of the instructor. Ms. Korol–Ward

107. Contemporary Spoken French. Classes will meet three hours weekly; laboratory sessions may be added as needed. Prerequisites: course 103 or consent of the instructor. The Staff

108A-108C. Advanced Practical Translation.

108A. Classes will meet three hours weekly. Prerequisite: course 103 with a grade of B, or consent of instructor. An introduction to the translation of advanced texts of general interest, with work in the theory of translation.

108B. Classes will meet three hours weekly. Prerequisite: the former 108 course, or 108A, or consent of instructor. Practice in the translation of technical documents and texts; comparative stylistics of translation.

108C. Classes will meet three hours weekly. Prerequisite: course 108B or consent of instructor. Advanced work in areas of general and specialized interest together with exercises in consecutive and simultaneous translation. The Staff

114A-114B-114C. Survey of French Literature I, II, III. Prerequisite: course 12 or the equivalent. A survey of French literature from the Medieval period through the 20th century.

114A. Medieval and Renaissance Literature.

114B. Literature of the Classical Era (17th and 18th centuries.)

114C. Modern Literature (19th and 20th centuries.) The Staff

115A-115D. Medieval French Literature.

115A. The Medieval Epic.

115B. The Medieval Romance.

115C. The Medieval Theater.

115D. Medieval Lyric Poetry. Ms. Burke

116A-116D. The Renaissance.

116A. Rabelais and His Time.

116B. Ronsard and His Time.

116C. Montaigne and His Time.

116D. Renaissance Theater. Mr. Bensimon

117A-117D. The Seventeenth Century.

117A. Corneille and the Baroque.

117B. The Classical Theatre: Racine and His Contemporaries.

117C. Moliere and the Comedy of the XVIIth Century.

117D. Philosophers, moralists and novelists of the XVIIth Century. Ms. Melzer

118A-118D. The Eighteenth Century.

118A. Comedy and Drama.

118B. Voltaire and the Encyclopedists.

118C. Diderot and Rousseau.

118D. The Novel. Mr. Coleman, Mr. Werner

119A-119D. The Nineteenth Century.

119A. Romanticism.

119B. The Generation of 1848.

119C. Naturalism and Symbolism.

119D. The Turn of the Century. Mr. el Nouty, Mr. Gans

120A-120D. The Twentieth Century.

120A. Gide, Proust and Their Time.

120B. Post World War I French Writers.

120C. Sartre, Camus and Their Time.

120D. Contemporary French Writers. Ms. Kao, Mr. Pucciani

121A-121D. Contemporary Literature of French Expression.

121A. Franco-African Literature.

121B. Franco-Canadian Literature.

121C. Franco-Helvetian and Franco-Belgian Literature.

121D. Franco-Caribbean Literature. Mr. el Nouty

122. French Folklore and Young People's Literature. Ms. Korol-Ward

123. French Popular Literature. "Romans policiers," "Theatre des boulevards," "chansons-poemes," etc. The Staff

124. Dramatic Interpretation. Study of the techniques of stage direction and interpretation of French Drama. A survey of some of the different theories

NOTE: For key to symbols, see page 74

and approaches used on the French stage. Each student will act or direct a scene from a play to be performed under rehearsal conditions.
Ms. Korol–Ward

132. Contemporary France. Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities.
Ms. Brichant

133. French Institutions from the Revolution to the Present. Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities. Ms. Brichant

134. The "Ancien Regime." Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities.
Ms. Brichant

135. From Prehistoric Times to the Renaissance. Classes meet three hours weekly. A fourth hour may be required for the viewing of films and other laboratory activities. Ms. Brichant

138. Cinema and Literature in Contemporary France. Classes meet three hours weekly. Additional hours may be required for the viewing of films and other laboratory activities. Course may be taken as an elective in partial fulfillment of French Majors Plans A, B and C. The Staff

140A-140B. Honors Program in French. Prerequisites: junior or senior standing in French with 3.6 grade-point average in the major, a 3.3 overall average and consent of the Department.

140A. Honors Seminar in French. Seminar on a specific topic in French literature. Readings, oral reports, discussion.

140B. Honors Tutorial in French. Prerequisite: course 140A. Individual study on a topic related to that of 140A, leading to an essay to be written under the guidance of a faculty member. ber.
Mr. Gans in charge

Undergraduate Seminars

Courses 150-157 may be repeated once for credit with the consent of the major adviser.

150. Studies in Medieval Literature. The Staff

151. Studies in Sixteenth Century Literature.
The Staff

152. Studies in Seventeenth Century Literature.
The Staff

153. Studies in Eighteenth Century Literature.
The Staff

154. Studies in Nineteenth Century Literature.
The Staff

155. Studies in Twentieth Century Literature.
The Staff

156. Studies in Contemporary Literature of French Expression. The Staff

157. Studies in the French Language. The Staff

158. The Woman in French Literature. This course will explore a selected aspect of the situation of woman in French literature as author, character, symbol, etc. The Staff

160. Studies in the History of Ideas. Specific themes will be chosen and developed which will address a particular problem of French literature, civilization or ideas. The course may be repeated for credit with the approval of the major adviser.
The Staff

199. Special Studies in French. (½ to 2 courses) Prerequisite: junior or senior standing, consent of the instructor and consultation with Chairman of major advisers. Course may be taken twice.
Department Chairman in charge

Courses in English

The following courses may not be taken for graduate credit; they may be taken as out-of-department electives for the Undergraduate Majors.

142. Contemporary French Theater in Translation. Classes meet two hours weekly. This course may be considered as an out-of-department elective for the purpose of satisfying major requirements.
Ms. Korol–Ward

143. Modern French Thought. Classes meet two hours weekly. Contemporary works will be read and discussed in translation. Course may be taken as an elective in partial fulfillment of French Major Plan C. Course may be considered as an out-of-department elective for the purpose of satisfying major requirements. The Staff

144A-144C. The French Novel in Translation. Classes meet two hours weekly. Authors to be studied will be announced quarterly. Course may be considered as an out-of-department elective for the purpose of satisfying major requirements.
The Staff

145. Topics in French Literature. To be announced each quarter. This course may not be taken for major or graduate credit but may be considered as an out-of-department elective for the purpose of satisfying major requirements. The Staff

Graduate Courses

201A. Theme. Course meets three times weekly. Advanced translation into French. The Staff

201B. Version. Course meets three times weekly. Advanced translation into English. The Staff

201C. La Dissertation Francaise. Course meets three times weekly. Advanced composition.
The Staff

201D. Problems of French Literary Composition. Course meets three times weekly. Practical work of an advanced nature in the expression and presentation of literary research. The Staff

202. Explication de Textes. Mr. Bensimon

203A-203B-203C. French Literary Criticism.

203A. Topics in Literary Criticism from Aristotle to Sainte-Beuve.

203B. Modern Theories of Criticism.

203C. The Techniques of Literary Criticism.
Mr. Coleman, Mr. Gans

204A. Phonology and Morphology from Vulgar Latin to French Classicism. The evolution of the French language. Required of candidates for the Ph.D. in Romance Languages and Literatures who emphasize philology. Ms. Perret

204B. Syntax and Semantics from Vulgar Latin to French Classicism. The evolution of the French language. Required of candidates for the Ph.D. in Romance Languages and Literatures who emphasize philology. Ms. Perret

205A-205B-205C. The Intellectual Background of French Literature.

205A. Scholasticism (with ancient sources); Humanism.

205B. Rationalism, Empiricism, Positivism.

205C. Idealism, Phenomenology, Existentialism.
Mr. Pucciani

206. French Linguistics. Prerequisites: Linguistics 100 or French 105, or the equivalent. Discussion of modern linguistic theory in the area of French grammar, syntax and semantics. Ms. Perret

207. Introduction to Stylistics. Discussion of the basic stylistic devices of the French language.
Ms. Perret

215A-215E. The Medieval Language and Literature. Ms. Burke

215A. Old and Middle French. This course is prerequisite to courses 215B-215E. Phonology and morphology of the language. Introduction to Old French texts.

215B. The Chanson de geste.

215C. The Romance.

215D. Medieval Theater.

215E. Provencal Poetry.

216A-216H. The Renaissance. Mr. Bensimon

216A. Topics in early sixteenth century French literature.

216B. Topics in the Pleiade.

216C. Topics in late sixteenth century French literature.

216D. Ronsard.

216E. Rabelais and Prose Writers.

216F. Baroque Poetry.

216G. Montaigne.

216H. Theater.

217A-217I. The Seventeenth Century.
Ms. Melzer

217A. Topics in Classical Theater.

217B. Topics in Non-Dramatic Literary Genres.

217C. Topics in Classical Prose and Thought.

217D. Moliere.

217E. Corneille.

217F. Racine.

217G. The Novel.

217H. Moralists.

217I. Religious Thought.

218A-218D. The Eighteenth Century.
Mr. Coleman, Mr. Werner

218A. Topics in the Early Enlightenment. (1680-1747).

218B. Topics in the Enlightenment. (1748-1765).

218C. Topics in the Late Enlightenment. (1766-1791).

218D. The Theater.

219A-219K. The Nineteenth Century.
Mr. el Nouty, Mr. Gans

219A. Topics in Romanticism.

219B. Topics in Realism and Naturalism.

219C. Topics in Symbolism.

219D. Poetry.

219E. The Novel.

219F. The Theater.

219G. Historians and Critics.

219H. Victor Hugo.

219I. Balzac.

219J. Independent Novelists.

219K. Intellectual Trends.

220A-220P. The Twentieth Century.
Ms. Kao, Mr. Pucciani

220A. From Symbolism to Surrealism. Selected topics.

220B. From Surrealism to Existentialism. Selected topics.

220C. From Existentialism to the Present. Selected topics.

220D. Paul Valery.

220E. Marcel Proust.

220F. Andre Gide.

220G. Andre Malraux.

220H. The Theater.

220I. The Anti-Theater.

220J. The Novel.

220K. The Anti-Novel.

220L. Surrealism.

220M. Existentialism.

220O. Poetry.

220P. Cinema and Literature.

221A-221D. French-African Literature.
Mr. el Nouty

221A. Introduction to the Study of the French-African Literatures.

221B. French-African Literature of Madagascar and Bantu Africa.

221C. French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa.

221D. Franco-Caribbean Literature.

Seminars

The following courses, 250A through 260B, may be repeated for credit.

250A-250B. Studies in Medieval Literature. Ms. Burke

251A-251B. Studies in the Renaissance. Mr. Bensimon and the Staff

252A-252B. Studies in the Baroque. Mr. Bensimon and the Staff

253A-253B. Studies in the Seventeenth Century. The Staff

254A-254B. Studies in the Eighteenth Century. Mr. Werner and the Staff

255A-255B. Studies in the Nineteenth Century. Mr. el Nouty, Mr. Gans

256A-256B. Studies in Contemporary Literature. Mr. Pucciani and the Staff

257A-257B. Studies in the French African Literature. Mr. el Nouty and the Staff

258A-258B. Studies in Literary Criticism. Mr. Gans and the Staff

259A-259B. Studies in Philosophy and Literature. The Staff

260A-260B. Studies in the History of Ideas. A particular problem of French literature and ideas. The Staff

261. Studies in French Linguistics. Ms. Perret and the Staff

262. Studies in Stylistics. The Staff

270. Introduction to Methods of Literary Research. Prerequisite: graduate status. The course will be made up of lectures on aspects of literary research. It will range from bibliography to new critical approaches, and will call on specialists in each field. The Staff

Professional Courses

310A-310B. The Teaching of French in the Elementary School and at the Junior High Level.

310A. Prerequisite: consent of the instructor. Theory of French teaching in the elementary school and at the junior high level. Classes meet three hours weekly. Required for the Standard Elementary Credential.

310B. Observation of language teaching in the elementary school and at the junior high level. Classes will meet as announced. Required for the Standard Elementary Credential. The Staff

370. The Teaching of French in the Secondary School and at the College Level: Observation. Prerequisites: course 103. Observation of language teaching in the secondary school and at the college level. Ms. Hamel

372. The Language Laboratory. (½ course) Prerequisite: consent of the instructor. New electronic techniques for language instruction. Pedagogical and practical problems of making tapes, installing and organizing a laboratory; control procedures. Mr. de Martini

495. The Teaching of French in the Secondary Schools and at the College Level. Prerequisite: course 370. Theory of language teaching. Letter grade. Mr. Pucciani

Individual Study and Research

596. Directed Individual Studies or Research. (½ to 1 course) The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ to 2 courses) The Staff

598. Research for and Preparation of the Master's Thesis. (½ to 1 course) Prerequisite: consent of the instructor. A maximum of 4 units may be applied toward the M.A. degree requirements. Graded S/U. The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses) The Staff

GENETICS

For courses in genetics, see under departments of Bacteriology and Biology.

GEOCHEMISTRY (INTERDEPARTMENTAL)

(See Earth and Space Sciences.)

GEOGRAPHY

(Department Office, 1255 Bunche Hall)

Charles F. Bennett, Ph.D., *Professor of Biogeography.*
C. Rainer Berger, Ph.D., *Professor of Geography and Geophysics.*
Henry J. Bruman, Ph.D., *Professor of Geography.*
William A. V. Clark, Ph.D., *Professor of Geography.*
Gary S. Dunbar, Ph.D., *Professor of Geography.*
Huey L. Kostanick, Ph.D., *Professor of Geography.*
Richard F. Logan, Ph.D., *Professor of Geography.*
Tom L. McKnight, Ph.D., *Professor of Geography (Chairman of the Department).*
Howard J. Nelson, Ph.D., *Professor of Geography.*
Antony R. Orme, Ph.D., *Professor of Geography.*
Jonathan D. Sauer, Ph.D., *Professor of Geography.*
Werner H. Terjung, Ph.D., *Professor of Geography.*
Benjamin E. Thomas, Ph.D., *Professor of Geography.*
Norman J. W. Thrower, Ph.D., *Professor of Geography.*
Robert M. Glendinning, Ph.D., *Emeritus Professor of Geography.*
Clifford H. MacFadden, Ph.D., *Emeritus Professor of Geography.*
Joseph E. Spencer, Ph.D., *Emeritus Professor of Geography.*
Gerry A. Hale, Ph.D., *Associate Professor of Geography.*
Christopher L. Salter, Ph.D., *Associate Professor of Geography.*
Hartmut Walter, Ph.D., *Associate Professor of Biogeography.*
Walter E. Westman, Ph.D., *Associate Professor of Geography.*
John R. Clark, Ph.D., *Assistant Professor of Geography.*
J. Nicholas Entrikin, Ph.D., *Assistant Professor of Geography.*
James O. Huff, Jr., Ph.D., *Assistant Professor of Geography.*
Stanley W. Trimble, Ph.D., *Assistant Professor of Geography.*

Geography as a Major

The Department of Geography offers a choice between two undergraduate majors: (1) the Major in Geography; and (2) the Major in Analysis and Conservation of Ecosystems. Prospective majors are urged to discuss the nature and opportunities of each program with the appropriate Undergraduate Advisor. In both programs, the Department is committed to effective quality education concerning the manifold interactions of environment and society. As such, all students are encouraged to work in close and frequent association with faculty members appropriate to their interests. Students are assured of a warm response from faculty members in whose fields ofsocial sciences, but in its use of data, its search for cause and effect, and its understanding of process and response. Geography offers a unique approach to the study of the character and problems of the world we live in.

In essence, Geography is concerned with three aggregate aspects of the world around us: 1) the physical and biological characteristics, processes and responses observable at or near the Earth's surface; 2) the activities by which men and women have modified this natural environment, both past and present; and 3) the order and disorder that these human activities have created in sculpturing the natural and artificial landscapes. Tools and concepts of the physical, biological, and social sciences are used to analyze and explain these varied phenomena.

A geographer is concerned with the origins, development, morphology and processes of the landscapes inherited from nature, and with the institutions and patterns associated with the human use of these landscapes. This information helps the geographer to predict the nature and direction of future landscape change. A geographer is a person who has eyes for the world around him or her, concern for the processes and dynamics of the changes that shape that world, and interest in helping to chart future growth along lines of rational development and careful management of both human and non-human resources.

One or more of four general objectives may be recognized by those persons who select the Major in Geography, namely: (1) a broad understanding of the Earth's many environments and peoples as part of a liberal education; (2) preparation for employment in areas concerned with environment and society, for example in environmental impact studies and urban planning; (3) preparation for graduate study in the discipline leading to advanced degrees and professional occupation in both academic and non-academic areas; and (4) preparation for the student who desires a teaching credential with a specialty in Geography and the physical, biological, or social sciences.

Students majoring in Geography are encouraged to consult the Undergraduate Advisor (Geography) for the planning of a program suitable to the student's particular and individual objective. All faculty and other appropriate resources of the Department of Geography are available to Geography majors, though it is realized that students will work more closely with some faculty members than with others. The Undergraduate Advisor (Geography) advises majors concerning the faculty and other resources most pertinent to student needs.

Preparation required. Geography 1, 2, 3, 4; and Mathematics 50A or equivalent are required of all majors. A Mathematics background, such as Mathematics 3A-3B-3C or 4A-4B or 31A-31B-31C, is recommended. All prospective majors, including transfer students; should consult the Undergraduate Advisor (Geography) before arranging a program in Geography and its allied fields.

Foreign language or mathematics requirement. Every Geography major is required to pass five quarter courses in foreign language (in no more than two languages), or mathematics, in any combination. Each year of high school language (but not mathematics) will be accepted as equivalent to one quarter course. A score of 500 on an Educational Testing Service (ETS) language examination will also satisfy this requirement. In mathematics, only courses 2, 4A, 4B, 3A, 3B, 3C, 31A, 31B, 31C or 50B, or equivalent are acceptable. This requirement may be satisfied on a Pass-No Pass basis or by a letter grade, but Pass or at least a C grade is required in all courses intended to satisfy this departmental requirement. These courses may be used to meet the Breadth Requirements of the College of Letters and Science.

Major requirements. The major requires a minimum of 10 upper division courses in Geography chosen in consultation with a departmental advisor and taken for a letter grade. In meeting this minimum requirement, each major must take three courses from Group I – The Environment; three courses from Group II – Human Geography; one course from Group III – Procedures; and two courses from Group IV – Regions; and one elective upper division course in geography. Majors are encouraged to take more than ten upper division courses.

Allied Fields. Every Geography major shall develop some competence in one or two allied fields. This program consists of a group of at least *four* upper division courses chosen from at least one but not more than *two* of the following disciplines: Anthropology; Atmospheric Sciences; Biology; Chemistry; Earth and Space Sciences; Economics; Folklore; History; Management; Mathematics; Philosophy, Physics; Political Science; Psychology; Public Health; Sociology. Other disciplines require

NOTE: For key to symbols, see page 74

departmental approval on an individual case basis in order to be classified as acceptable.

All courses that are required for the undergraduate major in Geography must be taken for a letter grade. This includes all lower and upper division courses in Geography, and all four upper division courses in the Allied Fields.

A "C" average in the major is required for graduation.

Honors Program. Honors in the Geography major may be obtained through procedures described under courses 199HA-199HB.

The Major in Analysis and Conservation of Ecosystems

The Major in Analysis and Conservation of Ecosystems offers a choice between two plans, each of which has its foundations within the Department of Geography but is essentially interdisciplinary in scope.

Plan 1 is designed primarily for students seeking a general education that focuses on understanding the problems and issues related to past, present and future human manipulation and utilization of the world's ecosystems. It is also suited to those students who wish to lay the foundation for educational contributions to non-academic society via the principal communicative media. This Plan is also suitable as preparation for graduate school.

Plan 2 is designed primarily for students who wish to follow careers in the environmental area or who wish to pursue future work at the graduate level and beyond in various aspects of the analysis and conservation of ecosystems. Like Plan 1, Plan 2 is deliberately broad in scope but is more rigorous in terms of the preparation and course work required.

Both Plan 1 and Plan 2 have certain features of which students should be appraised. *First,* a high degree of emphasis is placed on student input and student-faculty interaction – particularly with respect to seminars. It is therefore essential that close liaison be developed and maintained between all persons involved. The faculty is particularly receptive to student enthusiasm. *Second,* students majoring in Analysis and Conservation of Ecosystems are encouraged to consult with the Undergraduate Advisor (Ecosystems) for the planning of a program suitable to the student's particular and individual objective. All faculty and other appropriate resources of the Department of Geography are available to Ecosystems majors, though it is realized that students will work more closely with some faculty members than with others. The Undergraduate Advisor (Ecosystems) advises majors concerning the faculty and other resources most pertinent to student needs. *Third,* all courses that are required for the Major in Analysis and Conservation of Ecosystems, both within and beyond the Geography Department, must be taken for a letter grade. This includes all lower and upper division courses including electives chosen to complete the Major.

A "C" average in the major is required for graduation.

Honors Program; Honors may be obtained by students majoring in either Plan I or Plan II of the Analysis and Conservation of Ecosystems as follows: Attainment and maintenance of at least a 3.40 GPA in the major from commencement of senior year to graduation, and completion of Geography 196—Senior Thesis in Ecosystem Analysis. The Senior Thesis is a substantial though not necessarily lengthy contribution to ecosystem analysis that must be submitted to the principal faculty member concerned not later than early in student's final quarter. The topic is selected by the student in consultation with one or more faculty members, and a plan of work filed with the Undergraduate Advisor (Ecosystems) from whom further guidelines may be obtained.

Plan 1

Preparation required. Biology 2; Geography 1, 2, 5; and Mathematics 50A, are required of all majors. Geography 3 and 4 are recommended. A Mathematics background, such as Mathematics 2, 3A-3B-3C or 4A-4B or 31A-31B-31C, is recommended. All prospective majors, including transfer students, should consult the Undergraduate Advisor (Ecosystems) before arranging a program in the Analysis and Conservation of Ecosystems.

Major requirements. Economics 100; Geography 129; three courses chosen from Geography Group Ia; two courses chosen from Geography Group Ib and one course from Geography Group III.

Electives. Six courses should be chosen from the following list with the assistance of a faculty advisor: Anthropology 144, 145, 153, 160; Art 168A, 168B; Architecture M190; Economics 110, 111, 170; Geography: not more than three courses from 100 to 199; one course only from History 106A-J; Journalism 182A, 182B, 192; Political Science 141, 142, Public Health 150, 152, 186; Sociology 125, 126.

Although there is no foreign language requirement for Plan 1, students are encouraged to acquire some foreign language capability so as to gain access to pertinent literature written in languages other than English.

Plan 2

Preparation required. Biology 5, 6; Chemistry 11A; Geography 1, 2, 5; Mathematics 3A-3B-3C, or 31A-31B-31C, and 50A, and Engineering 10S are required of all majors. Geography 3 and 4, Mathematics 50B, and Engineering 11 are recommended. A reading knowledge of a modern foreign language is required; this may be met by three years of language at High School or three quarters of one language at College level.

Major requirements. One course chosen from Biology 103 or 109 or 111 or 118; Economics 100, Geography 129, three courses from Geography Group Ia; two courses from Geography Group Ib and two courses from Geography Group III.

Electives. No more than three courses may be taken in any one department to satisfy the elective requirement. Six courses should be chosen from the following list with the assistance of a faculty advisor: Anthropology 153, 160; Biology 103, 109, 111, 118, 120, 122, 125, 131, 147; Earth and Space Sciences 139; Economics 111, 170; Engineering M107A, 180A, 181A, 184A, 184D; Geography: not more than three courses from 100 to 199; Political Science 141, 142; Public Health 102, 152; Sociology 126, 141.

Biology course taken for elective requirement may not be used to fulfill major requirement in Biology.

Admission to Graduate Status

Students are admitted to the Graduate Program of the Department of Geography for the fall, winter or spring quarter. The applicant must, in addition to the application to the Graduate Admissions Office, send a complete set of transcripts to the Graduate Adviser, Department of Geography.

For admission to graduate status in the Geography Department a student should normally have completed the undergraduate major or its equivalent; have received a bachelor's degree or its equivalent from an accredited college or university; and have maintained a high grade-point average in courses taken in the junior and senior years and in the major field. Prospective students are required to take the Graduate Record Examination Test and in addition, to provide the Department with three letters of evaluation from previous instructors. Students not meeting the grade-point average requirements may be admitted in exceptional cases if their letters of evaluation and their Graduate Record Examination scores or other evidence indicate that they have unusual promise. Students may be admitted with subject deficiencies, but such deficiencies will have to be made up.

Information and applications for the Graduate Record Examination may be obtained by writing to the Educational Testing Service, 1947 Center Street, Berkeley, California 94704 or Box 955, Princeton, New Jersey 18540.

Requirements for students entering the graduate program from beyond Departments of Geography: Non-Geography majors entering the Geography program from another field will be required to show proficiency in 6 Upper Division Geography courses (additional to those required for the M.A.) including 3 courses from Group I (The Environment) and 3 courses from Group II (Human Geography), embracing at least 1 course each from Groups Ia, Ib, IIa, and IIb.

Requirements for the Master's Degree

For general admission requirements, see Graduate Admissions.

The M.A. degree may be obtained either by the Thesis Plan or the Comprehensive Examination Plan.

Spring Quarter Review. The Department holds a review of all graduate students every Spring Quarter. To this end, all graduate students should have designated a committee chairman or interim advisor, and have completed a simple form detailing program and accomplishments prior to Spring Quarter. The results of this review will determine whether or not the student shall be permitted to proceed toward the M.A. degree.

Course requirements. The work in residence must include at least ten courses, including a minimum of seven courses at the graduate level, of which Geography 200 and 201, and at least one seminar in Geography are required. The student's program must have the approval of the graduate student's committee. Geography 200 must be taken at the earliest opportunity.

Research tool. At least one research tool is required for graduate study. This is a minimum requirement and is subject to approval by the graduate student's committee at both the M.A. and Ph.D. levels, prior to advancement to candidacy.

Interim Advisor, Informal Guidance Committee, and subsequent Thesis or Examination Committee. Early in the first quarter of residence each candidate is required to seek an informal guidance committee headed by an interim advisor from among the faculty, in consultation with the Graduate Advisor. The interim advisor may be changed as the candidate's plans and objectives change, subject to the normal courtesies of informing the Graduate Advisor and others involved. At a time agreed upon by the student and his informal guidance committee, an official three-person Graduate Division committee, including a Chairman, will be appointed. This committee is responsible for the candidate's course of study henceforth, and supervises the preparation of the Master's thesis or the Comprehensive Examination.

Thesis Plan. Under the Thesis plan, each student must present a thesis, based in whole or in part on original investigation. Selection of a thesis topic, creation of a scientific design, and conduct of the investigation, proceed initially under the supervision of the informal guidance committee, and later, under the official Graduate Division committee. The candidate should submit a written statement to all members of the Thesis Committee, describing in some detail the thesis proposal. This proposal should include the exact nature of the problem to be studied, an outline of the subject matter, the proposed methods of research, the degree of originality involved, and the anticipated time of completion of the study.

Comprehensive Examination Plan. All formal course work, including the completion of the research tool requirement, must be completed before the examination is attempted. The comprehensive examination normally is given in the final two-week period of the quarter in which the candidate completes his work for the degree. It will normally consist of three half-day written examinations embracing a general paper and two further papers drawn from the broad divisions of geography. The examination is designed to test for broad grasp of subject, as well as the more specialized abilities of the candidate. A student who fails any part of the Comprehensive Examination may be re-examined

once. Such re-examination must take place within one calendar year of the failure. A student who completes the M.A. degree by the Comprehensive Examination plan may not continue for a Ph.D. degree in this department.

Advancement to Candidacy. A student must file an application for advancement to Candidacy no later than the second week of the quarter in which the degree will be awarded.

Individual Study Courses. The following rules pertaining to individual study courses (Geography 199, 596, 597, 598, 599) are applicable to all graduate students in this department:

(1) Only one 500-series course may be applied to the minimum graduate course requirements for advanced degrees.

(2) All 500-series courses are to be taken on a S/U basis only.

(3) A student may not take Geography 199 or 596 in a given term unless he/she is also taking at least one formal course during that term.

(4) In any given term a student may not take more than 8 units of Geography 199/596.

(5) A student may enroll in Geography 597, 598 or 599 as many times as he or she wishes.

An M.A. degree must be completed within five calendar years of admission to graduate status at UCLA.

Requirements for the Doctor's Degree

For general admission requirements, see Graduate Admissions.

An M.A. or M.S. degree, with a geography specialty and a high grade point average in graduate studies is recommended for all students undertaking work toward the Ph.D. degree. Any student entering the doctoral program who has not previously written a Master's thesis must, during his first quarter of residence, produce clear evidence of substantive research and writing ability, to the satisfaction of the faculty. Any student accepted for the Ph.D. program without having officially completed a Master's degree must complete the Master's degree within two quarters or be terminated as a Ph.D. candidate. Under exceptional circumstances a student may proceed directly toward the Ph.D. degree without taking a Master's degree if the following conditions are met:

(1) The student must be enrolled in the UCLA M.A. program in geography and have a superior (4.0) grade point average.

(2) The student must be recommended for a direct Ph.D. by the M.A. guidance committee who will bring the matter before the entire faculty.

(3) The student must have three letters of recommendation in addition to one from his interim advisor or chairman.

(4) The student must receive the approval of at least 2/3 of the current Geography faculty in residence by secret ballot.

Spring Quarter Review. The Department holds a review of all graduate students every Spring Quarter. To this end, all graduate students should have designated a committee chairman or interim advisor, and have completed a simple form detailing program and accomplishments prior to Spring Quarter. The results of this review will determine whether or not the student shall be permitted to proceed toward the Ph.D. degree.

Course requirements. Ph.D. students must satisfactorily complete Geography 200 and 201 if these have not already been taken at the M.A. level. Students are also required to take at least three graduate geography courses additional to their M.A. course work (excluding 200, 201, and the 500 series) and three upper division or graduate courses in one or two fields allied to their main field, subject to approval by their committee. The allied field requirement may be met at anytime during graduate status. Geography 200 must be taken at the earliest opportunity. For regulations concerning Individual Study Courses (199 and 500 series), see Requirements for the Master of Arts degree.

Research tool. At least one research tool is required for graduate study. This is a minimum requirement and is subject to approval by the graduate student's committee at both the M.A. and Ph.D. levels, prior to advancement to candidacy.

Interim Advisor and Informal Guidance Committee. Early in the first quarter of residence each candidate is required to seek an informal guidance committee headed by an interim advisor from among the faculty, in consultation with the Graduate Advisor. The interim advisor may be changed as the candidate's plans and objectives change, subject to the normal courtesies of informing the Graduate Advisor and others involved.

Written Qualifying Examinations. The written qualifying examinations are administered by a student's informal guidance committee and consist of five written papers arranged as follows: three substantive fields of geography, one general paper covering the entire range of geography, and one small field research problem. The field problem will require one full day in the field, followed by one full day in which field results are prepared for presentation. All other papers will be of four hours duration. The examination may be spread over a period of not more than two weeks. This examination should be taken no later than the end of the sixth quarter of the Ph.D. program. If the examination, or any portion thereof, is failed, the student may make one further attempt. This attempt may not be sooner than three months nor longer than one year from the first examination.

Oral Qualifying Examination. The oral qualifying examination is conducted by the candidate's official Ph.D. dissertation committee, appointed by the Dean of the Graduate Division upon satisfactory completion of the Written Qualifying Examinations. This committee will consist of at least five faculty members, three of whom will be from the Geography Department, of whom one will be chairman. The oral examination focuses on the dissertation research proposal prepared by the candidate and distributed to all committee members at least one month prior to the oral. This proposal should specify the objectives, methodology, and scientific background of the research envisaged. Successful completion of the oral qualifying examination implies acceptance by the committee of the student's qualifications for doctoral research and approval in principle of the dissertation proposal, subject to such minor modifications in design and methodology as the committee may recommend. A student who has successfully completed the oral qualifying examination is eligible for advancement to candidacy. At the end of the candidate's successful oral qualifying examination, the Chairman and members of the committee, in consultation with the student, shall determine which of its members will guide, read, approve and certify the dissertation. At least two members from the student's department and at least one outside member must be certifying members of the doctoral committee.

The Dissertation. The dissertation is the ultimate focus of each student's Ph.D. program and demonstrates an ability for independent investigation in a selected field of study. The dissertation should be designed and executed in such a way as to make a significant original contribution to geographic research, a contribution that is worthy of publication, in part or as a whole, in a reputable scientific medium.

Final Examination. A final oral defense of the dissertation may be required by the Dissertation Committee. This examination may be held at any time mutually agreed upon by the candidate and his committee, provided that the dissertation is essentially complete.

A Ph.D. degree must be completed within seven calendar years from the initiation of work on the degree (for candidates from beyond UCLA), or within seven calendar years from admission to graduate status at UCLA (for candidates who obtained M.A. degrees from UCLA).

Teaching Credentials. Students may earn credentials for teaching geography and related subjects in California elementary and secondary schools. Completion of the Teacher Credential Program in the Teacher Education Laboratory is required. Consult with the Graduate School of Education (201 Moore Hall) for information.

Lower Division Courses

Check with departmental office to learn of additional offerings, seminar topics, and specific instructors for the quarter you wish to enroll in courses in geography.

1. Physical Environment. (Formerly numbered 1A.) Lecture, three hours; laboratory, one hour. A study of the Earth's physical environment with particular reference to the nature and distribution of landforms and climate. The Staff

2. Biogeography. Lecture, three hours; laboratory, one hour. Prerequisite: course 1 or equivalent. A presentation of the concepts and data needed to acquire an understanding of the nature and significance of the phenomena which influence the geography of soils, plants, and animals. The Staff

3. Cultural Geography. (Formerly numbered 1B.) Lecture, three hours; discussion, one hour. A broad examination of the basic cultural variables in the human occupance of the earth's surface. The approach is ecological, spatial, and historical. The Staff

4. Human Location and Behavior. (Formerly numbered 1C.) Lecture, three hours; laboratory, one hour. Introduction to the basic concepts used in modern urban and economic geography. Emphasis on giving a better understanding of the effects of location on human behavior. Discussion and practical exercises focus on the analysis of problems in the Los Angeles urban environment. The Staff

5. Man and the Earth Ecosystem. Lecture, three hours; laboratory, one hour. An examination of the historical and contemporary roles of man as a major agent of biological change in the earth ecosystem. The Staff

10. Freshman Seminar in Geography. Staff-student discussion, three hours; reading period, one hour. Prerequisites: course 1 or 2 or 3 or 4 or 5 as befits the theme. A seminar designed to explore various themes and issues pertinent to environment and people. Seminar topics will be advertised in the Department during previous quarter. The Staff

Upper Division Courses

GROUP I: THE ENVIRONMENT

Ia. Basic Environmental Studies

M102. Geomorphology. (Same as Architecture and Urban Planning M196.) Lecture, three hours; reading period, one hour. Prerequisites: course 1 or equivalent; or junior standing or consent of instructor. A study of the processes responsible for shaping the world's landforms with emphasis on the relationship between the energy and materials involved and the magnitude and organization of the surface forms produced. Mr. Orme

104. Climatology. Lecture, three hours; reading period, one hour. The many relations between climate and the world of man are examined. The objective is to apply basic energy budget concepts to the microclimates of relevance to the ecosystems of agriculture, animals, man and urban places. Mr. Terjung

105. Hydrology. Lecture, three hours; reading period, one hour. Prerequisite: course 1 or equivalent. The role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on the landscape. Field projects required. Mr. Trimble

106. Soils. Lecture, three hours; reading period, one hour. Prerequisites: course 1 or equivalent; Chemistry 1A or 2A, or consent of instructor. A

NOTE: For key to symbols, see page 74

study of the origins, evolution, properties and utilization of soils, with special emphasis on the world's major soil groups. The Staff

108. World Vegetation. (Formerly numbered 110.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2 or equivalent, or consent of instructor. Characteristics, distribution, environmental and cultural relationships of the world's principal vegetation patterns. Mr. Sauer

109. Ecology of Vegetation. Lecture, three hours; field, twelve hours total. Prerequisites: course 2 Math 50A and Biology 11, or consent of instructor. Principles of Plant ecology at the community and ecosystem level. Emphasis on structure, dynamics and measurement of the characteristics of terrestrial vegetation. Mr. Westman

110. Plant Migration. (Formerly numbered 112.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2 and Biology 2, or equivalent, or consent of instructor. Mechanisms of geographic patterning of natural and artificially modified vegetation. Emphasis on range changes for which there is direct fossil or documentary evidence. Mr. Sauer

112. Animal Geography: Biophysical Aspects. (Formerly numbered 116A.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1 and 2; Biology 2. A study of the factors and principles of animal distribution and dispersal on continents and islands of the earth in time and space. Mr. Bennett, Mr. Walter

114. Physical Bases of Geography. Lecture, three hours; discussion, one hour. Prerequisites: Geography 1, 2 and 3 courses from Group Ia. Senior standing. An integrative study to the physical bases of geography, in a framework of world climatic regions. Mr. Logan

Ib. Applied Environmental Studies

116. Origins and Histories of Crop Plants. (Formerly numbered 114.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2 and Biology 2, or equivalent, or consent of instructor. Geographic patterns of domestication and diffusion of useful plants from antiquity to the present, based on detailed case histories of selected species. Mr. Sauer

117. Animal Geography: Cultural Aspects. (Formerly numbered 116B.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5; Biology 2 or the equivalent. A study of human cultural factors influencing animal distributions; the roles of animals in human societies; origins and diffusion of domesticated animals. Mr. Bennett, Mr. Walter

118. Medical Geography. Lecture, three hours; reading period, one hour. Prerequisite: course 5, or consent of instructor. An examination of patterns of population-place-disease interactions and some effects of change and development on disease etiology and problems of health care. The Staff

119. Agricultural and Pastoral Ecosystems. (Formerly numbered 107.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5, 116, and 112 or 117 or the equivalent. Geography 120 and 121 recommended. Students who do not meet the prerequisites should not attempt this course. A geographical, ecological and historical analysis of the world's agricultural and pastoral systems. Emphasis is on energy flows, nutrient cycles and ecological and social problems associated with the various systems. Mr. Bennett

120. Conservation of Resources: North America. Lecture, four hours. Prerequisites: courses 1, 2, or equivalent, or upper division standing. An analysis of the basic principles and problems associated with the conservation of natural resources in the United States and Canada. Mr. McKnight, Mr. Trimble

121. Conservation of Resources: Underdeveloped World. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, or equivalent, or upper division standing. An analysis of the principles and problems of the conservation of natural resources of the underdeveloped world. Mr. Bennett

122. Man and Environment in Africa. (Formerly numbered 119.) Lecture, three hours; discussion, one hour. Prerequisites: courses 1, 2, and 5. An analysis of the unique ecosystems of tropical and subtropical Africa with respect to traditional and modern human impacts on vegetation, wildlife, and other natural resources. Further, a discussion of development goals in relation to socio-economic policies and Africa's environmental heritage. Mr. Walter

124. Environmental Impact Analysis. (Formerly numbered 164.) Lecture, three hours; discussion, one hour. Prerequisites: at least two courses from among Geography 100-127; Math 50A, Geography 2, 5 and 128 recommended. Introduction to the interdisciplinary analysis of local and regional impacts on environmental systems. Includes evaluation of state and federal concepts for the analysis of environmental impact. Mr. Westman

125. Marine Ecosystems. (Formerly numbered 108.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5; Biology 1A-1B or equivalent. Description and analysis of the principal marine ecosystems with particular emphasis upon those which are chiefly affected by human activity. Further, there will be a detailed evaluation of the ecological and conservation problems associated with human use of marine ecosystems. Mr. Bennett

M127. Soil, Plants, and Society. (Same as Biology M127.) Prerequisite: Chemistry 1A, 1B, 1C or equivalent or consent of the instructor. A general treatment of: soil development and morphology and the physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation and cultural aspects. Soil profiles examined on the field trip are used to explain developmental phenomena. The Staff

128. The World's Ecosystems: Problems and Issues. (Formerly numbered 123.) Lecture, three hours; discussion, one hour. Prerequisites: courses 120 or 121. Principal objectives are (1) to identify past, current, and projected problems associated with man-induced ecological disturbances and (2) to identify and evaluate the societal and biophysical factors which have contributed to the identified ecological disequilibria. The Staff

129. Problems of the Environment: Seminar. Lecture, three hours; reading period, two hours. Prerequisites: senior standing; four courses from Group I; Math 152A highly recommended. Class enrollment limited. Qualitative-quantitative analysis of problems associated with rational protection and use of selected environmental systems (urban, rural, forest, desert, coastal, water, soil or others). The Staff

GROUP II: HUMAN GEOGRAPHY

IIa. Cultural and Historical Geography

130. Geographical Discovery and Exploration. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3 or equivalent, or upper division standing. A survey of the history of exploration, from earliest times to modern, with emphasis on the period from Marco Polo to the present. Mr. Dunbar, Mr. Thrower

132. Cultural Geography of the Pre-Modern World. Lecture, three hours; reading period, one hour. Prerequisite: course 3 or equivalent. An evolutionary and structural approach to the socio-cultural geography of the earth prior to the rise of the modern-world system. Mr. Hale, Mr. Salter

133. Cultural Geography of the Modern World. Lecture, three hours; reading period, one hour. Prerequisite: course 3 or equivalent. An evolutionary and structural approach to the socio-cultural geography of the modern-world system, with particular emphasis upon the structure and functioning of its core, semi-periphery, and periphery. Mr. Hale, Mr. Salter

135. Reading the Cultural Landscape: Perspectives and Processes. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing or consent of instructor. Understanding personal and societal environmental preferences begins with analysis of the landscape. This course deals with attitudes toward the cultural or humanized landscape, methods of landscape analysis, problem landscapes and environments of the future through lectures, readings and field study. Mr. Salter

136. Historical Geography of the United States. (Formerly numbered 144.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the evolution of the cultural landscapes of the area that is now the United States. Examination of past geographies and of geographical change through time. Mr. Dunbar

140. Political Geography. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. The principles of political geography as developed through regional studies of political phenomena throughout the world. Current problems in domestic and international affairs will be considered. Mr. Kostanick

142. Population Geography. Lecture, three hours; reading period, one hour. A study of the social and behavioral perspectives influencing people in their patterns of demographic change, migration and mobility with special emphasis on spatial relationships and selected case studies. Mr. J. Clark

IIb. Economic and Urban Geography

145. Spatial Organization of Society: Structure. Lecture, three hours; reading period, one hour. Prerequisites: course 4, Elementary Statistics, or consent of instructor. A study of the spatial structure of society as an expression of human decisions. Emphasis is on the processes affecting city size and distribution, the internal structure of cities, rural land use, and industrial location. Mr. Entrikin, Mr. Huff

146. Spatial Organization of Society: Behavior. Lecture, three hours; reading period, one hour. Prerequisites: course 4, Elementary Statistics, or consent of instructor. A study of human behavior within the spatial context. Discusses regularities in patterns of trade, consumer behavior, migration, mobility, communication and diffusion. Mr. Entrikin, Mr. Huff

148. Economic Geography. (Formerly numbered 160.) Lecture, three hours; reading period, one hour. Prerequisite: course 4 or consent of instructor. An analysis of those principal economic production systems especially involved with agriculture, foodstuffs, resources and industrialization in the underdeveloped world. Mr. Huff

149. Transportation Geography. Prerequisite: course 3 or 4 or upper division standing. A study of the geographical aspects of transportation, focusing on the characteristics and functions of the various modes and on the complexities of intra-urban transport. Mr. McKnight

150. Urban Geography. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the development, functions, spatial patterns and geographic problems of American Cities. Mr. W. Clark, Mr. Entrikin, Mr. Nelson

151. Historical Geography of Cities. Prerequisites: course 3 and 4, or equivalent, or upper division standing. A survey of the diffusion and growth of cities in Western civilization. Two themes will be emphasized, the development of city systems and the evolution of urban internal spatial structure. Mr. Entrikin

152. World Cities. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing. A discussion of the growth and structure of selected cities as illustrations of the processes of urbanization in different countries and societies. Topics will include rural to urban migration, cities as centers of power, spatial organization, and the tendency to megalopolitanization.
Mr. W. Clark, Mr. Entrikin

156. Metropolitan Los Angeles. Lecture, three hours; reading period, one hour. Prerequisites: upper division standing. A study of the origins, growth processes, internal structure and pattern, interactions, environmental and spatial problems of the Los Angeles Metropolitan area. Mr. Nelson

159. Problems in Human Geography. Staff-student discussion, three hours; reading period, one hour. Prerequisites: two courses from Group II, Senior standing. Class enrollment limited to fifteen students. A seminar type course in which students carry on intensive research projects. Designed as a "capstone" to courses in this group, the subjects of research will grow out of the previous work.
The Staff

GROUP III: PROCEDURES

160. Field Analysis: Physical Geography. (Formerly numbered 170.) Saturday field trips, 8-5. Prerequisites: courses 1, 2, or equivalent, and consent of the instructor. A student desiring to take this course must notify department chairman of his wish, in writing, at least two quarters in advance of enrolling in this course. The basic methods of geographic analysis of small areas, embracing a variety of physical environments in southern California and including consideration of related human activities. Chiefly field training.
Mr. Logan, Mr. Trimble

161. Field Analysis: Cultural Geography. (Formerly numbered 179.) Prerequisites: courses 1, 3, 4, 132, 133, at least two upper division courses in geography and consent of instructor. Enrollment priority is given to students majoring in geography. The class meets once a week from 8:00-5:00. The observation, analysis and mapping of landscape phenomena of human origin. Techniques of data collection will be examined for such topics as settlement form and pattern, environmental change, historical and demographic change, and land use.
Mr. Salter

162. Field and Laboratory Analysis: Geomorphology, Climatology, Hydrology. Laboratory and field, eight hours per week. Prerequisites: course 1 or equivalent; two courses from 102, 104, 105. Open to Geography and Ecosystems majors only with enrollment priority accorded Ecosystems majors. Examination of field and laboratory procedures and intellectual concepts used in the observation, measurement, analysis and interpretation of phenomena pertinent to the physical environment and interrelated human influences. The Staff

163. Field and Laboratory Analysis: Biogeography. Laboratory and field, eight hours per week. Prerequisites: courses 2, 5 or equivalent; two courses from 106, 108, 109, 112. Open to Geography and Ecosystems majors only with enrollment priority accorded Ecosystems majors. Examination of field and laboratory procedures and intellectual concepts used in the observation, measurement, analysis, and interpretation of phenomena pertinent to biogeography and interrelated human influences. The Staff

166. Map Analysis. (Formerly numbered 171.) Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3 or equivalent, or upper division standing. The analysis of maps, with the aim of deducing the physical, cultural and economic aspects of the region portrayed, including such elements as geomorphic history, hydrography, settlement history, forms of economic livelihood, transportation problems and toponomy.
Mr. Logan

167. Cartography. (Formerly numbered 172.) Lecture, three hours; laboratory, five hours; independent work, two hours. Prerequisites: courses 1, 3, or equivalent, or consent of instructor. Survey of the field of cartography. Includes theory and construction of map projections, compilation procedures, principles of generalization, symbolization, terrain representation, lettering, drafting and scribing, and map reproduction methods. The Staff

168. Computer Cartography. (Formerly numbered 175.) Lecture, one hour; laboratory, three hours; independent study, two hours. Prerequisites: course 167 or consent of instructor. Theory and methods of mapping quantitative information with a computer. Includes problems of acquiring and processing machine readable map data and representing them as point symbols and surfaces.
Mr. J. Clark

169. The Earth from Above. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, 4 or consent of instructor. This course examines the interface between cartography and remote sensing. By means of a wide variety of imagery from maps and satellite photos, different landscapes are analyzed and explained. Mr. Thrower

170. Presentation and Analysis of Geographic Data. Lecture, two hours; laboratory, one hour. An introduction to the basic techniques that are used in organizing, measuring, and displaying data from field, map, interview and government sources.
Mr. W. Clark

171. Quantitative Analysis. (Formerly numbered 176.) Lecture, three hours; laboratory, one hour. Prerequisites: Mathematics 50B or consent of instructor. An introduction to the methods of measurement and interpretation of geographic distributions and associations. Mr. W. Clark

M178. Dating Techniques in Environmental Sciences and Archaeology. (Same as Anthropology M175C.) Lecture, three hours; reading period, one hour. Prerequisites: consent of instructor. Introduction to scientific dating methods such as radiocarbon dating, radiation damage methods, biological dating techniques, and magnetic dating, and applications in environmental sciences, archaeology and physical anthropology.
Mr. Berger

GROUP IV. REGIONS

180. North America. Lecture, four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. Delimitation and analysis of the principal geographic regions of the United States and Canada. Mr. McKnight, Mr. Nelson

181. Middle America. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Middle America and of the contemporary economic and cultural geography of Mexico and the countries of Central America and the West Indies. Mr. Bennett, Mr. Bruman

182A. Spanish South America. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Spanish South America and of the contemporary economic and cultural geography of the individual Spanish-speaking countries. Mr. Bruman

182B. Brazil. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Portuguese South America and of the contemporary economic and cultural geography of Brazil. Mr. Bruman

183. Europe. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of geographic conditions and their relation to economic, social and political problems in Europe.
Mr. Kostanick, Mr. Thrower

184. Soviet Union. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of geographic conditions and their relation to economic, social, and political problems in the Soviet Union. Mr. Kostanick

185. South and South East Asia. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A regional synthesis with varying emphases upon the people of South or Southeast Asia in their physical, biotic, and cultural environment and its dynamic transformation. Consult department about term emphasis. The Staff

186. Contemporary China. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A systematic geographic analysis of the elements of landscape, resources, population, and socio-economic characteristics of the People's Republic of China. The course goal is comprehension of the dynamics that have led to China's major role in the East Asian and international scene, with special attention given to China-Japan and Sino-American relations and their geographic bases. Mr. Salter

187. Middle East. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the economic, social, and political geography of the area extending from Iran to Morocco and from Turkey to Sudan. Emphasis on geographical themes and problems during historical and modern times.
Mr. Hale

188. Northern Africa. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the economic, social, and political geography of the area including Mediterranean Africa, the Sahara, the Sudanic belt, and the eastern Horn. Emphasis on geographical themes and problems during historical and modern times.
Mr. Hale, Mr. Thomas

189. Middle and Southern Africa. Lecture, four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. The regions of Africa south of the Sahara (middle and south Africa) in terms of physical features, human settlement, economic production, and political patterns.
Mr. Thomas

190. Australasia. Lecture, four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A regional synthesis of the physical and cultural features which characterize Australia, New Zealand, and the islands of the South Pacific.
Mr. McKnight

191. California. Lecture, four hours. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A systematic and regional treatment of the geography of California including the physical, cultural, and economic aspects and detailed studies of the various regions.
Mr. Logan, Mr. McKnight

UNGROUPED

196. Senior Thesis in Ecosystems Analysis. Study schedule to be arranged individually. Prerequisites: courses 129, 162 or 163, and senior standing. Preparation and data collection and analysis for a senior thesis under the guidance and assistance of a faculty sponsor. The Staff

199. Special Study. (½ to 2 courses) Study schedule to be arranged individually with the instructor. Prerequisites: senior standing and consent of instructor. The Staff

199HA-199HB. Honors in Geography: I & II. Study schedule to be arranged individually with instructors. Prerequisites: to be eligible a student must have completed at least five (5) upper division courses in geography, have attained a 3.5 GPA for such work, and have a 3.25 overall GPA. 199HA

NOTE: For key to symbols, see page 74

will be an independent study course taught by a team of two faculty members who will assist an enrolled student with bibliographic research and/or field research into a topic of mutual interest to the student and the faculty members. Successful completion of 199HA will entail the preparation of a detailed bibliography and outline for the writing of a substantial paper during the course of 199HB. The two faculty members will evaluate the bibliographic and/or field preparation of the student in 199HA. If that work is determined to be of A quality, the student will be allowed to continue in the Honor's program. If that work is B or below, credit will be awarded to the student, but he or she will not be permitted to continue in the Honor's program. 199HB will be devoted to the writing of the substantial paper researched and outlined in 199HA. The two faculty members will evaluate the paper. If the paper is determined to be an A, the student will graduate with Honors in Geography. If the paper is determined to be a B or lower, credit will be given the student, but there will be no Honors.

Graduate Courses

COURSES REQUIRED OF ALL ENTERING GRADUATE STUDENTS

200. Trends in Contemporary Geography. Lecture, three hours. Prerequisite: graduate status. An analysis and interpretation of contemporary geography with emphasis on research trends in major subfields of the discipline, each subfield being examined by a faculty expert. The Staff

201. History of Geography. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: consent of instructor. A survey of geography from classical times onward, with emphasis on the professionalization of geography in Europe and North America from 1870 to present. Mr. Dunbar

GROUP I: THE ENVIRONMENT

202. Advanced Geomorphology. (Formerly numbered 212.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course M102 or equivalent, or consent of instructor. An extended study of selected geomorphic processes and landforms. Mr. Orme

203. Seminar: Geomorphology. (Formerly numbered 213.) Discussion, three hours; reading period, one hour. Prerequisites: course 202 or equivalent and consent of instructor. Selected geomorphic topics with emphasis on current research frontiers and techniques. May be repeated for credit. Mr. Orme

204A-204B-204C. Advanced Climatology. Lecture, three hours; laboratory, one hour. Prerequisites: Course 104, first year of calculus, acquaintance with FORTRAN IV, or consent of instructor. Course must be taken sequentially. An introduction to the tools and concepts of environmental physics of relevance to natural and man-made landscapes. Such basic intellectual, mathematical, and computer programming tools are of special concern to physical geographers, ecologists, and architects. Mr. Terjung

205. Seminar: Climatology. (Formerly numbered 215.) Discussion, three hours; reading period, one hour. Prerequisites: course 204 or equivalent and consent of instructor. Selected topics. May be repeated for credit. Mr. Terjung

208. Advanced Biogeography: Plants. (Formerly numbered 262.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: courses 108, 110 or 116, or equivalent, or consent of instructor. An intensive review and analysis of physical and cultural factors influencing plant distributions. Mr. Sauer

212. Advanced Biogeography: Animals. (Formerly numbered 260.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: courses 112, 117, or equivalent, or consent of instructor. An intensive review and analysis of biophysical and cultural factors influencing animal distributions. Mr. Bennett, Mr. Walter

213. Seminar: Biogeography. (Formerly numbered 265.) Discussion, three hours; reading period, two hours. Prerequisites: courses 208, 212 or equivalent and consent of instructor. Research projects related to or growing out of course 208 or 212. May be repeated for credit. The Staff

215. Seminar: Quaternary Studies. (Formerly numbered 216.) Discussion, three hours; reading period, two hours. Prerequisites: courses 202 or 204 or 208 or 212; or appropriate graduate course in anthropology, botany, earth and space sciences, or zoology; or consent of instructor. An analysis of the changing environment of the Quaternary Period. May be repeated for credit. Mr. Orme

218. Advanced Medical Geography. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 118 or consent of instructor. An in-depth study of selected topics in medical geography and an intense review of recent research. The Staff

223. Seminar: Humid Tropics. (Formerly numbered 292.) Discussion, three hours; reading period, two hours. Prerequisites: consent of instructor. Selected topics. Biophysical and cultural complexes of the humid tropics with emphasis on problems related to human settlement and livelihood. May be repeated for credit. Mr. Bennett

227. Water Quality Management. Discussion, three hours; reading period, one hour. Prerequisite: graduate status and consent of instructor. Discussion of the basic technical, regional planning and public policy issues in water quality management. Mr. Westman

229. Seminar: Man and Environment. (Formerly numbered 266.) Discussion, three hours; reading period, two hours. Prerequisites: course 128 or equivalent. An analysis of man's perception of the environment throughout history and in different parts of the world and its impact on past, present and future ecosystems. Mr. Walter

GROUP II: HUMAN GEOGRAPHY

232. Advanced Cultural Geography. (Formerly numbered 220.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 132, or 133 or equivalent, or consent of instructor. Lectures and discussions around specific aspects of the development of cultural landscape in different geographic environments. Mr. Hale, Mr. Salter

233. Seminar: Cultural Geography. (Formerly numbered 225.) Discussion, three hours; reading period, two hours. Prerequisites: course 232, 236, or equivalent and consent of instructor. Discussions centered around particular topics in cultural geography; topics may vary from year to year. May be repeated for credit. The Staff

236. Advanced Historical Geography of the United States. (Formerly numbered 222.) Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 136 and consent of instructor. Some major themes in American historical geography. Mr. Dunbar

237. Seminar: Historical Geography. (Formerly numbered 223.) Discussion, three hours; reading period, two hours. Prerequisites: course 236 and consent of instructor. Theory and practice of historical geography in North America and Europe. May be repeated for credit. Mr. Dunbar

240. Advanced Political Geography. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 140 or equivalent or consent of instructor. Intensive study of the theories and principles of political geography and German geopolitics. Selected regions will be used as specific examples of differing techniques of study in geopolitics. Mr. Kostanick

241. Seminar: Political Geography. (Formerly numbered 245.) Discussion, three hours; reading period, two hours. Prerequisites: course 240 or equivalent and consent of instructor. Related research projects growing out of course 240. May be repeated for credit. Mr. Kostanick

242. Advanced Population Geography. Lecture, three hours; reading period, one hour. Prerequisites: course 142 or equivalent, or consent of instructor. A study of population dynamics and migration, spatial variation in population composition, and population resource problems, diffusion and epidemiology. The Staff

248. Location and Space Economy. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 145 and 146 or consent of instructor. Methods of locational analysis as applied to problems of regional growth and development. Mr. Huff

249. Seminar: Economic Geography. (Formerly numbered 235.) Discussion, three hours; reading period, two hours. Prerequisites: course 248 or equivalent, and consent of instructor. Related research projects growing out of course 248. May be repeated for credit. The Staff

250. Urban Systems. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 145 and 146 or consent of instructor. A general study of the hierarchy of urban places including diffusion within the urban hierarchy, and theories to account for the location and size distribution of cities. Mr. W. Clark, Mr. Huff

251. Seminar: Urban Geography. (Formerly numbered 255.) Discussion, three hours; reading period, two hours. Prerequisites: course 250 or equivalent, and consent of instructor. Related research projects growing out of course 250. May be repeated for credit. The Staff

252. Location and Social Structure Within the City. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 145 and 146 or consent of instructor. A study of the links between urban social and urban spatial structure emphasizing urban residential land use, social areas of the city, and accessibility and urban form. Mr. Entrikin

254. Migration and Residential Mobility. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: consent of instructor. The description and modeling of national, regional and intraurban migration. Mr. W. Clark, Mr. Huff

GROUP III: PROCEDURES

260. Advanced Field Analysis: Physical Elements. (2 courses) Class meets once a week from 8-5. Prerequisites: one or more courses from 202, 203, 204, 205, 215. Field methods and analysis applied to the physical environment, especially in southern California and with particular reference to various aspects of geomorphology, hydrology, climatology, and associated human activities. Mr. Trimble

261. Advanced Field Analysis: Cultural Geography. (2 courses) Class meets once weekly from 8-5, mainly in the field. Prerequisites: one or more courses from 232, 233, 250, 251. Field methods and analysis applied to the cultural landscape, especially in southern California and particular reference to settlement, agriculture, and environmental modification. Mr. Salter

262. Advanced Field Analysis: Biogeography. (2 courses) Field, ten hours per week. Prerequisite: consent of instructor. Observation, measurement, and analysis of biogeographic phenomena including identification and evaluation of biotic populations and communities and their modifications resulting from the impact of human activity. The Staff

265. Geographical Bibliography. (Formerly numbered 201.) Lecture, one hour; discussion, two hours; reading period, one hour. Prerequisite: consent of instructor. A survey of the literature of geography with special reference to periodicals. Intended for beginning graduate students. Mr. Dunbar

267. Advanced Cartography. (Formerly numbered 272.) Laboratory, three hours; independent work, two hours. Prerequisites: course 167 or equivalent,

or consent of instructor. Advanced work in the theory and practical application of modern cartographic principles. Special emphasis is placed on terrain representation, quantitative and computer mapping, scribing, color separation, and reproduction of maps. Mr. Thrower

269. Remote Sensing of Environment. (Formerly numbered 274.) Laboratory, three hours; independent work, two hours. Prerequisites: course 167 or equivalent or consent of instructor. The study of aerial photographs and other remote sensing images as tools for geographical research. Particular attention is placed on the analysis of landscapes and the interpretation of interrelationships of individual features in their physical and cultural complex. Mr. Thrower

M270. Advanced Quantitative Analysis. (Formerly numbered M276; same as Architecture and Urban Planning M215A.) Lecture, two hours; laboratory, two hours. Prerequisites: course 171 or equivalent or consent of instructor. Advanced topics in the utilization of mathematical and statistical techniques for geographic research. Emphasis on linear models, factor analysis and grouping procedures as applied to geographic data bases. Mr. W. Clark

M272. Spatial Statistics. (Formerly numbered M277; same as Architecture and Urban Planning M215B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: Mathematics 50B or course 171 and consent of instructor. Specific techniques useful in the analysis of spatial distributions, including both point and areal patterns; and emphasizing spatial descriptive statistics, probability models of spatial distributions, and statistical surfaces. Mr. Huff

273. Seminar: Model Building for Spatial Analysis. (Formerly numbered 279.) Discussion, three hours. Prerequisites: course M270 or consent of instructor. Discussions of the philosophy and methodology of model building. The focus will be on the problems unique to models of spatial structure. Individual research topics will be emphasized. May be repeated for credit
Mr. W. Clark, Mr. Huff

M278. Seminar: Dating Techniques in Environmental Sciences and Archaeology. (Formerly numbered M271: same as Anthropology 214I.) Discussion, three hours. Prerequisite: consent of instructor. A colloquium devoted to topics in dating techniques in environmental sciences, archaeology, and physical anthropology as well as laboratory instruction and experimental work. May be repeated for credit. Mr. Berger

GROUP IV: SEMINARS IN REGIONAL GEOGRAPHY

280-291. Selected topics for each seminar. Each may be repeated for credit. Lecture, two hours; discussion, two hours.

280. North America. (Formerly numbered 290A.) Prerequisite: course 180 or consent of instructor.
Mr. McKnight, Mr. Nelson

281. Middle America. (Formerly numbered 290B.) Prerequisites: course 181 and consent of instructor.
Mr. Bennett, Mr. Bruman

282. South America. (Formerly numbered 290C.) Prerequisites: course 182 and consent of instructor.
Mr. Bennett, Mr. Bruman

283. Europe. (Formerly numbered 290D.) Prerequisites: course 183 and consent of instructor.
Mr. Kostanick, Mr. Thrower

284. Soviet Union. (Formerly numbered 290E.) Prerequisites: course 184 and consent of instructor.
Mr. Kostanick

285. South and South East Asia. (Formerly numbered 290F.) Prerequisites: course 185 and consent of instructor. The Staff

286. Eastern Asia. (Formerly numbered 290G.) Prerequisites: course 186 and consent of instructor.
Mr. Salter

287. Middle East. (Formerly numbered 290H.) Prerequisites: course 187 and consent of instructor.
Mr. Hale

288. Northern Africa. (Formerly numbered 290I.) Prerequisites: course 188 and consent of instructor.
Mr. Hale, Mr. Thomas

289. Middle and Southern Africa. (Formerly numbered 290J.) Prerequisites: course 189 and consent of instructor. Mr. Thomas

290. Australasia. (Formerly numbered 290K.) Prerequisites: course 190 and consent of instructor.
Mr. McKnight

291. The Arid Lands. Prerequisites: courses 102, 104, 106, 108, 116, 120, 148, or equivalent and consent of instructor. An investigation of the physical and cultural complexes of the world's arid regions. Salient factors emphasized include climate, landforms, water, soils, natural vegetation and the various aspects of human occupance, including future possibilities for human utilization.
The Staff

292. Advanced Regional Geography: Selected Regions. Lecture, three hours; discussion, one hour. Prerequisites: appropriate upper division regional course. A lecture series devoted to a specific region at the discretion of the instructor. May be repeated for credit. The Staff

295. Seminar: Geographic Thought. Discussion, three hours; reading period, two hours. Prerequisites: graduate standing, consent of instructor. Discussion and study of topics significant to the growth of modern philosophy of geography.
Mr. Entrikin

495. Teaching of College Geography. (½ course) Discussion, one hour; laboratory, three hours. Prerequisite: consent of instructor. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit.
Mr. McKnight

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) Prerequisite: consent of the instructor.
The Staff

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination. (½ to 2 courses) Special individual study. Prerequisite: consent of the instructor. The Staff

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses) Independent study. Prerequisite: consent of the instructor. The Staff

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses) Independent study. Prerequisite: consent of the instructor. The Staff

GEOLOGY

(Renamed to Earth and Space Sciences.)

(Department Office, 3806 Geology Building)

GEOPHYSICS AND PLANETARY PHYSICS

(Institute Office, 3871 Slichter Hall)

Orson L. Anderson, Ph.D., *Professor of Geophysics.*
C. Rainer Berger, Ph.D., *Professor of Geophysics, Geography and Anthropology.*
Arthur L. Boettcher, Ph.D., *Professor of Geology and Geophysics.*
Friedrich H. Busse, Ph.D., *Professor of Planetary Physics.*
Paul J. Coleman, Jr., Ph.D., *Professor of Planetary Physics.*
W. Gary Ernst, Ph.D., *Professor of Geology and Geophysics.*
Isaac R. Kaplan, Ph.D., *Professor of Geology and Geochemistry.*
William M. Kaula, D.Sc., *Professor of Geophysics.*
George C. Kennedy, Ph.D., *Professor of Geochemistry and Geology.*
Charles F. Kennel, Ph.D., *Professor of Physics and Geophysics.*
Leon Knopoff, Ph.D., *Professor of Geophysics and Physics and Associate Director of the Institute of Geophysics and Planetary Physics.*
R.L. McPherron, Ph.D., *Professor of Planetary Physics and Geophysics.*
John P. McTague, Ph.D., *Professor of Chemistry.*
J. William Schopf, Ph.D., *Professor of Geology and Geophysics.*
Ronald L. Shreve, Ph.D., *Professor of Geology and Geophysics.*
John T. Wasson, Ph.D., *Professor of Geochemistry and Chemistry.*
Robert E. Holzer, Ph.D., *Emeritus Professor of Geophysics.*
Willard F. Libby, Ph.D., *Emeritus Professor of Chemistry.*
Jonathan I. Katz, Ph.D., *Associate Professor of Astronomy.*

The Institute of Geophysics and Planetary Physics was established to encourage fundamental research in geophysics, geochemistry and space physics and to provide graduate instruction for qualified students. Members of the staff and associated departments are prepared to supervise graduate work in a variety of fields: atmospheric physics, physics of the radiation belts, interplanetary physics and solar physics, geophysical fluid dynamics, high pressure physics, tectonophysics, geochemistry, nuclear geophysics, age determination, gravitation, physical oceanography and marine geophysics, seismology, physics of the deep interior, and exploration geophysics. The bachelor's degree may be in any field; however, a thorough undergraduate preparation in one or more of the basic sciences, physics, mathematics or chemistry is expected of students pursuing graduate research. The student who elects to pursue research in atmospheric sciences, geophysics, geochemistry or space physics may do so by enrolling in one of the following departments: earth and space sciences, physics, mathematics, astronomy, chemistry. An individual program of instruction will be worked out for each student, since the requirements for the M.S. or Ph.D. degree are not the same for all students. For further information, contact the Institute of Geophysics and Planetary Physics.

Undergraduate Study

Undergraduate students with an interest in graduate study in Geophysics are advised to complete a major in physics, mathematics or chemistry. Attention is also drawn to opportunities to complete an undergraduate course of studies in Geophysics and Space Physics and in Applied Geophysics. For information concerning these programs consult the catalog listings for the Department of Earth and Space Sciences.

Upper Division Courses

M130. Isotope Geochemistry. (Same as Earth and Space Sciences M130.) Lecture, three hours; discussion, one hour. Prerequisites: upper division standing in physical or biological sciences and consent of instructor. Theoretical aspects of geochronology, particularly Carbon-14 dating. Application of radioisotopes to the hydrologic cycle and to atmospheric circulation. Stable isotope distribution in nature. Exchange mechanisms and their applications to paleotemperatures, hydrology, mineral formation and origin of biological deposits. (Alternates yearly with course M131). Mr. Kaplan

M131. Geochemistry. (Same as Earth and Space Sciences M131.) Lecture, three hours; discussion, one hour. Prerequisites: junior or senior standing in chemistry, physics, or geology, or consent of instructor. Origin and abundance of the elements in the earth, oceans, and atmosphere; chemistry of the earth's interior, phase transformations at high pressure and temperature. (Alternates yearly with Geology and Geophysics course M130).
Mr. Wasson

M136A. Geophysical Exploration. (Same as Earth and Space Sciences M136A.) Lecture, three hours. Prerequisite: Physics 6A, 6B, 6C or 8A, 8B, 8C, Math 31C completed or consent of the instructor. Principles and techniques of gravimetric, seismic, magnetic, and other geophysical methods of exploration for ores, petroleum, and other economic minerals.

M136B. Geophysical Exploration. (Same as Earth and Space Sciences M136B.) Prerequisite: Physics 6ABC, or 8ABC, Math 31C completed or consent of instructor. Principles and techniques of exploration for mineral deposits using natural and artificial electric and magnetic fields. Methods covered include self potential, induced polarization,

NOTE: For key to symbols, see page 74

electric, tellurics, electromagnetic, magnetotellurics.

Graduate Courses

249. Experimental Petrology. Prerequisite: consent of the instructor. Mr. Kennedy

260. Experimental Geology. (¾ to 1½ courses) Seminar, two hours; laboratory, optional. Prerequisite: consent of the instructor. The mechanics of rock deformation. Dimensional analysis and model theory applied to geological problems.

M282. Seminar in Geophysics. (Same as Earth and Space Sciences M282.) Prerequisite: consent of the instructor. Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in earth physics. The content will vary from year to year. May be repeated for credit

Individual Study and Research

596. Directed Individual Study or Research in Geophysics. (¼ to 1½ courses) Prerequisite: consent of the instructor. Directed individual study or research in: theoretical and experimental studies relative to seismology and geophysics of the earth's interior (Mr. Knopoff); gravity; space; plasma physics (Mr. Holzer); space and astrophysical plasmas (Mr. Kennel); mineral physics, elastic properties and shear, instabilities of rocks and rock-forming materials (Mr. Anderson); volcanology, physics of high pressure, phase equilibria in geologically important chemical systems (Mr. Kennedy); radioactive dating and nuclear geophysics (Mr. Libby) orbital dynamics and planetary interiors (Mr. Kaula) geophysical fluid dynamics (Mr. Busse) The Staff

596A. Directed Individual Study or Research in Geochemistry. (¼ to 1½ courses) Prerequisite: consent of the instructor. Cosmochemistry, trace element abundances in meteorites, natural radioactivity (Mr. Wasson); radiocarbon dating, tritium hydrology and water and moisture circulation, radioactive fallout circulation and precipitation and assimilation into the biosphere, high pressure chemistry particularly as applied to planetary interiors, chemistry of ionizing radiation, particularly as applied to planetary atmospheres (Mr. Libby); experimental investigation of phase equilibrium at high temperatures and pressures with emphasis on geochemically important systems (Mr. Kennedy); experimental and theoretical investigation of phase equilibrium relations involving crustal conditions (Mr. Ernst); sedimentary geochemistry, geochemistry of stable isotopes, geological microbiology, origin and diagenesis of marine and nonmarine sediments, chemical history of the oceans, organic compounds in meteorites and biochemistry of early evolutionary processes (Mr. Kaplan).

597A. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (¼ to 1½ courses) For course content and staff see course 596.

597B. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. in Geochemistry. (¼ to 1½ courses) For course content and staff see course 596A.

598. Research for and Preparation of the Master's Thesis in Geochemistry. (¼ to 1½ courses) For course content and staff see course 596A.

599A. Research for and Preparation of the Doctoral Dissertation. (¼ to 1½ courses) For course content and staff see course 596.

599B. Research for and Preparation of the Doctoral Dissertation in Geochemistry. (¼ to 1½ courses) For course content and staff see course 596A.

GEOPHYSICS AND SPACE PHYSICS

(Renamed to Earth and Space Sciences.)

GERMANIC LANGUAGES

(Department Office, 310 Royce Hall)

Ehrhard Bahr, Ph.D., *Professor of German.*
[10]Franz H. Bäuml, Ph.D., *Professor of German.*
Wolfgang Nehring, Ph.D., *Professor of German.*
Eli Sobel, Ph.D., *Professor of German.*
Hans Wagener, Ph.D., *Professor of German (Chairman of the Department)*
Donald J. Ward, Ph.D., *Professor of German and Folklore.*
Terence H. Wilbur, Ph.D., *Professor of Germanic Linguistics and Philology.*
Gustave Otto Arlt, Ph.D., LL.D., *Emeritus Professor of German.*
Carl William Hagge, Ph.D., *Emeritus Professor of German.*
Wayland D. Hand, Ph.D., *Emeritus Professor of German and Folklore.*
William J. Mulloy, Ph.D., *Emeritus Professor of German.*
Victor A. Oswald, Jr., Ph.D., *Emeritus Professor of German.*
Vern W. Robinson, Ph.D., *Emeritus Professor of German.*
Erik Wahlgren, Ph.D., *Emeritus Professor of Scandinavian and Germanic Languages.*
Alexander Stephan, Ph.D., *Associate Professor of German.*
Janet R. Hadda, Ph.D., *Assistant Professor of Yiddish.* [7]Dieter Jedan, Ph.D., Assistant Professor of German.
[14]Robert S. Kirsner, Ph.D., *Assistant Professor of Dutch and Afrikaans.*
Kathleen Komar, Ph.D., *Assistant Professor of German and Comparative Literature.*
Laurence G. Lyon, Ph.D., *Assistant Professor of German.*
MacDonald Stearns, Jr., Ph.D., *Assistant Professor of German.*

•

Marianna D. Birnbaum, Ph.D., *Adjunct Associate Professor of Hungarian.*
Stephanie Lombardi, Ph.D., *Lecturer in German.*

Preparation for the Major in German

Required: courses 1, 2, 3, 4, 5, 6, or their equivalents

The Major in German

Fifteen upper division courses offered by the department are required for the major in German: 100A or 100B, 108A, 108B, 129; four courses chosen from among 100A or 100B (whichever was not taken to satisfy the first listed requirement), 101A, 101B, 101C, 121H, 128, 134; three courses chosen from among 103, 105, 106, 107, 117; four courses chosen from among 121I, 122, 123, 124, 126, 127, 130, 132.

German undergraduate majors with secondary interests in other fields such as Folklore, History, Linguistics, Music, Philosophy, and Theater Arts, may arrange to pursue studies in those areas. Such students should consult with the departmental undergraduate advisors.

Admission to Graduate Status

The completion of the undergraduate major, or its equivalent, with a minimum gradepoint average of 3.0 is required. If the candidate is deficient in the undergraduate major he must complete it by taking the appropriate courses, as recommended by the departmental graduate advisor. A placement examination in German language and literature may be required of entering graduate students.

Teaching Credential Requirements

Students desiring a single-subject teaching credential in German must have the approval of the German Department in order to gain admission to student teaching. For the Single-Subject Instruction Credential, this approval is contingent upon a major (or the equivalent) in German and the successful completion of German 370, which should be taken prior to student teaching. Under exceptional circumstances, the Department may allow the student to enroll in this course concurrently with a student teaching assignment.

For additional information, consult the Graduate School of Education (Moore Hall 201) and the Department of Germanic Languages (310 Royce Hall).

Requirements for the Master's Degree

1. For the general requirements, see Requirements for Graduate Degrees.

2. Application for advancement to candidacy may be made when the student has passed the Graduate Division reading examination in French.

3. A minimum of nine upper division and graduate level courses of which at least five courses must be graduate level (200 or 500 series), plus a comprehensive examination and additional course requirements described under items 5 and 6 below. When appropriate, the comprehensive examination will be conducted orally.

4. A student who is accepted on the thesis plan for the M.A. must, after completing the thesis, pass a two-hour examination which will be (a) a comprehensive examination and (b) an examination in the field of the thesis.

5. For the candidate who expects to terminate his studies with an M.A. degree and teaching credential (Plan A): in addition to the minimum of nine upper division and graduate courses mentioned above in item 3, courses 128 and 129 (or their equivalent) and 370 are specifically required. No seminar is required. A comprehensive examination is required on (a) the origin and development of the standard German language, (b) contemporary standards of the German language, and (c) major works and authors from earliest times to the present.

6. For the candidate whose interests are literary and linguistic rather than pedagogical or who intends to proceed toward the Ph.D. (Plan B): at least 9 upper division and graduate courses, of which 6 must be of graduate level; one seminar must be included. A comprehensive examination is required on (a) a basic knowledge of bibliography, (b) a reading knowledge of Middle High German, (c) the origin and development of the German language, and (d) major works and authors from the earliest times to the present.

Requirements for the Candidate in Philosophy Degree.

The Candidate in Philosophy Degree will be awarded upon request after formal advancement to candidacy, i.e., when the candidate has passed the graduate foreign language reading requirement and the written and oral examinations as prescribed in Requirements for the Doctor's Degree paragraphs 3 and 4.

Requirements for the Doctor's Degree

1. For the general requirements, see Candidate in Philosophy Degree.

2. A student entering this department with an M.A. from an accredited university in the United States or with a *Staatsexamen* in German, will be admitted to our Ph.D. program without further examination. The graduate advisor will assure that the student makes up any major deficiencies either by completing certain courses or making up the content of these courses by examination. Students with an M.A. in a field other than German, including Linguistics, will have to take the written parts of our M.A. Examination.

3. Advancement to candidacy will take place when the student has (a) passed the graduate reading examination in French; (b) passed a departmental reading examination either in a modern Scandinavian language or in Dutch-Flemish-Afrikaans or in Latin, or in Yiddish; substitution of another language may be approved by petition to the department; (c) successfully completed three seminars and (d) passed the qualifying examinations for the doctorate (see item 4 below).

4. At the beginning of their work toward the doctorate or as soon as possible thereafter, students shall make known their major and minor fields of specialization. The field in which the candidate intends to present a dissertation will be designated as the major field and will be selected from the four fields in which the degree is offered: (a) German Literature, (b) Germanic Philology and Linguistics, (c) Scandinavian Literature and Philology, or (d) Germanic Folklore. A departmental doctoral guidance committee will direct the student's work toward the qualifying examination. Candidates who choose German Literature as their major field of specialization will be required to choose one additional field which will comprise the subject matter of their qualifying examinations in the

major field. This area may be chosen from (a) German Literature before 1700, or (b) German Literature from 1700 to the Present.

5. The student has the following options of a minor field: (a) a minor, selected from the following eight fields: 1. German Literature before 1600, 2. German Literature from 1600 through Romanticism, 3. German Literature from Romanticism to the Present, 4. Germanic Philology and Linguistics, 5. Scandanavian Literature and Philology, 6. Germanic Folklore, 7. Yiddish, or 8. Dutch-Flemish-Afrikaans. (b) Candidates may choose a minor field outside the Department, provided that it relates to their major field of specialization. This field must have the approval of the entire Department of Germanic Languages proper or, in the case of the Scandinavian majors, the Scandinavian Section. Candidates shall pass one two-part written qualifying examination in their major field and one written qualifying examination in their minor field under options (a) and (b) for the minor. (c) Candidates, except those majoring in Scandinavian, may, instead of options (a) and (b), choose the following course minor; in addition to their major field of specialization, students are required to take four graduate courses (excluding German 217 and all pre-M.A. literature courses) in one of the other fields in which the degree is offered or four appropriate courses in Yiddish or Dutch-Flemish-Afrikaans. Candidates who choose German Literature as their course minor will be required to take four graduate courses from one of the following fields: 1. German Literature before 1600, 2. German Literature from 1600 through Romanticism, or 3. German Literature from Romanticism to the Present. Candidates under option (c) shall pass one two-part written qualifying examination in their major field of specialization only.

6. After the written qualifying examinations, candidates are then subject to an oral qualifying examination administered by their doctoral committee (see final oral examination). Upon passing their qualifying examinations, candidates shall write a dissertation. The final oral examination, if required, will deal primarily with the relation of the dissertation to the field of knowledge to which it contributes.

Lower Division Courses

No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition. Prerequisites for lower division courses are listed under the course descriptions. Students with demonstrated preparation may be permitted a more advanced program by the Department, or such students may be transferred to a more advanced course on recommendation of the instructor.

1. Elementary German. Lecture, five hours per week; laboratory, one hour. Not available for academic credit for those students who have completed more than one year of high school German or the equivalent. The student will, however, be credited with four units toward their minimum progress requirement. Mr. Jedan

1G. Elementary German for Graduate Students. (No credit) Lecture, five hours per week. To provide preparation for Graduate Division foreign language reading requirement. Ms. Lombardi

2. Elementary German. Lecture, five hours per week; laboratory, one hour. Prerequisite: course 1. Not available for academic credit for those students who have completed two years of high school German or the equivalent. The student will, however, be credited with four units toward their minimum progress requirement. Mr. Jedan

2G. Elementary German for Graduate Students. (No credit) Continuation of course 1G. Ms. Lombardi

2R. Elementary German for Reading Knowledge. Prerequisite: course 1. This course will continue the study of the German language and guide the student to an acquisition of basic reading skills. Mr. Jedan

3. Elementary German. Lecture, five hours per week; laboratory, one hour. Prerequisite: course 2 or two years of high school German. Mr. Jedan

3R. Elementary German for Reading Knowledge. Prerequisite: course 2, 2R, or 2 years of high school German. This course will complete the study of the German language and introduce the student to readings in the various humanistic and scientific disciplines. Conducted in groups according to field of study. Mr. Jedan

4. Intermediate German. Lecture, five hours per week. Prerequisite: course 3 or three years of high school German. Mr. Jedan

5. Intermediate German. Lecture, four hours per week. Prerequisite: course 4, or four years of high school German. Mr. Jedan

6. Intermediate German. Lecture, four hours per week. Prerequisite: course 5 or the equivalent. Mr. Jedan

12. German Conversation. (½ course) Lecture, two hours per week. Prerequisite: course 1 or one year of high school German. This course will utilize German language teaching films; students will have the opportunity to practice spoken German in small groups. Mr. Jedan

14. Intermediate Conversation. (½ course) Lecture, two hours per week. Prerequisite: course 3 or three years of high school German. Students will have the opportunity to practice spoken German in small groups. Mr. Jedan

95. Freshman Seminar. Course of variable content limited to topics of current interest; to be offered whenever a member of the staff is available. The Staff

Upper Division Courses

The prerequisite for all upper division courses except 100A or 100B, 121A, 121B, 121C, 121D, 121E, 121F, 121G, 121H, 121I, 121J, is course 6 or the equivalent.

Courses Open to Majors and Non-majors, But Not to Graduate Students in German

100A. German Civilization and Culture before 1800. A study of the development of German civilization and institutions from the earliest times to 1800. Study of German culture as represented in its literature, art, music, and architecture before 1800. Students who have taken previous course 100 may receive credit for 100A or 100B but not both. Mr. Bäuml, Mr. Sobel, Mr. Wagener

100B. Modern German Civilization and Culture. A study of the development of German civilization and institutions from 1800 to the present. Study of German culture as represented in its literature, art, music, and architecture since 1800. Students who have taken previous course 100 may receive credit for 100A or 100B but not both. Mr. Sobel, Mr. Wagener

101A. Introduction to German Poetry. Close analysis of representative examples of German lyric poetry from early as well as modern literary periods, including a systematic consideration of poetic conventions and forms, diction, tone, imagery, symbolism and metrics. Recommended to be taken at the beginning of literary studies. The Staff

101B. Introduction to German Drama. Analysis of selected examples of drama (e.g. tragedy, comedy, one-act-play, lyric drama, lyric theater, etc.), including a systematic introduction to dramatic forms, techniques, and theories. Texts will be selected from modern literature as well as from other periods. Recommended to be taken at the beginning of literary studies. Mr. Bahr, Mr. Nehring

101C. Introduction to German Narrative Prose. Analysis of significant examples of narrative prose (e.g. short story, novelle, novel, fairy tale, etc.), including a systematic introduction to narrative forms, techniques, styles. Texts will be selected from modern literature as well as from older periods. Recommended to be taken at the beginning of literary studies. Ms. Komar, Mr. Nehring, Mr. Stephan

103. Introduction to German Enlightenment, Sturm und Drang, and Classicism. Reading and discussion of representative works by Lessing, Goethe, and Schiller; their historical and social background, their relationship to music (Bach, Mozart) and philosophy (Leibniz, Kant) as well as their place in the history of ideas. Mr. Bahr, Mr. Lyon

105. Introduction to 19th Century German Literature. Reading and analysis of selected works from Romanticism to Realism. Ms. Komar, Mr. Nehring

106. Introduction to Modern Literature. Analysis of selected works of the period from 1890 to 1945. Mr. Wagener

107. Introduction to Contemporary Literature. Analysis of selected works of the period 1945 to the present time. Mr. Stephan

108A. Composition and Conversation. Composition and conversation. Ms. Lombardi, Mr. Stearns

108B. Composition and Conversation. Composition and conversation. Prerequisite: course 108A or consent of instructor. Ms. Lombardi, Mr. Stearns

117. Language and Linguistics. Prerequisites: courses 100A or 100B and 108A. Introduction to the historical development of the German language; theories and methods of linguistics. Mr. Stearns, Mr. Wilbur

121A. Older German Literature in Translation. Analyses in English of works of German literature from the Medieval period to Baroque. No credit toward completion of the major in German. Mr. Bäuml, Mr. Sobel, Mr. Ward

121B. Classical German Literature in Translation. Analyses in English of works of the period of Classicism. No credit toward completion of the major in German. Mr. Bahr, Mr. Lyon

121C. 19th Century German Literature in Translation. Readings and lectures in English on selected 19th century authors. No credit toward completion of the major in German. Ms. Komar, Mr. Nehring

121D. Modern German Literature in Translation—Narrative Prose I. Readings, lectures and discussions in English on selected modern authors, including Mann, Kafka, Hesse and Rilke. No credit toward completion of the major in German. Mr. Nehring, Mr. Stephan, Mr. Wagener

121E. Modern German Literature in Translation—Narrative Prose II. Readings, lectures and discussions in English on post-1945 narrative prose. No credit toward completion of the major in German. Mr. Stephan, Mr. Wagener

121F. Modern German Literature in Translation—Drama and Lyrics. Readings, lectures and discussions in English on modern German drama and lyric poetry. No credit toward completion of the major in German. Mr. Stephan, Mr. Wagener

121G. Modern German Jewish Literature in Translation. Readings, lectures in English on selected authors, including Mendelssohn, Heine, Schnitzler, Kraus, Kafka, Feuchtwanger, Anne Frank, Nelly Sachs. No credit toward completion of the major in German. Ms. Hadda

121J. The Faust Tradition from the Renaissance to the Modern Age. Readings and discussions in English of the Faust theme and Faust tradition in European Literature and intellectual history, including the chapbook of *Doctor Faustus*, Christopher Marlowe's and Goethe's Faust dramas as well as Thomas Mann's novel *Doctor Faustus: The Life of the German Composer Adrian Leverkühn*. No credit toward completion of the major in German. Mr. Bahr, Mr. Lyon

NOTE: For key to symbols, see page 74

Courses open to Graduate Students in German

121H. Special Problems in Literature. Prerequisite: upper division standing in any department. Varying topics of current importance and immediate relevance to literary study. The course is designed to introduce the student to contemporary trends in literary study and is predominantly concerned with topics related to German literature and criticism. Lectures in English. The Staff

121I. The German Film in Cultural Context. A survey of various aspects of the German film in relationship to literary, artistic, and political directions of the times, with emphasis on the film as a separate mode of artistic expression. Mr. Stephan

122. Studies in German Literature Before 1750. Prerequisites: three upper division courses, including courses 100 or 100A, or consent of the instructor. Readings and analysis of major works from the Middle Ages to the Baroque. The Staff

123. Goethe. Prerequisites: courses 100A or 100B, and 103 or consent of instructor. Reading and discussion of representative works (except *Faust*) from Goethe's early period to his maturity and old age. Mr. Bahr, Mr. Lyon

124. Romanticism. Prerequisites: courses 100A or 100B, 105, or consent of the instructor. Reading and analysis of major works of the Romantic period. Authors included are Tieck, Novalis, E.T.A. Hoffmann, and Eichendorff. Ms. Komar, Mr. Nehring

126. Advanced Study in Modern Literature. Prerequisites: courses 100A or 100B, 106, or consent of the instructor. Reading and analysis of a wide range of the literature from 1890-1945. Mr. Wagener

127. Advanced Study in Contemporary Literature. Prerequisites: courses 100A or 100B, 107, or consent of the instructor. Analysis of a wide range of German literature from 1945 to the present. Mr. Stephan

128. Advanced Composition, Grammar and Conversation. Prerequisites: course 108A and 108B or consent of the instructor. Grammar, composition, conversation. Ms. Lombardi

129. German Phonetics. Study of the articulatory basis of the sounds of German and practice in standard pronunciation. Mr. Stearns

130. Methodology of Literary Criticism. Prerequisites: senior standing or consent of the instructor. Introduction to the methodology of literary criticism, including a systematic study of motif, topos, plot, space and time, semantics, stylistics, rhetoric, metrics, imagery (emblem, metaphor, allegory, symbol), structural elements (act, stanza, book, flash-back, anticipation, interior monologue), narrator and reader's response, humor and irony, hermeneutics. Mr. Bahr, Mr. Bäuml, Mr. Lyon

132. Goethe's *Faust.* Prerequisites: courses 100A or 100B, 123, or consent of the instructor. Detailed interpretation of Goethe's *Faust,* Parts I and II, together with more general consideration of other treatments of the Faust theme in European literature. Mr. Bahr, Mr. Lyon

134. German Folklore. A survey of the various genres of German folklore. Mr. Ward

199A-199ZZ. Special Studies. (½ or 1 course) Prerequisite: consent of the instructor. To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. A course of independent study for students who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite. The Staff

Graduate Courses

201A. Bibliography of German Literary History. Study of the various kinds of bibliographies, handbooks, lexica, series publications, journals, literary histories, and other reference works. Mr. Sobel

201C. Theories of Literary Criticism. Foundations of literary criticism and current theories. Mr. Bahr, Mr. Bäuml

202A. Middle High German. Introduction to the Middle High German language. Mr. Bäuml

202B. Readings in Middle High German Literature. Readings from Middle High German courtly literature. Mr. Bäuml, Mr. Ward

203A. The Courtly Epic. Analysis of Hartmann's *Erec* and *Iwein,* Wolfram's *Parzival,* and Gottfried's *Tristan.* Lectures on methods of interpretation. Mr. Bäuml

203B. The Courtly Lyric. Analysis of lyric poetry from Der von Kurenberg to Johannes Hadlaub. Mr. Bäuml, Mr. Ward

203C. The Heroic Epic. Analysis and methods of interpretation of heroic poetry from the *Hildebrandslied* to *Kudrun.* Mr. Bäuml, Mr. Ward

204. Renaissance and Reformation Literature. German literature of the 15th and 16th centuries, including introduction to the Early New High German language. Mr. Sobel

205. Baroque Literature. Development of modern Baroque scholarship, prosodies, lyrics, drama, and types of the Baroque novel and prose satire. Mr. Sobel, Mr. Wagener

206A. Enlightenment and Sentimentalism. Representative authors of the earlier part of the eighteenth century from Gottsched through Lessing. Mr. Bahr, Mr. Lyon

206B. Sturm und Drang. Representative authors of the *Sturm und Drang* including the young Goethe and Schiller. Mr. Bahr, Mr. Lyon

207A. Classicism: Goethe. Selected topics in the works of Goethe in the period 1776-1832. Mr. Bahr

207B. Classicism: Schiller. Selected topics in the dramatic and critical works of Schiller in the period 1793-1805. Mr. Bahr

208. Romanticism. Analysis of representative works of the Romantic Period. Ms. Komar, Mr. Nehring

209A. 19th Century Lyrics. Analysis of postromantic lyric poetry. Ms. Komar, Mr. Nehring

209B. 19th Century Drama. Analysis of postromantic, prenaturalistic dramas. Ms. Komar, Mr. Nehring

209C. 19th Century Narrative Prose. Analysis of works of postromantic, prenaturalistic narrative prose. Ms. Komar, Mr. Nehring

210A. Naturalism and Symbolism. Poetry, drama, and shorter narratives of the period 1890-1945. Mr. Wagener

210B. Expressionism and Neorealism. Poetry, drama, and shorter narratives of the period 1910-1933. Mr. Stephan, Mr. Wagener

210C. 20th Century Novel to 1945. Analysis of selected novels written prior to 1945. Ms. Komar, Mr. Wagener

211A. Contemporary Novel. Analysis of selected novels of the period from 1945 to the present. Mr. Stephan

211B. Contemporary Lyrics and Drama. Lyrics and drama of the period from 1945 to the present. Mr. Stephan

217. History of the German Language. Mr. Stearns, Mr. Wilbur

230. Survey of Germanic Philology. Mr. Wilbur

231. Gothic. Mr. Stearns, Mr. Wilbur

232. Old High German. Mr. Stearns, Mr. Wilbur

233. Old Saxon. Mr. Stearns, Mr. Wilbur

240A. Theories, Methods, and History of Germanic Folklore. Historical survey of folklore theory in the Germanic countries, and a study of modern folklore methodology, bibliography, and status of studies. Mr. Ward

240B. Folk Song and Ballad. Survey of German folk song and ballad, as to historical development, relation to other literary genres, ethnic background, and poetic and musical values. Mr. Ward

240C. Oral Prose Genres. Legends, folk tales, jests, proverbs, riddles; their history, function, and poetic value. Mr. Ward

M245A. Germanic Religions and Mythology. (Same as Scandinavian M245.) The Staff

245B. Germanic Antiquities. Prehistory and early history of Germanic culture; a philological investigation of Germanic ethnography, customs, behavior and law. Mr. Ward

251. Seminar in Syntax and Phonology of German. The syntactical and phonological structure of the German language according to the principles of generative grammar and other techniques. Mr. Wilbur

252. Seminar in Historical and Comparative German Linguistics. The historical development of the Germanic languages according to the principles and techniques of comparative linguistics. Mr. Wilbur

253. Seminar in Medieval Literature. Mr. Bäuml, Mr. Ward

254. Seminar in Renaissance and Reformation. Mr. Sobel

255. Seminar in Baroque Literature. Mr. Sobel, Mr. Wagener

256. Seminar in Enlightenment and Sturm und Drang. Mr. Bahr, Mr. Lyon

257. Seminar in the Age of Goethe. Mr. Bahr

258. Seminar in Romanticism. Ms. Komar, Mr. Nehring

259. Seminar in 19th Century Literature. Ms. Komar, Mr. Nehring

260. Seminar in the Modern Period. Mr. Bahr, Mr. Nehring, Mr. Wagener

261. Seminar in Contemporary Literature. Mr. Stephan

262. Seminar in Germanic Folklore. Mr. Ward

263. Seminar in Theories of Literature. Seminar specializing in specific literary theories, such as aesthetics of reception, Neo-Marxist Criticism, New Criticism, psychology of literature, semiology, sociology of literature, structuralism. Mr. Bahr, Mr. Bäuml

Professional Courses in Teaching Methods

370. The Teaching of German in Secondary Schools. Lecture, three hours per week and discussion periods. Prerequisite: graduate standing or consent of the instructor. Required of all candidates for the general secondary credential in German. Ms. Lombardi

495A-495B. Preparation for College Teaching of German. (½ course each) Two-quarter sequence. Study of problems and methods in teaching German on the college level. Theory and classroom practice, observation and critical evaluation. Credit only on completion of 495B. May not be used to fulfill any of the course requirements for the Master's Degree. This course is offered on an In-Progress basis, which requires students to complete the full 2-quarter sequence at the end of which time a grade is given for all quarters of work. Satisfactory-Unsatisfactory grading. Mr. Jedan

Individual Study and Research

596A-596ZZ. Directed Individual Study or Research. To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code). To be graded on Satisfactory-Unsatisfactory basis. May be taken twice. Only one course in the 500 series may count toward the M.A. requirement. The Staff

597A-597ZZ. Preparation for Comprehensive Examination for the Masters Degree or the Qualifying Examination for the Ph.D. To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code). To be graded on Satisfactory-Unsatisfactory basis. May be taken only once before and only once after the M.A. degree. Only one course in the 500 series may count toward the M.A. graduate course requirement. The Staff

598A-598ZZ. Research for Preparation of Master's Thesis. To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code). To be graded on Satisfactory-Unsatisfactory basis. May be taken three times. Only one course in the 500 series may count toward the M.A. graduate course requirement. The Staff

599A-599ZZ. Research for Preparation of the Doctoral Dissertation. (1 to 2 courses) To be graded on Satisfactory-Unsatisfactory basis. May be taken unlimited number of times. To be arranged with the member of the faculty who will direct the study. Each faculty member has his own doctoral research course identified by a two-letter code using his initials. The Staff

Dutch-Flemish and Afrikaans

101A. Elementary Dutch-Flemish. Mr. Kirsner

101B. Elementary Afrikaans. Mr. Kirsner

101C. Intermediate Dutch-Flemish. Prerequisite: course 101A or equivalent. Mr. Kirsner

101D. Intermediate Readings in Dutch-Flemish. Prerequisite: course 101C or equivalent. Mr. Kirsner

101E. Intermediate Readings in Afrikaans. Prerequisite: course 101B. Mr. Kirsner

112. Dutch, Flemish, Afrikaans Literature in Translation. Readings and analysis of selected works in translation from Dutch, Flemish, and Afrikaans Literature. Mr. Kirsner

120. Introduction to Dutch Studies. Prerequisite: consent of instructor. Brief review of Dutch grammar. Reading and discussion of selections from contemporary Dutch literature, contemporary Dutch literary criticism, and modern Dutch linguistics. Emphasis is on developing reading skill and on acquiring familiarity with and an appreciation of the scope of twentieth century Nederlandistiek. Mr. Kirsner

131. Introduction to Modern Dutch Literature. Prerequisite: Either Dutch 101D or 120. Analysis of selected works of the literature of the Netherlands and Flemish Belgium, from the symbolist Beweging Van Tachtig of the 1880s. Mr. Kirsner

135. Introduction to Afrikaans Literature. Prerequisite: Dutch 101E or equivalent. Analysis of selected works, from the founding of the Genootskap van Regte Afrikaners in 1875 to the present time. Mr. Kirsner

199. Special Studies in Dutch-Flemish and Afrikaans. (½ to 1 course) Mr. Kirsner

234. The Structure of Modern Standard Dutch. A detailed examination, from contrasting theoretical viewpoints, of central problems in Dutch phonology, grammar, and semantics, with attention to related phenomena in German, English, and Afrikaans. This course is equivalent to Linguistics 225. Mr. Kirsner

Hungarian

101A. Elementary Hungarian. Introduction to grammar and reading exercises, emphasis on the spoken language. Ms. Birnbaum

101B. Elementary Hungarian. Prerequisite: course 101A or the equivalent. Grammatical exercises, conversation, and reading of texts. Ms. Birnbaum

101C. Elementary Hungarian. Prerequisite: course 101B or the equivalent. Conversation and readings in literary texts. Ms. Birnbaum

101D. Advanced Hungarian. Prerequisites: courses 101A, 101B and 101C completed or equivalent. Grammar, conversation, vocabulary building. Ms. Birnbaum

101E. Advanced Hungarian. Prerequisites: courses 101A-101D completed or equivalent. Conversation, reading and discussion of literary text. Ms. Birnbaum

101F. Advanced Hungarian. Prerequisites: courses 101A-101E completed, or equivalent. Conversation, and reviewing Hungarian grammar from a typological point of view. Ms. Birnbaum

120A-120B. Readings in Hungarian. (Formerly numbered Finno-Ugric 153A-153B.) Prerequisite: course 101C or the equivalent. Large selections of Hungarian prose and poetry read in the original. Ms. Birnbaum

120C. Readings in Hungarian Literature. Prerequisite: reading knowledge in Hungarian. Course 101C or equivalent completed. Large selections of Hungarian prose and poetry read in the original. Discussion will be conducted in Hungarian. Ms. Birnbaum

121A-121B. Survey of Hungarian Literature in Translation. (Formerly numbered 158A-158B.) Intended for students in general and comparative literature as well as students interested in Finno-Ugric studies. Main trends and contacts with other literatures are surveyed. Ms. Birnbaum

M135. Hungarian Folklore and Mythology. (Same as Folklore M128.) A general course for the student in folklore and mythology, with emphasis on types of folklore and varieties of folklore research. Ms. Birnbaum

130. Hungarian Civilization and Culture. A study of Hungarian civilization and institutions from the earliest times to the present. Study of Hungarian culture as represented in its arts (literature, fine arts, music). Ms. Birnbaum

M136. Folklore and Mythology of the Ugric Peoples. (Same as Folklore M129.) Survey of the traditions of the smaller Ugric nationalities (Voguls, Ostyaks, etc.). Ms. Birnbaum

199. Special Studies in Hungarian. (½ to 1 course) Prerequisite: consent of the instructor is required. A course of independent study for students who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite. Ms. Birnbaum

Yiddish

1. Elementary Yiddish. Lecture, five hours per week. Introduction to grammar; instruction in listening, speaking, reading and writing skills. Ms. Hadda

2. Elementary Yiddish. Lecture, five hours per week. Prerequisite: course 1 or equivalent. Ms. Hadda

3. Elementary Yiddish. Lecture, five hours per week. Prerequisite: course 2 or equivalent. Ms. Hadda

104. Intermediate Yiddish. Lecture, five hours per week. Prerequisite: course 3 or equivalent. Grammatical exercises, reading and linguistic analysis of texts, conversation. Ms. Hadda

121A. 20th Century Yiddish Poetry in English Translation. Prerequisite: upper division standing or consent of the instructor. Readings in 20th Century Yiddish Poetry and drama. Lectures, discussions. Ms. Hadda

121B. 20th Century Yiddish Prose and Drama in English Translation. Prerequisite: upper division standing or consent of the instructor. Readings in 20th Century Yiddish Prose. Lectures, discussions. Ms. Hadda

131A. Modern Yiddish Poetry. Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish poetry. Lectures, discussions. Ms. Hadda

131B. Modern Yiddish Prose and Drama. Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish prose and drama. Lectures, discussion. Ms. Hadda

199. Special Studies in Yiddish. (½ to 1 course) Prerequisite: consent of the instructor. A course of independent study for students who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite. Ms. Hadda

596A-ZZ. Directed Individual Study or Research in Yiddish. To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study will be identified by a two-letter code using the initials of the sponsoring instructor (see department for code). To be graded on Satisfactory-Unsatisfactory basis. May be taken twice. Ms. Hadda

SCANDINAVIAN LANGUAGES

Kenneth G. Chapman, Ph.D., *Professor of Scandinavian Languages.*
Erik Wahlgren, Ph.D., *Emeritus Professor of Scandinavian and Germanic Languages.*
Ross P. Shideler, Ph.D., *Associate Professor of Scandinavian Languages and Comparative Literature.*
10James R. Massengale, Ph.D., *Associate Professor of Scandinavian Languages (Vice Chairman of the Department).*
Mary Kay Norseng, Ph.D., *Assistant Professor of Scandinavian Languages.*
Jesse L. Byock, Ph.D., *Assistant Professor of Scandinavian Languages.*

•

Inkeri A. Rank, M.A., M.Ed., *Lecturer in Finnish Studies.*
Jules L. Zentner, Ph.D., *Lecturer in Scandinavian Languages.*

Preparation for the Major

Required: courses 1, 2, 3, 4, 5, or 11, 12, 13, 14, 15, or 21, 22, 23, 24, 25 and 30, or their equivalents.

The Undergraduate Major in Scandinavian

Nine upper division courses in Scandinavian, including courses 105 and 106, or 110 for two quarters, and 141, 142, and 143. As an additional requirement, three upper division courses in Scandinavian or a related field must be taken. These three courses must be approved in advance by the undergraduate adviser. It is recommended that students who plan to do graduate work in Scandinavian take German 1 through 6.

Admission to Graduate Status

The completion of the undergraduate major, or its equivalent, with a minimum gradepoint average of 3.0 is required. If the candidate is deficient in the undergraduate major he must complete it by taking the appropriate courses, as recommended by the adviser of the Scandinavian Section. A placement examination in the Scandinavian languages, as well as in German, may be required of entering graduate students.

Requirements for the Master's Degree

1. For the general requirements, see Requirements for Graduate Degrees.

2. Students entering the M.A. program in Scandinavian will be required to have completed an undergraduate major in Scandinavian, or its equivalent.

3. A reading knowledge of either German or French, at the discretion of the department, will be required for the M.A. degree in Scandinavian.

4. A total of twelve courses is required for the M.A. degree. These include a minimum of nine upper division and graduate courses in Scandinavian, of which at least five must be graduate courses. In

NOTE: For key to symbols, see page 74

addition, three courses on the upper division or graduate level must be taken in a related field of linguistic or literary study to be determined by consultation with the Graduate Adviser in Scandinavian. At least one of these three courses in a related field must be on the graduate level. Comparative Literature 200 or an equivalent course in literary or linguistic methodology is required as one of these three outside courses. A knowledge of Old Icelandic equivalent to courses 151 and 152 will be required of all candidates for the M.A. in Scandinavian.

5. A comprehensive examination will be required of all candidates for the M.A. degree in Scandinavian.

Requirements for the Doctor's Degree in Germanic Languages

A candidate for the Ph.D. in Germanic Languages may choose Scandinavian Literature and Philology as his major or his minor field. For details, see Candidate in Philosophy Degree.

Lower Division Courses

No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition. Prerequisites for lower division courses are listed under the course descriptions. Students with demonstrated preparation may be permitted a more advanced program by the Department, or such students may be transferred to a more advanced course on recommendation of the instructor.

Admission to Language Courses in the Scandinavian Section

Native speakers of Norwegian, Swedish, or Danish may not enroll in any language course (including courses 105, 106, and 110) in the Scandinavian Section, except by petition in writing to the Section. Non-Scandinavian students with a knowledge of one of these Scandinavian languages may not take courses in the others except by petition in writing. These petitions must include a description of the student's linguistic background and his reason for wanting to take the language course in question.

1. Elementary Swedish. Mr. Shideler in charge

2. Elementary Swedish. Prerequisite: course 1 or equivalent. Mr. Shideler in charge

3. Elementary Swedish. Prerequisite: course 2 or equivalent. Mr. Shideler in charge

4. Intermediate Swedish. Prerequisite: course 3 or equivalent. Mr. Shideler in charge

5. Intermediate Swedish. Prerequisite: course 4 or equivalent. Mr. Shideler in charge

11. Elementary Norwegian. The Staff

12. Elementary Norwegian. Prerequisite: course 11 or equivalent. The Staff

13. Elementary Norwegian. Prerequisite: course 12 or equivalent. The Staff

14. Intermediate Norwegian. Prerequisite: course 13 or equivalent. The Staff

15. Intermediate Norwegian. Prerequisite: course 14 or equivalent. The Staff

21. Elementary Danish. A first-quarter course in the Danish language. Mr. Massengale

22. Elementary Danish. Prerequisite: course 21, or equivalent. A second-quarter course in the Danish language. Mr. Massengale

23. Elementary Danish. Prerequisite: course 22, or equivalent. A third-quarter course in the Danish language. Mr. Massengale

24. Intermediate Danish. Prerequisite: course 23 or equivalent. Mr. Massengale

25. Intermediate Danish. Prerequisite: course 24 or equivalent. Mr. Massengale

30. Intermediate Danish, Norwegian and Swedish. Prerequisite: either course 5, 15, or 25, or the equivalent. Readings in Danish, Norwegian and Swedish. Written and oral exercises. Majors as well as nonmajors may take this course on a P/NP or S/U basis. The Staff

40. The Heroic Journey in Northern Myth and Legend. Introductory survey to Norse myth, legend, and epic. Mr. Byock

Upper Division Courses

105. Advanced Swedish. Prerequisite: course 30 or equivalent. Readings, composition, and conversation. Conducted in Swedish. The Staff

106. Advanced Swedish. Prerequisite: course 105 or equivalent. Readings, composition, and conversation. Conducted in Swedish. The Staff

110. Advanced Danish and Norwegian. Prerequisite: course 30 or equivalent. Advanced reading, composition, and conversation in Danish and Norwegian. May be taken twice for credit. The Staff

M123A. Finnish Folklore and Mythology. (Same as Folklore M123A.) The methods and results of Finnish folklore studies and the mythic traditions of the Finns. Special attention is paid to the oral epic, beliefs and legends. Mrs. Rank

M123B. Finnish Folksong and Ballad. (Same as Folklore M123B.) Course M123A is not prerequisite to M123B. A survey of Finnish balladry and folksong, with attention to historical development, ethnic background, and poetic and musical values. Mrs. Rank

M125. Folklore and Mythology of the Lapps. (Same as Folklore M125.) Survey of Lappish beliefs, customs, and various genres of oral tradition including tales, legends, songs and music. Attention is also paid to the material manifestations of Lappish culture: arts and crafts, textiles, costume, folk technology. Mrs. Rank

130. Elementary Finnish. Introduction to pronunciation and grammar. Mrs. Rank

131. Intermediate Finnish. Prerequisite: course 130 or equivalent. Grammatical exercises and readings. Mrs. Rank

132. Advanced Finnish. Prerequisite: course 131 or equivalent. Readings, composition and conversation. Mrs. Rank

138. Survey of Finnish Literature. Intended for students in general and comparative literature as well as students interested in Finnish studies. Readings and discussions of selected works from the literature of Finland in the 19th and 20th centuries. Conducted in English; no knowledge of Finnish required. Mrs. Rank

141. Viking Civilization and Literature. Readings and discussions of selected works from the Old Icelandic sagas, the Eddas, and early ballad literature. Conducted in English, and no knowledge of a Scandinavian language is required. The Staff

142. Scandinavian Literature of the 18th and 19th Centuries. Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected works from the literature of Scandinavia in the 18th and 19th centuries. The Staff

143. Modern Scandinavian Literature. Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected works of modern Scandinavian literature. The Staff

144. Ibsen. Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected plays by Henrik Ibsen. Ms. Norseng

145. Strindberg. Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected plays by August Strindberg. Mr. Massengale

146. Kierkegaard. Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected works by Søren Kierkegaard. Concurrently scheduled with 253. Mr. Massengale

147. Hamsun. Prerequisite for Scandinavian majors: course 30 or equivalent. For nonmajors: no knowledge of a Scandinavian language is required. Readings and discussions of selected works by Knut Hamsun. Ms. Norseng

151. Elementary Old Icelandic. Prerequisite: at least one year of a modern Scandinavian language or consent of the instructor. Grammar and readings of prose literature. The Staff

152. Intermediate Old Icelandic. Prerequisite: course 151. Readings of Old Icelandic prose and poetry. The Staff

153. Modern Icelandic. Prerequisite: course 152. Grammar, readings, composition, and conversation. The Staff

180. Literature and Scandinavian Society. Discussion of selected aspects of Scandinavian society based on readings of the contemporary literature as well as other documentary material. No knowledge of a Scandinavian language is required. May be repeated for credit when Undergraduate Adviser determines that course content is completely different. Concurrent scheduling with 263. The Staff

190. Honors Course in Scandinavian. Prerequisites: senior standing with a minimum of 3.0 grade-point average in the major and consent of the honors committee of the Scandinavian section. Intensive study of a selected special topic in Scandinavian. Discussions, oral and written reports. The Staff

199A-199ZZ. Special Studies in Scandinavian. (½ or 1 course) Prerequisites: senior or graduate standing, and consent of the instructor. To be arranged with the member of the faculty who will direct the study. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. A course of independent study designed for graduates or senior undergraduates who desire more intensive or specialized investigation of material covered in a regular course, and who present such a course as a prerequisite.

Graduate Courses

210. History and Description of the Scandinavian Languages. Prerequisite: graduate status, and a thorough knowledge of one or more Scandinavian languages. Description of the Scandinavian languages and their development from the oldest period to the present. Emphasis will be placed on the relationship of the several Scandinavian languages to each other and to the other Germanic languages. The Staff

221. Advanced Old Icelandic Prose. Prerequisite: course 152 or equivalent. Readings in advanced literary texts in Old Icelandic. The Staff

222. Advanced Old Icelandic (Poetry). Prerequisite: course 152 or equivalent. Readings in advanced poetic Texts, Eddic and Skaldic. The Staff

M245. Scandinavian Mythology. (Same as German M245A.) Prerequisite: knowledge of German, a Scandinavian language, or consent of the instructor. The Staff

251. Henrik Ibsen. Prerequiste: an advanced knowledge of Norwegian and consent of instructor. Intensive study of the Works of Ibsen. Ms. Norseng

252. August Strindberg. Prerequisite: an advanced knowledge of Swedish and consent of instructor. Intensive study of the work of August Strindberg. Mr. Massengale

253. Soren Kierkegaard. Prerequisite: an advanced knowledge of Danish and consent of instructor. Intensive study of the works of Kierkegaard. Concurrent scheduling with 146. Mr. Massengale

263. Seminar in Scandinavian Studies. Prerequisite: Graduate standing or permission of

instructor. Knowledge of a Scandinavian language is required. Intensive study of selected aspects of Scandinavian society based on readings in the literature as well as other documentary material. Course may be taken more than once if the graduate adviser determines that the course content is significantly different. Concurrent scheduling with 180. The Staff

Individual Study and Research

596A-596ZZ. Directed Individual Study or Research. To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. To be graded on Satisfactory-Unsatisfactory basis. May be taken twice. Only one course in the 500 series may count toward the M.A. graduate course requirement.

597A-597ZZ. Preparation for the Qualifying Examination for the Ph.D. (1 to 2 courses) To be arranged with the member of the faculty who will direct the study or research. The member of the faculty directing the study will be identified by the same two-letter code used to identify his 599 research course. To be graded on Satisfactory-Unsatisfactory basis. May be taken three times.

599A-599ZZ. Research for Preparation of the Doctoral Dissertation. To be graded on Satisfactory-Unsatisfactory basis. May be taken unlimited number of times. To be arranged with the member of the faculty who will direct the study. Each faculty member has his own doctoral research course identified by a two-letter code as follows: K.G. Chapman, 599KC; J.R. Massengale, 599JM; M.K. Norseng, 599MN; R.P. Shideler, 599RS.

HISTORY

(Department Office, 6265 Bunche Hall)

Robert L. Benson, Ph.D., *Professor of History.*
Kees W. Bolle, Ph.D., *Professor of History.*
John G. Burke, Ph.D., *Professor of History.*
E. Bradford Burns, Ph.D., *Professor of History.*
Robert I. Burns, S.J., Ph.D., *Professor of History.*
Robert N. Burr, Ph.D., *Professor of History.*
Mortimer H. Chambers, Jr., Ph.D., *Professor of History.*
Claus-Peter Clasen, Ph.D., *Professor of History.*
Stanley Coben, Ph.D., *Professor of History.*
Robert Dallek, Ph.D., *Professor of History.*
Christopher Ehret, Ph.D., *Professor of History.*
Amos Funkenstein, Ph.D., *Professor of History.*
John S. Galbraith, Ph.D., *Professor of History.*
Frank O. Gatell, Ph.D., *Professor of History.*
Richard Hovannisian, Ph.D., *Professor of History.*
Daniel W. Howe, Ph.D., *Professor of History.*
Norris C. Hundley, Ph.D., *Professor of History.*
Nikki Keddie, Ph.D., *Professor of History.*
Barisa Krekic, Ph.D., *Professor of History.*
John H.M. Laslett, D.Phil., *Professor of History.*
James Lockhart, Ph.D., *Professor of History.*
Peter Loewenberg, Ph.D., *Professor of History.*
Andrew Lossky, Ph.D., *Professor of History.*
Afaf Marsot, D.Phil., *Professor of History.*
Lauro R. Martines, Ph.D., *Professor of History.*
D.C. Moore, Ph.D., *Professor of History.*
Gary B. Nash, Ph.D., *Professor of History.*
Boniface I. Obichere, D.Phil., *Professor of History.*
Merrick Posnansky, Ph.D., *Professor of History.*
Hans J. Rogger, Ph.D., *Professor of History (Chair of the Department).*
Richard H. Rouse, Ph.D., *Professor of History.*
Damodar R. SarDesai, Ph.D., *Professor of History.*
Alexander P. Saxton, Ph.D., *Professor of History.*
Eleanor M. Searle, Doc. Medieval Studies, *Professor of History.*
Stanford J. Shaw, Ph.D., *Professor of History.*
Speros Vryonis, Jr., Ph.D., *Professor of History.*
Eugen Weber, M.Litt., *Professor of History.*
James W. Wilkie, Ph.D., *Professor of History.*
Robert Wohl, Ph.D., *Professor of History.*
Stanley A. Wolpert, Ph.D., *Professor of History.*
Milton Anastos, Ph.D., *Emeritus Professor of Byzantine Greek and History.*
Eugene N. Anderson, Ph.D., *Emeritus Professor of History.*
Fawn M. Brodie, M.A., *Emeritus Professor of History.*
Truesdell S. Brown, Ph.D., *Emeritus Professor of History.*
John W. Caughey, Ph.D., *Emeritus Professor of History.*
Brainerd Dyer, Ph.D., *Emeritus Professor of History.*
Raymond H. Fisher, Ph.D., *Emeritus Professor of History.*
Yu-Shan Han, Ph.D., *Emeritus Professor of History.*
Jere C. King, Ph.D., *Emeritus Professor of History.*
Gerhart B. Ladner, Ph.D., *Emeritus Professor of History.*
Theodore Saloutos, Ph.D., *Emeritus Professor of History.*
Lynn White, Jr., Ph.D., *Emeritus Professor of History (University Professor).*
Robert A. Wilson, Ph.D., *Emeritus Professor of History.*
Edward A. Alpers, Ph.D., *Associate Professor of History.*
Robert P. Brenner, Ph.D., *Associate Professor of History.*
David M. Farquhar, Ph.D., *Associate Professor of History.*
Juan Gómez-Quiñones, Ph.D., *Associate Professor of History.*
Thomas S. Hines, Ph.D., *Associate Professor of History.*
Philip C. Huang, Ph.D., *Associate Professor of History.*
Michael O. Jones, Ph.D., *Associate Professor of History.*
Temma E. Kaplan, Ph.D., *Associate Professor of History.*
Ronald J. Mellor, Ph.D., *Associate Professor of History.*
Fred G. Notehelfer, Ph.D., *Associate Professor of History.*
Peter H. Reill, Ph.D., *Associate Professor of History.*
Kathryn Kish Sklar, Ph.D., *Associate Professor of History.*
Geoffrey W. Symcox, Ph.D., *Associate Professor of History.*
Richard Weiss, Ph.D., *Associate Professor of History.*
Robert S. Westman, Ph.D., *Associate Professor of History.*
Agnes A. Aidoo, Ph.D., *Assistant Professor of History.*
Robert A. Hill, M.Sc., *Assistant Professor of History.*
Eric H. Monkkonen, Ph.D., *Assistant Professor of History.*
Michael G. Morony, Ph.D., *Assistant Professor of History.*
Kenneth M. Morrison, Ph.D., *Assistant Professor of History.*
Armstead L. Robinson, Ph.D., *Assistant Professor of History.*
M. Norton Wise, Ph.D., *Assistant Professor of History.*
Mary A. Yeager, Ph.D., *Assistant Professor of History.*

•

Amin Banani, Ph.D., *Professor of Persian and History.*
Giorgio Buccellati, Ph.D., *Professor of History and Near Eastern Languages.*
Robert G. Frank, Ph.D., *Assistant Professor of History and Medical History/Anatomy.*
Albert Hoxie, M.A., *Senior Lecturer in History.*
Ludwig Lauerhass, Ph.D., *Lecturer in History and Librarian.*

The Undergraduate Program

The undergraduate program in history is designed to give students an insight into the world in which they live and the forces and events that have served to shape and mold that world. In its broadest sense the discipline of history provides a background for all other subjects and disciplines. Along more specific lines the goal of history is the classical goal of self-knowledge. History is therefore concerned with "why we are what we are" and "how we came to be where we are today." In this sense history is the study of the past of our own society and how it emerged out of the traditions that produced it. At the same time, self-knowledge for the student of history comes not only from self-discovery, but from a comparison of his/her own tradition and experience with those of others. It is only by studying the history of other civilizations and cultures that we can hope to gain perspective on our own. The purpose of historical study is therefore not only an understanding of our own past and our present self, but an understanding of, and empathy for, the cultures and civilizations of other peoples and other nations.

It is in keeping with these broad goals that the History Department's undergraduate major has been established. As listed below, the department's undergraduate program begins with a three quarter survey of Western Civilization and a two quarter study of United States history. For comparative purposes the students are asked to spend two quarters studying non-Western history. In addition they are required to devote one quarter to the study of historical methodology and philosophy. At the upper division level students are encouraged to develop their own problem consciousness and to follow their personal interests into whichever area they choose. The only further requirement at this level is a one-quarter colloquium and writing course which is designed to give the student some experience in formal historical discourse.

Students interested in careers in the field of law, teaching, public service, journalism, and a variety of other areas involving the social sciences will find the history major beneficial and rewarding.

Preparation for the Major, and Major

The History Department's undergraduate program consists of 16 courses in history (6 lower division: the Preparation for the Major; 10 upper division: the Major), and 4 courses in the social sciences outside the department. The following courses are required in the program:

1. History 1A-1B-1C. Western Civilization.
2. Two courses in U.S. History.
3. Two courses in Non-Western History from the same area (i.e. Latin America, Asia, Near and Middle East, Africa) or in Science and Technology. Candidates for the California Standard Teaching Credential may not choose Science and Technology to fulfill their Non-Western requirement.
4. History 99 (for Freshmen and Sophomores), History 101 (for Juniors and Seniors), or History 100 (no restriction by class).
5. History 197 (Undergraduate Seminar) or History 199 (Special Studies in History).
6. Four courses in the Social Sciences outside of History. (Must be taken for a letter grade.)

The requirements for U.S. and Non-Western History may be met with either upper or lower division courses. *Students are, however, reminded that normally only six lower division courses in history need to be included in their program.* This will generally mean that if they meet the U.S. History requirement at the lower division level they will have to meet the Non-Western requirement at the upper division level (or vice versa). If they choose to meet both requirements at the lower division level they will still be required to do 10 upper division courses to fulfill the upper division requirements of the Major. The Department recommends the following lower division courses to meet the U.S. History and Non-Western Requirements: History 6A-6B-6C (U.S. History); History 7A-7B (Political U.S.); History 8A-8B (Latin America); History 9A-9B-9C (Asia); History 9D plus one suitable upper division course (Near and Middle East); History 10A-10B (Africa); History 2A-2B-2C (Technology); History 3A-3B-3C (Science). If only one Non-Western course is taken in lower division, an appropriate upper division Non-Western course must be included in the major.

All history majors are required to take at least four courses in other departments in the division of social sciences, whether lower or upper division (anthropology, geography, economics, political science, sociology, psychology). *These courses may not be taken for "Pass/Not Pass" grades.* A one quarter course from the History 6A-6B-6C (U.S. History) sequence may be applied to this requirement, provided the same quarter course is not used to satisfy any other requirement of the major.

Advanced Placement Credit in History. The College of Letters and Science allows ten quarter units towards the B.A. for each Advanced Placement Test in History. The History Department applies this credit to the Preparation of the History Major as follows: AP European History fulfills History 1C; AP American History fulfills the U.S. History requirement at the lower division level.

Only one course offered outside of the History Department will count as a Major course without petition: Medical History 107B, Historical Development of Medical Sciences.

Transfer students with deficiencies in lower division may by petition substitute appropriate upper division courses in history for the lower division requirements. See the departmental adviser.

There is no language requirement for the major; however, students wishing to take the honors program or planning to do graduate work in history are urged to pursue language study early in their undergraduate careers.

The Honors Major

The honors program in history is designed for history majors who are interested in carrying out a year-long independent research project that will culminate in an honors thesis. The program gives qualified students the opportunity of working closely with an individual professor in a supervised research and writing project. Students contemplating graduate work in history should find this program particularly beneficial and rewarding.

NOTE: For key to symbols, see page 74

Qualifications: All history majors with a departmental grade point average of 3.5 or better are eligible for the honors program. Candidates for honors will be required to meet all normal requirements of the history major described in the preceding section. Instead of History 197 or 199 honors majors are required to take a three quarter honors sequence, History 199H-A-B-C, under the guidance of a sponsoring professor. These courses will be taken in the candidate's senior year and will count as three courses in the regular ten upper division course requirement that applies to all history majors.

Admission to the Program: Students desiring to enroll in the honors program should consult the History Department Undergraduate Adviser normally at the end of their junior year in order to fill out the required application form.

Admission to Graduate Status

For admission to graduate status in the History Department students should normally have completed the undergraduate major or its equivalent; have received a bachelor's degree or its equivalent from an acceptable college or university; and have maintained at least a B-plus average in that major and a B average in all courses taken in the junior and senior years. The Department requires applicants to provide three letters of recommendation. The Department also requires the Graduate Record Examination scores on the aptitude tests. Applicants for the field of U.S. History are required to submit GRE scores for the advanced test as well as for aptitude tests. Students not meeting the grade-point average may be admitted if their letters of recommendation and their Graduate Record Examination scores or other evidence indicate unusual promise. Students may be admitted with subject deficiencies, but such deficiencies will have to be made up by taking courses in addition to requirements for an advanced degree program. Applications for the academic year should be submitted by December 30. Students are expected to begin their graduate work in the fall quarter. Only in exceptional cases will students be allowed to begin their work in the winter or spring quarter.

Information and applications for the Graduate Record Examination may be obtained by writing to the Educational Testing Service, 1947 Center Street, Berkeley, California 94704 or, for applicants east of the Rocky Mountain states, the Educational Testing Service, Box 955, Princeton, New Jersey 08540.

Teaching Credentials

Students may earn credentials for teaching history, government, social sciences and other subjects in California elementary and secondary schools. Completion of the Teacher Credential Program in the Teacher Education Laboratory is required. Consult with the Graduate School of Education (201 Moore Hall) for this information.

The Master's Degree

Completion of the Master's Degree at UCLA is designed to meet requirements for admission to the Department's doctoral program. Students are advised to pace their Master's degree over a two-year period, completing requirements within six quarters of full-time study. For general University requirements, see "Master's Degrees" in the "Colleges, Schools, and Graduate Division" section of this Catalog.

Departmental M.A. Requirements

Foreign Language. A reading knowledge of a foreign language approved by the Department. It is recommended that this requirement be met by the second quarter of graduate work.

Units of Work. Department: A minimum of nine upper division and graduate courses in history, at least five of which must be graduate courses. No course in the 300 series may be counted toward this requirement, and only one of the 500 series. Course work must be completed under at least three different professors.

Students concentrating in the following fields must meet the special requirements of the field: Near East — students should give evidence of their ability to carry out research, either in a multi-sequence course or directed research course; United States — students are required to take seven of the nine courses in the 200 series, one of which must be a research seminar in U.S. History for the M.A., and one of which must be History 245 (formerly History 200H). Students in European History must take History 225 (formerly History 216) and African History requires History 275 (formerly History 212).

The Department will recommend to the Dean of the Graduate Division that students who do not complete the Master's degree in six quarters be dropped from departmental rolls automatically unless upon petition the Graduate Guidance Committee grants an extension of time.

Master's Examination. The Department follows the Comprehensive Examination Plan (see "Thesis or Comprehensive Examination" in the "Colleges, Schools, Graduate Division" section of this Catalog). The examination will consist of either (1) a three-hour written examination designed to assess the candidate's ability to synthesize a broad field of knowledge, or (2) the submission of three essays written for at least two different professors as part of the candidate's program of study. At least two of these papers must have been submitted for graduate courses in the 200 series. Students in the U.S. field must submit the paper from the two-quarter research seminar in U.S. History.

In Spring Quarter of each academic year each field meets to determine which of the Comprehensive Examination options it wishes to adopt for the following academic year. In consultation with the faculty in each field the Chair of the Department then appoints a field M.A. committee which consists of at least three faculty members to administer the Comprehensive Examination for that year.

The Comprehensive Examination covers one of the following fields:

1. Ancient (also includes Ancient Near East).
2. Medieval, 300-1500 (also includes Byzantine and Medieval Jewish History).
3. Europe, 1500-1789 (also includes British History to 1763).
4. Europe since 1789 (also includes British History since 1763 and the British Empire).
5. Africa.
6. Near East (includes candidates with emphasis on Armenia).
7. India and Southeast Asia.
8. East Asia.
9. Latin America.
10. United States.
11. History of Science.
12. Special Fields: students in the History of Religion, Russian History, and Modern Jewish History will normally be examined in one of the above fields, but with the approval of the faculty in these fields may petition the Graduate Guidance Committee for M.A. examination in their field of specialization.

Field examiners administer the M.A. comprehensive exams in November, March, and May of each academic year, considering the candidate's examination in relation to course evaluations filed by professors for all graduate courses taken by the candidate. To complete the examination file, an evaluation of the candidate's potential must be forwarded to the Field Examining Committee by the professor whom the candidate would like to become chair of the doctoral committee. The committee will recommend the following examination results: Pass to Continue; Pass Subject to Reevaluation; Terminal Pass; Fail. In cases where the M.A. is awarded with "Pass Subject to Reevaluation", the field M.A. Committee will conduct a special reevaluation of the candidate's progress after not more than an additional three quarters of study.

Special Requirements for Admission to the Doctoral Program

All students must be evaluated formally before proceeding to the Ph.D. degree. For the student who enters the graduate program with only a B.A. degree, this evaluation (see M.A. requirements above) must occur within the period of six quarters.

For students who enter with a Master's Degree from another department, evaluation must be completed by the end of three quarters of study in our department in order to determine whether or not they will be permitted to continue toward the Ph.D. This evaluation will be conducted in the same manner as described above under "The Master's Degree", except that for some candidates the written examination may be waived at the discretion of the field examination committee.

All candidates must present to the Graduate Guidance Committee a field approval form from the faculty member who has agreed to sponsor his/her work for the Ph.D. according to the following schedule: by the end of the sixth quarter or earlier for students entering with only a B.A., and by the end of the third quarter or earlier for students entering with an M.A. from another department.

Students who do not meet time limits on evaluation will be dropped from the departmental rolls automatically, unless upon petition they are excepted by the Graduate Guidance Committee.

Requirements for the Doctor's Degree

A candidate for the degree of Doctor of Philosophy in history must meet (a) the "Special Requirements for Admission to the Doctoral Program" listed above; and (b) the general requirements set forth under the Graduate Division. Attention is directed to the requirement that a program, extending over the full time of study, must be approved by the Department. A command of good English, spoken and written, the ability to read at least two foreign languages (except for the field of United States History where only one foreign language is now required), and an acquaintance with general history are expected of all candidates. The candidate is required to complete at least one continuing two or three-quarter seminar. Students of United States History should complete History 245 and should write a dissertation prospectus (which could be written for credit as a History 596 or 597) expected to contain: a) a full statement of the dissertation topic; b) an historiographical discussion of the literature bearing on the topic; c) a statement of the methodology to be employed; and d) a survey of the sources sufficient to demonstrate the viability of the topic. The prospectus must be submitted in writing and approved by the dissertation adviser prior to the oral part of the qualifying examinations. After approval, copies will be given to each member of the examining committee. Students of European History should complete History 225 and students of African History should complete 275.

Foreign Language Requirements. A reading knowledge of the languages prescribed below for the major fields is required. If only two languages are prescribed the student will display his competence in them by passing examinations administered by the Graduate Division. For a third or fourth language evidence of competence satisfactory to the chairperson of the doctoral committee will be considered acceptable.

Every student is urged, when possible and practical, to take a Graduate School Foreign Language Test before entering the department's graduate program as an effort toward fulfilling the foreign language requirements as quickly as possible. No oral qualifying examination for the Ph.D. may be scheduled until the student has passed an examination in at least two foreign languages, except for students of United States History, who must pass only one foreign language.

1. Ancient History. French, German, Latin and Greek.

2. Modern European History and the History of Science. Either French or German and a language needed by the student in his research and approved by the Guidance Committee.

3. Near Eastern History. Three languages – two Western and one Near Eastern – are required. They are to be selected on the basis of the candidate's specialization. The two Western languages will generally be French and German, but Russian may be substituted for one of those in certain cases. Competence in all three foreign languages must be proven by passing examinations administered by the Graduate Division.

4. British History. French and German, with the possibility of substitution.

5. Medieval History. French and German for all candidates plus Greek for those specializing in Byzantine history and Latin for those specializing in western medieval history. Students are expected to have French or German at the beginning of their graduate studies.

6. African History. French and at least one other European or African language needed for the student's research and approved by the Chairperson of the Ph.D. Committee.

7. Asian History. (a) India: for those specializing in Indian History, three languages chosen from the following: French and/or German, Dutch or Portuguese, plus Hindi and/or one classical or modern regional language of India; (b) East Asia: 1) for the M.A. degree: two years of Chinese or Japanese, or one European language certified by an ETS score of 500 or better; 2) for the Ph.D. degree in Chinese history: French or German or Russian plus Chinese and Japanese; for the Ph.D. degree in Japanese history: French and either German or Dutch plus Japanese. Admission to candidacy for the Ph.D. in the Chinese and Japanese fields requires the completion of a research seminar in the major field. Students are advised that successful completion of this seminar usually requires the equivalent of at least four years of superior college level language work in Chinese or Japanese.

8. United States History. One modern foreign language to be fulfilled through a departmentally administered reading exam or a score of 500 on the GSFLT.

9. Latin American History. Two of the following options: Spanish, Portuguese, or special methodological studies.

10. Russian History. Russian and German as well as French or another language deemed necessary by the instructor for the candidate's research.

11. History of Religion. French and German plus (in most cases) a classical or ancient language in the religious tradition of the specialization.

12. Jewish History. Hebrew plus another European language or Arabic.

13. Armenian History. Armenian, French, and an additional language or languages deemed necessary for the research to be undertaken. Students specializing in the Ancient and Medieval periods will be encouraged to prepare in Greek and/or Latin, while students specializing in the Modern period will be encouraged to prepare in Turkish and/or Russian.

14. Ancient Near East. French, German and two ancient languages, one of which should be either Akkadian, Egyptian or Hebrew. The other ancient language may be chosen out of Sumerian, Hittite, Ugaritic, Phoenician, Aramaic, Greek or Latin, depending on individual programs. It is expected that the ancient languages, with all attendant problems of philological and textual criticism, will normally constitute the fourth field of the doctoral examination.

15. Southeast Asia. Two languages; one chosen from the following: French, Dutch, Spanish. One of the languages of the area.

Except in the fields of African, Asian, British and United States history, reading knowledge of an appropriate language is required for admission to all graduate seminars.

Qualifying Examinations

Before admission to candidacy students must pass oral and written examinations. In these examinations the student is expected to show an adequate grasp of the wider field of historical knowledge and an ability to correlate historical data pertaining to them and to explain their significance. These examinations are designed to test not merely factual knowledge but also powers of historical analysis and synthesis, critical ability, and capacity for reflective thinking. A knowledge of the history of any area includes a reasonable knowledge of its historiography and bibliography; of its geography; and of its political, cultural, economic, and other historical aspects. The candidate is to be examined in four fields, one of which may be an approved field in anthropology, economics, geography, language and literature, philosophy, political science, or other allied subjects. This allied field must be comparable in size and scope to the history fields listed below. The candidate should select the fields in consultation with his/her faculty sponsor and must receive the Department's approval of all four fields not less than six months before the qualifying examination is taken. To obtain this approval the student should supply the Graduate Guidance Committee with the name of the faculty member who has agreed to serve as the sponsor of the doctoral work and with the details of the proposed program. A full-time graduate student must begin the qualifying examinations not later than the end of the ninth quarter of graduate work. (See "Time Limits for Completion of Stages Leading to the Doctor's Degree" listed below.)

Method of Examination

Except for students of United States History, the written qualifying examination is normally prepared and administered by the chair of the student's doctoral committee and read by the entire committee before the oral qualifying examination. The written qualifying examination includes the major field only. The oral examination will cover all four fields and will normally be held shortly after the written examination, but at the discretion of the doctoral committee it may be held as late as six months after the written examination. Both the written and oral examinations are the responsibility of the committee as a whole.

Successfully passing the written qualifying examination is required for eligibility for the oral qualifying examination. The members of the evaluation committee or the final doctoral committee determine whether or not an examination may be repeated (normally only once), based on their prognosis of the candidate's potential for successfully completing both the written and oral examinations within a specified period of time to be designated by the examining committee, but not to exceed one calendar year. For United States History, the written examination must be retaken at the next administration of the examination; if a student fails the oral examination s/he must retake it at a time specified by the examining committee but not to exceed six months. Any variance from these time limits must be approved by the American Field before going to the Graduate Guidance Committee for final approval.

For students of United States History, the written Ph.D. examination will be administered twice a year, in May and November, and will be composed of questions solicited from faculty in the entire field of United States History. A committee of three faculty members in United States History will make up and read the examinations for all students taking the examination during the academic year. The examination is intended to test a comprehensive, broad understanding of American history both before and after the independence of the United States. All facets of history (political, social, diplomatic, etc.) are included. An ability to synthesize factual information, sometimes across long chronological periods, is consequently essential. Knowledge of the scholarly literature and of the principal historiographical controversies arising out of it are tested along with the examinee's own interpretive capabilities.

Successful passing of the examination implies that the examinee is qualified, in the judgment of the U.S. Field, to teach courses in United States history at the college level. Questions relating to the planning of such courses may appear on the examination.

Fields of Examination

Ancient Greece; Ancient Rome; Medieval Constitutional and Legal; Medieval Social and Economic; Medieval Ecclesiastical and Religious; Medieval Intellectual and Cultural; Byzantine; Russia Since 862; Southeast Europe (Balkans); Britain to 1485; England, 1485-1763; England Since 1763; the British Empire; The Near East, 500-1500; The Near East Since 1500; Ancient Near East; Armenian; Survey of African History; Topics in African History (preferably on a regional basis); History of Science to 1600; History of Science Since 1600; Europe, Renaissance-Reformation; Renaissance to the French Revolution; Europe Since 1740; European Socio-Economic History; European Intellectual and Cultural History; Psycho-history; China, 900-1800; China Since 1800; Modern Japan; South Asia; Southeast Asia; Latin America, 1492-1830; Latin America Since 1759; History of Religions; Jewish History; Comparative History; United States: (1) Mastery of a general field sufficient to teach a college level survey course in United States History, and (2) A specialized field chosen from the following: Afro-American, American Diplomatic, American West, American Indian, California, Ante-Bellum and History of the South, Civil War and Reconstruction, Colonial, Cultural, Economic, Immigration, Intellectual, Jeffersonian and Jacksonian American (1800-1850), Labor, Mexican-American, Political Biography, Social, The New Nation (1763-1800). Twentieth Century, Urban, Women's History. Both fields must be submitted for specialists in U.S. history and only two fields in U.S. History are permitted. Either (1) or (2) or both may be chosen as minor fields for the Ph.D.

In addition to the European fields listed above, there is now a program in European Intellectual and Cultural History. Candidates working toward a doctorate in this field would offer fields in (1) the socio-political history of Modern Europe, (2) intellectual history, (3) one other area of study (such as medieval, ancient, or a given national history, etc.), and normally, (4) one field in some discipline outside the Department (in philosophy, literary criticism, psychology, linguistics, sociology of knowledge, art history, or the like). Students working in the earlier period (16th-18th centuries) must demonstrate minimal competency in Latin as well as in two modern European languages.

Candidates offering a field in Comparative History as a fourth field for the Ph.D. degree should choose a topic for comparison which would usually, but not necessarily, coincide with time-area spans of the other three fields defined for Ph.D. qualifying examinations. Each candidate offering a field in Comparative History will be required to submit a special written statement defining his or her particular field of study which must be approved by the candidate's proposed doctoral committee before petitioning the Graduate Guidance Committee for approval of the doctoral committee and four fields of examination.

Candidates in the history of science program must select three of the above fields and either the history of medicine or an allied field referred to above. The candidates must also demonstrate a detailed knowledge of the substance and historical development of a particular science, or of a type of engineering or technology, as a subfield common to the historical fields.

Final Examination

If required by the qualifying examination committee, a final oral examination will be conducted upon completion of the dissertation to cover the field within which the dissertation falls. The candidates

NOTE: For key to symbols, see page 74

will be expected to show such a mastery of their special fields, and such an acquaintance with the literature, general and special, bearing on them as would qualify them to give instruction to mature students. After approving a dissertation, the Chair of the doctoral committee may, with the unanimous consent of the entire committee, recommend a waiver of the final oral examination.

Dissertation

Candidates are required to present a dissertation on a subject of their choice of such character as to show a thorough mastery of the sources of information, the ability to carry on independent research, and to communicate its results in good literary form. In lieu of the customary type of dissertation, a student may in certain cases edit, or translate and edit, some historical source. Such a project involves careful textual criticism, explanatory annotations, and an historical introduction clearly showing the contribution of the source to historical knowledge. For the time limit on completion of the dissertation, see below. Besides demonstrating competence as research scholars by completing a dissertation, degree candidates must also demonstrate ability to give instruction in their fields.

Time Limits for Completion of Stages Leading to the Doctor's Degree

After completion of the Bachelor's degree (and including all postgraduate work in this or other departments), the following schedule is mandatory:

(1) Oral examinations must be completed by the end of the ninth quarter except in United States History where they must be taken within six months of the written examination.

(2) Dissertations must be completed within twenty quarters (including leaves of absence following completion of the oral examination).

Candidates will be dropped from departmental rolls automatically if they exceed these time limits for completion of the oral examination and dissertation, unless they petition the Graduate Guidance Committee for an extension. This petition must be endorsed by the candidate's sponsoring professor before it can be evaluated by the Committee.

Annual Evaluation of All Graduate Students

In addition to the evaluation processes involved in (1) the Master's examination; (2) the admission of students to the Doctoral program; (3) the Doctoral qualifying examinations; and (4) the preparation of the Doctoral dissertation, the Department's Graduate Guidance Committee conducts an annual evaluation of all graduate students each spring quarter. This evaluation is made in consultation with the entire departmental faculty in order that appropriate action may be taken in cases of unsatisfactory student progress. Students who do not maintain a 3.0 grade-point average are subject to dismissal.

Lower Division Courses

1A-1B-1C. Introduction to Western Civilization. Lecture and discussion. A broad, historical study of major elements in the Western heritage from the world of the Greeks to that of the twentieth century, designed to further beginning students' general education, introduce them to ideas, attitudes, and institutions basic to Western civilization, and to acquaint them, through reading and critical discussion, with representative contemporary documents and writings of enduring interest. The Staff

2A-2B-2C. History of Technology from Antiquity to the Twentieth Century. Designed for students in the natural sciences, social sciences, and fine arts. It is a survey of the development of man's ability to understand more fully and to utilize more efficiently his natural environment, stressing technology's changing social, economic, scientific and cultural relationships. Mr. Burke

3A-3B-3C. Introduction to the History of Science.

3A. The Scientific Revolution. A survey of the beginnings of the physical sciences involving the transformation from Aristotelian to Newtonian cosmology, the mechanization of the natural world, the rise of experimental science, and the origin of scientific societies.
Mr. Burke, Mr. Westman, Mr. Wise

3B. The Physical Sciences since the Enlightenment. A broad survey of the development of ideas in classical and modern physical science since Newton. The unifying theme will be theories of matter, but more specifically Chemistry, Thermodynamics, Electromagnetic Theory of Light, Energy Conservation, Relativity, and Quantum Mechanics, will be discussed.
Mr. Burke, Mr. Wise

3C. The Biological Sciences, 1800-1955. A survey of the development of the biological sciences from the period of Bichat and Müller to the discovery of the double helix. Mr. Frank

4. Introduction to the History of Religions. A discussion of the various systems, ideas, and fashions of though X that have dominated western approaches to the religions of the world since Antiquity. The course surveys the development form classical Greek and early Christian theories to modern history with its discoveries of the religions of India, China, the ancient Near East, etc., and the problem of the encounter of various religions in the 19th and 20th centuries. Mr. Bolle

6A-6B-6C. History of the American Peoples. A survey of the American Peoples from the advent of aboriginal society to the present, emphasizing racial and ethnic interaction, industrialization, urbanization, and cultural change.
Mr. Nash, Mr. Saxton and Staff

6BH. History of the American Peoples. A survey of the American Peoples from the advent of aboriginal society to the present, emphasizing racial and ethnic interaction, industrialization, urbanization, and cultural change. Mr. Monkkonen

7A-7B. Survey of the Political History of the U.S. Lecture and discussion. A survey of the history of the U.S. from the Revolutionary Era to the present. Emphasis will be given to political developments, and to the social, cultural and economic bases of American politics. The courses are designed for students in the social sciences, and other departments, who desire a thorough grounding in American political culture. This sequence (or two quarters of History 6) is strongly recommended for history majors planning to take more advanced courses in U.S. history. Mr. Gatell, Mr. Howe, Mr. Saxton

8A. Latin America: Reform and Revolution. A general introduction to Latin America emphasizing those institutions from the past which have shaped the present and the struggle for change in the twentieth century. Movies and discussions complement the topical lectures. Mr. Burns and Staff

8B. Latin American Social History. The historical and contemporary perspective of the role of ordinary people in Latin American society. Each lecture-film session centers on a major Latin American movie illustrative of a theme in social history. May be taken independently of 8A.
Mr. Burns and Staff

9A-9D. Introduction to Asian Civilizations. (1 course each)

9A. History of India. An introductory survey for beginning students of the major cultural, social, and political ideas, traditions, and institutions of Indic civilization. Mr. Wolpert

9B. History of China. Survey of the history of China: the evolution of characteristic Chinese institutions and modes of thought from antiquity to 1950; the problems of political change; China's response to the western impact in modern times.
Mr. Farquhar

9C. History of Japan. A survey of Japanese history from earliest recorded times to the present with emphasis on the development of Japan as a cultural daughter of China. Attention will be given to the manner in which Chinese culture was Japanized and the aspects of Japanese civilization which became unique. The creation of the modern state in the last century and the impact of western civilization on Japanese culture will be treated.
Mr. Notehelfer

9D. History of the Near and Middle East. An introduction to the history of the Muslim world from the advent of Islam to the present day.
Ms. Marsot

10A-10B. Introduction to the Civilizations of Africa. Explores African cultures on a thematic basis within a wider framework of political change over time. Intended for students with a general interest in Africa, but also strongly recommended for those intending to take upper division courses in African History.

M70. Survey of Mediaeval Greek Culture. (Same as Classics M70.) Classical roots and mediaeval manifestations of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including the discovery of America).
Mr. Dyck

99. Introduction to Historical Practice. Prerequisite: Restricted to Freshmen and Sophomores. This course will take the form of discussion classes of not more than 15 students meeting with a faculty member. They will explore how works of history are written by focusing on problems of historiography and method. The Staff

99H. Introduction of Historical Practice. (Restricted to Freshmen and Sophomores). This course will take the form of discussion classes of not more than 15 students meeting with a faculty member. They will explore how works of history are written by focusing on problems of historiography and method. Mr. Burns, Mr. Posnansky

Upper Division Courses

The prerequisite for all upper division courses is upper division standing or consent of the instructor, unless otherwise stated. For certain graduate courses which are open to students with Upper Division standing and with the permission of the instructor, see prerequisite under "Graduate Courses" heading.

CONTENTS

100-103	General History
104-114	Near and Middle East
115-124	Ancient and Medieval
125-144	Europe
145-164	United States
165-174	Latin America
175-181	Africa
182-190	Asia
191-192	Jewish
193	Religion
195	Science
197	Undergraduate Seminars
199	Special Studies in History

100. History and Historians. A study of historiography, including the intellectual processes by which history is written, the results of these processes, and the sources and development of history. Attention also to representative historians.
Mr. Reill

101. Introduction to Historical Practice. Prerequisite: Restricted to Juniors and Seniors. This course will take the form of discussion classes of not more than 15 students meeting with a faculty member. They will explore how works of history are written by focusing on problems of historiography and method. The Staff

102. Explorations in Psychoanalysis and History. (Formerly numbered 104). Prerequisite: consent of instructor. The course will study the art of psychological and historical interpretation, and will assess recent writings in the field of psycho-history. Limited to 35 students.
Mr. Loewenberg, Mr. Wohl

104. History of Ancient Egypt. (Formerly numbered 117). A cultural history of ancient Egypt from predynastic times to the end of the new kingdom.
The Staff

105A-105B. History of Ancient Mesopotamia and Syria. (Formerly numbered 140A-140B). The political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achaemenid period. Mr. Buccellati

106A. The Middle East from 600 to 950. (Formerly numbered 134A). Survey of the background of circumstances of the rise of Islam, the creation of the Islamic empire and the development of both to the middle of the tenth century A.D./fourth century A.H. Mr. Morony

106B. The Middle East from 950 to 1500. (Formerly numbered 134B). Survey of the political, social, economic, and religious history of Islamic western Asia, with some attention to North Africa, from the middle of the 10th/4th to the end of the 15th/9th century. Mr. Morony

107A. Islamic Civilization: religious themes. (Formerly numbered 135A). Origins of Islamic civilization; Muhummad and the Qur'an; development of Muslim doctrine, piety, and law; sectarian Islam, mysticism, and Islam in the modern world, emphasizing methods of comparative religion, religious dynamics, and history of religion. Mr. Morony

107B. Islamic Civilization: political, social, economic themes. (Formerly numbered 135B). Islamic political theory, administrative and military traditions, social organizations, urban society, education, commercial and productive organization, concepts of property and agrarian issues. Mr. Morony

108A-108B. The Middle East: 1500 to the Present. (Formerly numbered 136A-136B). Social, intellectual and political change in Turkey, Iran and the Arab countries from 1500 to the present. Ms. Keddie, Ms. Marsot

109A-109B. History of North Africa from the Moslem Conquest. (Formerly numbered 133A-133B).

109A. To 1578 Mr. Morony

109B. From 1578 to the present Ms. Marsot

110A-110B-110C. Islamic Iran. (Formerly numbered 130A-130B-130C). Political, social and cultural history of Persia. 110A. 600 to 1400 Mr. Banani

110B. 1400 to 1800 Mr. Banani

110C. 1800 to present Ms. Keddie

111A-111B. History of the Turks. (Formerly numbered 139A-139B-139C). A survey of the society, government, and political history of the Turks from earliest times to the present.

111A. Origins to 1808. Turkish orgins, early Central Asian and Middle Eastern states. The Rise and Fall of the Ottoman Empire. Mr. Shaw

111B. 1808 to the present. Modernization of the Ottoman Empire, 1808-1923. The Turkish Republic. The Turks in the world. Mr. Shaw

112A-112B-112C. Armenian History (Formerly numbered 131A-131B-131C). The Armenian Experience from ancient to modern times.

112A. From epic orgins to the Bagratid kingdom, Second millenium B.C. to 1071 A.D. The Urartuans; the national dynasties; relations with the Persian, Roman, Byzantine, and Arab empires; the socio-economic structure; the impact of Christianity. Mr. Hovannisian

112B. From the Crusades to the Armenian Question, 11th-19th centuries. The Cilician kingdom; Mongol and Mamluk conquests; the Armenian experience under Seljuk, Ottoman, and Safavid rule; the union of Eastern Armenia to the Russian empire; the Armenian intellectual and political revival. Mr. Hovannisian

112C. Modern and Contemporary times. The Armenian Question since 1876; from reform movements to resistance; the massacres of 1894-1896; the Turkish Armenian and the Russian Armenian provinces; the Armenian Holocaust, 1915-1923; the Armenian republic, Soviet Armenia, and the Armenian communities. Mr. Hovannisian

112D. Introduction to Armenian Oral History. (Formerly numbered 131D). The uses and techniques of Armenian oral history; the pre-interview, the interview, and post-interview procedures; methods of compilation and evaluation. The course includes field assignments and interviews. May be concurrently scheduled with History 212. Mr. Hovannisian

113. The Caucasus under Russian and Soviet Rule. (Formerly numbered 132). A survey of the political, economic, social, and cultural history of the Caucasus region since 1801. The Georgian, Armenian, and Azerbaijani response to Russian and Soviet rule; the nationality question and the Soviet national republics. Mr Hovannisian

115A-115B-115C. History of the Ancient Mediterranean World. (Formerly numbered 111A-111B-111C).

115A. A survey of the history of the ancient East from earliest times to the foundation of the Persian Empire. Mr. Mellor

115B. The history and institutions of the Greeks from their arrival to the death of Alexander. Mr. Chambers, Mr. Mellor

115C. The history and institutions of Rome from the founding of the city to the death of Constantine. Mr. Chambers, Mr. Mellor

116A-116B. History of Ancient Greece. (Formerly numbered 112A-112B).

116A. The Greek city-state. The emphasis will be on the period between the Persian Wars and the rise of Macedon. Mr. Champers

116B. The Hellenistic Period. A consideration of the new patterns in government, social life, science, and the arts that appeared between the Macedonian conquest and the decisive intervention of Rome. Mr. Chambers

117A-117B. History of Rome. (Formerly Numbered 113A-113B).

117A. To the death of Caesar. Emphasis will be placed on the development of imperialism and on the constitutional and social struggles of the late republic. Mr. Mellor

117B. From the death of Caesar to the time of Constantine. The early empire will be treated in more detail supplemented by a survey of the social and economic changes in the third century. Mr. Mellor.

118. Introduction to Roman Law. (Formerly numbered 115). This course will provide a survey of the public (constitutional), criminal and private law of the Romans. Some subjects treated will be the social context of Roman law, the historical evolution of Roman law, mechanisms and procedures by which the law was administered, and the content of private law. Mr. Mellor

119. The Christian Church. (Formerly numbered 118A). Constitutional, political, and economic history of the Church: Christianization of the Roman Empire and the Germanic kingdoms; governance and institutions of the Church; relations between Church and monarchy; the high tide of papalism; crises of authority on the eve of the Reformation. Mr. Benson

120. The Christian Religion. (Formerly numbered 118B). The religious experience of Christians—conversion, doctrine, belief, heresy, spirituality, worship, liturgy, and art—from the founding of the Church till the eve of the Reformation. Examines the religious life of lay Christians as well as that of the Church's institutional, intellectual, and spiritual leaders. Mr. Benson

121A. The Early Middle Ages. A survey of religious, intellectual, artistic, social, and economic changes in Europe from the decay of the Roman Empire until about 1050.

121B. The Later Middle Ages. A continuation of course 121A from 1050 to about 1450, with the added consideration of the new scientific movements. Mr. Rouse

121C. Medieval Civilization: The Mediterranean Heartlands. A survey of Western Mediterranean Europe, social-economic-cultural within a political framework, including its relation with other cultures. Mr. R.I. Burns, S.J.

121D. Medieval People: The Thirteenth Century. Movements and creative contributions to Western culture in this central century of the Middle Ages, as seen in its representative men and works. Mr. R.I. Burns, S.J.

M122A-M122B. Byzantine Civilization.

M122A. (Same as Classics M170A). Emphasis is laid on Byzantine theology.

M122B. (Same as Classics M170B). Literature, relations with Rome, and the Renaissance. Mr. Dyck

123A-123B. Byzantine History. The course stresses the political, socio-economic, religious, and cultural continuity in the millennial history of Byzantium. It begins with the reforms of Diocletian and includes such topics as Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks. Mr. Vryonis

125A-125G. History of Modern Europe. (Formerly numbered 141A-141G).

125A. The Renaissance: Power and culture in the Italian City-States. Mr. Martines

125B. The Reformation: Church and religion in early 16th centruy. Revolutionary tendencies in German society. The Peasant Uprising. Theology and political thought of Erasmus, Luther, Zwingli, Calvin, and the Anabaptists. The new churches. The effects of the Reformation on society. Mr. Clasen

125C. Europe, 1560-1660. Religious and national conflicts, political and social developments in Continental Europe, primarily France, Germany and the Lowlands. Mr. Hoxie

125D. Europe under the old Regime: A comparative social history of England, France, and Germany. Mr. Reill

125E. Europe, 1789-1848: The French Revolution and the Industrial Revolution. Political revolution in France, and its failure in England and Germany. Industrialization in England, economic retardation in France and Germany. Changes in social structure, the family, living conditions, population growth, and popular protest. Mr. Reill

125F. Europe, 1848-1900. The legacy of the revolutionary movement in France, Germany, and Italy; Napoleon III, National unification in Germany and Italy; Industrialism and Imperialism; the rise of socialism and popular political parties; the crises of liberal humanism and the culture of fin de siècle Europe. Mr. Reill

125G. Europe in the 20th Century. International Rivalries and domestic conflicts. The First World War and its impact on thought and society. Fascism and Communism. World War II. European Recovery and Integration. Mr. Wohl

126A-126E. Cultural and Intellectual History of Modern Europe. (Formerly numbered 142A-142E). Climates of taste and climates of opinion. Educational, moral and religious attitudes; the art, thought and manners of the time in an historical context. Quarter courses are oriented approximately as follows:

126A. 16th Century Mr. Hoxie, Mr. Westman

126B. 17th Century Mr. Hoxie, Mr. Funkenstein

126C. 18th Century Mr. Hoxie, Mr. Reill

126D. 19th Century. Mr. Loewenberg, Mr. Weber

126E. 20th Century. Mr. Loewenberg, Mr. Weber, Mr. Wohl

127A-127B. War and Diplomacy in Europe. (Formerly numbered 147A-147B-147C).

127A. 1650-1815. Survey of military and diplomatic history, seen in relation to social and economic

NOTE: For key to symbols, see page 74

developments and the growth of the state. Mr. Symcox

127B. 1815-1945. The balance of power; the growth of the nation state; imperial and colonial rivalries; the two world wars. Mr. Symcox

128A-128E. History of Modern France. (Formerly numbered 143A-143E).

128A. France 1450-1620. Institutions of the French monarchy and territorial formation of France in the fifteenth century. French humanism. Catholic and Protestant Reformations in sixteenth-century France. French Wars of Religion. Mr. Lossky

128B. France, 1620-1789. Political and intellectual history of France, principally in the seventeenth century, with special emphasis on the role of Richelieu and of Louis XIV. Mr. Lossky

128C. The Revolution and Napoleon. The Staff

128D. 1815-1870. The Staff

128E. Contemporary France. The Staff

129A-129D. History of Modern Germany and Austria. (Formerly 144A-144D).

129A. 1555-1700: The political structure of empire and territories. The social classes. The economy. Book publishing and universities. Daily life. The Counter Reformation. Political evolution and Thirty Years' War. Military entrepreneurship. Population losses. The Peace of Westfalia. Mr. Clasen

129B. 18th Century: A study of the political, social, and intellectual structures of Germany and Austria. Topics to be covered are: Enlightened absolutism, bureaucracy and reform, conflicts between the Empire and the principalities, the Seven Years' War, Pietism, cultural life and the universities. Mr. Reill

129C. 19th Century: Age of Reform, Wars of Liberation, Peace of Vienna, Restoration and Metternichian Reaction, Zollverein, Revolutions of 1848, Prussian Constitutional Struggle, German Unification, Austrian Liberalism, the Bismarckian and Wilhelmine Eras in Germany—industrialism, anticlericalism, anti-Semitism, the rise of Social Democracy. Mr. Loewenberg

129D. 20th Century: The political, social, economic, and cultural history of German speaking Central Europe, the Hohenzollern and Hapsburg Empires, the World Wars, postwar revolutions, republics, the rise of fascism and Nazism, Occupation and the Austrian, German Federal, and the German Democratic Republics. Mr. Loewenberg

130A-130B. The Netherlands in European Affairs, 1450-1795. (Formerly numbered 145A-145B).

130A. 1450-1609. Unification of the Low Countries under the House of Burgundy; culture of the Burgundian court and of the Netherlands. Civil wars in the Netherlands and war with Spain within the framework of European politics to the Truce of 1609. Mr. Lossky

130B. 1609-1795. Development of the Dutch Republic, principally in the seventeenth century: a study in decentralized government. The Dutch Republic as a commercial center and as an observation post for European international relations. A brief consideration of the Southern Netherlands. Mr. Lossky

131A-131D. Topics in Russian History. (Formerly numbered 146A-146D).

131A. The Origins of Russia: Kievan Russia and its Culture, Appanage Principalities and Towns; the Mongol Invasion; the Unification of the Russian State by Muscovy, Autocracy and its Servitors; Serfdom. Mr. Krekic, Mr. Lossky

131B. Imperial Russia: Westernization of State and Society; Centralization at Home and Expansion Abroad; the Peasant Problem; Beginnings of Industrialization; Political Reforms; Movements of Political and Social Protest. The Revolution of 1905. Mr. Rogger

131C. 20th Century Russia: Relations between State and Society; Peasantry and Working Class; Russia in World War I; the Revolutions of 1917; Consolidation of the Bolshevik Regime; Succession Crisis and Ascendancy of Stalin, Collectivization and Industrialization; Foreign Policy and World War II; Death of Stalin and De-Stalinization. Mr. Rogger

131D. Prerequisites: a background in Russian history, literature or European social thought. Social Thought and Movements in Modern Russia, late 18th to early 20 centuries. Mr. Rogger

132A-132B. History of Italy. (Formerly numbered 148A-148B).

132A. ca. 1530-1815. Survey of social, economic, political and cultural history covering the eclipse of the Italian economy and the city-state, the rise of absolutist governments. Enlightenment reforms nd the origins of the Risorgimento. Mr. Symcox

132B. 1861 to the Present. Political, economic, social, diplomatic and ideological developments. Mr. Wohl

133A-133B. The Social History of Spain and Portugal. (Formerly numbered 148C-148D).

133A. 1459-1789. This course will deal with the development of popular history in the Iberian Peninsula. Emphasis will be given to peasant and urban history, gold routes, slave trade, history of women, and the development of different types of collective violence. Ms. Kaplan

133B. 1789 to the Present. Spain's position in Europe and its potentialities for social change will be discussed through investigations of urban history, agrarian social structure, history of women, problems of slow industrial development, imperialism, anarchism, and labor history. Ms. Kaplan

134A. Southeastern Europe, 500-1500. (Formerly numbered 149A). A political, economic, and cultural survey of the independent Balkan states in the Middle Ages. Mr. Krekic

134B. Southeastern Europe, 1500-1918. (Formerly numbered 149B-C). The Balkans under Ottoman rule, movements of national liberation and the formation of nation states. Mr. Krekic

135A-135B. Marxist Theory and History. (Formerly numbered 161A-161B). Prerequisite: 135A is generally a prerequisite for 135B, or permission of instructor. Introduction to Marxist philosophy and method; conception of historical stages; competing Marxist analyses of transition from feudalism to capitalist economy via reading *Capital;* theory of politics and state in relationship to historical interpretation of 19th century European revolutions; capitalist crises. Mr. Brenner, Ms. Kaplan

136A-136Z. Topics in European History. (Formerly numbered 160A-160Z). The individual courses in this series aim to provide students with an integrated introduction to important aspects of European history by focusing on a specific topic within a broad framework.

136A. Social Movements. Ms. Kaplan

136B. Peasants and Agrarian Society. Mr. Brenner

136C. Urban Society. Mr. Symcox

136D. Aristocracy and Nobility. The Staff

136E. Population: The population of Europe since the middle ages. Plague, diseases and famine; marriage and fertility control; industrialization and population growth; mortality decline and the adoption of birth control in the 19th century; the baby boom and its consequences. The Staff

136F. The Family: The social history of the family in western Europe since the middle ages. Household and family organization of peasants, artisans and aristocrats; kinship, child-rearing, parental authority, marriage and inheritance systems; attitudes toward love, sex, and children. The Staff

136G. Psycho-history. Mr. Loewenberg, Mr. Wohl

136I. Special Topics. The Staff

136j. Women. Ms. Kaplan

137A-137B. Themes and Problems in English History Since 1500. (Formerly numbered 150A-150B). Prerequisite: upper division standing or consent of the instructor. A general survey of English history since c. 1500 with analyses of particular social, political, religious and economic questions. The division between courses A and B occurs at c. 1714. Mr. Moore

138A-138B. Medieval England. (Formerly numbered 151A-151B).

138A. Anglo-Saxon England and the Norman Conquest, 900-1215; the nature of the society that emerged from the Viking invasions; the conquest and colonization by the Normans; the principles of lordship by which they ruled, to Magna Carta, 1215. Mrs. Searle

138B. England in the High Middle Ages: Magna Carta to 1400. The emphasis will be on the social and economic developments that underlay constitutional change, peasant revolt, the Black Death and the Hundred Years' War. Mrs. Searle

139. Renaissance England. (Formerly numbered 150C-150D). Culture and Society. Emphasis on literary culture (Elizabethans, Jacobeans, Carolines), but with readings and lectures on different aspects of political and economic life as required for a serious understanding of the culture. Mr. Martines.

140A-140B. Early Modern England, 1450-1700. (Formerly numbered 153A-153B).

140A. The development of capitalism in England, especially the countryside, 1450-1700; the transformation of class relations; the emergence of political conflicts; state centralization and military aristocracy, Crown versus Parliament, the English Revolution. Mr. Brenner

140B. Analysis of the transformation of religious and political ideology in relationship to socio-economic and political conflicts. The English Reformation and the development of the State; Protestantism and political opposition; religious radicalism and the English Revolution. (Covers same period as History 140A from different angle, so it is preferable to take History 140A-B in sequence). Mr. Brenner

141A-141B. Modern England. (Formerly numbered 154A-154B). Analyses of the English economy, society and polity since 1688, focusing upon the dynamics of both stability and change.

141A. 18th and 19th centuries, 1688-1832.

141B. 19th and 20th centuries, 1832 to World War II and its aftermath. Mr. Moore

142A-142B. The British Empire Since 1783. (Formerly numbered 158A-158B). The political and economic development of the British Empire, including the evolution of colonial nationalism, the development of the commonwealth idea, and changes in British colonial policy. Mr. Galbraith, Mr. SarDesai

143. History of Canada. (Formerly numbered 159). A survey of the growth of Canada into a modern state from its beginnings under the French and British colonial empires. Mr. Galbraith

145A. Colonial America, 1600-1763. (Formerly numbered 171A). An examination of the molding of an American society in English North America from 1600 to 1763. Emphasis is given to the interaction of three converging cultures: Western European, West African, and American Indian. Mr. Nash

145B. Revolutionary America, 1760-1800. (Formerly numbered 171B). An inquiry into the origins and consequences of the American Revolution, the nature of the revolutionary process, the creation of a constitutional national government, and the development of a capitalist economy. Mr. Nash

146A-146B. The United States: 1800-1850. (Formerly numbered 172A-172B.

146A. Jeffersonian America. Jeffersonian Republican ascendancy nd the Era of Good Feelings, 1800-

1828; disintegration of the Federalist opposition; the testing of American nationality in the second war with Britain; beginnings of the transportation and industrial revolutions; restructuring of politics in an increasingly egalitarian age.
Mr. Gatell, Mr. Howe

146B. Jacksonian America and Beyond. The "Jacksonian Revolution" and its aftermath, 1829-1850; the problem of national power versus state sovereignty; problems of rapid social change through industrialization and urbanization; reform impulse; antislavery movements; territorial expansion as focus for sectional rivalry.
Mr. Gatell, Mr. Howe

147A. The United States: Civil War and Reconstruction. (Formerly numbered 173A). The topics studied will include: the rise of sectionalism, the antislavery crusade; the formation of the Confederate States; the war years; political and social reconstruction. Mr. Robinson

147B. The United States, 1875-1900. (Formerly numbered 173B). American political, social, and institutional history in a period of great change. Emphasis on the altering concepts of the role of government and the responses to that alteration.
Mr. Saxton

148A-148B. The United States: The Twentieth Century. (Formerly numbered 174A-174B). The political, economic, intellectual, and cultural aspects of American democracy in the twentieth century. Mr. Coben, Mr. Weiss

148C. The United States Since 1945. (Formerly numbered 174C). A history of the political, social and diplomatic developments that have shaped the United States since 1945. Mr. Dallek, Mr. Weiss

149A-149B. American Economic History. (Formerly numbered 175A-175B).

149A. Examines the roles of economic forces, institutions, individuals and groups in promoting or impeding effective change in the American economy, 1790-1910. During this period the technical skeleton of the modern industrial structure was formed. The course explains why and how the American economy evolved into a dual economy, characterized by a center of firms large in size and influence, and a periphery of smaller firms.
Ms. Yeager

149B. Examines the dynamics of change in the dual economy, focusing in greater detail upon interrelationships between macro and micro developments in the economy and upon the growing interdependency between the U.S. and the world economy, 1910 to the present. Ms. Yeager

150A-150B. Intellectual History of the United States. (Formerly numbered 177A-177B). The principal ideas about humanity and God, nature and society, which have been at work in American history. Includes the sources of these ideas, their connections with one another, their relationship to American life, and their expression in great documents of American thought. Mr. Howe

150C. History of Religion in the United States. (Formerly numbered 177C). Consideration of the religious dimension of people's experience in the United States. A number of religious traditions which have been important in this country will be examined, and attention devoted to relating developments in religion to other aspects of American culture. Mr. Howe

151A-151B. Constitutional History of the United States. (Formerly numbered 179A-179B).

151A. A study of the origins and development of constitutionalism in the United States. Particular emphasis on the framing of the Federal Constitution in 1787, and its subsequnt interpretation. Topics of special emphasis include: judicial review, significance of the Marshall Court, and the effects of slavery and the Civil War on the Constitution.
Mr. Gatell

151B. A study of constitutionalism since the Civil War. Particular emphasis on the development of the Supreme Court, the due process revolution, the Court and political questions, and the fact of judicial supremacy within self-prescribed limits.

152A-152B. American Diplomatic History. (Formerly numbered 178A-178B).

152A. The establishment of an independent foreign policy, the territorial expansion of the United States, and the emergence of a world power.
Mr. Dallek

152B. The role of the United States in the 20th century world. Mr. Dallek

153. The United States and the Philippines. (Formerly numbered 183). An examination of the interrelationships of immigration and of colonialism and independence between the United States and the Philippines focused mainly within the time period 1898 to the present. (Survey level familiarity with Southeast Asian or United States history, or both, is recommended but not a prerequisite.)
Mr. Saxton

154A-154B. United States Urban History. (Formerly numbered 189A-189B).

154A. The pre- and early industrial city. Focuses on the social, spatial and economic development of U.S. cities. Special attention will be paid to the social consequences of the pre- and early industrial economic relationships. Mr. Monkkonen

154B. The industrial and post-industrial city. (189A is *not* a prerequisite). Focuses on the mature urban network, with concentration on social, spatial, and economic interaction. The issues of mass society, neighborhood, crime, poverty, ethnicity and racial discrimination will be covered. Mr. Monkkonen

154C-154D. History of American Architecture and Urban Planning: 1600-The Present. (Formerly numbered 180J-180K). Aspects of American cultural history as explored through architecture, urban planning and the allied arts. The focus is on the development of an architectural consciousness in America, ways in which the built environment has affected its users and observers, and the extent to which it has reflected their values and ways of living. 154C covers from 1600 to 1890. 154D covers from 1890 to the present. Mr. Hines

155A-155B. American and European Working Class Movements. (Formerly numbered 185A-185B). Examines major episodes in the institutional, economic, and cultural development of the American working class from colonial times to the present, emphasizing both organized and unorganized labor in a comparative context. A.F. of L., rise of industrial unionism, and labor politics are also discussed. Mr. Laslett

156A-156B. American Social History, 1750-1960. (Formerly numbered 180A-180B). A historical analysis of American society and culture, with emphasis on the family, religious values, Afro-American life, women's work, urbanization and industrialization, immigration and nativism, and movements for social reform. 156A will cover the period 1750-1860; 156B, 1860-1960. Mr. Coben

156C-156D-156E. Social History of American Women. (Formerly numbered 171C-171D-171E). A survey of the major demographic, economic, social and intellectual factors shaping the lives of women in families, at work, and in larger social collectivities. Class, regional, racial, and ethnic comparisons will be emphasized.

156C. Colonial and Early National—1600-1820.
Ms. Sklar

156D. Victorian and Industrial—1800-1920.
Ms. Sklar

156E. 20th Century—1900-1975. Ms. Sklar

157A-157B-157C. North American Indian History. (Formerly numbered 180F-180G-180H). History of Native Americans from contact to the present. Emphasizes the ethnohistorical dimensions of culture change, Indian political processes and the continuity of Native American cultures. Focuses on selected Indian peoples in each period.

157A. Contact - 1760. Mr. Morrison

157B. 1760-1860. Mr. Morrison

157C. 1860-Present Mr. Morrison

158A. Comparative Slavery Systems. (Formerly numbered 176C). An examination of the slavery experience in various New World slave societies. The course focuses on outlining the similarities and the differences among the legal status, treatment and slave cultures of North American, Caribbean and Latin American Slave Societies.
Mr. Robinson

158B-158C. Introduction to Afro-American History. (Formerly numbered 176A-176B). A survey of the Afro-American experience. These courses focus on the three great transitions of Afro-American life: the transition from Africa to New World slavery, the transition from slavery to freedom, the transition from rural to urban milieus.
Mr. Hill, Mr. Robinson

158D. Afro-American Urban History. (Formerly numbered 176D). An examination of Afro-American urban life prior to 1945. The course focuses on the transformation from slavery to freedom and the shift from southern to northern areas It looks closely at the forces which both propelled Afro-Americans to the cities and which also inhibited their adjustment to them. Mr. Robinson

158E. Afro-American Nationalism in the First Half of the Twentieth Century. (Formerly numbered 176E). A critical examination of the Afro-American search in the first half of the twentieth century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. Mr. Hill

159A-159B. History of the Chicano Peoples. (Formerly numbered 186A-186B). The character, values, economy, social structure, politics, culture, and intellectual heritage of the Mexican-American peoples as related to the history of the United States and Mexico, with emphasis on the Southwest.
Mr. Gómez-Quiñones

160. The Immigrant in America. (Formerly numbered 182). An historical analysis of the social and economic causes and effects of immigration, particularly after the 1880's, emphasizing the problems of acculturation and adjustment. The restrictionists and the implications of immigration policy on U.S. foreign policy will be stressed. Mr. Laslett

161. Asians in American History. (Formerly numbered 192). A study of the politically troubling question of entry into the United States of immigrants ineligible for citizenship, and their citizen children in American history.

162. The American West. (Formerly numbered 181). A study of the West as frontier and as region, in transit from the Atlantic seaboard to the Pacific, and from the 17th century to the present.
Mr. Hundley

163. History of California. (Formerly numbered 188). The economic, social, intellectual, and political development of California from the earliest times to the present. Mr. Hundley

165A-165B. Colonial Latin America. (Formerly numbered 168A-168B). Studies in the general development of Latin America prior to 1825 with emphasis on social history. Mr. Lockhart

166. Latin America in the 19th Century. (Formerly numbered 162A). An intensive analysis of the economic, social, and political problems of the Latin American nations from their independence to around 1910. Mr. Burns, Mr. Burr

167A-167B. Latin America in the 20th Century. (Formerly numbered 162B). Examination of the "widening gap" between the 20 republics of Latin America and the United States suggests the hypothesis that the gap has been mythical. Case studies of experiments in national development are illustrated by films and outside speakers.
Mr. Burr, Mr. Wilkie

168. History of Latin American International Relations. (Formerly numbered 169). Emphasis is given to the developing interests of the Latin American nations in their relationship with one another and

NOTE: For key to symbols, see page 74

with other areas of the world beginning with 19th-century independence. Mr. Burr

169. Latin American Elitelore. (Formerly numbered 164). Prerequisite: 167A or B or 171. Study focuses on Elitelore (defined as oral or noninstitutionalized knowledge involving the leaders' conceptual and perceptual life history views) in contrast to Folklore (the followers' traditional or popular views). Elitelore genres include oral history, literature, and cinema. Mr. Wilkie

170. Latin American Cultural History. (Formerly numbered 162C). Intellectual, artistic, and folk expressions of the Latin American spirit and character are examined in readings and lectures with emphasis on the unique contribution of Latin Americans to develop self-interpretation. Music, films, and slides supplement discussions. Mr. Burns, Mr. Wilkie

171. The Mexican Revolution Since 1910. (Formerly numbered 166). The concept of "Permanent Crisis" is examined to describe and explain the structure of "Permanent "one-party democracy." Mr. Wilkie

173. Modern Brazil. (Formerly numbered 163B). Lectures treat selected topics in the political, economic, social, and cultural development of Brazil. Topical emphasis falls on modernization and the struggle for change, 1850 to the present. Discussions, films, slides, and guest speakers supplement and complement the lectures. Mr. Burns

174. Brazilian Intellectual History. (Formerly numbered 163C). The general intellectual development of Brazil with emphasis on those introspective movements in which the Brazilians attempted to interpret themselves, their nation, and their civilization. Mr. Burns

175A-Z. Topics in African History. (Formerly numbered 125A-125Z). Prerequisite: one previous course in African History at UCLA or consent of instructor. Examines specific topics which have a continental application rather than proceeding on a strictly chronological or regional basis.

175A. Early African Cultural and Technological Traditions. A survey of the non-documentary sources of early African history with particular reference to technological, economic, and cultural developments from the origins of Man until the colonial period. Mr. Posnansky

175B. Africa and the Slave Trade. Focuses on the social, economic, political, and cultural impact of the slave trade on African society. Emphasizes the Atlantic trade, without neglecting those of the Ancient Mediterranean, Islamic, and Indian Ocean worlds. Abolition and the African diaspora are also explored.
Ms. Aidoo, Mr. Alpers, Mr. Obichere

175C. Africa in the Age of Imperialism. Topics of investigation include the penetration of pre-capitalist social formations by capital, the emergence of classes, the nature of the colonial and post-colonial state, and the struggle for national liberation in a global context. Mr. Alpers

176A-176B. History of West Africa. (Formerly numbered 126A-126B).

176A. West Africa from Earliest times to 1800.

176B. West Africa since 1800.
Ms. Aidoo, Mr. Obichere

177. Ethiopia and the Horn of Africa. (Formerly numbered 129). Surveys the history of Ethiopia, Somalia, and Sudan from earliest times to the Twentieth Century. Mr. Alpers, Mr. Ehret

178A-178B. History of East and Central Africa. (Formerly numbered 127A-127B).

178A. Examines the cultural diversity of East and Central African societies, the growth of more complex political systems, and the impact of international trade to the later nineteenth century.
Mr. Alpers, Mr. Ehret, Mr. Posnansky

178B. Concentrates on the economic, social, and political history of Uganda, Kenya, Tanzania, Zambia, Malawi, Zimbabwe, and Mozambique since the imposition of colonial rule. The themes of underdevelopment and protest will provide a focus for the course. Mr. Alpers

179A-179B. History of Southern Africa. (Formerly numbered 128A-128B).

179A. History of Southern Africa from origins to 1870. The origins of the South African peoples and their interactions to 1870. Attention will be given to social and economic as well as political aspects.
Mr. Ehret

179B. History of Southern Africa since 1870. The interactions between the inhabitants of Southern Africa since 1870. Attention will be given to social and economic as well as political aspects.
Mr. Galbraith

182A-182B-182C. History of China. (Formerly numbered 191A-191B-191C) Prerequisite: course 9B or 182A or equivalent readings are prerequisite to 182B.

182A. Origins to 900. Bronze age and iron age China; the classical thinkers; the birth of the imperial state and the development of an aristocratic society.

182B. 900-1500. The end of aristocratic rule; the mature imperial state and bureaucratic government; the foreign presence; trade, agriculture, and the growth of cities.

182C. 1500-1800. The background to modern China; landholding and agriculture; nascent capitalism; peasant movements; Neo-Confucianism and the Manchu state.
Mr. Farquhar, Mr. Huang

183. Modern China, 1840-1920. (Formerly numbered 191D). From the Opium War to the May Fourth Movement, Imperialism, semi-colonial China, and popular movements; some attention to contrasts between established and revolutionary interpretations. Mr. Huang

184. The Chinese Revolution. (Formerly numbered 191E). From the founding of the Chinese Communist Party to the present. Special emphasis on: the evolution of Mao's thought, the history of the Communist movement, the conditions in the Chinese countryside, the revolutionary developments under the People's Republic. Mr. Huang

185. The Mongols in East Asian History. (Formerly numbered 191F). Prerequisite: course 9B, or 182B, or 182C. Emphasis on the period 1200-1900. Special attention will be paid to nomadic pastoralism, Mongolian society, the first empire, and relations with China and Tibet. Mr. Farquhar

186. Diplomatic History of the Far East. (Formerly numbered 193). The role of the Far Eastern states in the international community beginning with the establishment of the Treaty System in China and the opening of Japan to intercourse with the rest of the world in 1854. The Staff

187A-187B-187C. Japanese History. (Formerly numbered 195A-195B-195C). The political, economic, and cultural development of Japan, from pre-history to the present.

187A. Ancient: Pre-history-1600. Mr. Notehelfer

187B. Early Modern: 1600-1868. Mr. Notehelfer

187C. Modern: 1868-present. Mr. Notehelfer

188A. Early History of India. (Formerly numbered 196A). Prerequisite: course 9A or equivalent. Introduction to the civilization and institutions of India. A survey of the history and culture of the South Asian subcontinent from the earliest times to the founding of the Mughal Empire. Mr. Wolpert

188B. Recent History of India and Pakistan. (Formerly numbered 196B). Prerequisite: course 9A or 188A. History of the South Asian subcontinent from the founding of the Mughal Empire, through the eras of European expansion, British rule, and the nationalist movement, to the present.
Mr. Wolpert

190A-190B. History of Southeast Asia. (Formerly numbered 196C-196D).

190A. Early History of Southeast Asia. A political and cultural history of the peoples of Southeast Asia from the earliest times to about 1815.
Mr. SarDesai

190B. Southeast Asia since 1815. History of modern Southeast Asia with emphasis on expansion of European influence in the political and economic spheres, growth of nationalism and the process of decolonization. Mr. SarDesai

191A-191B. Jewish History. (Formerly numbered 138A-138B). A survey of social, political and religious developments.

191A. From biblical times to the end of the Middle Ages.

191B. From the end of the Middle Ages to the present. Mr. Funkenstein

191C-191D. Focal Themes in Jewish History. (Formerly numbered 138C-138D). The course will treat in depth one major theme in Jewish history (such as: the history of Messianic Movements, the structure of the Jewish Communities) through the ages.
Mr. Funkenstein

192A-192B. Jewish Intellectual History. (Formerly numbered 137A-137B). 192A will cover the medieval period; 192B the modern period. This course studies the development of Jewish self-understanding in relation to the intellectual climate of the environment, as expressed in the halacha, in philosophy, and in cabbalism. Mr. Funkenstein

193A. History of Religions: Myth. (Formerly numbered 124D). The nature and function of myth in the history of religion and culture. Examples are selected from non-literate as well as from other, Asian and European traditions. Mr. Bolle

193B. Religions of South and Southeast Asia. (Formerly numbered 124E-F). Prerequisite: course 4 or 193A. Topics vary from year to year: Religion of the Veda; Brahmanism; (later) Hinduism. See Course Schedule for specifics. Mr. Bolle

193C. Religions of South and Southeast Asia. (Formerly numbered 124B-124G). Prerequisite: course 4 or 193A. Topics vary from year to year: Buddhism in India; the Religions of Java and Bali; the Non-Literate Traditions of India and Southeast Asia. See Course Schedule for specifics. Courses 193B and C may be taken independently for credit. Mr. Bolle

193D. Religions of the Ancient Near East. (Formerly numbered 124C). The main polytheistic systems of the ancient Near East, with emphasis on Mesopotamia and Syria, and with reference to the religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom and moral conduct.
Mr. Buccellati

193E. Special Topics in the History of Religions. Topics will be announced in the Course Schedule and selected from the following: Ancient Germanic Cults; Renaissance Mysticism; Mystics of the Low Countries; Goddesses; Religion in a Secular Age.
Mr. Bolle

195A-195D. History of Science. (Formerly numbered 106A-106D). Science and scientific thought in relationship to society.

195A. Medieval and Renaissance Science. Prerequisite: course 3 or consent of instructor. Continuity and discontinuity in scientific traditions from the 12th to the 17th century; interrelationships between theology, scientific thought, and social conditions. Theories of force, motion and space stressed; some attention to the occult sciences. Mr. Funkenstein, Mr. Westman

195B. Perspectives on the Early Modern Physical Sciences. Prerequisite: course 3 or consent of instructor. A detailed view of selected topics in the development of the physical sciences 1600-1750, with a focus on explanations of historical change in science. Normally, four topics will be studied in order to cover a broad range of scientific, philosophical, and social issues. The Staff

195C. The Classical Physical Sciences: 18th and 19th Centuries. Prerequisite: course 3B or consent

of instructor. Studies intensively several topics in the development of classical physical science from Newton's Mechanics to Maxwell's Electromagnetic Theory, with special attention to demands of the Enlightenment, the Industrial Revolution, and 19th Century professionalized science.
Mr. Burke, Mr. Wise

195D. Physical Sciences in the 20th Century. Prerequisite: course 3B or consent of instructor. Provides a non-mathematical but nevertheless detailed look at selected physical sciences and Scientific issues: for example, the birth of quantum mechanics and relativity; stellar evolution and cosmological theories; nuclear physics, nuclear weapons, and nuclear policy; and the changing character of industrialized science. Mr. Burke, Mr. Wise

195E. History of Physics Laboratory. (Formerly numbered 106H). Prerequisite: course 3 or consent of instructor. A new approach seeking to integrate the roles in science of theory, experiment, controversy, and philosophy as seen through selected critical experiments. Four experiments—e.g., of Galileo, Newton, Franklin, Oersted—will be prepared in historical context, performed, analyzed, and disputed. Mr. Wise

M195F-195G. History of Biological Sciences. (Formerly numbered M106E-106F). (Same as Medical History M108A-108B.) Prerequisite: upper division standing.

M195F. Biological sciences from ancient times to the early nineteenth century. Mr. Frank

M195G. Biological sciences from the early nineteenth to the mid-twentieth century. Mr. Frank

M195H. The Biomedical Sciences in the 19th Century. (Formerly numbered M106G). (Same as Medical History M197.) Three hours per week in the spring quarter. Prerequisite: consent of instructor. Topics in the growth of the biomedical sciences and their institutions in Europe and America, from the French Revolution to approximately 1900.
Mr. Frank

195I-195J. History of the Social Sciences. (Formerly numbered 106I-106J).

195I. Europe, 17th-19th centuries. Theories of capitalism and the growth of empirical research on social problems; beginnings of social statistics and sociography; rise of classical political economy; political and economic controversies, social science and social reform movements.

195J. Europe and America, 1880-1914. The development of sociology and social psychology; impact of socialist movements and Marxist theory upon the social sciences; dilemma of subjectivist and objectivist sociologies; divorce of theoretical sociology from social research; rise of pragmatism in the social sciences. The Staff

197. Undergraduate Seminars. (Two courses only may be taken for credit.) Limited to 15 students meeting with a faculty member. Seminars will be organized on a topics basis with readings, discussions, papers. Signups and descriptions of offerings each quarter at the History Department Undergraduate Adviser's office (6248 Bunche Hall). When concurrently scheduled with courses 201A-T, 203, undergraduates must obtain instructor's consent to enroll. The Staff

199. Special Studies in History. Prerequisite: consent of instructor. Two courses only may be taken for credit. An intensive directed research program. Enroll in Department. The Staff

199HA-199HB-199HC. Directed Studies for Honors. Prerequisite: a three-quarter sequence restricted to history honors majors. *IP* grading.

199HA. Extensive reading and research in the field of the student's proposed honors thesis. Reports on work in progress will be made to the sponsoring professor at regular intervals.

199HB. Continued reading and research culminating in a draft of the student's honors thesis.

199HC. Revisions of draft and preparation of polished honors thesis; oral examination on thesis.
The Staff

Graduate Courses

Admission to all graduate courses is subject to the instructor's approval and to appropriate language qualifications. For multi-term courses, credit and grades will be given only on completion of the full seminar sequence, with IP grading until the last term. Topics courses and seminars may be repeated. This excludes only courses 200A-T, 201A-T, and any other course that is a one-quarter course.

CONTENTS

200-203	General History
204-214	Near and Middle East
215-224	Ancient and Medieval
225-244	Europe
245-264	United States
265-274	Latin America
275-281	Africa
282-290	Asia
291-292	Jewish
293	Religion
295-297	Science
495-599	Individual Study and Research

200A-200T. Advanced Historiography. (Formerly numbered 230A-230T). A. Ancient Greece; B. Ancient Rome; C. Medieval; D. Early Modern Europe; E. Modern Europe; F. Russia/Eastern Europe; G. Britain; H. United States; I. Latin America; J. Near East; K. India; L. China; M. Japan; N. Africa; O. Science/Technology; P. History of Religions; Q. Theory of History; R. Jewish History; S. Armenia and the Caucasus; T. Southeast Asia. May be repeated for credit. The Staff

201A-201T. Topics in History. (Formerly numbered 240A-240T). A through T as for 200. A graduate course involving reading, lecturing, and discussion of selected topics. This course does not fulfill the seminar requirements for the Ph. D. degree. May be repeated for credit. When offered jointly with 197, undergraduates need instructor's consent to enroll. The Staff

203. Topics in Comparative History. (Formerly numbered 240Z). Prerequisite: consent of instructor. Course will be in the general format of the 201 (Topics) series. Possible topics that it might cover would be study of European expansion and its impact on non-European societies; the American Revolution in an international perspective, etc.
The Staff

204A-204B. Seminar in Near and Middle Eastern History. (Formerly numbered 267A-267B). Methodology, socio-economic and political change in the Arab world. Ms. Marsot

205A-205B. Seminar in Medieval Middle Eastern History. (Formerly numbered 291A-291B).
Mr. Morony

206A-206B. Seminar in the Social History of the Middle East. (Formerly numbered 284A-284B). The interrelationship of city, tribe, and village in the Middle East; the role of such definable social groups as women, religious classes, middle classes, landlords, tribesmen, and peasants; social change.
Ms. Keddie

209A-209B. Seminar in Ottoman and Modern Turkish History. (Formerly numbered 283A-283B). Mr. Shaw

211A-211B. Seminar in Armenian History. (Formerly numbered 286A-286B). Mr. Hovannisian

212. Methods in Armenian Oral History. (Formerly numbered 228). Prerequisite: Proficiency in the Armenian Language. Lectures and laboratory in the methods of taking, processing, and utilizing depositions and other oral sources for Armenian history. The course will include a project assignment in the field. May be concurrently scheduled with course 112D. Mr. Hovannisian

215A-215B. Seminar in Ancient History. (Formerly numbered 250A-250B).
Mr. Chambers, Mr. Mellor

216A-216B. Seminar in Byzantine History. (Formerly numbered 252A-252B-252C). Mr. Vryonis

217. Introduction to the Sources of Medieval and Early Modern History. (Formerly numbered 223A-223B). This course describes and exemplifies the main type of sources and introduces the student to the use of libraries, archives and source collections as well as to the principal auxiliary sciences of history such as codicology, diplomatics, chronology and sphragistics. Mr. Rouse

218. Studies in Medieval Latin Literary History. (Formerly numbered 222A-222B). An introduction to medieval Latin literary history, examining several basic forms of literature produced in the monastery, the university, and the secular world. Considerable attention given to the survival of the classical authors and to the contemporary sources for the study of medieval literary history.
Mr. Rouse

219. Later Medieval Latin Palaeography and Manuscripts, 1100-1500. (Formerly numbered 224). An intensive training in the reading of select Medieval and Renaissance hands and in the tools and techniques of textual and literary history.
Mr. Rouse

220A-220B. Seminar in Church and Monarchy in the Middle Ages. (Formerly numbered 251A-251B). Textual studies and interpretative problems in the constitutional, legal, and intellectual history of the Latin Church and of the Western European monarchies, with special attention to the German monarchy, from the 11th century to the 14th.
Mr. Benson

221A-221B. Seminar in Medieval History. (Formerly numbered 253A-253B).
Mr. R.I. Burns, S.J.

222A-222B. Seminar in Medieval Intellectual History and History of Science. (Formerly numbered 278A-278B). Selected problems from medieval and early modern philosophy, science, political theory, theology. Mr. Funkenstein

225. Colloquium for entering graduate students in Modern European History. (Formerly numbered 216). Prerequisite: Admission to graduate study in Modern European history. An introduction to the topics, methods, and historiography of Modern European history. Required of all graduate students in Modern European history. The Staff

226A-226B. Seminar in the Italian Rennaissance. (Formerly numbered 254A-254B). Mr. Martines

227A-227B. Seminar in the Reformation. (Formerly numbered 255A-255B). Mr. Clasen

229A-229B. Seminar in Early Modern European History. (Formerly numbered 257A-257B).
Mr. Lossky, Mr. Martines, Mr. Symcox

230A-230B. Seminar in Modern European History. (Formerly numbered 260A-260B).
Mr. Loewenberg and Staff

231A-231B. Seminar in Modern European Intellectual and Cultural History. (Formerly numbered 261A-261B). Mr. Weber, Mr. Wohl

233A-233B. Seminar in Russian History. (Formerly numbered 263A-263B). Mr. Rogger

234A-234B. Seminar in the Modern History of Spain, Portugal, and Italy. (Formerly numbered 262A-262B). Ms. Kaplan, Mr. Wohl

239A-239B. Seminar in English History: Middle Ages. (Formerly numbered 258A-258B).
Mrs. Searle

240A-240B. Seminar in English History: Modern History. (Formerly numbered 259A-259B).
Mr. Moore

244A-244B. Seminar in British Empire History. (Formerly numbered 264A-264B). Mr. Galbraith

245. Colloquium in U.S. History. (Formerly numbered 200H). A critical introduction to the historical method, with emphasis on new methodological and conceptual approaches, the use of source materials, and the current state of U.S. historiography. Normally limited to and required of all entering graduate students in U.S. history. The Staff

246A-246B-246C. Introduction to United States History. A graduate survey of the significant literature dealing with United States history from the colonial period to the present.

NOTE: For key to symbols, see page 74

246A. Colonial Period. Mr. Nash

246B. 1790-1900. The Staff

246C. Twentieth Century. Mr. Coben, Mr. Dallek, Mr. Weiss

247A-247B. Seminar in Early American History. (Formerly numbered 269A-269B). Mr. Nash

249A-249B. Seminar in Jacksonian America. (Formerly numbered 275A-275B). Mr. Gatell

250A-250B. Seminar in United States History of the Middle Nineteenth Century. (Formerly numbered 272A-272B). Mr. Gatell, Mr. Howe, Mr. Robinson

252A-252B. Seminar in Recent United States History to 1930. (Formerly numbered 270A-270B). Mr. Coben, Mr. Hines

253A-253B. Seminar in Recent United States History since 1930. (Formerly numbered 271A-271B). Mr. Hines, Mr. Weiss

254A-254B. Seminar in United States Social and/or Intellectual History. (Formerly numbered 273A-273B). Mr. Howe, Mr. Saxton

256A-256B. Seminar in American Diplomatic History. (Formerly numbered 276A-276B). Mr. Dallek

257A-257B. Seminar in United States Urban History. (Formerly numbered 285A-285B) Mr. Hines, Mr. Monkkonen

258A-258B. Seminar in Working Class History. (Formerly numbered 288A-288B). Mr. Laslett, Mr. Saxton

259A-259B. Seminar in Social History of Women in the U.S. (Formerly numbered 290A-290B). Ms. Sklar

260A-260B. Seminar in Native American History. (Formerly numbered 292A-292B). Mr. Morrison

261A-261B. Seminar in Afro-American History. (Formerly numbered 277A-277B). Social and political history of the Afro-American including an emphasis on the development and structure of race relations in America, and racial concepts and dilemmas, black and white. Mr. Hill, Mr. Robinson

262A-262B. Seminar in Chicano History. (Formerly numbered 289A-289B). Mr. Gómez Quiñones

263A-263B. Seminar in the History of the American West. (Formerly numbered 274A-274B). Mr. Hundley

M264. History of American Education. (Formerly numbered M215C). (Same as Education M201C). The aim is to depict the social forces impinging on American education from the 1860s to the present, and to analyze the relation between these social forces and the philosophy, curriculum, structural organization, and functions of education at all levels. Mr. S. Cohen

M265. Latin American Research Resources. (Formerly numbered M231). (Same as Latin American Studies M200.) The course will acquaint students with general and specialized materials in fields concerned with Latin American Studies. Library research techniques will provide the experience and competency required for future bibliographic and research sophistication as the basis for enhanced research results. Mr. Lauerhass

266A-266B. Seminar in Colonial Latin American History. (Formerly numbered 266G-266H). Mr. Lockhart

267A-267B. Seminar in Latin American History: 19th and 20th Centuries. (Formerly numbered 266A-266B). Mr. Burr

268A-268B. Seminar in Recent Latin American History. (Formerly numbered 266E-266F). Prerequisite: 167A or B or 171, or concurrent enrollment in same, or equivalent. Mr. Wilkie

275. Introduction to the Professional Study of African History. (Formerly numbered 212). Required of all entering graduate students in African History. Source identification, research methodologies, historiographical traditions, historical interpretation, and approaches to teaching are examined. Strongly recommended for History concentrators in M.A. African Studies Program. The Staff

276. African Archaeology-Field Techniques. (½ to 2 courses). (Formerly numbered 221A). Prerequisite: any introductory course in archaeology and preferably an African History course. A field course on an African excavation to provide the basic skills-reconnaissance, surveying, excavation techniques, conservation and scientific sampling required by an archaeologist in Africa together with an introduction to ethnographic survey and oral data collection. Mr. Posnansky

277. African Archaeology-Data Analysis. (½ to 2 courses). (Formerly numbered 221B). Course 276 (African Archaeology-Field Techniques) must be taken before or in conjunction. A field course to equip a student to handle finds from excavations. The course will involve analysis, description, illustration and interpretation of an actual archaeological and/or ethnographic collection. Mr. Posnansky

278A-278B. Seminar in African History. (Formerly numbered 265A-265B). The Staff

282A-282B-282C. Seminar in Chinese History. (Formerly numbered 279A-279B-279C). Mr. Farquhar, Mr. Huang

285A-285B. Seminar in Modern Japanese History. (Formerly numbered 281A-281B). Mr. Notehelfer

288A-288B. Seminar in South Asia. (Formerly numbered 280A-280B). Mr. Wolpert

289A-289B. Seminar in Southeast Asia. (Formerly numbered 280A-280B). Mr. SarDesai

291A-291B. Seminar in Jewish History. (Formerly numbered 268A-268B). Studies in the intellectual and social history of the Jewish people from ancient times to the modern period. Mr. Funkenstein

293A-293B. Seminar in the History of Religions. (Formerly numbered 282A-282B). Mr. Bolle

295. Theories of Scientific Change. (Formerly numbered 227). Prerequisite: consent of instructor. Historical and philosophical perspectives on science focusing upon the rationality of scientific change and the logic and psychology of scientific discovery. Readings and seminar-style discussions of such authors as: Popper, Kuhn, Toulmin, Lakatos, Holton, Buchdahl, Feyerabend and others. Mr. Westman

297A-297B. Seminar in the History of Science. (Formerly numbered 256A-256B). Mr. Burke, Mr. Westman, Mr. Wise

Individual Study and Research

495. The Teaching of History. Prerequisite: graduate standing; required of all new Teaching Assistants. Consisting of lectures, readings, discussions, and practice teaching sessions within the structure of a seminar; students receive unit credit toward full-time equivalence, but not towards the nine coures requirement for the M.A. degree. Graded satisfactory/unsatisfactory. The Staff

501. Cooperative Program. (½ to 2 courses) Prerequisites: Approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus, Instructor, Department Chair and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

596. Directed Studies. (¼ to 2 courses) The Staff

597. Directed Studies for Graduate Examinations. (¼ to 2 courses). Preparation for either the Master's Comprenhensive Examination or the Ph.D. Qualifying Examinations. The Staff

599. Doctoral Research and Writing. (¼ to 2 courses). Open only to students who have passed the qualifying examination for the Ph.D. Degree. The Staff

HUMANITIES

Arnold J. Band, Ph.D., *Professor of Hebrew and Comparative Literature.*
Pier-Maria Pasinetti, Ph.D., *Professor of Italian and Comparative Literature.*
Ross P. Shideler, Ph.D., *Associate Professor of Scandinavian Languages and Comparative Literature.*
Katherine C. King, Ph.D., *Assistant Professor of Classics and Comparative Literature.*
Kathleen L. Komar, *Assistant Professor of German and Comparative Literature.*
Albert R. Braunmuller, Ph.D., *Associate Professor of English.*
Richard K. Cross, Ph.D., *Associate Professor of English.*
Albert D. Hutter, Ph.D., *Associate Professor of English.*

Selected masterpieces of world literature representing different types and national origins. Recommended as courses to satisfy the H-requirement in the College of Letters and Science.

1A. World Literature: Antiquity to Renaissance. Prerequisite: Completion of Subject A requirement. Class meets three hours a week plus one section per week. The Staff

1B. World Literature: Renaissance to Modern Period. Prerequisite: Completion of Subject A requirement. Class meets three hours a week plus one section per week. The Staff

2A. Survey of Literature: Antiquity to the Renaissance. Lecture, two hours; discussion, two hours. Prerequisite: Completion of Subject A requirement. The study of selected texts from Antiquity to the Renaissance with emphasis on literary analysis and expository writing. Essays on topics related to the assigned readings will be required. Not open to students who have taken Humanities 1A. This course may be taken to satisfy the Letters and Science "D" requirement (English Composition). The Staff

2B. Survey of Literature: Renaissance to Modern. Lecture, two hours; discussion, two hours. Prerequisite: Completion of Subject A requirement. The study of selected texts from the Renaissance to the Modern Period with emphasis on literary analysis and expository writing. Essays on topics related to the assigned texts will be required. Not open to students who have taken Humanities 1B. This course may be taken to satisfy the Letters and Science "D" requirement (English Composition). The Staff

20. Asian American Literature. A survey of the past traditions of Asian American literature. The Staff

101. The Romantic Dilemma. Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. The theme of Romantic individualism and rebellion, pursued through literary examples of Romantic hero types (and anti-types) from Rousseau and Goethe to Dostoevsky and Hesse. The Staff

102. Satire. Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. The changing nature of satire as illustrated by examples of the genre from Horace and Juvenal to Ionesco and Nabokov. The Staff

104. The Twentieth Century Continental Novel: Mann and Proust. Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. An intensive study of *The Magic Mountain* and *The Remembrance of Things Past* as works of art and as expressions of the sense of social and cultural dissolution felt in early twentieth century Europe. Mr. Pasinetti

105. The Comic Spirit. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 205.) Literary masterpieces both dramatic and nondramatic, selected to demonstrate the varieties of comic expression. Undergraduates will be allowed to read all works in translation. Mr. Band

107. The Epic. Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. A survey of the epic as a literary form from Homer to Camoens, with analysis of individual works in relation to their contemporary societies and a comparison of the salient differences between oral and literary epic. The Staff

108. The Faust Theme. Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. The course will explore artists' and intellectuals' use and abuse of their disciplines to find refuge from spiritual dryness. Readings of works by such writers as Marlowe, Goethe, Melville, Valery, Mann, and Malcolm Lowry. Mr. Cross

109. The Crisis of Consciousness in Modern Literature. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 209.) Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of the artist and his society, focusing on the works of Flaubert, Joyce, Gide, Mann and Nabokov. Undergraduates will be allowed to read all works in translation. The Staff

110. Man and His Fictions. Prerequisites: course 1A-1B, or English 1 and 2, or consent of the instructor. An exploration of dialogue and tale-telling, the wisdom or knowledge they possess, how the exchange of tales defines and sustains a community, how a narrator clarifies his form and meaning for his audience. Readings from writers such as Plato, Dante, Proust, Freud. The Staff

111. Tragedy. Prerequisite: upper division standing. Major tragic drama of the Western tradition: a study of theme and form. The Staff

112. Modern Poetry of the Western World. Prerequisite: upper division standing or consent of the instructor. A study of selected 19th or 20th century European and American poetry. Mr. Shideler

114. The Short Novel. Prerequisites: course 1A and 1B, or English 1 and 2, or consent of the instructor. A study of selected short novels as works of literary art and as relevant intellectual statements. Texts by Melville, Flaubert, Dostoevsky, Kafka, et al. Mr. Pasinetti

115. Four Modern Dramatists. A study of several works by four major modern dramatists, focusing on understanding specific elements in each work and the authors' possible interrelations. Pirandello, Beckett, and Pinter will be read; the fourth author will be chosen from: Ionesco, Giradoux, Cocteau. Mr. Braunmuller

116. Man and Society in the Renaissance. Lecture, three hours; discussion, one hour. Prerequisites: Humanities 1A-1B, or English 1 and 2, or consent of the instructor. Explorations of a change in Western man's relationship to his world, himself, and his art; reading of such works as *Don Quixote*, the *Essays of Montaigne, Gargantua and Pantagruel, The Praise of Folly, Utopia.* The Staff

117. The Mystery Novel. Prerequisites: upper division standing and a literature major or consent of instructor. (May be concurrently scheduled with Comparative Literature 297.) A study of mystery and detective fiction in England, France, and the United States. The origin, form and historical significance of mystery fiction will be developed through close readings of selected works. Undergraduates will be allowed to read all works in translation. Mr. Hutter

M118. Mozart and the Literature of Opera. (Same as Comparative Literature M268.) Prerequisites: Humanities 1A and 1B, or English 1 and 2, or consent of instructor. (Reading knowledge of *either* German or Italian for graduates.) The course will concentrate on opera as a dramatic and poetic medium, by focusing on the literary texts and musical settings of five major Mozart operas. Major topics: theatrical use of mixed media; recitative and aria; staging of opera; Mozart's career as a dramatic composer; Da Ponte as librettist. This course is cross-listed with Comparative Literature M268. Students seeking U/G credit will be allowed to read all works in translation. Students seeking graduate credit will participate in a special discussion section and will prepare all papers based on texts read in the original languages. The Staff

129. Archetypal Heroes in Literature. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 229.) Survey and analysis of the function and appearance of such archetypal heroes as Osiris, Ulysses, Prometheus and Oedipus in literature from antiquity to the modern period. Undergraduates will be allowed to read all works in translation. The Staff

140. Medieval Epics. Prerequisites: upper division standing and literature major. (May be concurrently scheduled with Comparative Literature 240.) The seminar will consider five medieval epics: *Beowulf, El Cid, Chanson de Roland, Niebelungenlied,* and *Njalssaga.* There will be two objectives: first, a critical understanding of each work, and second, an understanding of the nature of epic literature. Assignments will consist of an extended seminar paper and short oral reports. Undergraduates will read the works in translation. Mr. Condren

145. Renaissance Drama. Prerequisites: upper division standing and a literature major; consent of instructor. (May be concurrently scheduled with Comparative Literature 245.) The course offers a broad introduction to the subject matter and types of plays in the Renaissance. Historical and literary influences on the plays will be considered. Readings will include works of such dramatists as: Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. Undergraduates will be allowed to read all works in translation. Mr. Braunmuller

M160. Literature and the Other Arts. (Same as Comparative Literature M260.) Prerequisites: upper division standing and literature major. (Reading knowledge of French, Spanish, Italian or German for graduate students.) A comparative study of literature and the other art media. This course is cross-listed with Comparative Literature M260. Students seeking U/G credit will be allowed to read all works in translation. Students taking the course for graduate credit will be required to prepare papers based on texts read in the original language and will meet as a group one additional hour per week. Mr. Bensimon

170. The Dream in English and German Romantic Literature. Prerequisite: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 270.) A study of the use of the dream as a standard narrative technique in English and German Romantic literature. Undergraduates will be allowed to read all works in translation. Mr. Burwick

172. The Grotesque in Romantic Literature and Art. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 272.) A study of the grotesque in the visual and verbal arts of the Romantic period; interpretation will address the aesthetics of tragic-comic interaction, the demonic vision, and the satirical sketches of man's abnormality and perversity. Undergraduates will be allowed to read all works in translation. Mr. Burwick

175. The Nineteenth Century Novel. Seminar, three hours. Prerequisites: upper division standing and literature major. (This course may be concurrently scheduled with Comparative Literature 275.) A comparative study of the 19th Century novel in England and on the continent. Novels will be selected so as to allow the seminar to concentrate on a particular tradition or critical problem. Undergraduates may read the texts in translation. Mr. Lehan

176. Fiction and History. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 276.) The course analyzes the use of historical events, situations, and characters in works of fiction that are not necessarily "historical novels". Texts and individual assignments range from nineteenth century authors such as Stendhal, Tolstoy, Verga, to Proust and contemporaries like Vidal, Grass, Garcia Marques. Use of fictional methods by historians may also be analyzed. Undergraduates will read all works in translation. Mr. Pasinetti

177. Sexual Stances in Modern Fiction. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 277.) An examination of sexual stances employed in fiction, beginning with heterosexuality in Stendhal and continuing through hyper-masculinity in Hemingway, Mailer and Lawrence; aware femininity in Woolf and Murdoch; and gayness in Gide, Forster and Isherwood. Undergraduates will be allowed to read all works in translation. The Staff

180. The Symbolist Tradition in Poetry. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 280.) A study of the symbolist tradition in English, French and German poetry. Undergraduates will be allowed to read all works in translation. Mr. Shideler

181. Poetry and Poetics of the Post-Symbolist Period. Prerequisites: upper division standing and a literature major. (May be concurrently scheduled with Comparative Literature 281.) A study of some of the dominant poetic trends and figures in American and Euorpean poetry in the first half of the 20th century, including such Surrealists as G. Appollinaire and A. Breton, imagists, and major individual poets such as E. Pound, T.S. Eliot, Paul Valery, R.M. Rilke, Stefan George, and Wallace Stevens. Undergraduates will be allowed to read all works in translation. Mr. Shideler

IMMUNOLOGY

The Immunology faculty is associated with several departments and is joined in a common instructional program designed to meet the diverse needs of undergraduate, graduate, and professional students, as well as postdoctoral fellows. An *Interdisciplinary Course Sequence in Immunology* with a brief description of each course and the faculty involved may be obtained by writing the Department of Microbiology and Immunology, UCLA Center for the Health Sciences. Students seeking degrees with emphasis in immunology may choose to meet the general requirements of any of the following four departments: Anatomy, Bacteriology, Biology, or Microbiology and Immunology.

INDO-EUROPEAN STUDIES (INTERDEPARTMENTAL)

Raimo A. Anttila, Ph.D., *Professor of Indo-European and General Linguistics.*
Henrik Birnbaum, Ph.D., *Professor of Slavic Languages.*
Marija Gimbutas, Ph.D., *Professor of European Archaeology (Department of Slavic Languages).*
Jaan Puhvel, Ph.D., *Professor of Classics and Indo-European Studies.*
Hartmut Scharfe, Ph.D., *Professor of Indic Studies (Department of Oriental Languages).*
Hanns-Peter Schmidt, Ph.D., *Professor of Indo-Iranian Studies (Department of Near Eastern Languages).*
Donald J. Ward, Ph.D., *Professor of Folklore and German.*
Terence H. Wilbur, Ph.D., *Professor of Germanic Linguistics and Philology.*
Patrick K. Ford, Ph.D., *Associate Professor of Celtic Studies (Department of English).*

Graduate Degrees (C.Phil. and Ph.D.)

These degrees are offered under the jurisdiction of an interdepartmental committee.

Admission to Graduate Status

Students admitted to graduate status must have an A.B. degree with a major in an Indo-European language field (e.g., German, Slavic, Latin, Greek, Romance Languages), or a major in Linguistics (with emphasis on historical linguistics) or a major in Anthropology (with concentration on Europe and Asia). If deficiencies exist in prerequisites to specific work at the graduate level, a student may be admitted conditionally and will be expected to remove these deficiencies as soon as possible upon enrollment.

NOTE: For key to symbols, see page 74

Requirements for the Doctor's Degree

General Requirements. See Candidate in Philosophy Degree.

Foreign Language. During the first year of graduate study, the student is expected to absolve the standard reading examinations set by the Graduate Division in any two of German, French, and Russian. During the second year a similar test is to be passed in the remaining language. Unless the candidate deomonstrates beforehand adequate facility in its research use.

Program of Study. The doctorate in Indo-European Studies is offered with three alternative major emphases: (1) Indo-European linguistics, (2) Indo-Iranian or other specialized language area studies, (3) European and related archaeology. In preparation for the written qualifying examinations it is normally necessary to devote at least two years of full-time graduate study to a systematic program of courses and seminars. The general requirements for all students include Vedic Sanskrit, Homeric Greek, one upper division course in Latin, basic competence in Indo-European linguistics (e.g., IES 150, 210), mythology (e.g., Classics 168), and archaeology (e.g., IES 131, 132). Additional requirements for the concentration in (1) Indo-European linguistics include an advanced seminar in comparative grammar, a minimum of five ancient Indo-European languages from different sub-branches, and additional units in courses offered by linguistics (e.g., structural linguistics, phonetics) and related departments. Additional requirements for the concentration in (2) Indo-Iranian or other specialized language area studies include an advanced seminar in comparative grammar, a minimum of two ancient Indo-European languages from different sub-branches, and additional units in language and cultural courses in the area of specialization. Additional requirements for the concentration in (3) European and related archaeology include a minimum of one ancient Indo-European language, an advanced seminar in European archaeology, a course in analytical methods in archaeology, and additional units in archaeology, anthropology, and related fields. The additional units in each area of concentration are to be chosen in close consultation with the student's advisor and/or guidance committee.

Qualifying Examinations. Before advancement to doctoral candidacy and conferral of the C.Phil. degree, a student must pass a series of qualifying examinations, both written and oral. The written examination covers the major and minor fields and includes translation and analysis of passages from prescribed texts in ancient Indo-European languages. The oral examination, conducted by the doctoral committee, probes the student's grasp of the entire program.

Dissertation. A dissertation must be submitted, on a subject approved by the candidate's doctoral committee, dealing with a segment of the major field or combining the major and minor fields. The dissertation must be the result of original research and constitute a significant contribution to knowledge.

Final Examination. This oral examination, administered by the doctoral committee, covers the dissertation and its place both within the candidate's field of emphasis and the discipline as a whole.

Upper Division Courses

131. European Archaeology: Proto-Civilizations of Europe. A survey of European cultures from the beginning of the food-producing economy in the 7th millennium B.C. to the beginning of the Bronze Age in the 3rd millennium B.C. Mrs. Gimbutas

132. European Archaeology: The Bronze Age. Prerequisite: course M131 or consent of the instructor. A survey of European cultures from around 3000 B.C. to the period of the destruction of the Mycenaean culture about 1200 B.C. The course covers the Aegean area and the rest of Europe. Mrs. Gimbutas

M150. Introduction to Indo-European Linguistics. (Same as Linguistics M150.) Prerequisite: one year of college-level study (course 3 or better, 8 units minimum) of either Greek or Latin and either German or Russian. A survey of the Indo-European languages from ancient to modern times; their relationships and their chief characteristics. Mr. Anttila

199. Special Studies. (½ to 2 courses) The Staff

Graduate Courses

210. Indo-European Linguistics: Advanced Course. Prerequisite: course M150 or the equivalent. Comparative study of phonology, morphology, syntax, and lexicon. Problems in analysis and reconstruction. Mr. Anttila

M250A-250B. European Archaeology. (Same as Anthropology M206A-206B.) Prerequisite: consent of the instructor. Credit is given only upon completion of both quarters. The full sequence may be repeated for credit. Studies in ancient European archaeological materials, and their relationship to the Near East, Western Siberia, and Central Asia. Mrs. Gimbutas

280A-280B. Seminar in Indo-European Linguistics. Prerequisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. Mr. Anttila

596. Directed Individual Studies. (½ to 2 courses) The Staff

597. Preparation for Doctoral Qualifying Examination. (½ to 2 courses) The Staff

599. Research for the Dissertation. (½ to 2 courses) The Staff

Related Courses in Other Departments

Ancient Near East (Near Eastern Languages) 160A-160B. Introduction to Near Eastern Archaeology.

161A-161B-161C. Archaeology of Mesopotamia.

260. Seminar in Ancient Near Eastern Archaeology.

261. Practical Field Archaeology.

Anthropology 109A-109B. Old Stone Age Archaeology.

123A-123B. Origins of Old World Civilization.

175A. Strategy of Archaeology.

175B. Archaeological Research Techniques.

M175C. Dating Techniques in Environmental Sciences and Archaeology.

175E. Laboratory Analysis in Archaeology.

183. History of Archaeology.

230. Analytical Methods in Archaelogical Studies.

232. Archaeology.

286. Selected Topics in Historical Reconstruction and Archaeology.

Archaeology 259. Field Work in Archaeology.

Armenian (Near Eastern Languages) 130A-130B. Elementary Classical Armenian.

131A-131B. Intermediate Classical Armenian.

132A-132B. Advanced Classical Armenian.

Classics 161. Introduction to Classical Mythology.

166A. Greek Religion.

166B. Roman Religion.

168. Introduction to Comparative Mythology.

180. Introduction to Classical Linguistics.

230A-230B. Language in Ancient Asia Minor (Hittite, Palaic, Luwian).

251A. Seminar in Classical Archaeology.

260. Seminar in Roman Religion.

268. Seminar in Comparative Mythology.

English M111D. Introduction to Celtic Folklore and Mythology.

M111E. Survey of Medieval Celtic Literature.

211. Old English.

216A-216B. Old Irish.

217A-217B. Medieval Welsh.

218. Celtic Linguistics.

Folklore M112. Survey of Medieval Celtic Literature.

M122. Introduction to Celtic Folklore and Mythology.

M126. Introduction to Baltic and Slavic Folklore and Mythology.

German 230. Survey of Germanic Philology.

231. Gothic.

232. Old High German.

233. Old Saxon.

M245A. Germanic Religions and Mythology.

245B. Germanic Antiquities.

252. Seminar in Historical and Comparative German Linguistics.

Greek (Classics) 240A-240B. History of the Greek Language.

242. Greek Dialects and Historical Grammar.

243. Mycenaean Greek.

Hindi (Linguistics) 171A-171B-171C. Hindi.

Iranian (Near Eastern Languages) 169. Civilization of Pre-Islamic Iran.

170. Religion in Ancient Iran.

190A-190B. Introduction to Modern Iranian Studies.

210A-210B. The History of the Persian Language.

M222A-222B. Vedic.

230A-230B. Old Iranian.

231A-231B. Middle Iranian.

Latin (Classics) 240. History of the Latin Language.

242. Italic Dialects and Latin Historical Grammar.

Linguistics 100. Introduction to Linguistics.

103. Introduction to General Phonetics.

110. Introduction to Historical Linguistics.

120A-120B. Linguistic Analysis.

160. History of Linguistics through the 19th Century.

202A. Linguistic Change: Phonology.

202B. Linguistic Change: Morpho-syntax.

225A. Linguistic Structures: Indo-European.

225E. Linguistic Structures: Indo-Aryan.

270. Historical Linguistics. Seminar.

Oriental Languages 160. Elementary Sanskrit.

161. Intermediate Sanskrit.

162. Advanced Sanskrit.

165. Readings in Sanskrit.

214A-214B. Pali and Prakrits.

221A-221B. Introduction to Panini's Grammar.

247. Selected Readings in Sanskrit Texts.

Scandinavian (Germanic Languages) 151. Elementary Old Icelandic.

152. Intermediate Old Icelandic.

M245. Scandinavian Mythology.

Semitics (Near Eastern Languages) 140A-140B. Elementary Akkadian.

141. Advanced Akkadian.

220A-220B. Ugaritic.

Slavic 177. Baltic Languages and Cultures.

M179. Introduction to Baltic and Slavic Folklore and Mythology.

201. Introduction to Old Church Slavic.

202. Introduction to Comparative Slavic Linguistics.

241A-241B. Advanced Old Church Slavic.

242. Comparative Slavic Linguistics.

251. Introduction to Baltic Linguistics.

Urdu (Near Eastern Languages) 101A-101B-101C. Elementary Urdu.

INTERDISCIPLINARY COLLOQUIA

Organized colloquia involving several disciplines are offered from time to time in conformity with faculty and student interests. They are open to all faculty members and to graduate students assigned to the colloquia by their advisers. Graduate credit is not awarded directly, but may be given through appropriate departmental courses.

For information about the Committees in charge of these colloquia, call the secretary of the Dean of the College of Letters and Science, 825-4453.

African Studies

The African Studies Center annually sponsors at least one inter-disciplinary colloquium on Africa. These colloquia focus on topics in the social sciences or humanities which cross disciplinary boundaries. Previous colloquia have dealt with such subjects as cultural pluralism, constraints on development and the adaptation of legal systems. It is the policy of the African Studies Center to organize its colloquia so that they can be taken for course credit at the graduate or undergraduate level or attended as open lectures. The inter-disciplinary colloquium for academic year 1979-1980 will be on the topic of Pre-colonial African Urbanism and will be held during the Fall Quarter. For further information about this and other African Studies Center inter-disciplinary colloquia, pleas contact the Assistant Graduate Advisor, Mrs. Patricia Eaton at 825-2944.

Mathematics in the Behavioral Sciences

Meetings are announced in the *UNIVERSITY CALANDER*.

A colloquium on mathematics in the behavioral sciences will meet biweekly throughout the year. Papers presented and discussed in this colloquium use mathematical language to improve communication between behavioral sciences, and also between these sciences and other branches of knowledge.

ISLAMIC STUDIES (INTERDEPARTMENTAL)

For details of the undergraduate major, see Curriculum in Near Eastern Studies.

Master of Arts in Islamic Studies

The interdepartmental program for the Master of Arts in Islamic Studies is designed primarily for the student desiring to prepare for an academic career. It may, however, be found useful also for the student seeking a general education and desiring a special emphasis in this particular area or for a student who plans to live and work in this area, whose career will be aided by a knowledge of the peoples, languages, and institutions. (Such a career might be centered on teaching, research, business, engineering, journalism, librarianship, or government service.) Subject to the limitations indicated below, the special course of studies is formulated for each candidate according to his experience and requirements.

Requirements for the Master's Degree

General Requirements. See the Graduate Division.

Admission to the Program. Admission to the Graduate Division with a degree of Bachelor of Arts in Near Eastern Studies or its equivalent is required. The committee to administer the interdepartmental degree in Islamic Studies will pass on the application for admission to the program. A student entering the program is normally expected to have completed the equivalent of advanced intermediate Arabic (Arabic 102A-102B-102C); and advanced Persian (Persian 102A-102B-102C; or advanced Turkish (Turkish 103A-103B). In the case of Arabic, the student must demonstrate his proficiency by passing an examination within the first two weeks of instruction (those failing the examination will be required to take all or part of the first two years of Arabic at UCLA).

Plan. The program is offered under the Comprehensive Examination Plan only. The candidate must pass written examinations in two Near Eastern languages, the history of the Near East and one other social science.

Language Requirements

A candidate for the degree of Master of Arts in Islamic Studies will be required to show proficiency in either French or German, in addition to two Near Eastern languages of his field of specialization. The student is expected to pass the graduate foreign language reading examination in either French or German by the end of the second quarter of residence. In view of the scholarly literature in the field, a candidate is earnestly advised to acquaint himself with a second European language in which relevant material for his studies is available.

Program. The program of each candidate will be especially prescribed by the interdepartmental advisory committee. The program should, wherever possible, be established before the candidate enters his first quarter of work. The program will be planned to emphasize Arabic, Persian or Turkish (Islamic) studies and is intended particularly for the student desiring to prepare for an academic career in this field.

Program in Arabic, Persian or Turkish (Islamic) Studies. The student will be required to continue his language work by taking no fewer than four courses on the appropriate level in the two Near Eastern languages of his choice. Students electing Arabic as one of the two Near Eastern languages of their choice are required to take a course on the third-year level (Arabic 103A-103B-103C, 130A-130B-130C, or 140A-140B-140C) earning at least a B average, or, in exceptional cases (at the discretion of the advisory committee), may be allowed to satisfy this requirement by examination. The remaining five courses are to be chosen from the relevant upper division and graduate courses in history, political science or any of the other fields represented in the program depending on the student's preparation and specific needs, with the proviso that the selection must be limited to two of these disciplines. The omission of history may be approved only in exceptional cases.

Other study arrangements in the Near Eastern field are available through the Department of Near Eastern Languages.

Requirements for the Ph.D. Degree in Islamic Studies

General Requirements. See Doctoral Degrees.

Admission to the Program. Competence in one of the relevant Near Eastern languages, or an undergraduate major in one of the social sciences affiliated with the program, that is, at present, history, political science, anthropology, and sociology, with some specialization in the Near East. The student may be required to take additional work to remove any deficiency in his undergraduate program especially in connection with language preparation. Students proceeding directly to the Ph.D. degree and students who enter the program with an M.A. from another university must satisfy the requirements for the M.A. degree with regard to the two Near Eastern languages of their choice by examination.

Requirements of the Program. At the beginning of his first quarter in residence, the candidate will present to the chairperson of the committee to administer the interdepartmental degree in Islamic Studies a written statement explaining his preparation in the two modern languages required by the University (generally French and German). He is expected to pass the graduate foreign language reading examination in both languages by the end of his second year of residence. For work in some fields, a reading knowledge of Italian and/or Spanish and/or Russian is essential. In the first year of graduate study, the candidate will follow essentially the existing master's program in Islamic (Arabic, Persian or Turkish) studies which calls for two Near Eastern languages and literatures as well as two social sciences. Students are expected to continue taking courses beyond the intermediate level in the two Near Eastern languages of their choice and to take a proficiency examination in these languages 9 to 12 months prior to their scheduled qualifying examinations. Normally the candidate will devote the second year to courses and seminars in departments affiliated with the program, these courses to be determined by the candidate's advisory committee to be appointed by the end of the third quarter of graduate work. This committee is to consist of four faculty members who will supervise the four fields in which the candidate is to be examined. Upon completion of these courses, he will take his qualifying examinations and advance to candidacy. A final year will normally be devoted by the candidate chiefly to the preparation of his dissertation, after which he will take his final oral examination. During this year the candidate may satisfy the residence requirements either by taking additional seminars or by registering in Islamics 599.

The Qualifying Examination

The qualifying examination will depend on the social science concentration elected by the student. If, for example, his chosen field is history, he will be examined on the whole range of Near Eastern history, in one field of anthropology, sociology or political science, and in the particular Near Eastern languages and literatures of his approved program. Qualifying examinations for students with different concentrations will be constructed accordingly.

Lower Division Courses

Arabic 1A-1B-1C. Elementary Arabic.

Art 50. Ancient Art.

Classics M70. Survey of Medieval Greek Culture. (Formerly numbered 145A. Same as History M70.)

Geography 1B. Introduction to Geography: Cultural Elements.

Hebrew.*

*See Department of Near Eastern Languages and Cultures for complete listing and detailed description.

History 9D. History of the Near and Middle East.

10A-10B. A Cultural Survey of Africa.

M70. Survey of Mediaeval Greek Culture. (Same as Classics M70.)

99. Introduction to Historical Practice.

Iranian 10A-10B-10C. Persian Conversation.

Music 71K. Music of Persia.

Upper Division Courses

African Languages.**

**See Linguistics Department for complete listing and detailed description.

Ancient Near East 120A-120B-120C. Elementary Ancient Egyptian

121A-121B-121C. Intermediate Ancient Egyptian.

123A-123B. Coptic.

130. Ancient Egyptian Religion.

140A-140B. Elementary Sumerian.

145. Sumerian Literary Texts.

150A-150B-150C. Survey of Ancient Near Eastern Literatures in English.

160A-160B. Introduction to Near Eastern Archaeology.

161A-161B-161C. Archaeology of Mesopotamia.

162. Archaeology of Palestine.

NOTE: For key to symbols, see page 74

170. Introduction to Biblical Studies.

171. Old Testament: Hebrew and Septuagint Texts.

172. Semitic Background of the New Testament.

199. Special Studies in the Ancient Near East.

Anthropology 110. Peoples of the Middle East: Arab Culture.

122A. Comparative Society.

123A-123B. Origins of Old World Civilization.

140. Comparative Religion.

145. Introduction to Psychological Anthropology.

163. Women in Culture and Society.

Arabic 102A-102B-102C. Intermediate Arabic.

103A-103B-103C. Advanced Arabic.

110. Introduction to Islam.

111A-111B-111C. Spoken Arabic.

113A-113B-113C. Spoken Iraqi Arabic.

114A-114B-114C. Spoken Moroccan Arabic.

130A-130B-130C. Classical Arabic Texts.

132A-132B-132C. Philosophical Texts.

140A-140B-140C. Modern Arabic Texts.

141. Modern Arabic Literature.

150A-150B. Survey of Arabic Literature in English.

199. Special Studies in Arabic.

Armenian 101A-101B-101C. Elementary Modern Armenian.

102A-102B-102C. Intermediate Modern Armenian.

103A-103B. Advanced Modern Armenian.

130A-130B. Elementary Classical Armenian.

131A-131B. Intermediate Classical Armenian.

132A-132B. Advanced Classical Armenian.

150A-150B. Survey of Armenian Literature in English.

160A-160B. Armenian Literature of the 19th and 20th Centuries.

199. Special Studies in Armenian Language and Literature.

Art 101A-101B-101C. Egyptian Art and Archaeology.

101D. Art of the Ancient Near East.

103A. Greek Art.

103B. Hellenistic Art.

104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages.

105A. Early Christian Art.

105B. Early Medieval Art.

105E. Byzantine Art.

114A. The Early Art of India.

115A. Advanced Indian Art.

199. Special Studies in Art.

Berber 101A-101B-101C. Elementary Berber.

102A-102B-102C. Advanced Berber.

120A-120B-120C. Introduction to Berber Literature.

130. The Berbers.

199. Special Studies in Berber Languages.

Classics M170A-170B. Byzantine Civilization. (Same as History M122A-122B.)

Classics Greek 130. Readings in the New Testament.

French 121A. Franco-African Literature.

Geography 187. The Middle East.

188. Northern Africa.

Hebrew.*

*See Department of Near Eastern Languages and Cultures for complete listing and detailed description.

History 117. History of Ancient Egypt.

121A. The Early Middle Ages.

121B. The Later Middle Ages.

M122A-122B. Byzantine Civilization. (Same as Classics M170A-170B.)

123A-123B-123C. Byzantine History.

124A-124B. Introduction to the History of Religions.

124C. Religions of the Ancient Near East.

129. History of Northeast Africa.

130A-130B-130C. Islamic Iran.

131A-131B-131C. Armenian History.

132. The Caucasus since 1801.

133A-133B. History of North Africa from the Moslem Conquest.

134A-134B. Near and Middle East from 600 A.D. to 1500 A.D.

135A. Introduction to Islamic Cultures.

135B. Islamic Institutions and Political Ideas.

136A-136B. The Middle East: 1500 to the Present.

137A-137B. Jewish Intellectual History.

138A-138B. Jewish History.

138C-138D. Focal Themes in Jewish History.

139A-139B-139C. History of the Turks.

140A-140B. History of Ancient Mesopotamia and Syria.

149A-149B-149C. History of the Balkans.

196A. Early History of India.

196B. Recent History of India and Pakistan.

197. Undergraduate Colloquia.

199. Special Studies in History.

Iranian 101A-101B-101C. Elementary Persian.

102A-102B-102C. Intermediate Persian.

103A-103B-103C. Advanced Persian.

140. Contemporary Persian Belle Lettres.

141. Contemporary Persian Analytical Prose.

150A-150B. Survey of Persian Literature in English.

169. Civilization of Pre-Islamic Iran.

170. Religion in Ancient Iran.

190A-190B. Introduction to Modern Iranian Studies.

199. Special Studies in Iranian.

Jewish Studies 110. Social, Cultural and Religious Institutions of the Jews.

151A-151B. Modern Jewish Literature in English.

190. Undergraduate Seminar in Jewish Studies.

199. Special Studies.

Music 171K. Music of Persia.

Near Eastern Languages 198. Special Studies in Near Eastern Languages.

Philosophy 104. Topics in Islamic Philosophy.

Political Science 132. International Relations of the Middle East.

164. Governments and Politics in the Middle East.

165. Government and Politics in North Africa.

Semitics 101A-101B-101C. Elementary Amharic (Modern Ethiopic).

102A-102B-102C. Advanced Amharic (Modern Ethiopic).

110. Neo-Aramaic.

130. Biblical Aramaic.

140A-140B. Elementary Akkadian.

141. Advanced Akkadian.

142. Akkadian Literary Texts.

Sociology 132. Population and Society in the Middle East.

133. Comparative Sociology of the Middle East.

151. Culture and Personality.

Turkic Languages 101A-101B. Elementary Turkish.

102A-102B. Intermediate Turkish.

103A-103B. Advanced Turkish.

110A-110B-110C. Old and Middle Turkic.

112A-112B-112C. Uzbek.

114A-114B-114C. Bashkir.

180A-180B-180C. Introduction to Turkic Studies.

199. Special Studies in Turkic Languages.

Graduate Courses

African Languages.**

**See Linguistics Department for complete listing and detailed description.

Ancient Near East 210. Late Egyptian.

220. Seminar in Ancient Egypt.

250. Seminar in Ancient Mesopotamia.

260. Seminar in Ancient Near Eastern Archaeology.

261. Practical Field Archaeology.

596. Directed Individual Study.

597. Examination Preparation.

599. Dissertation Research and Preparation.

Anthropology 214. Cultures of the Middle East.

265. Selected Topics in Cultures of the Middle East.

Arabic 220A-220B-220C. Islamic Texts.

230A-230B-230C. Arabic Poetry.

240A-240B-240C. Arab Historians and Geographers.

250A-250B-250C. Seminar in Arabic Literature.

260A-260B-260C. Introduction to Modern Arabic Dialects.

280. Structure of Classical Arabic.

596. Directed Individual Study.

597. Examination Preparation.

599. Dissertation Research and Preparation.

Archaeology 200. Archaeology Colloquium.

259. Field Work in Archaeology.

596. Individual Studies for Graduate Students.

597. Preparation for Doctoral Qualifying Examinations.

Armenian 210. History of Armenian Language.

220. Armenian Literature of the Golden Age (A.D. Fifth Century).

250A-250B. Seminar in Armenian Literature.

290. Seminar in Armenian Paleography.

596. Directed Individual Study.

597. Examination Preparation.

599. Dissertation Research and Preparation.

Art 210. Egyptian Art.

211. Topics in Egyptian Art.

212. Problems in Islamic Art.

213. Seminar in Problems in Islamic Art.

222A-222B. Greco-Roman Art.

223. Classical Art.

225. Medieval Art.

226A-226B. Medieval Art and Architecture.

260. Asian Art.

Classics, Greek 231A-231B-231C. Seminar in Patristic and Byzantine Literature.

233. Byzantine Poetry.

French 221A. Introduction to the Study of the French-African Literatures.

221B. French-African Literature of Madagascar and Bantu Africa.

221C. French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa.

257A-257B. Studies in French-African Literature.

Geography 287. Middle East.

288. Northern Africa.

Hebrew.*

*See Department of Near Eastern Languages and Cultures for complete listing and detailed description.

History 201A. History of the Eurasian Nomadic Empires.

203. History of Ancient Egypt in the Late Period.

207. Armenian Intellectual History.

210A-210B. Morocco and Europe to the End of the French Protectorate.

228. Methods in Armenian Oral History.

230J. Advanced Historiography. The Near East.

230P. Advanced Historiography. History of Religions.

230R. Advanced Historiography. Jewish History.

230S. Advanced Historiography. Armenia and the Caucasus.

240J. Topics in History. The Near East.

240P. Topics in History. History of Religions.

240R. Topics in History. Jewish History.

240S. Topics in History. Armenian History.

250A-250B. Seminar in Ancient History.

252A-252B-252C. Seminar in Byzantine History.

267A-267B. Seminar in Near Eastern History.

268A-268B. Seminar in Jewish History.

278A-278B. Seminar in Medieval Intellectual History and History of Science.

282A-282B. Seminar in the History of Religions.

283A-283B. Seminar in Ottoman and Modern Turkish History.

284A-284B. Seminar in the Social History of the Middle East.

286A-286B. Seminar in Armenian History.

291A-291B. Seminar in Medieval Middle Eastern History.

596. Directed Studies.

597. Directed Studies for Graduate Examinations.

599. Doctoral Research and Writing.

Iranian 210A-210B. The History of the Persian Language.

211A-211B. Modern Iranian Dialects.

220A-220B. Classical Persian Texts.

221. Rumi the Mystic Poet of Islam.

M222A-222B. Vedic.

230A-230B. Old Iranian.

231A-231B. Middle Iranian.

250. Seminar in Classical Persian Literature.

251. Seminar in Contemporary Persian Literature.

596. Directed Individual Study.

597. Examination Preparation.

599. Dissertation Research and Preparation.

Islamics 596. Directed Individual Study.

597. Examination Preparation.

598. Thesis Research and Preparation.

599. Dissertation Research and Preparation.

Linguistics 220A. Linguistic Areas. Africa.

225M. Linguistic Structures: Berber.

225U. Linguistic Structures: Persian Phonology and Syntax.

225V. Linguistic Structures: Persian Syntax.

Music 282. Music of Persia.

284. Music of the Arabic Near East.

Near Eastern Languages 200. Bibliography and Method of Near Eastern Languages and Literatures.

210. Survey of Hamito-Semitic Languages.

M241. Folklore and Mythology of the Near East.

290. Seminar in Paleography.

596. Directed Individual Study.

597. Examination Preparation.

599. Dissertation Research and Preparation.

Political Science 250F. Seminars in Regional and Area Political Studies. Middle East.

250K. North African Studies.

Semitics 201A-201B-201C. Old Ethiopic.

202A-202B-202C. Readings in Old Ethiopic Literature.

209A-209B-209C. Comparative Study of the Ethiopian Languages.

210. Ancient Aramaic.

215A-215B. Syriac.

220A-220B. Ugaritic.

225. Phoenician.

230. Seminar in Northwest Semitic Languages and Literatures.

240. Seminar in Akkadian Language.

241. Seminar in Akkadian Literature.

280A-280B-280C. Seminar in Comparative Semitics.

290A-290B-290C. Comparative Morphology of the Semitic Languages.

596. Directed Individual Study.

597. Examination Preparation.

599. Dissertation Research and Preparation.

Sociology 236. Social Change in the Middle East.

237. Social Stratification in the Middle East.

Turkic Languages 210A-210B-210C. Ottoman.

211. Ottoman Diplomatics.

220A-220B-220C. Chagatay.

230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages.

240A-240B-240C. Islamic Texts in Ottoman.

250A-250B-250C. Islamic Texts in Chagatay.

596. Directed Individual Study.

597. Examination Preparation.

599. Dissertation Research and Preparation.

Urdu 101A-101B-101C. Elementary Urdu.

199. Special Studies in Urdu.

ITALIAN

(Department Office, 340 Royce Hall)

Giovanni Cecchetti, Dottore in Lettere, *Professor of Italian.*
Fredi Chiappelli, Dottore in Lettere; Doct. Lett. "Honoris Causa", *Professor of Italian.*
Margherita Cottino-Jones, Ph.D., Dottore in Lettere, *Professor of Italian (Chairman of the Department).*
Pier-Maria Pasinetti, Ph.D., Dottore in Lettere, *Professor of Italian and Comparative Literature.*
Charles Speroni, Ph.D., *Emeritus Professor of Italian.*
Franco Betti, Ph.D., *Associate Professor of Italian.*
Franco Masciandaro, Ph.D., *Associate Professor of Italian.*
Edward F. Tuttle, Ph.D., *Associate Professor of Italian.*

•

Mirella Cheeseman, Dottore in Legge, *Lecturer in Italian.*
Camilla Naham, Ph.D., *Lecturer in Italian.*
Althea Reynolds, B.A., *Lecturer in Italian.*

The program of studies leading to the Bachelor of Arts in Italian consists of two distinct phases: preparation in the language, and study of the literature. While literature courses constitute the bulk of the program, a good knowledge of the language is a prerequisite to all upper division literature courses credited toward the Major in Italian. All degree programs are designed to give students the best possible preparation in the field at the appropriate level. The use of Italian is stressed at all levels of study. Detailed information on programs and specific degree requirements may be obtained in the department publication, *Programs in Italian Studies,* and in the office of the Department of Italian located in 340 Royce Hall.

Preparation for the Major

Courses 1, 2, 3, 4, 5, 6, and 25, or their equivalents are required.

The Major in Italian

Required: 14 Upper Division courses out of 16 courses regularly offered once every or every other academic year. Seven of these are required; specifically Italian 101, 102A-102B-102C, 113A-113B, 190; an additional seven are to be chosen from the other nine courses ranging from 114 through 122.

Strongly recommended: three upper division courses from other departments as follows: Classics 143 or 144, History 148A or 148B, and English 110. Recommended: Art 106A, 106B, or 106C; upper division courses in another literature and philosophy and a second language (Latin, French, Spanish or German) at least on level 3. All majors must organize their programs in consultation with department undergraduate adviser.

The Major in Italian and Special Fields

Preparation: Italian 1, 2, 3, 4, 5, and 6 or their equivalents are required, plus additional required courses associated with the field of specialization in consultation with the departmental undergraduate adviser.

Required: 14 Upper Division courses, seven of which must be in Italian. Italian 102A-102B-102C series is required, while the remaining four may be chosen from the other thirteen courses ranging from 113 through 122 as determined by the student's area of specialization. The other seven courses are to be chosen from offerings in another department, as determined by the field of specialization.

Study programs fulfilling requirements for the major in Italian and Special Fields have been developed with the Departments of Anthropology, Art, Classics (Latin), English, French, History, Linguistics, Music, Political Sciences, and Theater Arts. Students should consult the Department of Italian undergraduate adviser for requirements in the various fields of specialization.

NOTE: Students participating in the major in Italian and Special Fields will be required to plan their study lists each quarter in consultation with the departmental undergraduate adviser. Courses will be assigned in accordance with the student's needs as determined by the area of specialization pursued. When consultation with an area adviser is deemed necessary, the study list will require his approval also. In certain cases, as many as two courses (8 units) on the graduate level may be applied toward the 14-course minimum requirements.

Requirements for the Master's Degree

General Requirements. See Master's Degrees. The Department favors the Comprehensive Examination Plan, but, with departmental approval, the Thesis Plan may be followed. See Thesis or Comprehensive Examination.

Program A: Master of Arts in Italian Literature

Departmental Requirements. Thesis Plan. The preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. No committee shall be appointed before a candidate has completed two full quarters of work in graduate standing in the Department.

1. Foreign Language. The same as for the Comprehensive Examination Plan.

2. Courses. Nine courses of which a minimum of six must be in the 200 series. Italian 200A-200B-200C and Italian 205B are required.

3. Thesis and Examination. The subject and general plan of investigation for the thesis must be approved by the Department and the instructor concerned before a guidance committee can be

appointed. After completion of the thesis, the candidate must pass a two-hour oral examination testing his knowledge of the field of his thesis and his general competence. Only those students who attain a 3.5 grade-point rating in the examination will be encouraged to proceed to candidacy for the Ph.D. degree.

Departmental Requirements. Comprehensive Examination plan.

1. Foreign Language. A reading knowledge of one other foreign language approved by the graduate adviser, or evidence of successful completion of courses through at least level 3. This requirement must be met at least one quarter before the date of the comprehensive examination.

2. Courses. Twelve courses, four of which are required, Italian 200A-200B-200C and Italian 205B. The other eight must be distributed in the three main literary periods—Middle Ages, Renaissance, Modern (at least two in each period). Three of the courses may be upper division, if approved by the graduate adviser. Related courses in other Departments, such as History 205A and 205B and Art 230 are strongly recommended.

3. The Comprehensive Examination. One four-hour written examination, administered by a faculty committee appointed by the Chairman, to be given the next to the last week preceding the final examination period of the fall and spring quarters. After the written examination, the candidates are required to take an oral examination.

Program B: Master of Arts in Italian Language

The program is designed as a terminal degree program with emphasis on the methodology of teaching language and elementary literature.

Departmental Requirements. Thesis Plan. The preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The Chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. No committee shall be appointed before a candidate has completed two full quarters of work with graduate standing in the Department.

1. Foreign Language. A reading knowledge of one other foreign language approved by the graduate adviser, or evidence of successful completion of courses through at least level 3. This requirement must be met at least one quarter before the date of the oral examination.

2. Courses. Twelve courses, of which a minimum of six must be in the 200 series, and the following are required: Italian 200A-200B-200C, Italian 259A-259B, Latin 232, Linguistics 100 or 140 or both.

3. Thesis and Examination. The subject and general plan of investigation for the thesis must be approved by the Department and the instructor concerned before a guidance committee can be appointed. After completion of the thesis, the candidate must pass a two-hour oral examination testing his knowledge of the field of his thesis and his general competence.

Departmental Requirements. Comprehensive Examination Plan.

1. Foreign Language. A reading knowledge of one other foreign language approved by the graduate adviser, or evidence of successful completion of course through at least level 3. This requirement must be met at least one quarter before the date of the comprehensive examination.

2. Courses. Twelve courses, of which a minimum of six must be in the 200 series, and the following are required: Italian 130, Italian 200A-200B-200C, Italian 259A-259B, Latin 232, or Italian 210A or both. The others should be distributed in such a way that at least one graduate course should be taken respectively in the Medieval Period (Seminar on Dante strongly recommended), in the Renaissance, and in the Modern Period.

3. The Comprehensive Examination. One four-hour written examination, administered by a faculty committee appointed by the Chairman, to be given in the next to the last week preceding the final examination period of the fall and spring quarters. After the written examination, at the discretion of the Department, the candidates are required to take an oral examination.

Requirements for the Ph.D. Degree in Italian

General Requirements. See Candidate in Philosophy Degree.

Departmental Requirements.

1. Foreign Language. A student normally will pass this requirement by giving evidence of successful completion of courses through level three in at least two of the following languages: Latin, French, German, or Spanish. All language requirements must be fulfilled prior to taking the qualifying examinations.

2. Required Courses. In addition to those required for the master's degree, or equivalent: at least ten other quarter courses, of which no more than two 596 courses may apply. In addition, the student will take such courses as his guidance committee will prescribe in preparation for the qualifying examinations, such as 596 and 597.

3. Fields of Specialization. The Department recognizes the following fields of specialization, from which *one major* and *one minor field* will be selected: Medieval, Renaissance and Baroque, Modern.

4. Qualifying Examinations. Part I. An M.A. in Italian from UCLA is accepted as Part I of the Ph.D. qualifying examinations. Graduate students entering the Ph.D. Program in Italian with an M.A. from another University will take Part I at the end of their first graduate year at UCLA. (Note: This requirement may be waived under certain circumstances at the discretion of the Department and upon petition by the student.) This qualifying examination Part I is similar to the comprehensive examination for the M.A. (See Thesis or Comprehensive Examination.)

5. Qualifying Examinations. Part II. The qualifying examinations will consist of one four-hour written examination in the candidate's major field; one four-hour written examination covering the minor fields; a two-hour oral examination. The qualifying examinations are normally taken no later than nine quarters after the B.A. and six quarters after receiving the M.A. A summary of requirements entitled "Regulations for the Ph.D. Examination" is available in the Department on request.

6. The Dissertation. The dissertation should be presented within a period of two years after formal advancement to candidacy for the degree. After the acceptance of the dissertation in its final form, the candidate may be required to take an oral examination which will cover principally the field within which the dissertation falls.

Lower Division Courses

Enrollment in the Italian open language laboratory is required of all students of Italian 1, 1A, 2, 2A, and 3. Enrollment in Italian culture sections is required of all students of Italian 2, 2A and 3 as the fifth hour of instruction for these courses.

1. Elementary Italian—Beginning. Sections meet five hours weekly plus one hour in the laboratory. Mrs. Cheeseman in charge

1A. Elementary Italian—Accelerated. (2 courses) Sections meet ten hours weekly plus two hours in the laboratory. Designed for those students having the capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 1 and 2. Mrs. Cheeseman in charge

2. Elementary Italian—Continued. Sections meet five hours weekly plus one hour in the laboratory. Prerequiste: course 1 or one year of high school Italian. Mrs. Cheeseman in charge

2A. Elementary Italian Accelerated (Continued). (2 courses) Sections meet ten hours weekly plus two hours in the laboratory. Prerequisite: Italian 2 or Italian 1A, or two years of high school Italian. Designed for those students having the capacity and desire to learn the language at a much faster pace than normal. Encompasses the material ordinarily intended for Italian 3 and Italian 4. Mrs. Cheeseman in charge

3. Elementary Italian—Continued. Sections meet five hours weekly plus one hour in the laboratory. Prerequisite: course 2 or two years of high school Italian. Mrs. Cheeseman in charge

4. Intermediate Italian. Sections meet five hours weekly plus one hour in the laboratory. Prerequisite: course 3 or three years of high school Italian. Mrs. Cheeseman in charge

5. Intermediate Italian. Sections meet five hours weekly plus one hour in the laboratory. Prerequiste: course 4 or four years of high school Italian. Mrs. Cheeseman in charge

6. Intermediate Italian. Sections meet five hours weekly plus one hour in the laboratory. Prerequisite: course 5. Mrs. Cheeseman in charge

8A-8B-8C. Italian Conversation. (½ course each) Sections meet two hours weekly. Prerequisite: permission of instructor. This sequence of courses is intended for students who have taken 3-6 quarters of language instruction and have developed considerable skills in Italian. Its purpose is to help the students to improve further their spoken proficiency through constant exposure and practice of the language. Each of these courses may be repeated once for credit. Ms. Reynolds in charge

25. Advanced Italian. Sections meet five hours weekly. Prerequisite: course 6. An advanced grammar and composition course with readings from select literary works.

Upper Division Courses

Sixteen quarter units in Italian or the equivalent are required for admission to any upper division course. Upper division courses for the Majors will be conducted in Italian and will all be 4 units courses and meet three hours weekly.

101. Preparation for Advanced Italian Studies. A course designed to acquaint Juniors with the research tools fundamental to the study of Italian culture. Will focus on how to find texts and collateral material, how to utilize bibliographies, dictionaries, encyclopedias, manuals and periodicals and how to proceed in literary analysis. Mr. Chiappelli

102A-102B-102C. The Italian Cultural Experience. A study of the cultural development of Italy conducted especially with a view to contemporary situations.

102A. From the disruption of Roman unity to feudal and communal society and culture.

102B. From Renaissance civilization to the Baroque Age.

102C. Historical and cultural issues from the Age of Enlightenment to our day. The Staff

113A-113B. Dante's 'Divina Commedia'. This course focuses on the Divine Comedy. Selective readings from the text will be integrated with relevant information on scholasticism, classical tradition, medieval literature and poetics, and the sociopolitical structure of Dante's World.

113A. A General Introduction and Readings from *Inferno.*

113B. Readings from *Purgatorio* and *Paradiso.* Mr. Cecchetti, Mr. Masciandaro

114A-114B. Italian Literature of the Middle Ages. Classes meet three hours weekly. Emphasis on "Stil Novo," Dante's minor works, Petrarch and Boccaccio. Mrs. Cottino-Jones, Mr. Tuttle

116A-116B. Italian Literature of the Renaissance. Emphasis on Lorenzo de'Medici, Poliziano, Castiglione, Machiavelli, Ariosto, Tasso. Mr. Betti, Mr. Masciandaro

118. Italian Literature of the Eighteenth Century. Emphasis on Goldoni, Parini, Alfieri. Mr. Betti, Mr. Pasinetti

119. Italian Literature on the 19th Century. This course surveys the 'Romantic Age' as it expresses values and national aspirations of 19th Century Italy. Emphasis is placed on the innovative approach to poetry as seen in the works of Foscolo and Leopardi, and to the socio-historical novel of Foscolo, Manzoni and Verga. Mr. Betti

120. Italian Literature of the Twentieth Century. Following a brief introduction to Italian literature after unification of the country, the course will concentrate on selected writers seen in their political, social, and artistic contexts. Mr. Cecchetti

121. Italian Cinema. A comparative study of specific literary works and their translations into films, and of the different techniques in the two forms of expression. Texts will include literary works, screenplays, and works on literary and film theory. Mr. Pasinetti

122. The Italian Theater. The course concentrates on what is alive today (read and performed) in the Italian theater. Texts will range from the Renaissance to the present. Mrs. Cottino–Jones

130. Advanced Grammar and Composition (Teaching). The Teaching of Italian Idiomatic Structure: Grammar. A study in depth of the idiomatic phenomena of the language from both the grammatical and syntactical points of view. Mr. Chiappelli

131. Reading and Reciting. Prerequisite: consent of instructor based on sufficient knowledge of the language. Emphasis on diction, interpretation and performance of one-act plays as vehicles for perfection of pronunciation, comprehension and fluency. Mrs. Reynolds

190. History of the Italian Language. Examines the main forces which have shaped literary or Standard Italian and specific ways in which the language has evolved. Traces its changing relations with other European languages, and surveys the effects wrought by historical events, changes in taste and altered social functions. Mr. Tuttle

199. Special Studies. (½ to 1 course) Prerequisite: consent of the instructor. A course of independent study for advanced undergraduates who wish to pursue a special research project under the direction and close supervision of a faculty member. The Staff

Service Courses

No knowledge of Italian is required for these courses. No credit is given toward the major.

1G. Special Reading Course. (No credit) Class meets three hours weekly. Mainly designed for graduate students in other areas. The Staff

2G. Special Reading Course. (No credit) Class meets three hours weekly. Mainly designed for graduate students in other areas. The Staff

42A-42B-42C. Italian Civilizations of Italy Through the Ages. A general survey of the history, literature, art, music and architecture audio-visually illustrated with emphasis on Italy's cultural contributions to Western Civilization. A service course designed to meet the breadth requirements.

42A. From the origins through the Middle Ages. Mrs. Cottino-Jones, Mr. Tuttle

42B. From Renaissance to the Enlightenment.

42C. Modern Italy. The Staff

46A-46B-46C. Literary and Socio-Political Trends in Italian Cinema (In Engish). Lecture, two hours; discussion, two hours. The influence of Italian literature, socio-political thought, and aesthetics on the development and evolution, thematic emphases, and treatment of specific directors and genres of Italian cinema after World War II. 46C is intended as a general (and introductory) survey, while 46B and 46A focus on a particular emphasis – director or genre. Designed for students with majors other than Italian. Mrs. Cottino–Jones in charge

50A-50B. Main Trends in Italian Literature.

50A. Italian Literature to the Baroque Period. A study of selected works of the major writers of the period, including Dante, Petrarch, Boccaccio, Ariosto, Machiavelli, Castiglione, Tasso, Bruno, Galileo, Marino.

50B. Italian Literature from 1700 to the Present. A study of selected works by the major writers of the period, including Vico, Parini, Alfieri, Foscolo, Leopardi, Manzoni, Verga, Pirandello, Svevo, Moravia, Ungaretti, Montale. The Staff

105. Tradition and Innovation in Italian Culture. Italy's basic social structures and cultural institutions are delineated through their historical development and as they are manifest in the stresses to which the industrializing state currently is subject. Mr. Tuttle

110A-110B. The Divine Comedy of English. Class meets three hours weekly. The Staff

M140. From Boccaccio to Basile (in English). (Same as Folklore M140.) Class meets three hours weekly. A study of the origins and the development of the Italian novella in its themes, in its structure, in its historical context, and in its European ramifications. The course is designed for students in other departments who wish to become acquainted with either the premises or the growth of similar literary genres. It is also intended for students majoring in Folklore and Mythology, who will be given an insight into Italian popular tales when these (as in the case of Boccaccio) were translated into highly sophisticated literary forms, as well as when (as in the case of Basile) they become embedded into the folk tradition of the Western world. Mrs. Cottino–Jones

150. Modern Italian Fiction in Translation. Class meets three hours weekly. The Staff

M158. Women in Italy. (Same as Women's Studies M158.) This course is designed with the intent of examining the role that women have played in Italian society. It will concentrate alternatively on the world of the Medieval and Renaissance "Matriarch" and on the "liberated" women of our times. Historical and political documents and also social and religious taboos will be presented and discussed together with other data derived from literature and art. Mrs. Cottino–Jones

Graduate Courses

200A. Readings in Italian Literature. Class meets three hours weekly. Prerequisite: graduate status. Italian 200A will cover the literature of the generation dominated by the Franciscan movement and proceed through the culture of Frederick II's court to the three classics of the XIV century, Dante, Petrarch, and Boccaccio. Finally, it will encompass the early humanists, the post-classics generation, and the cultural booming under Lorenzo il Magnifico. Mr. Chiappelli, Mrs. Cottino–Jones, Mr. Masciandaro

200B. Readings in Italian Literature. Class meets three hours weekly. Prerequisites: graduate status, Italian 200A. Italian 200B will cover the literature of the High Renaissance of Central Italy in its three most popular genres, lyric poetry, chivalric poem, and theater, and proceed through the counter-reformistic culture, especially of Northern and Southern Italy. Finally, it will encompass the main Enlightment figures, and the cultural evolution stemming from them. Mr. Betti, Mr. Chiappelli, Mr. Masciandaro

200C. Readings in Italian Literature. Class meets three hours weekly. Prerequisites: graduate status, Italian 200B. Italian 200C will cover the literature of the Romantic era and proceed through a study of the literary figures of the Italian "Risorgimento". Finally, it will encompass the various "novecentisti" movements, the literature between the two wars, and the contemporary generation. Mr. Betti, Mr. Cecchetti, Mr. Pasinetti

201. Bibliography and Methods of Research. Class meets three hours weekly. Mrs. Cottino–Jones

205A-205B. Methods of Literary Criticism. Classes meet three hours weekly.

205A. Brief History of Literary Criticism.

205B. Discussion of Modern Critical Approaches. Mrs. Cottino–Jones

210A-210B-210C. Early Italian Literature. Classes meet three hours weekly.

210A. The Origins of Italian Language and Early Texts. Mr. Tuttle

210B. The *Scuola Siciliana* and Early Poetry in Central and Northern Italy. Mr. Tuttle

210C. The *Dolce stil novo.* Ms. Masciandaro

214A-214G. Italian Literature of the Fourteenth Century. Classes meet three hours weekly.

214A. Dante's *Vita Nuova* and *Rime.* Mr. Chiappelli

214B. *Convivio and De Vulgari Eloquentia.* Mr. Masciandaro

214C. The *Commedia* and the *Monarchia.* Mr. Chiappelli

214D. Petrarca. Mr. Chiappelli

214E. The *Decameron.* Mrs. Cottino–Jones

214F. Boccaccio's Other Works. Mrs. Cottino–Jones

214G. Sacchetti and Other Prose Writers. Mrs. Cottino–Jones

215A-215B-215C. Italian Literature of the Fifteenth Century. Classes meet three hours weekly.

215A. Fiction and Other Prose Texts. Mr. Chiappelli

215B. Writings of the Humanists. Mr. Masciandaro

215C. The Age of Lorenzo de'Medici and Poliziano. Mr. Betti

216A-216E. Italian Literature of the Sixteenth Century. Classes meet three hours weekly.

216A. Machiavelli. Mr. Chiappelli

216B. Ariosto. Mr. Masciandaro

216C. Bembo, Folengo, Aretino, and the Theatre. Mrs. Cottino–Jones

216D. Prose (Castiglione, Della Casa, Guicciardini, Cellini). The Staff

216E. Tasso. Mr. Chiappelli

217A-217B-217C. Italian Literature of the Seventeenth Century. Classes meet three hours weekly.

217A. Bruno, Campanella, Galilei, Magalotti. Mrs. Cottino–Jones

217B. Commedia dell'arte and the Theatre. Mrs. Cottino–Jones

217C. Marino and Marinisti. Mrs. Cottino–Jones

218A-218E. Italian Literature of the Eighteenth Century. Classes meet three hours weekly.

218A. The Prose from Vico to Cesarotti. Mr. Betti

218B. Essayists and Autobiographical Writers. Mr. Betti

218C. The Theater, Especially Metastasio, Goldoni, C. Gozzi. Mr. Pasinetti

218D. Parini and the Poets of Arcadia. Mr. Pasinetti

218E. Alfieri. Mr. Betti

219A-219F. Italian Literature of the Nineteenth Century. Classes meet three hours weekly.

219A. Foscolo. Mr. Chiappelli

219B. Leopardi. Mr. Cecchetti

219C. Manzoni. Mr. Pasinetti

219D. Trends in Fiction before Verga. Mr. Betti

219E. Verga. Mr. Cecchetti

219F. Italian Literature at the Turn of the Century. Mr. Pasinetti

NOTE: For key to symbols, see page 74

220A-220B-220C. The Italian Literature of the Twentieth Century. Classes meet three hours weekly.

220A. From D'Annunzio to Futurism and the Early Twenties. Mr. Cecchetti

220B. Contemporary Italian Poetry. Mr. Cecchetti

220C. Contemporary Italian Fiction. Mr. Pasinetti

M230A-230B. Folk Tradition in Italian Literature. (Same as Folklore M230A-230B.) Course meets two hours weekly. The Staff

Seminars

250A-250D. Seminar on Dante. Course meets three hours weekly. Mr. Chiappelli, Mr. Masciandaro

251. Seminar on Petrarch. Course meets three hours weekly. Mr. Chiappelli

252. Seminar on Boccaccio. Course meets three hours weekly. Mrs. Cottino–Jones

253A-253B-253C. Seminar on Chivalric Poetry in Italy. Course meets three hours weekly. The relationship between the genre and its French medieval sources, with a study of its evolution in Italy, through Pulci, Boiardo, Ariosto, and Tasso. Mrs. Cottino–Jones

254. Seminar on Machiavelli. Course meets three hours weekly. Mr. Chiappelli

255A-255B. Seminar on the Baroque. Course meets three hours weekly. Mrs. Cottino–Jones

256A-256B. Seminar on the Eighteenth Century. Course meets three hours weekly. Mr. Pasinetti

257A-257B. Seminar on Romanticism. Course meets three hours weekly. Mr. Pasinetti

258A-258B. Seminar on Contemporary Italian Literature. Course meets three hours weekly. Mr. Cecchetti

259A-259B-259C. Studies in the History of Italian Language.

259A. History of the Italian Language. Prerequisite: graduate status. A historical survey of the development of the language from Medieval times to the unification of the country (1861). *Questione della lingua*, general acceptance of Florentine speech, and its evolution into the national language. Mr. Tuttle

259B. The structure of Modern Italian. Prerequisite: graduate status. Various tendencies in modern and contemporary Italian. Foreign influences in today's Italian language. Relationship between the national language and the various dialects. Mr. Tuttle

259C. Italian Dialectology. The historical differentiation of the Italian dialects will be considered in its areal dimension. Specific geolinguistic problems and solutions will illustrate the growth of the discipline up to its present merging with sociolinguistics as Italian dialects become more vertically defined. Mr. Tuttle

370. Problems and Methods in the Teaching of Italian. Course meets two hours weekly. Mrs. Cheeseman

Individual Study and Research

495A-495D. The Teaching of Italian at the College Level. (½ to 1 course each) Prerequisite: consent of instructor.

495A. Techniques in Teaching Italian Literature.

495B. Techniques in Teaching Italian Culture.

495C. Techniques in Teaching Italian Conversation.

495D. Techniques in Teaching Italian Film. The Staff

501. Cooperative Program. (½ to 2 courses). Prerequisites: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Studies. (1 to 2 courses) The Staff

597. Preparation for Comprehensive Examinations. (1 to 2 courses) The Staff

599. Doctoral Research and Writing. (1 to 2 courses) The Staff

JOURNALISM

(Department Office, 371 Kinsey)

Walter Wilcox, Ph.D., *Professor of Journalism.*
Joseph A. Brandt, M.A. (Oxon.), B.Litt. (Oxon.) LL.D., *Emeritus Professor of Journalism.*
William W. Johnson, M.A., *Emeritus Professor of Journalism.*

•

James H. Howard, M.A., *Lecturer in Journalism (Chairman of the Department).*
John Fleischman, B.A., *Lecturer in Journalism.*
Laurence J. Pett, B.A., *Lecturer in Journalism.*

Undergraduate Courses

The Department offers undergraduate courses, primarily upper division courses.

2. Fundamentals of Journalism. Lectures, field trips, and workshops. Survey of journalism principles and techniques.

101A. Reporting. Fundamentals of the news communication process.

101B. Photojournalism. Basic graphic arts illustration, and photo-journalism for the mass media.

112. The History of American Journalism. History of the news media and their ancillary agencies with special attention to the news and information function. Course emphasizes historical context, including the main forces in development of the free press and social responsibility concepts.

180. Radio and Television News. Lecture, two hours; laboratory, three hours. Prerequisite: course 2 or equivalent. Fundamentals of broadcast news; FCC regulations; network, station, and news agency problems and policies. Laboratory; exercises and experiments in preparing the newscast, with emphasis on television.

181. Reporting of Public Affairs. Prerequisite: course 2 or equivalent. Reporting governmental functions with emphasis upon judicial, legislative and administrative procedures at the city and county level.

182A. Magazine Writing. Analysis of the general magazine. Writing non-fiction articles; research, style and structure.

182B. Magazine Writing. Continuation of course 182A. Prerequisite: course 182A or equivalent and consent of the instructor.

190. The Foreign Press. Analysis of the four theories of the press; study of the flow of international news; analysis of the foreign media including problems of propaganda, government control, language and economic support.

192. The Media of Mass Communications. Institutional analysis of the mass media with emphasis upon the press and broadcasting in the mass communications process; interaction with other institutions; critical evaluation.

193. The Press, the Law and the Constitution. Legal sanctions and constitutional freedoms affecting the printed and broadcast media.

195. The Critical Function of the Press. Analysis and evaluation of the press in its role as critic of the popular arts, including television, books and motion pictures. Special lectures by professional critics.

199. Individual Studies. (¼ to 1 course) Prerequisite: upper division status and consent of instructor. Individual study for upper division students wishing to do research on the performance of the news media and their relation to society. This course will permit upper division students to do research on the operation and/or influence of the mass media in areas of special interest. These areas may be coordinated with a student's major field or with various special community projects of the University. Students will be expected to develop their own study plan, execute either primary data collection or perform secondary analysis of existing data, and produce a study report. The Staff

KINESIOLOGY

(Department Office and Student Affairs Office, 206 Men's Gymnasium)

Camille Brown, Ed.D., *Professor of Kinesiology.*
Bryant J. Cratty, Ed.D., *Professor of Kinesiology.*
[16]V. Reggie Edgerton, Ph.D., *Professor of Kinesiology.*
Glen H. Egstrom, Ph.D., *Professor of Kinesiology.*
Gerald W. Gardner, Ph.D., *Professor of Kinesiology.*
Valerie V. Hunt, Ed.D., *Professor of Kinesiology.*
Jack F. Keogh, Ed.D., *Professor of Kinesiology.*
Norman P. Miller, Ed.D., *Professor of Kinesiology.*
Laurence E. Morehouse, Ph.D., *Professor of Kinesiology.*
Raymond A. Snyder, Ed.D., *Professor of Kinesiology.*
Rosalind Cassidy, Ed.D., *Emeritus Professor of Kinesiology.*
Donald T. Handy, Ed.D., *Emeritus Professor of Kinesiology.*
Wayne W. Massey, Ph.D., *Emeritus Professor of Kinesiology.*
Ben W. Miller, Ph.D., *Emertitus Professor of Kinesiology.*
Carl H. Young, Ed.D., *Emeritus Professor of Kinesiology.*
Serena E. Arnold, Ed.D., *Associate Professor of Kinesiology (Chair of the Department).*
Marjorie E. Latchaw, Ph.D., *Associate Professor of Kinesiology.*
[5]R. James Barnard, Ph.D., *Associate Professor of Kinesiology.*
[16]Judith L. Smith, Ph.D., *Associate Professor of Kinesiology (Vice Chair of the Department).*
Robert J. Gregor, Ph.D., *Assistant Professor of Kinesiology.*
Tara K. Scanlan, Ph.D., *Assistant Professor of Kinesiology.*
Ronald F. Zernicke, Ph.D., *Assistant Professor of Kinesiology.*

•

Roland Roy, Ph.D., *Adjunct Assistant Professor of Kinesiology.*
Diane Shapiro, Ph.D., *Acting Assistant Professor of Kinesiology.*
Orsie M. Thomson, M.A., *Emeritus Supervisor of Kinesiology.*

Bachelor's Degree in Kinesiology

Kinesiology is the study of the biochemical, morphological and general physiological responses of the human to exercise and environmental conditions; the description of movement and the neuromuscular and biomechanical determinants of motor performance; and the development, acquisition and modification of motor performance. The purpose of this study is intended to develop and integrate principles and concepts of human movement (Kinesiology).

Students intending to major in Kinesiology must confer with the departmental counselor before enrollment in classes. Advising appointments can be made in the Student Affairs Office, MG 206.

The Department has admission screening procedures. Qualification for admission will depend upon courses and units completed. Questions regarding the screening procedures should be directed to the Student Affairs Office, MG 206.

All students who are interested in this major and who are transferring from another college or university should see the Departmental counselor at least six months prior to the expected enrollment date at UCLA. This is to assist these students in meeting the departmental screening requirements.

Preparation for the Major

Required courses in the Department: 12, 14.

Required courses outside the Department: Biology 4B, Chemistry 11A, Physics 3A and one introductory course in statistics. One introductory course from two of the following departments: Anthropology, Philosophy, Psychology and Sociology. In addition to the above, students emphasizing Area I (see description below) must complete two years of chemistry (Chemistry 11A-11B-11BL-11C-11CL, 21, 23, 25) and two quarters of calculus (Math 3A, B). Area II students are highly encouraged to take Chemistry 15.

A grade of "C–" or better will be required in each preparation course in the Department. A grade of "C–" or better or a nonletter grade of pass will be required in each preparation course outside the Department.

Requirements of the Major

Required courses in the Department: 110, 111, 130, 131, 150, 151.

Upper Division Electives: A total of nine electives (36 units) are required. Six courses (24 units) must be taken in Kinesiology with at least one course in each content area and no more than 4 courses in any one area: Area I – 115, 117, 118, 119; Area II – 132, 134A, 134B, 137, 139, 140, 145; Area III – 134C, 160, 165, 170A, 170B, 175, 178. Selection of area electives establishes the student's area of concentration within Kinesiology. Courses not assigned to an area (105, 106, 191, 199, 199H) may be selected, but 300 and 400 level courses may not be used to satisfy the elective requirement for the major.

Two extra-departmental electives, related to student's area of concentration, are required. A list of approved courses is available in the Student Affairs Office, MG 206.

The ninth elective may be selected either from any upper division elective in the Department or from the approved extra-departmental list.

A "C" average must be maintained in all upper division courses taken in the department. If the student fails to attain these minimal standards, dismissal from the major will be recommended. All upper division courses required for the major (including extradepartmental requirements) must be taken for a letter grade.

Each major should consult the departmental counselor on a regular basis. Appointments can be made through the Student Affairs Office, MG 206.

Honors in Kinesiology

Honors in Kinesiology are intended to recognize superior academic achievement and to encourage undergraduate students with distinguished scholastic records to conduct independent research. Requirements for admission to candidacy are the same as those required for admission to the Honors Program in the College of Letters and Science. *Honors in Kinesiology* are awarded at graduation to honor students who have achieved 3.5 or better in upper division Kinesiology courses, at least 9 of which must be completed at UCLA. *Highest Honors in Kinesiology* are awarded at graduation to honor students who have satisfactorily completed an honors research project (199H) and who have achieved at least 3.7 in upper division Kinesiology courses. Inquiries concerning Honors in Kinesiology should be directed to the Student Affairs Office, MG 206.

Departmental Scholar Program

Under the Departmental Scholar Program, honor students in Kinesiology (juniors and seniors) are permitted to pursue bachelor's and master's degree programs simultaneously. The Departmental Scholar must be provisionally admitted to the Graduate Division, and no course can be used to fulfill requirements for both degrees. The two degrees may be awarded simultaneously, but this is not a requirement of the program. The master's degree can be completed after the bachelor's degree has been awarded. Inquiries concerning the Departmental Scholar Program should be directed to the Student Affairs Office MG 206.

Graduate Study

The Department offers programs of study and research leading to the M.S. and Ph.D. degrees in Kinesiology within the three content areas of the Department's instructional and research programs (see Areas I, II and III below). The general University requirements for the M.S. and Ph.D. degrees are described in the Graduate Section of this catalog. The M.S. makes use of the Thesis or Comprehensive Examination plans. A student is not required to earn the M.S. degree before undertaking work for the Ph.D. degree.

Students seeking admission to graduate status in the Department will be expected to meet the general requirements of the Graduate Division for admission, as described under "In Graduate Status". Applicants are expected to have an undergraduate degree in Kinesiology or a related field with equivalent course work. A University application for graduate study, a clear and cogent statement of purpose and three letters of recommendation are required of all applicants.

Students who plan to apply for admissions to this department are encouraged to come to the campus for a personal interview with members of the Graduate Affairs Committee. A departmental brochure describing in detail both the M.S. and Ph.D. programs and financial aid resources is available by writing to the Graduate Affairs Committee, Department of Kinesiology.

Lower Division Courses

12. Introduction to Human Physiology. (1½ courses) Lecture, five hours; laboratory, three hours. Prerequisites: course 14, Biology 1A, Chemistry 11A. An introduction to human physiology. Mr. Roy

13. Introduction to Human Anatomy. (1½ courses) Lecture, five hours; laboratory, three hours. Prerequisites: Biology 1A or 2. A structural survey of the human body including the skeletomuscular, nervous, circulatory, respiratory, digestive, and genitourinary systems. Laboratory includes examination of human cadaver specimens. Course is not intended for Kinesiology majors; combination of Kinesiology 13 and 14 will be equivalent to nine units. The Staff (Sp)

14. Human Neuromuscular Anatomy. (1½ course) Lecture, four hours; laboratory, four hours. Prerequisites: Biology 1A. A through study of the skeletal, articular, muscular, and nervous systems. Special emphasis is placed on relating these body structures to human movement capabilities. Laboratory includes examination of prosected human cadaver specimens. The Staff (F,W)

***116. Human Motor Performance.** Lecture, three hours; laboratory, two hours. Basic psycho-socio concepts in the study of human movement. Mr. Keogh

Upper Division Courses

105. Movement Taxonomy and Composition. Lecture, three hours; laboratory, two hours. Prerequisite: course 14. Clarification and organization of movement concepts through the study of definition, classification, division and composition of human movement. Ms. Brown

106. Theories of Kinesiology. A study of ethical, logical and aesthetic valuing in human movement and human development with special consideration given to traditional and modern approaches. Ms. Brown

Area 1: Biochemical, morphological, and general physiological adaptations of man to exercise and environmental conditions

110. Exercise Physiology. Prerequisites: courses 12, 14, Chemistry 11A, Biology 1A. Response of organs and systems to chronic and acute exercise. Mr. Edgerton, Mr. Gardner

111. Laboratory in Exercise Physiology. (¼ course) Must be taken concurrently with course 110. Mr. Edgerton, Mr. Gardner

115. Aquatic Kinesiology. Lecture, three hours; laboratory, two hours. Prerequisites: course 12 and 14 or consent of instructor. A study of man's adaptation to the aquatic environment. Mr. Egstrom

117. Conditioning for Maximum Performance. Prerequisites: courses 110, 111, 130, 131, or consent of instructor. Study of factors and conditions accelerating and retarding levels of performance and work under various physiological and environmental conditions. Mr. Egstrom, Mr. Gardner, Mr. Morehouse

118. Cellular Dynamics of Exercise. Prerequisites: Kinesiology 110, 111, Chemistry 11C, 11CL or 15 or consent of instructor. Cellular responses to acute and chronic exercise. Mr. Edgerton

119. Laboratory Experimentation in Exercise Biology. Prerequisites: courses 110, 111, 118, and consent of instructor. Assessment of biochemical properties of muscle and blood, histochemistry of muscle, physiological properties of muscular and cardiorespiratory systems during exercise. Mr. Edgerton, Mr. Roy

Area II: Description of human movement and the neuromuscular and biomechanical determinants of motor performance

130. Biomechanics of Human Movement. Prerequisites: courses 12 and 14; Physics 3A. Kinematic and kinetic principles underlying human movement focusing on the human neuromuscular and skeletal systems. Mr. Gregor, Mr. Zernicke

131. Laboratory in Biomechanics of Human Movement. (¼ course) Must be taken concurrently with course 130. Mr. Gregor, Mr. Zernicke

132. Biomechanics of Musculoskeletal Injury. Prerequisites: courses 130-131 or the equivalent and consent of instructor. Anatomical, physiological and mechanical characteristics of cartilaginous, fibrous, and bony tissues are examined in normal and abnormal stress situations. Connective tissue growth processes, normal physiology and repair mechanisms are analyzed in conjunction with musculoskeletal injuries and effects of exercise and physical activity. Mr. Zernicke

134A. Electromyographic Assessment. Lecture, three hours, laboratory, two hours. Prerequsities: courses 130, 131. Techniques of electromyographic analysis combining theoretical aspects with laboratory experiences. Mr. Gregor

134B. Cinematographic Assessment. Lecture, three hours; laboratory, two hours. Prerequisites: course 130, 131. High-speed motion picture films of human movement; techniques of data collection, analysis, and interpretation. The Staff

134C. Performance Assessment. Lecture, three hours; laboratory, two hours. Prerequisites: course 150, 151. Critical analysis of theoretical and practical aspects of assessment techniques as well as individual and group evaluation procedures. The Staff

137. Therapeutic Exercise. Prerequisite: courses 110, 111, 130, 131. The role of exercise in the improvement of movement in physically handicapped individuals. Care and prevention of athletic injuries. Mr. Gardner, Mr. Morehouse

139. Dissection Anatomy. Lecture, two hours; laboratory, six hours. Prerequisites: courses 14, 130-131, and consent of the instructor. Study and dissection of upper and lower extremities of human cadavers; dissection of thorax and abdomen limited to musculature and neurovascular supply; students will be demonstration prosectors for course 14. The Staff

140. Mechanisms of Neuromuscular Control. Lecture, three hours; laboratory, two hours. Prerequisites: courses 12, 14, and Psychology 15 or 115. Neuromuscular mechanisms for the control of somatic muscles are covered in detail including skeletomotor and fusimotor systems and proprioceptive feedback necessary for motor control. Laboratory emphasizes neuroanatomy. Ms. Smith

145. Analysis of Expressive Movement. Interpretation of the expressive aspects of human movement. Ms. V. Hunt

Area III: Development, acquisition and modification of human motor performance

150. Motor Performance and Skill Acquisition. Prerequisites: course 16 and an introductory course in statistics. An examination of motor performance and motor learning and the influence of selected psychological variables upon human movement. Ms. Shapiro

151. Laboratory in Motor Performance and Skill Acquisition. (¼ course) Must be taken concurrently with course 150. Ms. Shapiro

NOTE: For key to symbols, see page 74

160. Human Movement Development. Prerequisite: course 16. Movement development throughout life with emphasis upon individual and societal determinants. Mr. Keogh

165. Perceptual Motor Education. Prerequisites: courses 150, 151, and 160 recommended. Movement problems of the minimally-neurologically handicapped with emphasis on the clumsy child syndrome. Mr. Cratty

***[1]170A-170B. Theoretical Aspects of Play, Leisure and Recreation.** A consideration of the historical development, philosophical concepts and social forces influencing leisure and recreation in American life. Ms. Arnold

***[1]175. Sports in American Life.** The national and international roles and interrelationships of American sports emphasizing socio-cultural values, changing patterns, current trends, problems and issues. The Staff

178. Group Dynamics in Sport. Lecture, three hours; laboratory, two hours. Prerequisites: 150-151 or consent of instructor. Examination of group dynamics in sport. Topics include: group productivity, group structure, leadership, motivational factors, cohesion, conflict. Ms. Scanlan

Other Courses

191A-191B-191C. Proseminars in Kinesiology. Prerequisites: upper division standing and consent of the instructor. Seminars may be taken in any order; only one seminar (four units) may be counted as a Departmental elective. Enrollment is limited to 15 students. Seminars A, B and C are related to topics in Core Areas I, II and III, respectively. The Staff

199. Special Studies in Kinesiology. (½ or 1 course) Prerequisites: Last quarter junior or senior major in Kinesiology with an overall 3.0 GPA, and consent of the instructor and chairperson of the Department. A course application (available in MG 206) signed by the instructor shall be submitted to the chairperson on or before the first day of class. The course will be identified by a two-letter code using the initials of the sponsoring instructor (see Department for code). The number of units of 199 or 199H that an individual student may take toward an undergraduate degree is limited to 4 units toward the major and an additional 4 units toward the University graduation requirements, for a total of 8 units. Honor students may substitute 199H for the 199, but in no case can they exceed 4 units total of either 199 or 199H or any combination thereof to be applied toward the major. The Staff

199H. Special Studies—Honors. (½ or 1 course) Prerequisites: senior major in Kinesiology, achievement of College Honors status, at least a 3.5 GPA for the upper division required courses and two upper division electives in Kinesiology, and consent of instructor and chairperson of the Department. A course application (available in MG 206) signed by the instructor shall be submitted to the chairperson on or before the first day of class. The course will be identified by a two-letter code using the initials of the sponsoring instructor (see Department for code). The number of units of 199 or 199H that an individual student may take toward an undergraduate degree is limited to 4 units toward the major and an additional 4 units toward the University graduation requirements, for a total of 8 units. No student may exceed 4 units total of either 199 or 199H or any combination thereof to be applied toward the Kinesiology major. The Staff

Graduate Courses

205. Human Movement Theory. Significant theoretical formulations of the body of knowledge of human movement. Ms. Brown

210A-210B-210C. Exercise Physiology.

210A. Cardiovascular and Respiratory Factors. Prerequisite: course 118. Topics include coronary blood flow, cardiac contractile properties, blood flow distribution, blood pressure, vasoregulation ventilatory mechanics, and O2 and CO2 absorption and transport in exercise and training and in some diseased conditions. Mr. Barnard, Mr. Gardner

210B. Neuromuscular and Metabolic Factors. Prerequisite: course 118. Fundamental aspects of skeletal muscle contraction and metabolic demands under various exercise and training conditions, including neural and endocrine mechanisms potentially involved in inducing specific training effects on skeletal muscle, liver, kidney, gastrointestinal tract and brain. Mr. Edgerton

210C. Enivornmental Factors. Prerequisite: course 118. Environmental pressures of high altitude and underwater diving as well as temperature factors as they affect work performance; adaptation to unusual environments. Mr. Egstrom

211. Advanced Exercise Cardiovascular Physiology. Lecture, two hours; laboratory, three hours. Prerequisites: course 210A and Physiology 101. Attention is focused on cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training. Mr. Barnard

221. Underwater Kinesiology. Prerequisites: courses 110 and 130 or consent of instructor. Biomechanical, physiological, methodological and behavioral limitations to underwater activities. Mr. Egstrom

230A. Muscle Dynamics. Prerequisites: courses 130, 131; 134A recommended. Integrated study of electrical and dynamic parameters of muscle-action to include topics in length-tension and force-velocity interrelationships; critical analysis of electromyographic and digital computer techniques. Mr. Gregor, Mr. Zernicke

230B. Musculoskeletal Mechanics. Prerequisites: courses 130, 131, Mathematics 3A, 3B. Mechanical parameters of the moving human musculoskeletal system including the use of cinematographic, force platform and digital computer techniques; topics include physical properties of bone and fibrous connective tissues, biostatics, biodynamics, and empirical data modeling. Mr. Gregor, Mr. Zernicke

237. Advanced Kinesiotherapy. Prerequisite: course 137 or consent of instructor. Selected studies in therapeutic exercises. Mr. Morehouse

240. Neural Systems for Motor Control. Prerequisites: course 140 and Psychology 115 (or equivalent). Proprioception, the skeletomotor and fusimotor systems and their control by spinal reflexes and supraspinal centers including the cerebellum, basal ganglia and cerebral cortices. Ms. Smith

250. Behavioral Approach to Motor Control Prerequisites: course 150 and consent of instructor. An information processing approach to skill acquisition and performance. Particular emphasis on current theories of motor control from the behavioral literature. Ms. Shapiro

255. Social Processes and Motor Behavior. Prerequisite: course 178 or consent of the instructor. Influence of social psychological processes on motor behavior with particular attention to the influences of situational variables in the social environment, intra-personal intervening variables, and the interaction between these external and internal factors on motor behavior. Ms. Scanlan

256. Movement Behavior. Qualitative nature of movement style approached from perceptual and emotional organization, and body image, time, space and weight concepts. Ms. Hunt

260. Motor Development. Prerequisite: course 160. Critical analysis of behavioral approaches in the formulation of motor development theory. Mr. Keogh

262. Movement Disorders. Prerequisite: 160 or 165 or consent of instructor. Current research in developmental and behavioral aspects of movement disorders. Topics include early identification and intervention, perceptual and cognitive relationships, and evaluation of movement training programs. Mr. Cratty, Mr. Keogh

***[1]270. Social Correlates of Human Movement.** A critical analysis of the social relationships between sports, games, exercise and other forms of man's movement patterns and the cultural and social structures of the American society. The Staff

275. Social Bases of Leisure and Recreation. A synthesis of basic concepts and processes underlying theories of leisure and recreation with implications for solution of fundamental problems. Ms. Arnold

276. Play Theory. A critical analysis of theoretical propositions explaining the phenomenon of play. Ms. Arnold

280A-280P. Advanced Topics in Kinesiology. The subject matter of these courses will be in a field of kinesiology in which the staff member giving the course has developed special proficiency owing to his research interest.

280B. Human Energy Fields. Ms. Hunt

280E. Psychology and the Athlete. Prerequisites: course 250 and consent of instructor. Mr. Cratty

280H. Physical Working Capacity. Prerequisites: course 118 and consent of instructor. Mr. Gardner

280J. Seminar in Exercise Biology. Prerequisites: course 210A or the equivalent and consent of the instructor. Student analysis, presentation and discussion of topics dealing with biochemical and/or physiological aspects of acute and/or chronic exercise. Mr. Barnard, Mr. Edgerton, Mr. Gardner

280K. Sport Competition and Psycho-Social Development. Prerequisite: course 255 and consent of the instructor. Current approaches to the study of competition in sport as a social evaluation process. Psycho-social short-term and long-term developmental effects of sport competition on children. Ms. Scanlan

280L. Metabolism of Skeletal Muscle. Prerequisite: course 118 or consent of instructor. Muscle energetics and metabolism. The Staff

280P. Modeling of the Human Musculoskeletal System. Prerequisite: consent of instructor and graduate status. Comparative analysis of specific and general mathematical models of the human musculoskeletal system. Examination of three-dimensional kinematic and kinetic analyses, including matrix methods and optimization techniques. Mr. Gregor, Mr. Zernicke

285. Research in Human Movement. Application of research designs to problems in human movement. The Staff

294A-294B. Seminars in Neuromuscular Control. Prerequisites: courses 140 and 118, and either 210B or 240. Selected topics on the muscular and neural determinants of movement behavior. Mr. Edgerton, Ms. Smith

Professional Courses

***[1]402. Administration of Physical Education.** Principles and policies applied to the unique organizational problems of physical education. Mr. Snyder

430. Sports Medicine. Prerequisites: course 130; 132 recommended. A survey of advances in athletic training; etiology and diagnostic techniques relative to rehabilitation and protection from injury in sport; professional and legal aspects of sports medicine. Mr. Gregor, Mr. Morehouse, Mr. Zernicke

495. Inservice Practicum for Teaching Assistants in Kinesiology. (½ course). Prerequisite: consent of instructor. Supervised practicum in teaching laboratory courses in Kinesiology; material preparation and use of teaching aids. Course required for all teaching assistants. Units do not apply toward degree objectives. Grading S/U basis only. Ms. Arnold

Individual Study and Research

501. Cooperative Program. (½ to 2 courses) Prerequisites: approval of UCLA Graduate adviser and Graduate Dean. Approval of host campus instruc-

tor, Department Chairman and Graduate Dean. The course is used to record the enrollment of courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596A-596ZZ. Individual Studies for Graduate Students. (½ to 2 courses) Prerequisites: course petition signed by the faculty sponsor, graduate adviser and Graduate Affairs Committee Chair shall be submitted prior to the second week of class. The course will be identified by a two-letter code using the initials of the faculty sponsor (see department for code). A total of 8 units may be taken for credit; only one course (4 units) will count toward the minimum graduate course requirement for the M.S. in Kinesiology. Offered on a letter graded basis only. The Staff

597A-597ZZ. Preparation for Master's Comprehensive Examination. (½ to 2 courses) To be arranged with the faculty member serving as the student's comprehensive examination chair. The course will be identified by a two-letter code using the faculty's initials (see department for code). Course 597 may not be used to fulfill any course requirements for the Master's degree. Graded on a S/U basis. The Staff

598A-598ZZ. Research for the Preparation of the Master's Thesis. (½ to 4 courses) Each member of the faculty supervises research of master's students and holds research group meetings, seminars, and discussions with students that take his master's research course which is identified by the same two-letter code used to identify the 596 course. Course 598 may not be used to fulfill any of the course requirements for the master's degree. Graded on a satisfactory/unsatisfactory basis. The Staff

LATIN AMERICAN STUDIES (INTERDEPARTMENTAL)

(Office, 10347 Bunche Hall)

Shirley L. Arora, Ph.D., *Professor of Spanish.*
Charles F. Bennett, Ph.D., *Professor of Geography.*
C. Rainer Berger, Ph.D., *Professor of Anthropology.*
William O. Bright, Ph.D., *Professor of Linguistics and Anthropology.*
Henry J. Bruman, Ph.D., *Professor of Geography.*
E. Bradford Burns, Ph.D., *Professor of History.*
Robert Burns, S.J., Ph.D., *Professor of History.*
Robert N. Burr, Ph.D., *Professor of History.*
David K. Eiteman, Ph.D., *Professor of Finance.*
Howard Freeman, Ph.D., *Professor of Sociology.*
John Friedmann, Ph.D., *Professor of Planning.*
Edward Gonzalez, Ph.D., *Professor of Political Science.*
Claude L. Hulet, Ph.D., *Professor of Spanish and Portuguese.*
Derrick B. Jelliffe, M.D., D.T.M., D.C.H., *F.R.C.P., Professor of Public Health and Professor of Pediatrics.*
Kenneth L. Karst, A.B., LL.B., *Professor of Law.*
James Lockhart, Ph.D., *Professor of History.*
Clement W. Meighan, Ph.D., *Professor of Anthropology.*
Henry B. Nicholson, Ph.D., *Professor of Anthropology.*
Carlos P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*
Harvey S. Perloff, Ph.D., *Professor of Planning.*
Stanley L. Robe, Ph.D., *Professor of Spanish.*
Milton I. Roemer, M.D., M.P.H., *Professor of Public Health and Professor of Preventive and Social Medicine.*
Allen B. Rosenstein, Ph.D., *Professor of Engineering and Applied Science.*
Jonathan D. Sauer, Ph.D., *Professor of Geography.*
C.A. Schroeder, Ph.D., *Professor of Botany.*
Edward W. Soja, Ph.D., *Professor of Planning.*
David Stea, Ph.D., *Professor of Architecture/Urban Design and Urban Planning.*
Robert M. Stevenson, Ph.D., *Professor of Music.*
Marian E. Swendseid, Ph.D., *Professor of Nutrition and Biological Chemistry.*
C.R. Viswanathan, Ph.D., *Professor of Electrical Sciences and Engineering.*
Johannes Wilbert, Ph.D., *Professor of Anthropology.*
James W. Wilkie, Ph.D., *Professor of History.*
Telford H. Work, M.D., M.P.H., D.T.M.&H., *Professor of Infectious and Tropical Diseases, Professor of Microbiology and Immunology and Professor of Preventive and Social Medicine.*
Ralph L. Beals, Ph.D., *Emeritus Professor of Anthropology.*
John A. Crow, Ph.D., *Emeritus Professor of Spanish.*
Gladys A. Emerson, Ph.D., *Emeritus Professor of Nutrition.*
John E. Englekirk, Ph.D., *Emeritus Professor of Spanish.*
Mildred E. Mathias, Ph.D., *Emeritus Professor of Botany.*
Anibal Sanchez-Reulet, Ph.D., *Emeritus Professor of Spanish.*
Ichak Adizes, Ph.D., *Associate Professor of Managerial Studies.*
James E. Bruno, Ph.D., *Associate Professor of Education.*
John R. Dominguez, Ph.D., *Associate Professor of Business Economics.*
Christopher Donnan, Ph.D., *Associate Professor of Anthropology.*
Pierre-Michel Fontaine, Ph.D., *Acting Associate Professor of Political Science.*
John Hawkins, Ph.D., *Associate Professor of Education.*
Bruce H. Herrick, Ph.D., *Associate Professor of Economics.*
Allan Johnson, Ph.D., *Associate Professor of Anthropology.*
Thomas J. La Belle, Ph.D., *Associate Professor of Education.*
David E. Lopez, Ph.D., *Associate Professor of Sociology.*
Gerardo Luzuriage, Ph.D., *Associate Professor of Spanish.*
Alfred K. Neumann, M.D., M.P.H., *Associate Professor of Public Health in Residence.*
Raymond Neutra, Ph.D., *Associate Professor of Epidemiology.*
Susan Kaufman Purcell, Ph.D., *Associate Professor of Political Science.*
Richard M. Reeve, Ph.D., *Associate Professor of Spanish.*
James W. Trent, Ph.D., *Associate Professor of Education.*
Beatriz Arias, Ph.D., *Assistant Professor of Education.*
Fadwa El Guindi, Ph.D., *Assistant Professor of Anthropology.*
Ralph Frerichs, Ph.D., *Assistant Professor of Epidemiology.*
Robert Hill, Ph.D., *Assistant Professor of History.*
Barclay M. Hudson, Ed.D., *Assistant Professor of Planning.*
Cecelia Klein, Ph.D., *Assistant Professor of Art.*
Alfred E. Osborne, Ph.D., *Assistant Professor of Management.*
David O'Shea, Ph.D., *Assistant Professor of Education and Sociology.*
Susan Plann, Ph.D., *Assistant Professor of Spanish and Portuguese.*
Antonio Quicoli, Ph.D., *Assistant Professor of Spanish and Portuguese.*
Susan Scrimshaw, Ph.D., *Assistant Professor of Public Health.*
A. John Skirius, Ph.D., *Assistant Professor of Spanish.*
Concepcion Valadez, Ph.D., *Assistant Professor of Education.*
Carlos Velez, Ph.D., *Assistant Professor of Anthropology.*
Rolando Armijo, M.A., M.P.H., *Professor of Epidemiology in Residence.*
Jose M. Cruz-Salvadores, M.A., *Lecturer in Spanish.*
Eduardo Mayone Dias, Ph.D., *Lecturer in Spanish and Portuguese.*
Kathleen B. Fischer, Ph.D., *Lecturer in Education and Latin American Studies.*
Teshome Gabriel, *Lecturer in Theater Arts.*
Kavid Kunzel, Ph.D., *Lecturer in Art.*
Ludwig Lauerhass, Jr., Ph.D., *Lecturer in History.*
Peter R. Nehemkis, LL.B., *Lecturer in International and Comparative Management.*
Jorge Preloran, Ph.D., *Lecturer in Theater Arts.*
Emilio Pulido-Huizar, *Lecturer in Dance.*
Irene Vegas-Garcia, Ph.D., *Lecturer in Spanish and Portuguese.*
George L. Voyt, J.D., *Lecturer in Spanish.*

The Latin American Studies program, coordinated through UCLA's NDEA Latin American Studies Center, offers the Bachelor of Arts and Master of Arts degrees. Special aspects include articulated programs with professional masters and doctoral degrees.

Committee in charge of Latin American Studies: Graduate, Susan Kaufman Purcell, Political Science (Chairperson); Bradford Burns, History; Richard M. Reeve, Spanish and Portuguese; Charlotte Crabtree, Education; Howard Freeman, Sociology; John Friedmann, Urban Planning; Susan Scrimshaw, Public Health. Undergraduate, James Lockhart, History (Chairman); Charles F. Bennett, Geography; William O. Bright, Linguistics; John Skirius, Spanish and Portuguese; Carlos Velez, Anthropology; Cecelia Klein, Art.

The Bachelor's Degree in Latin American Studies

Undergraduate studies of the Latin American region are designed to serve the needs of (1) students desiring a general education focused on the Latin American cultural region; (2) students planning to enter business, government or international agency service; (3) students preparing to teach social science or language; and (4) students preparing for advanced academic study of Latin America.

Preparation for the Major: History 8A-8B; Latin American Studies 99 and Spanish/Portuguese M44 *or,* if Major Core 2 (Economics) is chosen, Economics 1-2; Spanish 5 *or* Portuguese 3, which may be passed by examination whenever possible.

Major Requirements. Eighteen upper division courses distributed among Core. Concentration, and Elective requirements.

Major Language Requirements. Proficiency equivalent to (a) Spanish 25 and Portuguese 3 or (b) Portuguese 25 and Spanish 5. In lieu of Portuguese 1-3 students may take Portuguese 102A-102B which is designed for persons who have a background in Spanish.

Major Core. Twelve courses, with two in six of the seven following areas:

1. Anthropology 105A or 105B or 105C, and 123C or 123D or 123E.†

2. Economics 110, 111, 112, or Special Courses.†

3. Fine Arts: Art 117A, 117B, 117C, 118B, Dance 146, Music 131A, Music 131B, Music 157, Theater Arts 106C, or Special Courses.

4. Geography 121, 181, 182A, 182B, or Special Courses.†

5. History 162A, 162B, 162C, 163A, 163B, 163C, 164, 166, 168A-168B, 169, 197, 198A, or Special Courses.†

6. Political Science 131, 163A, 163B, or Special Courses.†

7. Spanish American or Brazilian Literature, two course in one language chosen from Spanish 121A, 121B, 137, 139, 141, 142A, 142B and Special Courses, or Portuguese 121A, 121B, 127, 129, 135, 137, and Special Courses.†

†Special courses such as 197, 198, 199, 596, 597, 598 and any courses which occasionally have Latin American content (for example, Political Science 139, Management 297A, etc.) may be counted toward the degree by petition in which the student agrees to write a paper on a Latin American topic. In regard to these petitions, students are encouraged especially to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

Major Concentration. Three additional courses in one of the above core disciplines, chosen from the List of Approved Latin American Courses.

Major Electives. Three additional courses chosen from the List of Approved Latin American Courses or from the general theory and method courses in the various disciplines.

Course Limitations. No student may take more than 8 units of 199† for letter grade credit nor more than 8 units in any single term. No courses taken on a Pass/Fail basis can be counted toward the major. In order to register in a 199 course, a student must have advanced junior standing and an overall GPA of 3.0, or senior standing.

Graduate Courses. Advanced undergraduates may enroll in graduate courses, with the professor's approval.

Double Majors. Through judicious use of electives, students may find it possible to secure the B.A. degree with two majors, e.g., Latin American Studies and history. Interested students who have achieved junior class standing should consult the undergraduate advisers of both departments involved, initiating the appropriate petition with the undergraduate adviser in Latin American Studies.

Study in Latin America. Students are encouraged to spend up to one year in Latin America either (a) to study with an education abroad program; (b) to study in Latin American universities; or (c) to conduct research; or (d) complete an Internship in an international or development agency. Full credit will be granted according to the individual programs arranged in consultation with the undergraduate adviser. Proposals must be presented in writing to the Interdepartmental Committee.

Departmental Scholar Program. Exceptionally promising undergraduate students may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously.

The Master's Degree in Latin American Studies

General Requirements. See Master's Degrees.

Preparation. The B.A. degree in Latin American Studies or the equivalent constitutes the normal basis for admission. Applicants with Latin American Field experience or special methodological studies will be given special consideration. For

NOTE: For key to symbols, see page 74

admission to graduate status, the Latin American Studies program requires three letters of recommendation and a curriculum vitae.

The program requires Graduate Record Examinations. Information and applications for the Graduate Record Examination may be obtained by writing to the Educational Testing Service, 1947 Center Street, Berkeley, California 94704 or, for applicants east of the Rocky Mountain states, the Educational Testing Service, Box 955, Princeton, New Jersey, 08540.

Students may be admitted with subject deficiencies, but such deficiencies will have to be made up by taking courses in addition to requirements for an advanced degree program.

Plans. The comprehensive examination plan is followed, but in exceptional cases a student may petition to write a thesis. Both plans are designed to facilitate admission to Ph.D. programs.

Comprehensive Examination Plan. A minimum of nine courses is required, among three disciplines either on a 4-3-2 or 3-3-3 basis (including five graduate courses, with at least one falling in each discipline). Students prepare for the examination by developing a graduate research paper in consultation with a professor in two of the three disciplines, one professor of whom shall be the chairman under whose direction the paper is prepared, preferably in a seminar, topics course, or certain Special Courses†. These two professors form the examining committee charged with testing the candidate's ability to relate knowledge across disciplinary boundaries; a professor representing the third discipline will attend the examination mainly in the capacity of observer. In determining the result of the examination the three professors will take into consideration the candidates (a) research paper; and (b) oral defense of the investigation and its implications; as well as (c) the rationale and record of course work for the M.A. For more complete information (including discussion of the M.A. honors program) consult a copy of the "Guidelines for the Comprehensive Examination," available at the Latin American Studies Office.

Thesis Plan. A minimum of ten courses is required as follows: (a) Four courses (including three graduate courses) in one discipline, which constitutes the area of core concentration; (b) three courses each in two minor disciplines (including one graduate course in each field). An interdisciplinary thesis is written under the direction of a faculty member in the core area, with approval also required by one professor in each minor field. For more information consult the "M.A. Thesis Plan Guidelines," available at the Latin American Studies Office.

Articulated Degree Programs. The graduate program in Latin American Studies offers several articulated degree programs wherein a student may earn the M.A. in Latin American Studies and a professional degree in (1) Public Health, (2) Library Science, (3) Management. Admission to the professional degree program is not automatic. Students complete the M.A. in Latin American Studies by selecting a professional field as one of their three areas of specialization. Additional information on the articulated degree programs is available from the Latin American Studies Office.

Professional Fields. In addition to the articulated degree programs, graduate students in Latin American Studies may choose, as one of their three areas of specialization, courses in education, urban planning, and law as well as in those professions with which articulated degrees are possible.

Field Requirements. At least one of the required three disciplines must fall in the social sciences (Anthropology, Economics, Geography, History, Political Science or Sociology).

Language Requirements. Proficiency equivalent to Spanish 25 and Portuguese 3 *or* Portuguese 25 and Spanish 5. In lieu of Portuguese 1-3 students may take Portuguese 102A-102B which is designed for persons with a background in Spanish. Because these courses do not count toward the M.A. degree, students are encouraged to pass these proficiency levels by examination. In certain cases a major Indian language may be substituted for either Spanish or Portuguese. All of these courses must be taken for letter grade, except lower division language courses.

Course Limitations. (1) Students may include only two independent graduate study courses (596, 597, 598)† in their program. (2) Selection of courses is dictated by the Center's List of Approved Latin American Courses, except that the following are not applicable: language courses (in contrast to linguistic and literature courses), and Special Courses, except by petition.† (3) Courses numbered in the 300-400 level series are not applicable to the minimum requirements for the M.A. degree. Graduate courses usually may be repeated for credit, except graduate lecture courses.

†Special courses such as 197, 198, 199, 501, 596, 597, 598 and any courses which occasionally have Latin American content (for example, Political Science 139, Management 297A, etc.) may be counted toward the degree by petition in which the student agrees to write a paper on a Latin American topic. In regard to these petitions, students are encouraged especially to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

Standards of Scholarship. Students in the M.A. in Latin American Studies program whose grade point average falls below 3.0 must bring the average up to 3.0 within one quarter or be dismissed.

Students whose aim is to enter a doctoral program following award of the M.A. in Latin American Studies are advised that most departments will consider only those applicants whose grade point average exceeds 3.5.

Time Limitation on Enrollment. All work for the M.A. degree must be completed in seven consecutive quarters (excluding summer sessions), as long as normal progress is being made toward completion of the degree. Students are expected to integrate thesis and examination studies into seminar, topic, and independent study courses. Students must be formally enrolled each quarter as they proceed to the M.A. degree in Latin American Studies, *regardless of whether or not they have finished their course work.* Only two exceptions are permitted: (1) Students who have completed all of their studies except their examination or thesis by the end of a Spring quarter are obligated to pay only a filing fee for completion of their degree provided that they complete their work before the beginning of a Fall quarter. (2) Students who are *not* using faculty time, the University libraries, or other University facilities must request a formal leave of absence.

Certificate of Resident Study for Foreign Students. This certificate may be issued to foreign students who do not seek the M.A. degree but (a) complete at least nine courses in full-time resident study with a grade-point average of at least 3.0; (b) conduct satisfactorily a program of organized studies; (c) have a student visa requiring return to their home country upon completion of study in the United States.

INTERDISCIPLINARY COURSES

99. Introduction to Latin American Problems. An interdisciplinary seminar for lower division students; enrollment limited to 15 students. Since this course is not a general survey and its content varies with each section, students will be permitted to repeat it for credit. The Staff

M155. Disease Problems of Socio-Economic and Political Impact in Latin America. (Same as Public Health M115.) Prerequisite: one upper division course in Latin American Studies Program. Social, economic, and political impact of important disease problems in Latin American countries. Mr. Work

199. Special Studies in Latin American Studies. (1 or 2 courses) Prerequisite: upper division standing. An intensive directed research program in which students conduct interdisciplinary research or complete an Internship with an international agency or program dealing with Latin America. Faculty sponsorship and written reports are required. The Staff

M200. Latin American Research Resources. (Same as History M265.) The course will acquaint students with general and specialized materials in fields concerned with Latin American Studies. Library research techniques will provide the experience and competency required for future bibliographic and research sophistication as the basis for enhanced research results. Mr. Lauerhass

201. Statistical Resources for Latin American Research. The course will acquaint students with the contemporary statistical materials important for research in Latin American Studies. Discussion will focus on the qualitative and interpretative aspects of the material especially as it relates to data developed for publication in the Latin American Center's *Statistical Abstract of Latin America* and its Supplement Series. The Staff

M232. Disease Problems of Socio-Economic and Political Impact in Latin America. (Same as Public Health M232.) Prerequisite: consent of the instructor. A graduate course for students with knowledge of the geography and social and political systems for the diverse nationalities which constitute Latin America. The focus will be on important disease problems in respect to their social, economic and political impact on Latin American countries with only a minimum of medical and technical details necessary to understand the nature of the disease as it afflicts individuals and populations. Mr. Work

250A-250B. Interdisciplinary Seminar in Latin American Studies. Problem-oriented on critical areas stressed in the University's cooperative programs in Latin America. Preparation of thesis and field study. This course is offered on an In Progress basis which requires students to complete the full two quarters sequence at the end of which time a grade is given for all quarters of work. 250A concurrently scheduled with Anthropology 250. Mr. Wilbert

250C. Interdisciplinary Topics in Latin American Studies. Prerequisite: permission of the instructor. A seminar devoted to selected topics of an interdisciplinary nature. Normally, a reading knowledge of the Spanish or Portuguese language is essential. The Staff

Individual Study and Research

501. Cooperative Program. (½ to 2 courses) Prerequisites: approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus Instructor, Department Chairman, and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Study or Research. Only one 4-unit course may apply toward the minimum course requirement for the master's degree. The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree. This course is ordinarily taken only during the quarter in which the student is being examined. A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the Committee on the basis of the student's performance. The Staff

598. Research for and Preparation of the Master's Thesis. A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the professor supervising the master's thesis. Only one course may apply toward the minimum course requirement for the degree. The Staff

LATIN AMERICAN SOCIAL SCIENCES COURSES

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

Anthropology 105A. Peoples of South America.

105B. Peoples of Middle America.

105C. Latin American Societies.

119. Culture Stability and Culture Change.

*122A. Comparative Society.

*122C. Technology and Environment.

123C. Ancient Civilizations of Western Middle America (Nahuatl Sphere).

123D. Ancient Civilizations of Eastern Middle America (Maya Sphere).

123E. Ancient Civilizations of Andean South America.

*153. Economic Anthropology.

*160. Urban Anthropology.

*161. Development Anthropology.

*172. Methods and Techniques of Ethno-history.

*174. Laboratory Methods in Technology and Inventions.

*175E. Laboratory Analysis in Archaeology.

*177A. Field Methods in Linguistic Anthropology; Practical Phonetics.

*200. Anthropological Linguistics.

*214E. Selected Topics in Prehistoric Non-Agricultural Societies.

*214G. Selected Topics in Prehistoric Civilizations of the New World.

*214H. Selected Topics in Historical Reconstruction and Archaeology.

*235. Social Movements and Social Crisis.

*236. Urban Anthropology.

250. Indians of South America.

*261A-261B. Research Methods and Procedures.

*263. Analysis of Field Data.

*265. Selected Topics in Field Training in Ethnography.

*M267B. Seminar in Ethnographic Film (same as Theater Arts M209C).

*269F. Selected Topics in Ethnology.

Archaeology *200. Archaeology Colloquium.

*259. Field Work in Archaeology.

Economics 110. Economic Problems of Underdeveloped Countries.

111. Theories of Economic Growth and Development.

112. Policies for Economic Development.

*190. International Economics.

*191. International Trade Theory.

*192. International Finance.

212. Economic Development of Underdeveloped Areas: Theory and Policy.

213. Selected Problems of Underdeveloped Areas.

*291. International Trade Theory.

*292.,, International Finance.

*293. International Economics: Selected Topics.

Folklore M149. Folk Literature of the Hispanic World (same as Spanish M149).

*201A-201B. Folklore Collecting and Field Research.

248. Theory and Method in Latin American Folklore Studies.

M249. Hispanic Folk Literature (same as Spanish M249 and Portuguese M249).

M286B. Studies in Hispanic Folk Literature: Narrative and Drama (same as Spanish M286B).

M286C. Studies in Hispanic Folk Literature: Ballad, Poetry, and Speech (same as Spanish M286C).

Geography 121. Conservation of Resources: Underdeveloped World.

181. Middle America.

182A. Brazil.

281. Middle America.

282. South America.

292. Advanced Regional Geography: Selected Regions.

History 8A. Latin America: Reform and Revolution.

8B. Latin American Social History.

165A-165B. Colonial Latin America.

166. Latin America in the 19th Century.

167A-167B. Latin America in the 20th Century.

168. History of Latin American International Relations.

169. Latin American Elitelore.

170. Topics in Latin American Cultural History Since 1900.

171. The Mexican Revolution Since 1910.

173. The History of Brazil.

174. Brazilian Intellectual History.

197. Undergraduate Colloquia: Latin America.

198Z. History of Argentina.

230I. Advanced Historiography: Latin America.

240I. Topics in History: Latin America.

266A-266B. Seminar in Colonial Latin American History.

266C-266D. Seminar in Brazilian History.

267A-267B. Seminar in Latin American History: 19th and 20th Centuries.

268A-268B. Seminar in Recent Latin American History.

Philosophy *190. Third World Political Thought.

Political Science *119A-119Z. Special Studies in Political Science.

131. Latin American International Relations.

*139. Special Studies in International Relations.

*146. Political Behavior Analysis.

*149. Special Studies in Politics.

163A-163B. Government and Politics in Latin America.

*167. Ideology and Development in World Politics.

*169. Special Studies in Comparative Government.

*183. Administration of International Agencies and Programs.

*188A. Comparative Public Administration.

*188B. Comparative Urban Government.

*189. Special Studies in Public Administration.

*191. Urban and Regional Planning and Development.

197B. Undergraduate Proseminar: Latin America.

*218A. Public Administration and Local Government.

*224A. Quantitative Applications.

*M229. Urban Government (same as Architecture M217).

*230. Comparative Development Adminstration.

*235. Selected Topics in Comparative Politics.

250A. Seminar in Regional and Area Political Studies: Latin American Studies.

*256A-256B. Seminar in Comparative Government.

Sociology *123. Social Stratification.

*126. Social Demography.

131. Latin American Societies.

*235. Social Structure and Social Movements.

*292A-292B-292C. Research Development.

LANGUAGE COURSES

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

Spanish *[11]1. Elementary Spanish.

*[11]1G. Reading Course for Graduate Students (no credit).

2. Elementary Spanish.

2G. Reading Course for Graduate Students (no credit).

3. Elementary Spanish.

4. Intermediate Spanish.

5. Intermediate Spanish.

25. Advanced Spanish.

M44. Civilization of Spanish America and Brazil (same as Portuguese M44).

100. Phonology and Pronunication.

*105. Intermediate Composition.

*109. Advanced Composition.

Portuguese *[11]1. Elementary Portuguese.

2. Elementary Portuguese.

3. Intermediate Portuguese.

25. Advanced Portuguese.

M44. Civilization of Spanish America and Brazil (same as Spanish M44).

100. Phonology and Pronunciation.

*101A. Advanced Reading and Conversation.

*101B. Advanced Composition and Style

102A-102B. Intensive Portuguese.

Indigenous Languages of Latin America *[11]118A-118B-118C. Elementary Quechua.

LINGUISTICS COURSES

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

Anthropology 200. Anthropological Linguistics.

*M201A. Linguistic Anthropology I.

Linguistics *4. Introduction to Native American Languages.

*100. Introduction to Linguistics.

*103. Introduction to General Phoenetics.

120A. Linguistic Analysis: Phonology.

*120B. Linguistic Analysis: Grammar.

*165A. Linguistic Theory: Phonology.

*165B. Linguistic Theory: Grammar.

*210A. Field Methods I.

*210B. Field Methods II.

*220. Linguistic Areas.

*225. Linguistic Structures.

Spanish *103. Syntax.

*115. Applied Linguistics.

*M118. History of the Spanish and Portuguese Languages (same as Portuguese M118).

*M203A-203B. Development of the Spanish and Portuguese Languages (same as Portuguese M203A-203B).

*204A-204B. Transformational Grammar.

*206. Linguistics.

*209. Dialectology.

*256A. Studies in Linguistics.

*256B. Studies in Dialectology.

Portuguese *103. Syntax.

*M118. History of the Portuguese and Spanish Languages (same as Spanish M118).

*M203A-203B. Development of the Portuguese and Spanish Languages (same as Spanish M203A-203B).

NOTE: For key to symbols, see page 74

LITERATURE COURSES

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

Spanish 121A-121B. Survey of Spanish American Literature.

137. The Literature of Colonial Spanish America.

139. 19th Century Spanish American Literature.

141. Mexican Literature.

142A. Spanish American Literature in the 20th Century: Poetry and Drama.

142B. Spanish American Literature in the 20th Century: Prose Fiction.

M149. Folk Literature of the Hispanic World (same as Folklore M149).

151. Folk Song in Spain and Spanish America.

*[11]160B. Hispanic Literature in Translation (not applicable to B.A. if major concentration is in Literature).

M200. Bibliography (same as Portuguese M200).

237. Chroniclers of the Americas.

239. Neo-Classic and Romantic Prose and Poetry in Spanish America.

240. The Modernist Movement.

243. Contemporary Spanish American Poetry.

244. Contemporary Spanish American Novel and Short Story.

245. Contemporary Spanish American Essay.

246. Contemporary Spanish American Theater.

M249. Hispanic Folk Literature (same as Folklore M249 and Portuguese M249).

277. Studies in Colonial Spanish American Literature.

278. Studies in 19th Century Spanish American Literature.

280A. Studies in Contemporary Spanish American Literature: Modernist Poetry.

280B. Studies in Contemporary Spanish American Literature: Post-Modernist Poetry.

280C. Studies in Contemporary Spanish American Literature: Novel and Short Story.

280D. Studies in Contemporary Spanish American Literature: The Essay.

M286B. Studies in Hispanic Folk Literature: Narrative and Drama (same as Folklore M286B).

M286C. Studies in Hispanic Folk Literature: Ballad, Poetry and Speech (same as Folklore M286C).

Portuguese 121A-121B. Survey of Brazilian Literature.

127. Colonial Brazilian Literature.

129. Romanticism in Brazil.

135. Naturalism, Realism and Parnasianism in Brazil.

137. Contemporary Brazilian Literature.

243A. Colonial Literature.

243B. 19th Century Literature.

243C. 20th Century Literature.

M249. Hispanic Folk Literature (same as Folklore M249 and Spanish M249).

253A. Special Studies in Brazilian Literature: The Novel.

253B. Special Studies in Brazilian Literature: The Poetry.

253C. Special Studies in Brazilian Literature: The Theater.

253D. Special Studies in Brazilian Literature: The Short Story and the Essay.

FINE ARTS COURSES

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

Art 117A. Advanced Studies in Pre-Columbian Art: Mexico.

117B. Advanced Studies in Pre-Columbian Art: Central America.

117C. Advanced Studies in Pre-Columbian Art: The Andes.

118B. The Arts of Pre-Columbian America.

220. The Arts of Africa, Oceania and Pre-Columbian America.

Dance *[11]71J. Dance of Mexico. (½ course)

146. Dance in Latin America.

171J. Dance of Mexico. (½ course)

*266A-266B-266C. Dance Expressions in Selected Cultures.

Music *[11]81K. Music and Dance of Mexico. (½ course)

131A-131B. Music of Hispanic America.

157. Music of Brazil.

Theater Arts 106C. History of African, Asian and Latin American Film.

*112. Film and Social Change.

*M209C. Seminar in Ethnographic Film (same as Anthropology M294A).

PROFESSIONAL COURSES

*Special courses which may be applied to B.A. and/or M.A. degree requirements by petition wherein the student agrees to write a paper on Latin America. In petitioning to count courses not listed here, students are *encouraged* to relate theoretical or methodological courses in the various disciplines to the study of Latin America.

***Architecture and Urban Planning.** 232. Spatial Planning: Regional and International Development.

234. Seminar in Spatial Development Policy.

235A-235B. Regional Approaches to National Development.

236A-236B. Urban Regional Development Theory.

239. Special Topics in Urban-Regional Development Policy.

246. Housing in Social and Economic Development Policy.

253. Social Theory for Planning.

257. Loss and Change.

259. Special Topics in Social Development Policy.

Education *203. Educational Anthropology.

*204A. Schooling in Comparative Perspective.

*204B. Introduction to Comparative Education.

*204C. Education and National Development.

*204D. Minority Education in Cross-Cultural Perspective.

*204E. International Efforts in Education.

204F. Nonformal Education in Comparative Respective.

204G. Planning Educational Language Policy Internationally.

*207. Politics and Education.

*253A. Seminar: Current Problems in Comparative Education.

253D. Seminar: Latin American Education. *253F. Education in Revolutionary Societies.

Law *270. International Law.

*271. International Business Transactions.

275. Law and Development in Latin America.

340. Individual Research.

*516. International Law.

531. Legal Development in Latin America.

Library Service *207. Seminar on International and Comparative Librarianship.

*223. Literature of the Social Sciences.

224. Literature of the Humanities and Fine Arts.

Management 205A. International Business Economics.

205B. Comparative Market Structure and Competition.

205C. Business Forecasting for Foreign Economies.

208. Selected Topics in Business Economics.

233A. International Business Finance.

250C. Systems of Employee-Management Participation.

261B. International Marketing Management.

296A. International Business Management.

297A. Comparative and International Management.

297B. International Business Policy.

298B. Special Topics in International and Comparative Management.

Public Health *102. Demography.

M115. Disease Problems of Socio-Economic and Political Impact in Latin America.

174. Special Group Studies: Population, Family and International Health.

*175. Medical Care Systems in International Perspective (½ course).

*214. Special Group Studies: Infectious and Tropical Diseases.

*216. Ecology of Exotic Diseases.

*222. Seminar in Epidemiology.

*260E-260H. Advanced Nutrition. (½ course each)

*262. Seminar in Nutrition. (½ course)

*272. Seminar on Current Issues in Maternal and Child Health.

*290L. Special Group Studies: Public Health Nutrition.

*470A. International Health Agencies and Programs. (½ course)

*470B. Issues in International Health Administration. (½ course)

*596. Directed Individual Study or Research.

Note: Independent study courses such as 198, 199, 596, 597, and 598 are available in most departments and may be taken by petition to the Latin American Studies Adviser.

LAW

(Department Office, 1224 Law Building)

Benjamin Aaron, A.B., LL.B., *Professor of Law.*
Richard L. Abel, A.B., LL.B., Ph.D., *Professor of Law.*
Norman Abrams, A.B., J.D., *Professor of Law.*
Reginald H. Alleyne, Jr. B.S., LL.B., LL.M., *Professor of Law.*
Alison Grey Anderson, B.A., J.D., *Professor of Law.*
Michael R. Asimow, B.S., LL.B., *Professor of Law.*
John A. Bauman, B.S.L., LL.B., LL.M., Jur.Sc.D., *Professor of Law.*
David A. Binder, A.B., LL.B., *Professor of Law.*
Barbara E. Brudno, B.A., M.A., J.D., *Professor of Law.*
Jesse J. Dukeminier, A.B., J.D., *Professor of Law.*
George P. Fletcher, B.A., J.D., M.C.L., *Professor of Law.*
Carole E. Goldberg, B.A., J.D., *Professor of Law.*
Kenneth W. Graham, Jr., B.A., J.D., *Professor of Law.*
Donald G. Hagman, B.S., LL.B., LL.M., *Professor of Law.*
Harold W. Horowitz, A.B., LL.B., LL.M., S.J.D., *Professor of Law.*
Edgar A. Jones, Jr., A.B., LL.B., *Professor of Law.*
Robert L. Jordan, A.B., LL.B., *Professor of Law.*
Kenneth L. Karst, A.B., LL.B., *Professor of Law.*
William A. Klein, A.B., LL.B., *Professor of Law.*
Leon Letwin, Ph.B., LL.B., LL.M., *Professor of Law.*
Wesley J. Liebeler, B.A., J.D., *Professor of Law.*
Richard C. Maxwell, B.S.L., LL.B., *Connell Professor of Law.*

Henry W. McGee, Jr., B.S., J.D., LL.M., *Professor of Law.*
William M. McGovern, Jr., A.B., LL.B., *Professor of Law.*
David Mellinkoff, A.B., LL.B., *Professor of Law.*
Herbert Morris, A.B., LL.B., D.Phil. (Oxon.), *Professor of Law and Philosophy.*
Melville B. Nimmer, A.B., LL.B., *Professor of Law.*
Susan Westerberg Prager, A.B., M.A., J.D., *Professor of Law.*
Monroe E. Price, B.A., LL.B., *Professor of Law.*
Joel Rabinovitz, A.B., LL.B., *Professor of Law.*
Arthur I. Rosett, B.A., LL.B., *Professor of Law.*
Gary T. Schwartz, B.A., J.D., *Professor of Law.*
Murray L. Schwartz, B.S., LL.B., LL.D., *Professor of Law.*
Stanley Siegel, B.S., J.D., *Professor of Law.*
James D. Sumner, Jr., A.B., LL.B., LL.M., J.S.D., *Professor of Law.*
William D. Warren, A.B., J.D., J.S.D., *Professor of Law (Chairman of the Department).*
Kenneth H. York, A.B., LL.B., *Professor of Law.*
Addison Mueller, A.B., LL.B., *Emeritus Professor of Law.*
Rollin M. Perkins, A.B., J.D., J.S.D., *Emeritus Connell Professor of Law.*
Ralph S. Rice, B.S., J.D., LL.M., *Emeritus Connell Professor of Law.*
Harold E. Verrall, A.B., M.A., LL.B., J.S.D., *Emeritus Professor of Law.*

•

Paul B. Bergman, B.A., J.D., *Senior Lecturer in Law.*
Paul Boland, B.A., J.D., LL.M., *Senior Lecturer in Law.*
Theodore Eisenberg, A.B., J.D., *Acting Professor of Law.*
Charles M. Firestone, B.A., J.D., *Adjunct Professor of Law.*
Rowan K. Klein, B.A., J.D., *Adjunct Professor of Law.*
Michael Rappaport, B.S., J.D., *Lecturer in Law.*
Steven H. Shiffrin, B.S., J.D., *Acting Professor of Law.*
Fred L. Slaughter, B.S., M.B.A., J.D., *Lecturer in Law.*
Jonathan D. Varat, B.A., J.D., *Acting Professor of Law.*
Stephen C. Yeazell, B.A., M.A., J.D., *Acting Professor of Law.*

LIBRARY AND INFORMATION SCIENCE

(Department Office, 120 Powell Library Building)

Harold Borko, Ph.D., *Professor of Library and Information Science.*
Richard K. Gardner, Ph.D., *Professor of Library and Information Science.*
Robert M. Hayes, Ph.D., *Professor of Library and Information Science (Chairman of the Department).*
Russell Shank, D.L.S., *Professor of Library and Information Science.*
Robert Vosper, M.A., LL.D., *Professor of Library and Information Science.*
Page Ackerman, B.A., B.S.L.S., *Emeritus Professor of Library and Information Science.*
Robert L. Collison, B.A., F.L.A., *Emeritus Professor of Library and Information Science.*
Andrew H. Horn, Ph.D., *Emeritus Professor of Library and Information Science.*
Seymour Lubetzky, M.A., LL.D., *Emeritus Professor of Library and Information Science.*
Lawrence Clark Powell, Ph.D., Litt.D., L.H.D., H.H.D., *Emeritus Professor of Library and Information Science.*
Raymund F. Wood, Ph.D., *Emeritus Professor of Library and Information Science.*
John P. Comaromi, Ph.D., *Associate Professor of Library and Information Science.*
Kathleen T. Bivins, M.L.S., *Assistant Professor of Library and Information Science.*
Ann E. Hall, D.L.S., *Assistant Professor of Library and Information Science.*
Cheryl Metoyer-Durán, Ph.D., *Assistant Professor of Library and Information Science.*
Roger C. Palmer, Ph.D., *Assistant Professor of Library and Information Science.*
John V. Richardson, Ph.D., *Assistant Professor of Library and Information Science.*
Diana M. Thomas, Ph.D., *Assistant Professor of Library and Information Science.*

•

Joseph Becker, M.S.L.S., *Adjunct Professor of Library and Information Science.*
Carlos Cuadra, Ph.D., *Adjunct Professor of Library and Information Science.*
Louise Darling, M.A., *Adjunct Professor in Library and Information Science.*

Elizabeth R. Baughman, M.L.S. M.A. *Senior Lecturer in Library and Information Science.*
Marion K. Cobb, M.L.S. M.A., *Lecturer in Library and Information Science.*
Susan Crowe, M.S.L.S., *Lecturer in Library and Information Science.*
James Davis, M.L.S., *Lecturer in Library and Information Science.*
Elizabeth R. Eisenbach, M.L.S., *Lecturer in Library and Information Science.*
Thomas Fry, M.L.S., *Lecturer in Library and Information Science.*
Jon Greene, M.S.L.S., *Lecturer in Library and Information Science.*
Frank Houdek, J.D., M.L.S., *Lecturer in Library and Information Science.*
Susan Marquez, M.L.S., *Lecturer in Library and Information Science.*
James V. Mink, M.A., *Lecturer in Library and Information Science.*
Betty Rosenberg, M.A., *Emeritus Senior Lecturer in Library and Information Science.*
William J. Speed, M.A., *Lecturer in Library and Information Science.*
Gloria Werner, M.L., *Lecturer in Library and Information Science.*
Binnie Wilkin, M.S., *Lecturer in Library and Information Science.*
Rosalee I. Wright, B.S., B.L.S., *Lecturer in Library and Information Science.*

Several of the members of the Library Profession of the community serve as part-time Lecturers in the School with responsibility for some of the specialized courses.

Representatives of Other Departments on the Faculty of the Graduate School of Library and Information Science.

Arthur M. Cohen, Ph.D., *Professor of Education.*
Jerome Cushman, A.B., B.S.L.S., *Senior Lecturer in English.*
Robert Starr Kinsman, Ph.D., *Professor of English.*
Michel A. Melkanoff, Ph.D., *Professor of Engineering.*
Richard H. Rouse, Ph.D., *Professor of History.*

For information regarding admission to the Graduate School of Library and Information Science and for degree and certificate requirements, refer to the paragraphs on the School of Library and Information Science under Schools and Colleges.

Graduate students of other schools or departments who wish to take courses in the School of Library and Information Science may do so with the permission of the Instructor teaching the course. Undergraduate students who wish to enroll in 400-series courses must obtain the permission of the Dean of the School of Library and Information Science.

Graduate courses. 200-series. Consent of instructor is prerequisite to admission to all 200-series courses. For individual study courses, see 500-series. For professionally oriented courses, see 400-series.

Professional courses. 400-series. Planned primarily for the professional degree, Master of Library Science, and for specialized professional study.

Professional internship courses. 490-series. Consent of the Dean is prerequisite to admission to all 490-series internships.

Individual study courses. 500-series. Approval of the Dean of the School of Library and Information Science is prerequisite to admission to all 500-series courses. Method of instruction is by individual conferences with assigned members of the staff. Seminar courses are numbered in all 200-series.

Upper Division Courses

110. Information Resources and Libraries. Prerequisite: Sophomore standing or consent of instructor. Provides an introduction to bibliographic and information resources and relevant research methodology. Covers both general and specialized materials. Designed to facilitate knowledgeable use of libraries and efficient retrieval of information. Discussion sections will focus on specific subject areas (such as Humanities, Physical Sciences, Social Sciences, Fine Arts, etc.).

111A-111D. Ethnic Groups and their Bibliographies.

Introduction to bibliographical and research tools and methods for students with interests in ethnic groups. Specific sections focus on particular groups. 111A is concerned with American Indian history and culture, 111B with Afro-American history and culture; 111C with Latino history and culture; and 111D with Asian-American history and culture; sections on other ethnic groups may be added. Offered in collaboration with the several centers for ethnic studies. Students may take this course only once for credit.

Graduate Courses

205. Historiography of Librarianship, Bibliography and Information Science. Prerequisite: approval of instructor. Identification of historical source material. Comprehensive and critical review of the historical and biographical literature. Identification of areas in need of research or reinterpretation.

206. Seminar on Library History. Prerequisite: approval of instructor. Special studies in biography and history of librarianship. Relationships to contemporaneous social, cultural, and intellectual history. Research papers on topics identified in course 205.

207. Seminar on International and Comparative Librarianship. Prerequisite: approval of instructor. Library development and service patterns in European and other countries; comparisons of these with librarianship in the United States. International library organizations and programs.

210. Seminar in Descriptive and Bibliographical Cataloging. Prerequisite: courses 410 (Descriptive Cataloging) and 411 (Subject Cataloging and Classification) or equivalent. Specialized studies in selected areas of descriptive and bibliographical cataloging, e.g., purposes, principles, instructional development, potentialities of automation. May be repeated once.

211. Seminar in Subject Control of Library Materials. Prerequisites: course 410 (Descriptive Cataloging) and 411 (Subject Cataloging and Classification) or their equivalents. Study of selected problems in the design and use of verbal headings and classification systems. Manual and mechanized systems. May be taken twice.

213. Seminar on Indexing. Prerequisite: consent of the instructor. Development of basic concepts as reflected in the history of scholarship. Current problems in the transition from individual to large-scale indexing projects. Contribution made by automation. Future of mechanized indexing. Trend toward international standardization. Acceleration systems in indexing.

214. Seminar on Abstracting and Abstracting Services. Prerequisite: consent of the instructor. Historical background and current situation, particularly in science and technology. Possibilities and present limitations of automation. Role in coordination of information services. Problems of standardization to achieve international coordination. Influence of changing needs.

221. Bibliography of Science, Engineering and Technology. (Formerly numbered 217.) Scientific and technical literature with emphasis on special types of publications, research material, reference and bibliographical aids to the physical sciences. Importance, purpose and nature of technical literature searches. Flow of information among scientists.

NOTE: For key to symbols, see page 74

222. Bibliography of Medical and Life Sciences. Literature of the medical and life sciences: reference and bibliographical works; periodicals and other serials; abstracting and indexing services; audio visuals; notable books in the history of the biomedical sciences; organization of the literature; patterns of publication; applications of technological developments in the control of the biomedical literature.

223. Literature of the Social Sciences. (Formerly numbered 219.) Seminar on the literature of the social sciences, including a review of the classics in the various fields, monumental source collections, periodicals, bibliographies, catalogs, indexes, abstracts, etc. Trends in scholarly and popular writing. Interdisciplinary nature of the literature.

224. Literature of the Humanities and Fine Arts. (Formerly numbered 220.) Seminar on the literature of the humanities and fine arts, including a review of the classics in the various fields, comparisons of editions, periodicals, bibliographical apparatus and reviewing media. Trends in scholarly and popular writing.

228. Legal Bibliography. Prerequisite: approval of instructor. An introduction to the source materials of the law, with emphasis on primary authority, but covering as well secondary authority and the indexes and finding aids which the lawyer and professional law librarian use to gain access to legal information.

229A. Afro-American Bibliography. Prerequisite: consent of the instructor. Resources for the study of Afro-American history, culture and literature. Problems of identification, description, subject analysis. Bibliographical and reference apparatus.

230. History of Publishing and the Book Trade. Publishing and book trade history, with particular reference to libraries and book collecting, changing aspects of book production and distribution within the setting of cultural history.

240. Information Systems Analysis and Design. (Formerly numbered 243.) Theories and principles of special systems development, including determination of requirements, technical design and evaluation, and internal organization.

242. Information Retrieval Systems. Survey of principal vocabularies, methods of file organization, and search strategies in the control of publications in mechanized form.

244. Information Networks. Problems in the formulation, funding and operation of information networks are examined. A survey of some of the major networks, including institutional and computer systems.

249. Seminar on Special Topics in Information Science. Prerequisite: course 404 or consent of the instructor. Topics will vary from quarter to quarter to allow emphasis on specialized topics on information science such as vocabulary development, fil organization, searching procedures, indexing and classification, bibliographic and linguistic text processing, and measures or relevance and system effectiveness. May be repeated for credit with consent of the instructor.

251. Reading and Reading Interests. (Formerly numbered 215.) Interests of the common reader, excluding children, with special reference to types of library patrons. Fiction and subject categories, popular and standard: philosophy, religion, social sciences, art, music, literature, history, science. Influence of paperbacks, best sellers and current interest books on reading habits.

253. Reading Interest of Children. Reading interests and correlative types of literature surveyed with reference to the growth and development of children. Emphasis on the role of the librarian in responding to the needs and abilities of children through individualized reading guidance. Recommended preparation is English 112 (Children's Literature) or equivalent.

260. Historical Bibliography. (Formerly numbered 211.) Early records and the manuscript period; history of the printed book and of periodical publications and newspapers, including materials and methods and production. Parallel history of scholarship, the book trade, and book collecting in ancient, medieval and modern Western civilization.

261. Analytical Bibliography. History and methods of analytical bibliography with emphasis on recent scholarship. The book as a physical object and its relationship to the transmission of the text. Emphasis on hand-press books. Theories of Bradshaw, Proctor, Greg, McKerrow, Pollard, Esdaile, Bowers, Stevenson, Hinman, McKenzie, and others. Recommended, but not prerequisite, is course 260 (Historical Bibliography) or its equivalent in background or experience.

262. Seminar on Historical Bibliography. Prerequisite: course 260 or consent of instructor. Special studies in the history of books and publishing. Topics will vary from quarter to quarter to allow emphasis on a particular historical period, geographical area, or other specific aspect such as a form of publication, genre or material of production such as paper or type. May be repeated for credit with consent of the instructor.

271. Seminar on Intellectual Freedom. Prerequisite: consent of the instructor. Investigation of the idea of intellectual freedom: historical and constitutional bases; civil liberties and civil rights; censorship and other restraints on freedom of speech, the press, the arts, and access to ideas and information.

272. Seminar on Current Issues in Librarianship. Prerequisite: consent of the instructor. Identification, analysis, and discussion of critical issues currently facing the profession. May be repeated once.

290. Research Methodology. Prerequisite: consent of the instructor. Role of research in bibliography, librarianship, and information science. Identification and design of research problems. Historical, statistical, analytical and descriptive techniques.

Professional Courses

400. Librarianship: The Institutional Setting and Professional Environment. Overview of the history, roles and functions in society of libraries and information centers, including their current status, structure, and problems. Professional associations and responsibilities, education, and research. Trends in administration, national planning, networks, standards, legislation, technology.

402. Fundamentals of Bibliography. The development and fundamentals of the several branches of bibliography: historical, physical (analytical or critical, descriptive), enumerative or systematic; and the organization, control, and elements of bibliographical apparatus. New techniques and tools, theory, methods, and trends in bibliographical research in relationship to librarianship.

404. Fundamentals of Information Science. Scope of the information sciences and their relationship to libraries, information centers, information handling. Methods of systems analysis as applied to library operations; case studies of library systems, clerical operations and information retrieval. Survey of data processing equipment.

405. Automation of Library Processes. Prerequisite: basic knowledge of a programming language, preferably PL/I or IBM System/360 assembly language. Principles of application of data processing techniques to library procedures. Problems in the design, implementation, and testing of mechanized systems for libraries. Study of programming languages for library applications with emphasis upon PL/I.

410. Descriptive Cataloging. (Formerly numbered 201A.) Entry and description of library materials. Constitution, structure, and form of the library catalog. Cataloging services, tools, and procedures. Cataloging rules and their application.

411. Subject Cataloging and Classification. (Formerly numbered 201B.) Subject treatment of library materials. Structure of subject heading lists and their application. Organization of the subject catalog. Structure and application of the Dewey Decimal and Library of Congress classification systems. Organization of the classed catalog and the shelflist.

412. Cataloging and Classification of Nonbook Materials. Prerequisites: courses 410 (Descriptive Cataloging), and 411 (Subject Cataloging and Classification). Problems in cataloging and classification of selected nonbook materials (e.g., films, maps, pictorial works, sound recordings) as separate collections and integrated collections.

414. Principles of Indexing and Abstracting. Basic professional techniques, concepts, and methods of indexing monographs, serials, and specialized materials; of preparing informative and indicative abstracts; and of analyzing secondary abstracting and indexing services as library reference tools.

420. Basic Sources of Information. (Formerly numbered 202A.) History, methods and materials of reference service and information retrieval. Survey of devices for bibliographical control of information. Encyclopedias, dictionaries, biographical compilations, directories, etc.

421. Comprehensive Bibliography. (Formerly numbered 202B.) Analysis and evaluation of bibliographical control of published and unpublished documents (books, periodicals, government publications, dissertations, reports, manuscripts). Systems of national bibliography, trade bibliography, indexing, abstracting, etc. American, British, French, German, Russian and other systems. Information retrieval using this apparatus. It is recommended that course 420 (Basic Sources of Information) be taken prior to course 421.

423. Library Information Service. Prerequisite: Completion of course 420 (Basic Sources of Information) and course 421 (Comprehensive Bibliography), or evidence of competencies represented by these courses. Identification of problems in library reference services. Applications of reference interview techniques, search strategies, and methodologies of teaching use of libraries and information resources. Evaluation of competence through supervised performance. Grading is satisfactory/unsatisfactory.

424. Computer-Based Reference Services. Overview of the major components of computer-based bibliographic information retrieval systems, planning on-line search strategies, and conducting on-line search services using a variety of data bases.

429. Printing for Bibliographers. Prerequisite 260 (Historical Bibliography) or 261 (Analytical Bibliography) and consent of the instructor. Printing processes as related to bibliography and librarianship. Discussions, demonstrations, and experiments in design, composition, and presswork with special emphasis on the 19th century handpress. To be graded S/U.

430. Selection and Acquisition of Library Materials. (Formerly numbered 204.) Background of publishing and the book trade (new and antiquarian) pertinent to acquisitions departments of public, school, academic and special libraries. Theory and practice of selecting and ordering books and other materials. Organization and administration of acquisitions departments.

431. Special Problems in the Selection of Materials and Evaluation of Collections. (Formerly numbered 205.) Subject and area collecting; special collections and rare books; building new collections. Evaluating and weeding collections. Cooperative collecting-regional, national and international. Storage centers; subject specialization. Special format materials: films, maps, sound recordings, etc. Copying methods; facsimile reprinting; changing character of research collections.

432. Media Librarianship. Prerequisite: consent of the instructor. Films, filmstrips, recordings, tapes, and other non-book materials in audiovisual collections or instructional media centers. Bibliographical apparatus. Evaluation and collection development. Organization and administration.

440. Library Systems Analysis. Analysis, design, and evaluation of data processing systems in the library. Includes management planning for automation, techniques for system description, criteria for cost/effectiveness evaluation, issues in system implementation – all in the context of library internal, technical processing.

441. Management of Libraries. Prerequisite: consent of the instructor. Principles of management, emphasizing management techniques applicable to libraries of various types and to library systems. Special attention to aspects of technical services.

442. Library Personnel Administration. Covers the basic principles of personnel management. Provides a survey of current personnel practices in libraries. Discusses how the basic principles apply or need to be modified to fit the library setting.

446. Library Services for Youth. Provides an overview of programs and services which are of interest to young adults (12-18 year olds). Discusses special problems in working with young people and the psychology of the teenager as it influences library programs.

447. Library Space Planning. Introduction to space planning and programming techniques and how they apply to libraries. Emphasis is on use of existing space, but planning new buildings is included. Reading blue prints, use of scales, contracts, use of consultants.

461. College, University and Research Libraries. (Formerly numbered 401.) Organization, administration, collections, facilities, finances, and problems of college and university libraries and their relationships within the institutions of which they are a part. Functions of research libraries and work of their staffs in serving scholars.

463. Public Libraries. (Formerly numbered 402.) The government, organization, and administration of municipal, county, and regional public libraries; developments in the changing patterns of public library service.

464. School Libraries. (Formerly numbered 403.) Elementary and secondary school libraries as multimedia instructional materials centers. Relationships of school libraries to school programs and curricula. Emphasis on administration, planning materials, services, and equipment.

465. Library Services and Programs for Children. Philosophy and objectives of children's services in public and school libraries. Emphasis on services to groups and techniques of program planning which incorporate storytelling, puppetry, nonprint media, etc.

470. Special Libraries and Special Collections. (Formerly numbered 405.) Organization, administration, collections, facilities, finances and problems of special libraries and of special collections within general libraries. Methods of handling nonbook materials. Current trends in documentation and mechanization.

471. Health and Life Sciences Libraries. (Formerly numbered 418.) Organization, administration, services and problems of health and life sciences libraries; relationships with institutions of which they are a part, and with the community. Several field trips scheduled.

472. Law Librarianship. Prerequisite: approval of instructor. An introduction to the profession of law librarianship; the organization of the professional associations and their activities; the character and distribution of law libraries throughout the United States; the distinctive characteristics of law library problems and their solutions.

473. Government Publications. Prerequisite: course 421 (Comprehensive Bibliography). Bibliographic control, acquisition, organization, maintenance, and reference use of U.S. Federal, State, and local publications, with some attention given to the publications of international organizations and foreign governments.

485. American Archives and Manuscripts. Prerequisite: consent of instructor. Identification, description, subject analysis, and organization of records contained in archives and manuscript collections. Administration. User requirements. Problems of acquisition, legal title, literary property, preservation, accessibility, and use.

489. Library Service to Special Population Groups. Prerequisite: consent of the instructor. Special problems encountered by school, public, academic, special and research libraries in meeting the needs of minority groups in urban and rural settings. Library service to the old, the physically handicapped, and the institutionalized population.

Professional Internship Courses

490. University Library Internship. Prerequisite: consent of the instructor. Supervised professional training in one or more departments or units of the UCLA College Library or University Library System. Field trips, when appropriate, to off-campus libraries. Minimum of 120 hours per quarter, including weekly critiques of bibliographical, administrative, and service problems. May be repeated twice. To be graded S/U.

499. Off-Campus Internship. Prerequisite: consent of instructor. Supervised professional training in a library system, library, department of a library, or other information service agency (e.g., archives) approved by the faculty of the School. Minimum of 120 hours per quarter, including weekly critiques of bibliographical, administrative, and service problems. May be repeated twice. To be graded S/U.

Individual Study Courses

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Study or Research. Prerequisite: consent of the instructor. Directed special studies in the fields of bibliography, librarianship, and information science. Variable conference time depending upon nature of study or complexity of research. May be repeated once. To be graded S/U.

597. Directed Studies for the Doctoral Qualifying Examinations. (½ to 2 courses) To be graded S/U.

599. Doctoral Research and Writing. (½ to 2 courses) To be graded S/U by the professor supervising the dissertation.

LINGUISTICS

(Office, 2113 Campbell Hall)

Raimo A. Anttila, Ph.D., *Professor of Indo-European and General Linguistics.*
William Bright, Ph.D., *Professor of Linguistics and Anthropology.*
Victoria A. Fromkin, Ph.D., *Professor of Linguistics.*
Talmy Givón, Ph.D., *Professor of Linguistics and African Languages.*
Edward L. Keenan, Ph.D., *Professor of Linguistics.*
Peter Ladefoged, Ph.D., *Professor of Phonetics (Chairman of the Department).*
Paul M. Schachter, Ph.D., *Professor of Linguistics.*
Russell G. Schuh, Ph.D., *Associate Professor of Linguistics and African Languages.*
Robert P. Stockwell, Ph.D., *Professor of Linguistics.*
Sandra A. Thompson, Ph.D., *Professor of Linguistics.*
William E. Welmers, Ph.D., *Professor of Linguistics and African Languages.*
Stephen R. Anderson, Ph.D., *Associate Professor of Linguistics.*
George D. Bedell, Ph.D., *Associate Professor of Linguistics.*
Joseph E. Emonds, Ph.D., *Associate Professor of Linguistics.*
Thomas J. Hinnebusch, Ph.D., *Assistant Professor of Linguistics and African Languages.*
Pamela L. Munro, Ph.D., *Assistant Professor of Linguistics.*

•

Roger W. Andersen, Ph.D., *Visiting Assistant Professor of English.*
Christiane A. M. Baltaxe, Ph.D., *Assistant Professor of Psychiatry in Residence.*
Henrik Birnbaum, Ph.D., *Professor of Slavic Languages.*
J. Donald Bowen, Ph.D., *Professor of English.*
Giorgio Buccellati, Ph.D., *Professor of Ancient Near East.*
Russell N. Campbell, Ph.D., *Professor of English.*
Edward C. Carterette, Ph.D., *Professor of Psychology.*
Marianne Celce-Murcia, Ph.D., *Associate Professor of English.*
Kenneth G. Chapman, Ph.D., *Professor of Scandinavian Languages.*
Keith S. Donnellan, Ph.D., *Professor of Philosophy.*
Christopher Ehret, Ph.D., *Professor of History.*
Michael S. Flier, Ph.D., *Associate Professor of Slavic Languages.*
Jose Galvan, Ph.D., *Lecturer in English.*
Patricia M. Greenfield, Ph.D., *Professor of Psychology.*
Evelyn R. Hatch, Ph.D., *Associate Professor of English.*
Frances B. Hinofotis, Ph.D., *Assistant Professor of English.*
Robert S. Kirsner, Ph.D., *Assistant Professor of Dutch-Flemish and Afrikaans.*
Paul V. Kroskrity, Ph.D., *Assistant Professor of Anthropology.*
Wolf Leslau, Docteur-ès-Lettres, *Emeritus Professor of Hebrew and Semitic Linguistics.*
Bengt Lofstedt, Ph.D., *Professor of Medieval Latin.*
Donald G. MacKay, Ph.D., *Associate Professor of Psychology.*
Lois McIntosh, Ph.D., *Emeritus Professor of English.*
Claudia Mitchell-Kernan, Ph.D., *Associate Professor of Anthropology.*
Michael Moerman, Ph.D., *Professor of Anthropology.*
C.P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*

NOTE: For key to symbols, see page 74

Thomas G. Penchoen, Ph.D., *Associate Professor of Near Eastern Languages.*
Clifford H. Prator, Ph.D., *Professor of English.*
Jaan Puhvel, Ph.D., *Professor of Indo-European Studies.*
A. Carlos Quicoli, Ph.D., *Assistant Professor Portuguese.*
Earl Rand, Ph.D., *Associate Professor of English.*
Emanuel A. Schegloff, Ph.D., *Associate Professor of Sociology.*
John A. Schumann, Ph.D., *Assistant Professor of English.*
Michael Shapiro, Ph.D., *Professor of Russian Linguistics and Poetics.*
Alan H. Timberlake, Ph.D., *Associate Professor of Slavic Languages.*
Terence H. Wilbur, Ph.D., *Professor of German.*
Dean S. Worth, Ph.D., *Professor of Slavic Languages.*

Undergraduate Majors

The majors described below are of three types: (1) a major which concentrates entirely on general linguistics; (2) several majors which combine the basic courses of the general program with a language concentration or other related fields; and (3) a major which concentrates entirely on an African language area. The combined majors in conjunction with teacher certification programs are especially appropriate for students who have non-university teaching careers as goals; and the African major is for students with specific African interests.

The Major in Linguistics

This major should be elected only by students with an exceptional interest in and aptitude for the study of languages and linguistics. It enables the undergraduate to gain substantial familiarity with several languages and types of linguistic structure, and to become conversant with the historical study of language and formal theories of linguistics.

Preparation for the Major. In the lower division, in addition to the general University requirements, the student must complete the equivalent of the sixth quarter of work in two foreign languages, or the sixth quarter in one language and the third quarter in each of two others. In addition the student must take Linguistics 1 and two of the following three courses: Philosophy 31, Psychology 10, one course in Cultural Anthropology.

Requirements for the Major. A minimum of eleven upper division or graduate courses which must include Linguistics 100, 103, 110, 120A, 120B, and either 164 or both 165A and 165B (the 165A-165B option is recommended for students planning to go into Linguistics graduate work); the other five courses are electives, three of which must be upper division Linguistics courses, to be selected by the student subject to the approval of his adviser. These electives have typically been selected from the following list, though it is not exhaustive: Linguistics 104, 125, 130, 140, 145, M146, M150, 160, 165A, 165B, 170, 180, 195, 199 (if four units), African Languages 190, Anthropology 177B, Indo-European Studies 160, 161, 162, Philosophy 127A, 127B, 172, 192, Psychology 122, 123, English 121, 122, 123; or advanced courses in a foreign language or literature (those beyond the sixth quarter of language instruction). In addition to the eleven upper division courses, at least three courses (which may be either upper or lower division) are required in a language other than those in the Romance, Slavic, or Germanic families. These courses may be applied toward fulfillment of the foreign language requirement described above under *Preparation for the Major.* A student who completes an advanced language course is considered to have completed the equivalent of whatever courses are prerequisite to that one: e.g., if he completes French 101, he has automatically satisfied the requirement of the sixth quarter of work in one language. 165A-165B and 195 are recommended for students planning to pursue graduate work in linguistics at UCLA.

To enroll in Linguistics 195, the student must consult with the department's Senior Essay Counselor.

Honors in Linguistics

Honors in Linguistics will be awarded at graduation to those students who have a grade point average of 3.6 or better in their Junior or Senior years and who have received a grade of A in Linguistics 195.

The Major in Linguistics and English

Preparation for the Major. Linguistics 1; English 2, 10A, 10B, 10C; Philosophy 31; completion of the sixth quarter of work in two foreign languages, or the sixth quarter in one foreign language and the third quarter in each of two other foreign languages.

Requirements for the Major. Fifteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B, 164, and two upper division electives from other Linguistics courses or English 123; and English 121, 122, 140, and four electives chosen from 141, 142A, 142B, 143, the 150 series (one course only), the 160 series (one course only), the 170 series (one course only).

The Major in Linguistics and French

Preparation for the Major. Linguistics 1; French 1-6, 12, 15; and completion of the sixth quarter of work in one other foreign language or the third quarter in each of two other foreign languages.

Requirements for the Major. Sixteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B, 164, and two upper division electives in Linguistics; and French 100A, 100B, 100C, 103, 105, 106, and two elective upper division literature courses.

The Major in Linguistics and Italian

Preparation for the Major. Linguistics 1, Italian 1-6, Latin 1-3, and completion of the third quarter in another foreign language, or the sixth quarter in Latin; Philosophy 31; and one course in Cultural Anthropology.

Requirements for the Major. Fourteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B, 164, and two upper division electives in Linguistics; and Italian 102A, 130A, 130B, and three additional upper division electives in Italian.

The Major in Linguistics and Oriental Languages

Preparation for the Major. Completion of the sixth quarter in either Chinese or Japanese; Linguistics 1; Philosophy 31; one course in Cultural Anthropology; either Oriental Languages 40A or Oriental Languages 40B, as appropriate; and completion of the sixth quarter in another foreign language, or the third in each of two others.

Requirements for the Major. Linguistics 100, 103, 110, 120A, 120B, 164, and one upper division elective in Linguistics; and for the classical Japanese track: Oriental Languages 119A, 119B, 129, 137, 175, 179A, 179B; for the modern Japanese track: Oriental Languages 119A, 119B, 119C, 175, and three courses chosen from 134A, 134B, 142A, 142B, 145, 153A, 153B; for the classical Chinese track: Oriental Languages 13A, 13B, 13C, 113A, 113B, and two courses chosen from 152A, 152B, 163A, 163B, 163C; for the modern Chinese track: Oriental Languages 121A, 121B, 121C, and four courses chosen from 122A, 122B, 124A, 124C, 126, 151.

The Major in Linguistics and Philosophy

Preparation for the Major. Linguistics 1; Philosophy 31 and two out of Philosophy 1, 6, 7, 21; completion of the sixth quarter in each of two foreign languages or the sixth quarter in one language and the third quarter in each of two others.

Requirements for the Major. Fourteen upper division courses as follows: Linguistics 100, 103, 120A, 120B, 164, 165B, and two upper division electives in Linguistics; and six upper division courses in Philosophy including at least five from 125-135, 170-174, and 184-188, of which at least two must be from 127A, 127B, and 172.

The Major in Linguistics and Psychology

Preparation for the Major. Linguistics 1; Mathematics 2, 4A; Psychology 10, 41; and completion of the sixth quarter in a foreign language and the third quarter in a second foreign language. Engineering 10 strongly recommended.

Requirements for the Major. Fourteen upper division courses as follows: Linguistics 100, 103, 120A, 120B, 130, 195, and two upper division electives in Linguistics; and Psychology 110, 120, 121; 122 or 123; 130; and the remaining elective to be chosen from 112, 115, 116, 124, 135, 137 (1/2 course). Psychology 115 strongly recommended.

The Major in Linguistics and Spanish

Preparation for the Major. Linguistics 1; Spanish 1-5, 25, M42, M44; and completion of a sixth quarter of work in one other foreign language, or the third quarter in each of two other foreign languages.

Requirements for the Major. Fifteen upper division courses distributed as follows: Linguistics 100, 103, 110, 120A, 120B, 164, and two additional upper division courses in Linguistics, preferably 130 and 170; and Spanish 100, 103, 115 or 118, 119, and three additional upper division courses in Spanish.

The Major in African Languages

Preparation for the Major. In the lower division, in addition to the general University requirements, the student must complete Linguistics 1 and six courses in African Languages (101-143, 199), not fewer than three in any one language.

Requirements for the Major. A minimum of fifteen upper division courses which must include six additional courses in African languages, at least six courses in all being in one language (e.g., three counting as preparation, three further counting as requirements for the major); African Languages 150A, 150B, 190, 192, Linguistics 100, 103; and three courses selected from Anthropology 107A, 107B, English 114, 123, Geography 189, History 125A, 125B, 125C, 126A, 126B, 127A, 127B, 128A, 128B, Linguistics 110, 120A, 120B, 140, M146, 170, Music 143A, 143B, Political Science 166A, 166B, 166C, 166D. Completion of the sixth quarter in one of the following non-African languages is strongly recommended: French, Dutch-Flemish-Afrikaans, German, Portuguese, Arabic. Also recommended: three additional courses in African languages.

The Graduate Linguistics Program

The programs leading to the M.A. and Ph.D. degrees in linguistics are open to qualified graduate students who are interested in the theory and methods of structural and historical linguistics. Preparation for graduate study in linguistics should be equivalent in as many respects as possible to the undergraduate curriculum in linguistics.

Admission to the Program

In addition to meeting the requirements of the Graduate Division, the applicant should have (1) an A.B. degree in linguistics or in a language or social science field, and (2) must have completed Linguistics 100, 103, 110, 120A-120B, 164, and 165A-165B, or their equivalent. Letters from the applicant's former instructors should be provided and applicants should submit to the Chairman a detailed account of their aims in graduate study of linguistics and their background for it. Scores on the Graduate Record Examination (verbal and quantitative) must be submitted with the application. A sample of the applicant's research should be

submitted to the chairman where feasible (e.g., a term paper from some relevant course). Students will be admitted to begin residence in the fall quarter only (i.e., no winter and spring admissions) except by decision of the department chairman. Upon admission to graduate status, students must consult a graduate adviser about the planning of their studies.

Requirements for the Master's Degree

General Requirements. See those of the Graduate Division.

Courses 103, 110, 120A, 120B, 164, 165A, 165B are considered as undergraduate deficiency courses and are prerequisite to graduate courses in the corresponding areas. With the exception of 165A and 165B, these courses may not be applied toward fulfillment of the nine courses requirement. Course 103 must be passed with a grade of B or better as prerequisite to 210A-210B, and if waived on the basis of training elsewhere the student must pass an examination in practical phonetics at the B level or better in order to take 210A-210B.

A student who enters the program without prior training in linguistics beyond the basic deficiency courses should expect to spend six quarters (two years) in the M.A. program. A student with one to three deficiencies will normally spend seven quarters in the program, and one with more than three deficiencies nine quarters. All students must complete the M.A. within three and one quarter years.

The M.A. degree may be obtained either by the Thesis Plan or by the Comprehensive Examination Plan. Under both the student is required to complete nine courses, with a grade average of B or better. Of the nine, six must be distributed among three areas: syntax-semantics, phonology-phonetics, and language change-variation-typology. Each student must take at least three courses in one area, two in a second, and one in the third. The courses which may be taken to fulfill these requirements are: syntax-semantics: 206, 252A-B; phonology-phonetics: 201, 204, 251A-B; language change-variation-typology: 202, 253A-B, 254A-254B (if subject matter applicable). Any course in the 250 series may be repeated for credit. If only one course is taken in an area it must be one of the basic courses: 201, 202, 206. The additional three courses may be selected in any area of interest. With the exception of 165A and 165B, which may be counted within the nine courses for the M.A., all these courses must be graduate courses. No more than four units of 596A or 596B and no more than eight units of 501 may be applied toward the required nine courses.

Thesis Plan. After completing the required courses, the student will submit a thesis based on original research to a Thesis Committee for approval. The Committee, consisting of three faculty members, is to be established at least one quarter prior to the quarter in which the thesis is submitted, and is responsible for its final approval. *All students intending to proceed to the Ph.D. must adopt this plan.*

Comprehensive Examination Plan. After completing the required courses, the student will satisfactorily pass a comprehensive examination administered by a committee of the Linguistics faculty. This will normally be an oral examination, and result in a terminal M.A. degree.

The Language Requirement. All candidates for the M.A. must pass a reading examination, administered by a committee of the Department, in one foreign language. Languages other than standard research languages are acceptable only if approved by the committee, upon petition. Speakers of languages other than English are permitted to use English to meet the foreign language requirement, unless English was the language of instruction in their elementary and secondary education. Students should fulfill this requirement as early as possible in their graduate career, but in any case prior to taking the comprehensive examination or submitting the M.A. thesis.

Transfer Credit. No more than two courses (with grades of B or above) may be transferred toward the M.A. from institutions outside the University of California, though equivalent training elsewhere provides the basis for determining what courses the student would be well-advised to take.

Grades and Probationary Status. An average of 3.00 must be maintained in all course work. Students with grade records fractionally below 3.00 in a given term are considered to be on probation for the following term, during which term their grade record must be brought up to 3.00. Students whose grade records do not meet these minimal standards are subject to dismissal.

Requirements for the Doctor's Degree

Admission into the Ph.D. program of a student who has received the M.A. degree in Linguistics at UCLA will be contingent on the quality of the M.A. thesis and the faculty's evaluation of the student's overall work and promise. A student entering the graduate program who has already received an M.A. in Linguistics from another department or institution must fulfill all the requirements expected of entering students. This means the required course work, unless work elsewhere is considered equivalent and satisfies the course requirements. A student may submit a Master's thesis written at another institution or department for evaluation after the other requirements are fulfilled. Admission into the doctoral program may be contingent on a revision of the submitted M.A. thesis should the evaluating committee so recommend. A student with an M.A. in Linguistics from another institution who has not written a thesis elsewhere is not required to formally submit a thesis but is required to submit to the evaluation committee a paper equal in depth and scope to a thesis.

Candidates for the Ph.D. are required to take 32 units of graduate course work beyond the M.A. requirements. Eight of these units must be in supervised field work for which 210A-210B may serve, and eight in an area distinct from that of the student's major area of concentration. The 32 units may not include courses 597, 599, or 275 (colloquium). Of the 32 units, no more than twelve units may be in 596A. A maximum of four two-unit seminars may be included in the 32 units. If the field methods or directed linguistic analysis (210A-B, 596B) were taken in fulfillment of the nine M.A. courses, they may not be included in the 32 additional units for the Ph.D. In order to be advanced to candidacy a student is required to present two substantive research papers of publishable quality in different areas of linguistics, to pass an oral qualifying examination in those areas of linguistics primarily relevant to his dissertation, and to make a presentation at a meeting of the Linguistics Colloquium. The Linguistics Colloquium has meetings throughout the year. Advanced graduate students are required to participate. Students are expected to be advanced to candidacy not later than six quarters after being admitted into the doctoral program. The dissertation and the final oral examination are required in accordance with the requirements of the Graduate Division.

The Ph.D. candidate must either (1) demonstrate a reading knowledge of two languages by passing examinations administered by a departmental committee (languages other than standard research languages are acceptable only if approved by the committee, upon petition); or (2) demonstrate a reading knowledge of one language at a high level of proficiency, as measured by an examination administered by a departmental committee (if the language does not have a substantial body of linguistic literature, the proficiency must include oral proficiency).

For information on student support in the form of fellowships, research assistantships, and teaching assistantships, consult the Chairman of the Department.

Language Sections of the Department

The African Languages section of the Linguistics Department offers instruction in many of the major languages of Africa, relevant comparative-linguistics courses, and courses in African literature. The section on Indigenous Languages of the Americas offers instruction in Quechua and native American languages, such as Navajo, when staffing permits. The section on South Asian Languages offers instruction in Thai, Tagalog and Hindi, when staffing permits.

General Linguistics

Lower Division Courses

1. Introduction to the Study of Language. A summary, for the general undergraduate, of what is known about human language; the unique nature of human language, its structure, its universality, and its diversity; language in its social and cultural setting; language in relation to other aspects of human inquiry and knowledge.
Ms. Fromkin, Mr. Ladefoged, Ms. Thompson

2. Linguistics and Minority Dialects. Prerequisite: course 1 or consent of the instructor. A survey of the main features of vocabulary, grammar, and pronunciation which distinguish the usage of Afro-American and Chicano-American speakers of English. The Staff

4. Introduction to Native American Languages. This course will survey the native languages of North America, concentrating on languages of California and nearby areas. The characteristics of American Indian languages in general and of particular languages selected by the instructor will be considered, especially in terms of their relationship to Indian culture, both traditional and modern, and to attitudes of Indians and others about these languages. Mr. Bright, Ms. Munro

5. Language in Africa. A survey of the languages spoken in Africa and their social and cultural context; languages found on the African continent; history of African language study; literature in African languages; African languages in the mass media; language policy and planning in modern Africa. The Staff

Upper Division Courses

100. Introduction to Linguistics. An introduction to the theory and methods of linguistics: univeral properties of human language; phonetic, phonological, morphological, syntactic, and semantic structures and analysis; the nature and form of grammar. The Staff

103. Introduction to General Phonetics. Prerequisite: course 100 or equivalent (100 may be taken concurrently with 103). The phonetics of a variety of languages and the phonetic phenomena that occur in languages of the world. Extensive practice in the perception and production of such phenomena. A special section emphasizes those languages likely to be of interest to teachers of English as a Second Language.
Ms. Fromkin, Mr. Ladefoged, Ms. Moskowitz

104. Experimental Phonetics. Prerequisite: course 103. Survey of the principal techniques of experimental phonetics. Use of laboratory equipment for recording and measuring phonetic phenomena.
Mr. Anderson, Ms. Fromkin, Mr. Ladefoged

NOTE: For key to symbols, see page 74

110. Introduction to Historical Linguistics. Prerequisite: courses 100 and 103. The methods and theories appropriate to the historical study of language, such as the comparative method and method of internal reconstruction. Sound change, grammatical change, semantic change.
Mr. Anttila, Mr. Schuh, Mr. Stockwell

120A. Linguistic Analysis: Phonology. Prerequisite: courses 100 and 103. Course 120A is not prerequisite to 120B. Descriptive analysis of phonological structures in natural languages; emphasis on insight into the nature of such structures rather than linguistic formalization.
Mr. Anderson, Mr. Bedell, Mr. Bright

120B. Linguistic Analysis: Grammar. Prerequisite: course 100; course 120A is not prerequisite to 120B. Descriptive analysis of morphological and syntactic structures in natural languages; emphasis on insight into the nature of such structures rather than linguistic formalization.
Mr. Emonds, Mr. Bright, Ms. Thompson

125. Semantics. Prerequisite: course 120B. A survey of the most important theoretical and descriptive claims about the nature of meaning.
Mr. Keenan, Ms. Thompson

127. Syntactic Typology and Universals. Prerequisite: course 120B. A study of the essential similarities and differences among languages in the grammatical devices they use to signal the following kinds of concepts: relations between nouns and verbs (case and word order), negation, comparison, existence/location/ possession, causation, interrogation, reflexivization, relativization, attribution (adjectives), time (tense and aspect), and backgrounding (subordination). Data from a range of languages will be presented and analyzed.
Mr. Givon, Mr. Keenan, Ms. Thompson

130. Child Language Acquisition: Introduction. Prerequisite: courses 100, 120A-120B or consent of instructor. A survey of contemporary research and theoretical perspectives in the acquisition of language. Emphasis on linguistic interpretation of existing data with some attention to relationship with second language learning, cognitive development, and other topics. Includes discussion of acquisition of English and other languages, and universals of linguistic development. The Staff

131. Child Language Acquisition (for non-majors). Prerequisite: course 1 strongly recommended. A survey of current knowledge of the acquisition of a first language by children, including some general processes of language learning and some specific cases from several languages. Some attention to animal communication, relation between language learning and teaching. Not open to Linguistics majors or Linguistics graduate students.
The Staff

140. Linguistics in Relation to Language Teaching. Prerequisite: course 100. Aspects of linguistics in relation to the teaching of language with particular focus on the special problems entailed in the teaching of non-European languages. Mr. Stockwell

***[1]145. Introduction to Computation in Linguistics.** Prerequisite: courses 100, 120A-120B. Introduction to the uses to which computers are put in linguistics and to such applications as mechanical translation and information retrieval; development of basic familiarity with programming and programming languages for linguistics purposes.
The Staff

M146. Language in Culture. (Same as Anthropology M146.) Prerequisite: course 1 or Anthropology 177A-177B. The study of language as an aspect of culture; the relation of habitual thought and behavior to language; the problem of meaning. Mr. Bright, Mr. Kroskrity

M150. Introduction to Indo-European Linguistics. (Same as Indo-European Studies M150.) Prerequisite: one year of college level study (course 3 or better, 8 units minimum) of either Greek or Latin and either German or Russian. A survey of the Indo-European languages from ancient to modern times; their relationships and their chief characteristics. Mr. Anttila

160. History of Linguistics Through the 19th Century. Prerequisite: courses 120A-120B. Historical survey of the development of linguistics from Panini through the 19th century, including approaches to grammar, phonology, and language universals.
Mr. Anttila, Mr. Bedell, Ms. Fromkin

164. Modern Theories of Language. Prerequisites: courses 120A and 120B. A critical and historical survey of some of the central claims and types of supporting evidence put forward by transformational theory and by at least one other influential school of contemporary linguistics. About one-third of the course deals with phonology, the remainder with syntax and semantics. The Staff

165A. Linguistic Theory: Phonology. Prerequisite: course 120A. The theory of generative phonology; the form of phonological rules, formal and substantive phonological universals. Not open to students who have taken course 164.
Mr. Anderson, Mr. Bedell, Ms. Fromkin

165B. Linguistic Theory: Grammar. Prerequisite: course 120B. The form of grammars; word formation and sentence formation; formal and substantive universals in syntax; relation between syntax and semantics. Not open to students who have taken course 164.
Mr. Emonds, Mr. Schachter, Ms. Thompson

170. Language and Society: Introduction to Sociolinguistics. Prerequisite: course 100 or consent of instructor. Study of the patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies. Mr. Bright

172. African Languages in the Diaspora. Prerequisite: any one course in Linguistics or African Languages, or consent of instructor. A close look at the major structures of African languages and their influence on Pidgins, Creoles, and Afro-American English. Illustrations will be given from African languages, West African Pidgin English, Krio, Creoles (Jamaican, French, Brazilian, South American), and Afro-American English.
Mr. Elimelech

175. Linguistic Change in English. Prerequisite: courses 110, 120A, 120B. Principles of linguistic change as exemplified through a detailed study of the history of English pronunciation, lexicon, and syntax. Mr. Stockwell

180. Mathematical Backgrounds for Linguistics. Prerequisite: courses 120A, 120B. Introduction to selected topics in set theory, logic and formal systems, modern algebra, and automata theory, with elementary applications to linguistics. In any given quarter one or more of these topics may be emphasized. No previous mathematics assumed.
Mr. Emonds, Mr. Keenan

195. Senior Essay. Prerequisite: consent of instructor; open only to Linguistics majors in their senior year. An extended piece of writing will be undertaken on a linguistic topic selected by the student to be completed under the supervision of a member of the faculty in Linguistics (either Linguistics Department or, as appropriate, some faculty of other departments). To enroll in this course the student must consult the professor in charge.
The Staff

199. Special Studies in Linguistics. (½ to 1 course) Prerequisite: courses 120A, 120B, and consent of instructor. May be repeated for credit. The Staff

Graduate Courses

201. Phonological Theory. Prerequisite: courses 120A, 165A. Survey of current issues in phonological theory. Mr. Anderson, Ms. Fromkin

202. Theory of Language Change. Prerequisite: course 110. Survey of current issues in language change. Mr. Anttila, Mr. Bright, Mr. Schuh

204. Experimental Bases of Linguistics. Prerequisite: course 165A. Theory and practice in experimental research in phonetics and linguistics.
Ms. Fromkin, Mr. Ladefoged

206. Syntactic Theory. Prerequisite: courses 120B, 165B. Survey of current issues in syntactic theory.
Mr. Emonds, Ms. Thompson, Mr. Schachter

210A. Field Methods I. Prerequisites: 165A, 165B. A language unknown to members of the class to be analyzed from data elicited from a native speaker of the language. The term papers will be relatively full descriptive sketches of the language. May be repeated for credit when a different language is under investigation.

210B. Field Methods II. Prerequisite: course 210A in the preceding quarter. Because different languages will be investigated in different years, 210B can only be taken as a direct continuation of 210A in the same year. When there are multiple sections, continuation must be in the same section. May be repeated for credit when a different language is under investigation.
Mr. Bright, Mr. Givón, Ms. Munro

220. Linguistic Areas. (Formerly numbered 220A-220H.) Prerequisites: courses 120A, 120B; recommended preparation: courses 165A and 165B. Analysis and classification of languages spoken in a particular area, e.g. Africa, the Balkans, South Asia, Southeast Asia, Australia, Aboriginal North America, Aboriginal Latin America, The Far East, etc. May be repeated for credit, if different language area. The Staff

225. Linguistic Structures. (Formerly numbered 225A-225Y.) Prerequisites: courses 120A, 120B; recommended preparation: 165A, 165B. Phonological and grammatical structure of a selected language, and its genetic relationships to others of its family. May be repeated for credit if different language family. The Staff

M246A. Linguistic Anthropology I. (Same as Anthropology M201A.) Prerequisite: consent of instructor. Research in verbal interaction, emphasizing the use of conversational structures.
Mr. Moerman

M246B. Linguistic Anthropology II. (Same as Anthropology M201B.) Prerequisite: consent of instructor. This seminar aims to provide interested students basic information on Black American English, an important minority dialect in the United States. The social implications of minority dialects will be examined from the perspectives of their genesis, maintenance and social functions. The seminar also aims to acquaint students with problems and issues in the field of sociolinguistics through a case study approach.
Ms. Mitchell–Kernan

M246C. Linguistic Anthropology III. (Same as Anthropology M201C.) Prerequisite: consent of instructor. Problems in the relations of language to culture. The Staff

Proseminars and Seminars (numbered 250 and above) may be repeated for credit, having been approved by the Graduate Council as nonrepetitive in content.

251. Topics in Phonetics and Phonology 1. Proseminar. Prerequisites: course 165A; 201 may be required. Specialized topics in phonetics or phonology. Concurrent meeting with Linguistics 256A-256B. The Staff

252. Topics in Syntax and Semantics 1. Proseminar. Prerequisites: course 165B; 206 may be required. Specialized topics in syntax and semantics. Concurrent meeting with Linguistics 257A-257B. The Staff

253. Topics in Language Variation 1. Proseminar. Prerequisites: course 110; 202 may be required. Specialized topics in language variation. Concurrent meeting with Linguistics 258A-258B. The Staff

254. Topics in Linguistics 1. Proseminar. Prerequisites: courses 165A, 165B; 201, 202 or 206 may be required; consent of instructor. Individual proseminars will deal with such topics as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of the world, psycholinguistics, etc. Concurrent meeting with Linguistics 259A-259B. The Staff

256A-256B. Topics in Phonetics and Phonology 2. Proseminar. Prerequisites: course 165A; 201 may be required. Specialized topics in phonetics or phonology. Graded In Progress in the first quarter (A), with letter grade assigned on completion of the second quarter. Concurrent meeting with Linguistics 251. The Staff

257A-257B. Topics in Syntax and Semantics 2. Proseminar. Prerequisites: course 165B; 206 may be required. Specialized topics In syntax and semantics. Graded In Progress in the first quarter (A), with letter grade assigned on completion of the second quarter. Concurrent meeting with Linguistics 252. The Staff

258A-258B. Topics in Language Variation 2. Proseminar. Prerequisites: course 110; 202 may be required. Specialized topics In language variation. Graded In Progress in the first quarter (A), with letter grade assigned on completion of the second quarter. Concurrent meeting with Linguistics 253. The Staff

259A-259B. Topics in Linguistics 2. Proseminar. Prerequisites: course 165A, 165B; 201, 202 or 206 may be required; consent of instructor. Individual proseminars will deal with such topics as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of the world, etc. Graded In Progress in the first quarter (A), with letter grade assigned on completion of the second quarter. Concurrent meeting with Linguistics 254. The Staff

Seminars may be taken for two units of credit *only* by students who have been formally admitted to the doctoral program. All others must enroll for four units.

261A-261B-261C. Seminar in Phonology. (½ or 1 course) Prerequisite: completion of at least twelve units of graduate courses in phonology. 261A, 261B, and 261C may be taken independently of each other. Only Post-M.A. students may enroll for two units; all others must enroll for four. Graded satisfactory/unsatisfactory. The Staff

262A-262B-262C. Seminar in Syntax and Semantics. (½ or 1 course) Prerequisite: completion of at least twelve units of graduate courses in syntax and semantics. 262A, 262B, and 262C may be taken independently of each other. Only Post-M.A. students may enroll for two units; all others must enroll for four. Graded satisfactory/unsatisfactory. The Staff

263A-263B-263C. Seminar in Language Variation. (½ or 1 course) Prerequisite: completion of at least twelve units of graduate courses in language variation. 263A, 263B, and 263C may be taken independently of each other. Only Post-M.A. students may enroll for two units; all others must enroll for four. Graded satisfactory/unsatisfactory. The Staff

264A-264B-264C. Seminar in Special Topics in Linguistic Theory. (½ or 1 course) Prerequisite: consent of instructor. 264A, 264B, and 264C may be taken independently of each other. Special topics may include child language, phonetics, neurolinguistics, psycholinguistics, sociolinguistics, etc. Only Post-M.A. students may enroll for two units; all others must enroll for four. Graded satisfactory/unsatisfactory. The Staff

275. Linguistics Colloquium. Prerequisite: fulfillment of the M.A. requirements. Varied linguistic topics, generally presentations of new research by students, faculty, and visiting scholars. Graded satisfactory/unsatisfactory. The Staff

276. Linguistic Colloquium. (non-credit course) Prerequisite: fulfillment of the M.A. requirements. Same as course 275, taken without credit by students not presenting a colloquium. Graded satisfactory/unsatisfactory. The Staff

495. College Teaching of Linguistics. (½ course) Prerequisites: graduate standing; required of all new Teaching Assistants. Seminars, workshops, and apprentice teaching. Selected topics including curriculum development, various teaching strategies and their effects, teaching evaluation, and other topics on college teaching. Students receive credit toward full time equivalence, but not towards any degree program. Graded only on satisfactory/unsatisfactory basis. The Staff

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA graduate adviser and graduate dean. Approval of host campus instructor, department chairman, and graduate dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. Graded satisfactory/unsatisfactory.

Individual Study and Research

596A. Directed Studies. (¼ to 2 courses) Prerequisite: completion of all undergraduate deficiency courses. May be applied toward fulfillment of M.A. course requirements. Directed individual study or research. May be repeated for credit. Graded satisfactory/unsatisfactory. The Staff

596B. Directed Linguistic Analysis. (¼ to 2 courses) Prerequisite: fulfillment of the M.A. requirements. Intensive work with native speakers by students individually. May be repeated for credit. Graded satisfactory/unsatisfactory. The Staff

597. Preparation for Master's Comprehensive and Doctoral Qualifying Examinations. (¼ to 2 courses) Prerequisite: at least six graduate courses in linguistics. Can be taken *only* in the quarters in which the student expects to stand for his comprehensive or qualifying examinations. May not be applied toward fulfillment of M.A. course requirements. May be repeated for credit. Graded satisfactory/unsatisfactory. The Staff

598. Research for Master's Thesis. (¼ to 2 courses) Prerequisite: consent of chairman of guidance committee. Research and preparation of the M.A. thesis. May not be applied toward fulfillment of M.A. course requirements. May be repeated for credit, for a maximum of 8 units credit. Graded satisfactory/unsatisfactory. The Staff

599. Research for Dissertation. (¼ to 4 courses) Prerequisite: advancement to candidacy for the Ph.D. degree. May not be applied toward fulfillment of Ph.D. course requirements. May be repeated for credit. Graded satisfactory/unsatisfactory. The Staff

African Languages

Upper Division Courses

101A-101B-101C. Elementary Swahili. Five hours. The major language of East Africa, particularly Tanzania. Mr. Hinnebusch

102A-102B-102C. Intermediate Swahili. Five hours. Prerequisite: courses 101A-101B-101C or consent of the instructor. Mr. Hinnebusch

103A-103B-103C. Advanced Swahili. Prerequisite: courses 102A-102B-102C or consent of the instructor. Readings in Swahili literature and the contemporary press. Discussions mainly in Swahili. Mr. Hinnebusch

***4104A-104B-104C. Elementary Luganda.** Five hours. A major language of Uganda. Mr. Givón

***4105A-105B-105C. Elementary Sotho.** Five hours. Southern Sotho, spoken primarily in Basutoland and Orange Free State, mutually intelligible with adjacent Northern Sotho and Tswana. Mr. Kunene

***4106A-106B-106C. Intermediate Sotho.** Five hours. Prerequisite: courses 105A-105B-105C or consent of instructor. Mr. Kunene

107A-107B-107C. Elementary Zulu. Five hours. The most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group. Mr. Kunene

108A-108B-108C. Intermediate Zulu. Five hours. Prerequisite: course 107A-107B-107C or consent of instructor. Mr. Kunene

***4109A-109B-109C. Elementary Xhosa.** Five hours. A Major Nguni language of South Africa, mutually intelligible with other members of this group. Mr. Kunene

***4110A-110B-110C. Intermediate Xhosa.** Five hours. Prerequisite: courses 109A-109B-109C or consent of the instructor. Mr. Kunene

111A-111B-111C. Elementary Yoruba. Five hours. Prerequisite: consent of the instructor. The major language of western Nigeria. The Staff

NOTE: For key to symbols, see page 74

112A-112B-112C. Intermediate Yoruba. Five hours. Prerequisite: courses 111A-111B-111C or consent of the instructor. The Staff

***[1]113A-113B-113C. Elementary Igbo.** Five hours. The major language of eastern Nigeria. Mr. Welmers

***[4]114A-114B-114C. Intermediate Igbo.** Five hours. Prerequisite: courses 113A-113B-113C or consent of the instructor. Mr. Welmers

***[4]115A-115B-115C. Elementary Akan.** Five hours. The major language of Ghana. The Staff

***[4]121A-121B-121C. Elementary Fula.** Five hours. The language of the Fulani, spoken in widely scattered areas of West Africa, including major concentrations in Guinea and the Nigeria-Cameroon area. The Staff

131A-131B-131C. Elementary Bambara. Five hours. Prerequisite: consent of the instructor. The major language of Mali, also widely spoken in adjacent parts of West Africa; includes Maninka (Malinke), Dyula, and other mutually intelligible dialects. The Staff

***[4]132A-132B-132C. Intermediate Bambara.** Prerequisite: courses 131A-131B-131C or consent of instructor. The Staff

***[4]133A-133B-133C. Advanced Bambara.** Prerequisite: courses 132A-132B-132C or consent of instructor. Readings in Bambara literature and the contemporary press. Discussions mainly in Bambara. The Staff

141A-141B-141C. Elementary Hausa. Five hours. The major language of northern Nigeria and adjacent areas. Mr. Schuh

142A-142B-142C. Intermediate Hausa. Five hours. Prerequisite: courses 141A-141B-141C or consent of the instructor. Mr. Schuh

143A-143B-143C. Advanced Hausa. Prerequisite: courses 142A-142B-142C or consent of the instructor. Readings in Hausa literature and the contemporary press. Discussions mainly in Hausa. Mr. Schuh

150A-150B-150C. African Literature in English Translation. Courses 150A and 150B may be taken independently for credit. Narrative and didactic oral prose and poetry of sub-Saharan Africa, and written prose and poetry of South Africa. Mr. Kunene

190. Survey of African Languages. An introduction to the languages of Africa, their distribution and classification, and their phonological and grammatical structures; illustrations from several representative languages, with appropriate language laboratory demonstrations and drills. Mr. Welmers

192. Comparative Studies in African Languages. Prerequisite: two quarter courses in an African language, or course 190; Linguistics 110 is recommended as a prior or concurrent course. Comparison of structural and lexical features of a group of closely related languages, such as southern Bantu, southwestern Mande, Akan, or Senufo. The Staff

199. Special Studies in African Languages. (¼ to 1½ courses) Prerequisite: consent of the instructor. Instruction or supervised research based on the needs of the individual student, in any language or group of languages for which appropriate facilities are available. The Staff

Graduate Courses

***[1]201A-201B. Comparative Niger-Congo.** Prerequisite: Linguistics 165A, 165B, 220A; recommended preparation; Linguistics 202; three quarter courses in one language selected from courses 101-132, 199. Investigation of relationships within the Niger-Congo family as a whole, or within selected branches of the family. Mr. Welmers

***[1]202A-202B-202C. Comparative Bantu.** Prerequisite: Linguistics 165A, 165B, 220A; recommended preparation: three quarter courses in one Bantu language selected from African Languages 101-110, 199. Investigation of relationships among the Bantu languages; the extent and external relationships of Bantu. Mr. Givón

270. Seminar in African Literature. Mr. Kunene

Individual Study and Research

596. Directed Studies. (¼ to 2 courses) Directed individual study or research. Up to one full course may be applied toward fulfillment of M.A. course requirements. May be repeated for credit. Graded satisfactory/unsatisfactory. The Staff

Indigenous Languages of the Americas

Upper Division Courses

118A-118B-118C. Elementary Quechua. Five hours. The language of the Incas and its present day dialects, as spoken in Andean South America. The Staff

South Asian Languages

Upper Division Courses

***[4]151A-151B-151C. Elementary Thai.** Five hours. The major language of Thailand. Mr. Campbell

***[4]152A-152B-152C. Intermediate Thai.** Prerequisite: courses 151A-151B-151C or consent of instructor. Mr. Campbell

***[4]161A-161B-161C. Elementary Tagalog.** Five hours. The national language of the Philippines. Mr. Bowen

***[1]171A-171B-171C. Hindi.** Five hours. Mr. Bright

Related Courses in Other Departments

(Other than Language Courses)

Anthropology 177A. Fields Methods in Linguistic Anthropology: Practical Phonetics.

177B. Field Methods in Linguistic Anthropology: Descriptive Semantics.

276. Ethnolinguistics.

Arabic (Department of Near Eastern Languages) 280. Structure of Classical Arabic.

Armenian (Department of Near Eastern Languages) 210. History of the Armenian Language.

Czechoslovak (Department of Slavic Languages) 222. The Structure of Slovak.

Dutch (Department of Germanic Languages) 234. The Structure of Modern Standard Dutch.

English 121. The History of the English Language.

122. Introduction to the Structure of Present-day English.

210. History of the English Language.

215. The Structure of Present-Day English.

218. Celtic Linguistics.

240. Studies in the History of the English Language.

241. Studies in the Structure of the English Language.

250K. Contrastive Analysis of English and Other Languages Seminar.

251K. Bilingual Comparative Studies. Seminar.

260K. Psycholinguistics and Language Teaching. Seminar.

270K. Language Policy in Developing Countries. Seminar.

Folklore 217. Folk Speech.

French 204A. Phonology and Morphology from Vulgar Latin to French Classicism.

204B. Syntax and Semantics from Vulgar Latin to French Classicism.

206A. French Grammatical Theory.

206B. Problems in French Syntax.

Germanic Languages 117. Language and Linguistics.

217. History of the German Language.

230. Survey of Germanic Philology.

251. Seminar in Syntax and Phonology of German.

252. Seminar in Historical and Comparative German Linguistics.

Hebrew (Department of Near Eastern Languages) 190A-190B. Survey of Hebrew Grammar.

210A-210B-210C. History of the Hebrew Language.

Indo-European Studies 210. Indo-European Linguistics. Advanced Course.

280A-280B. Seminar in Indo-European Linguistics.

Iranian (Department of Near Eastern Languages) 210A-210B. The History of the Persian Language.

211A-211B. Modern Iranian Dialects.

Italian 259A. History of the Italian Language.

259B. The Structure of Modern Italian.

Latin (Department of Classics) 240. History of the Latin Language.

Oriental Languages 175. The Structure of the Japanese Language.

223. History of the Japanese Language.

Philosophy 127A-127B. Philosophy of Language.

172. Philosophy of Language.

287. Seminar: Philosophy of Language.

Portuguese (Department of Spanish and Portuguese) 100. Phonology and Pronunciation.

103. Syntax.

M118. History of the Protuguese and Spanish Languages.

M203A-203B. The Development of the Portuguese and Spanish Languages.

M251. Studies in Galegan-Portuguese and Old Spanish.

Psychiatry 322. Language Disorders of Childhood.

Psychology 122. Language and Communication.

123. Psycholinguistics.

231. Seminar in Language and Communication.

260A. Psycholinguistics I. Seminar.

260B. Psycholinguistics II. Seminar.

Russian (Department of Slavic Languages) 121. Russian Phonology.

122. Russian Morphology.

123. Historical Commentary to Modern Russian.

204. Introduction to the History of the Russian Literary Language.

241. Russian Phonology.

242. Russian Morphology.

243A-243B. Historical Phonology and Morphology of Russian.

263. Russian Dialectology.

264. The Evolution of Literary Russian.

265. Russian Syntax.

266. Russian Lexicology.

Scandinavian Languages (Department of Germanic Languages) 210. History and Description of the Scandinavian Languages.

Semitics (Department of Near Eastern Languages) 209A-209B-209C. Comparative Study of the Ethiopian Languages.

280A-280B-280C. Seminar in Comparative Semitics.

290A-290B-290C. Comparative Morphology of the Semitic Languages.

Slavic Languages 202. Introduction to Comparative Slavic Linguistics.

242. Comparative Slavic Linguistics.

251. Introduction to Baltic Linguistics.

262A-262B. Western Slavic Linguistics.

263A-263B. Southern Slavic Linguistics.

281. Seminar in Slavic Linguistics.

282. Seminar in Structural Analysis.

Sociology 144. Conversational Structures.

266. Selected Problems in the Analysis of Conversation.

267. Selected Problems in Communication.

Spanish (Department of Spanish and Portuguese) 100. Phonology and Pronunciation.

103. Syntax.

115. Applied Linguistics.

M118. History of the Portuguese and Spanish Languages.

M203A-203B. The Development of the Portuguese and Spanish Languages.

204A-204B. Transformational Grammar.

206. Linguistics.

209. Dialectology.

M251. Studies in Galegan-Portuguese and Old Spanish.

256A-256B. Studies in Linguistics and Dialectology.

Turkic Languages (Department of Near Eastern Languages) 230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages.

MANAGEMENT

(Department Office, 3250 Graduate School of Management)

Robert B. Andrews, Ph.D., *Professor of Management.*
James R. Bettman, Ph.D., *Professor of Management.*
John W. Buckley, Ph.D., *Arthur Young Professor of Accounting.*
Elwood S. Buffa, Ph.D., *Professor of Operations Management and Management Science.*
Leland S. Burns, Ph.D., *Professor of Urban Planning.*
Joseph D. Carrabino, Ph.D., P.E., *Professor of Management.*
Fred E. Case, D.B.A., *Professor of Urban Land Economics.*
Samuel A. Culbert, Ph.D., *Professor of Human Systems Development.*
Louis E. Davis, M.S., *Professor of Organizational Sciences and Research Socio-Technical Scientist.*
David K. Eiteman, Ph.D., *Professor of Finance.*
Donald Erlenkotter, Ph.D., *Professor of Planning and Decision Sciences.*
Hy Faine, J.D., *Adjunct Professor of Arts Management.*
Eric Flamholtz, Ph.D., *Professor of Accounting and Information Systems.*
Walter A. Fogel, Ph.D., *Professor of Industrial Relations, and Research Economist, Institute of Industrial Relations.*
Arthur M. Geoffrion, Ph.D., *Professor of Management Science.*
Glenn W. Graves, Ph.D., *Professor of Quantitative Methods.*
Edward K. Hamilton, B.A., *Adjunct Professor of Management.*
James D. Hodgson, A.B., *Adjunct Professor of Management.*
Alfred E. Hofflander, Ph.D., *Professor of Finance and Insurance.*
John E. Hutchinson, Ph.D., *Professor of Industrial Relations.*
James R. Jackson, Ph.D., *Professor of Management.*
Harold H. Kassarjian, Ph.D., *Professor of Management.*
Paul Kircher, Ph.D., C.P.A., *Professor of Accounting and Information Systems.*
Archie Kleingartner, Ph.D., *Professor of Industrial Relations.*
J. Clayburn LaForce Jr., Ph.D., *Professor of Economics.*
Steven A. Lippman, Ph.D., *Professor of Quantitative Methods.*
James B. MacQueen, Ph.D., *Professor of Management.*
Robert Hal Mason, Ph.D., *Professor of International Business and Business Policy.*
Fred Massarik, Ph.D., *Professor of Behavioral Science and Industrial Relations, and Research Behavioral Scientist, Institute of Industrial Relations.*
Frederic Meyers, Ph.D., *Professor of Industrial Relations.*
Daniel J.B. Mitchell, Ph.D., *Professor of Industrial Relations.*
Frank G. Mittelbach, M.A., *Professor of Management and Planning, and Research Economist.*
Rosser T. Nelson, Ph.D., *Professor of Management Science and Production and Operations Management.*
Alfred Nicols, Ph.D., *Professor of Managerial Economics.*
Anthony P. Raia, Ph.D., *Professor of Management.*
Richard W. Roll, Ph.D., *Professor of Finance.*
John P. Shelton, Ph.D., *Professor of Finance.*
Keith V. Smith, Ph.D., *Professor of Finance and Business Economics.*
R. Clay Sprowls, Ph.D., *Professor of Computers and Information Systems.*
[15]George A. Steiner, Ph.D., Litt.D., *Professor of Management and Public Policy.*
Robert Tannenbaum, Ph.D., *Professor of the Development of Human Systems.*
J. Fred Weston, Ph.D., *Professor of Managerial Economics and Finance.*
Harold M. Williams, J.D., *Professor of Management.*
Robert M. Williams, Ph.D., *Professor of Business Economics and Statistics.*
Yoshihiro Tsurumi, D.B.A., *Acting Professor of International Management.*
Ralph M. Barnes, Ph.D., *Emeritus Professor of Engineering and Production Management.*
William F. Brown, Ph.D., *Emeritus Professor of Marketing.*
A. B. Carson, Ph.D., C.P.A., *Emeritus Professor of Accounting.*
John C. Clendenin, Ph.D., *Emeritus Professor of Finance.*
Ira N. Frisbee, M.B.A., C.P.A., LL.D., *Emeritus Professor of Accounting.*
Leo Grebler, Ph.D., *Emeritus Professor of Urban Land Economics.*
[15]Neil H. Jacoby, Ph.D., LL.D., 66 *Emeritus Armand Hammer Professor of Business Economics and Policy.*
[15]Raymond J. Jessen, Ph.D., *Emeritus Professor of Business Statistics and Emeritus Professor of Public Health.*
Erwin M. Keithley, Ed.D., *Emeritus Professor of Management.*
[15]Harold Koontz, Ph.D., *Emeritus Mead Johnson Professor of Management.*
Wayne L. McNaughton, Ph.D., *Emeritus Professor of Management.*
George W. Robbins, M.B.A., *Emeritus Professor of Marketing.*
Harry Simons, M.A., C.P.A., *Emeritus Professor of Accounting.*
Ichak Adizes, Ph.D., *Associate Professor of Managerial Studies.*
Theodore A. Andersen, Ph.D., *Associate Professor of Business Economics and Finance.*
Lee G. Cooper, Ph.D., *Associate Professor of Management in the Arts and Human Systems Development.*
John R. Dominguez, Ph.D., *Associate Professor of Business Economics.*
Richard A. Goodman, D.B.A., *Associate Professor of Management.*
Michael E. Granfield, Ph.D., *Associate Professor of Business Economics.*
J. Morgan Jones, Ph.D., *Associate Professor of Management Science.*
Larry J. Kimbell, Ph.D., *Associate Professor of Managerial Economics.*
Clement Krouse, Ph.D., *Associate Professor of Business Economics.*
Bennet P. Lientz, Ph.D., *Associate Professor of Computers and Information Systems.*
Richard J. Lutz, Ph.D., *Associate Professor of Marketing.*
Richard O. Mason, Ph.D., *Associate Professor of Information Systems.*
Marvin May, Ph.D., *Adjunct Associate Professor of Management.*
David Mayers, Ph.D., *Associate Professor of Finance.*
John J. McDonough, D.B.A., *Associate Professor of Accounting and Information Systems.*
Bill McKelvey, Ph.D., *Associate Professor of Management and Organizational Behavior.*
Ephraim R. McLean, Ph.D., *Associate Professor of Information Systems.*
Frank E. Norton, Ph.D., *Associate Professor of Business Economics.*
Alfred E. Osborne, Jr., Ph.D., *Associate Professor of Management.*
Hans Schöllhammer, D.B.A., *Associate Professor of Management Theory and International Business.*
Shahid L. Ansari, Ph.D., *Assistant Professor of Accounting and Information Systems.*
William T. Bailey, Ph.D., *Assistant Professor of Accounting and Information Systems.*
David M. Boje, Ph.D., *Assistant Professor of Management.*
John M. Clapp, Ph.D., *Assistant Professor of Urban Land Economics.*
Thomas E. Copeland, Ph.D., *Assistant Professor of Finance.*
Robert Geske, Ph.D., *Assistant Professor of Finance.*
Dominique M. Hanssens, Ph.D., *Assistant Professor of Marketing.*
Anne Sigismund Huff, Ph.D., *Assistant Professor of Management.*
James G. Manegold, Ph.D., *Assistant Professor of Accounting and Information Systems.*
Ronald W. Masulis, Ph.D., *Assistant Professor of Managerial Economics and Finance.*
Lauren K. Newton, Ph.D., *Assistant Professor of Accounting and Information Systems.*
Richard P. Rumelt, D.B.A., *Assistant Professor of Business Policy and Management.*
Carol Ann Scott, Ph.D., *Assistant Professor of Marketing.*
E. Burton Swanson, Ph.D., *Assistant Professor of Computers and Information Systems.*
Barton A. Weitz, Ph.D., *Assistant Professor of Marketing.*
William M. Zumeta, Ph.D., *Assistant Professor of Public Sector Management.*

•

William H. Broesamle, M.B.A., *Lecturer in Management.*
Grady D. Bruce, Ph.D., *Visiting Professor of Marketing.*
Robert L. Carmichael, Ph.D., *Lecturer in Computers and Information Systems.*
Peter Pin-Shan Chen, Ph.D., *Acting Associate Professor of Computers and Information Systems.*
Imran S. Currim, M.B.A., M.S., *Acting Assistant Professor of Marketing.*
Jason L. Frand, Ph.D., *Lecturer in Management.*
Abbott Kaplan, Ph.D., *Visiting Professor of Arts Management.*
Patricia O'Mara Katsky, Ph.D., *Lecturer in Management.*
Joan K. Lasko, Ph.D., *Lecturer in Behavioral Science.*
Seev Neumann, Ph.D., *Visiting Associate Professor of Computers and Information Systems.*
Paul Prasow, Ph.D., *Senior Lecturer in Industrial Relations, and Research Economist, Institute of Industrial Relations.*
Warren H. Schmidt, Ph.D., *Emeritus Senior Lecturer in Behavioral Science.*
Edward V. Sedgwick, Ph.D., *Lecturer in Management.*

UNDERGRADUATE COURSES (numbered 1-99)

Undergraduate courses in management are open to all University students who have completed the necessary prerequisites. Enrollments in these courses are very limited, however. Non-GSM students are therefore forewarned not to count on gaining admission to them in order to meet the requirements of other departments or for any other necessity.

NOTE: For key to symbols, see page 74

1A-1B. Elementary Accounting. Prerequisite: sophomore standing. Course 1A is prerequisite to course 1B. An introduction to accounting theory and practice. The first quarter presents the recording, analyzing, and summarizing procedures used in preparing balance sheets and income statements. The second quarter includes payroll and tax accounting, partnership and corporation accounts, manufacturing and cost accounting, and supplementary statements. The Staff

13G. Computer Programming for Graduate Students. Designed to provide the graduate student with a programming skill in a particular computer language. (e.g., APL, FORTRAN, COBOL, JCL). The selection of the language to be taught in any given quarter will depend upon demand and available resources. May be repeated.
Mr. McLean in charge

100. Business Economics. Prerequisite: Mathematics 2, 4A-4B, course 115 (may be taken concurrently). Effort of the enterprise to secure profits, nature of demand for its products. Costs and production. Allocation of resources through competition. Forms of market competition. Relation of size to efficiency. Markets for productive factors. Incentives and growth, capital budgeting.
Mr. Granfield, Mr. Krouse, Mr. Nicols

101. Business Fluctuations and Forecasting. Prerequisite: courses 100, 115, and Economics 160 (may be taken concurrently). How the enterprise reacts to general economic fluctuations and how its decisions, in turn, affect them. Important forces in past fluctuations. Behavior of indexes of business activity. Appraisal of forecasting techniques. Entrepreneurial and public policies to mitigate business fluctuations.
Mr. Granfield, Mr. Norton, Mr. R. Williams

108. Legal Analysis for Business Managers. Significance and growth of the law; the law in its relationship to business, with special emphasis on current problems; coverage of the law of contracts, agency sales, property, negotiable instruments, business organizations including the functions of inside and outside counsel and trade regulations.
The Staff

109. Business Communications. The development of information, skills, and attitudes as they relate to the types of communication required in the management of enterprises. The Staff

111. Introduction to Operations Research. Prerequisite: Mathematics 2, 4A-4B, course 115, or equivalent. Survey of operations research from an applied rather than theoretical viewpoint. Emphasis on the formulation of mathematical models and the most basic techniques for obtaining useful results. Problem types discussed: allocation, competition, inventories, networks, project management, waiting lines, replacement, sequencing, transportation. Mr. Bettman, Mr. Nelson

113A. Computer Data Processing. An introduction to computer data processing for students with little or no previous experience with computing. Computer hardware, software, and programming concepts are discussed, as well as the application of computers to management problems. Computer programming problems are assigned.
Mr. Carmichael and the Staff

113B. Computer Programming Methods. Prerequisites: Engineering 10 or course 113A or 404 or equivalent experience with some general purpose programming language. Use of PL/C and PL/1 for programming management applications. Sequential and nonsequential file processing. Data considerations. Report generation. Computational algorithms. Considerations of program structure. Extensive programming assignments.
Mr. Carmichael, Mr. Sprowls

113C. Interactive Computing for Management. Prerequisite: Engineering 10 or course 113A or 404 or equivalent experience with some general purpose programming language. Conversational, interactive computing for management applications. Problem logic, array processing, file handling, formatting and report generation, graphics, and user dialogues are covered. Examples are drawn from various aspects of management. Extensive programming assignments (using APL) are required. Mr. McLean

115. Business Statistics. Prerequisite: Mathematics 2, 4A-4B, or the equivalent. Elements of probability, probability distributions, estimation and confidence intervals, tests of significance and of hypotheses, linear regression and correlation, time series analysis, and principles of index numbers. Applications to the analysis of and the decision-making aspects of everyday business problems.
The Staff

116A. Statistical Methods: Decision. Prerequisite: course 115 or graduate status. Statistical decision under uncertainty; statistical decision rules and their evaluation; Bayesian inference; applications to business problems.
Mr. Jones, Mr. Lippman, Mr. Nelson

116B. Statistical Methods: Analysis. Prerequisite: course 115 or equivalent. Analysis of variance; design and analysis of statistical experiments and surveys; multiple regression and correlation, curvilinear regression; analysis of enumeration data; nonparametric methods. The Staff

120. Intermediate Accounting. Prerequisite: courses 1A-1B or consent of instructor. The preparation of the principal accounting statements. Recording, valuation, and presentation of cash, temporary investments, receivables, inventories, investments, plant and equipment, intangibles, current obligations, long-term debt, paid-in capital and retained earnings. Statement analysis. Statement of application of funds. The Staff

120M. Management Accounting. Prerequisite: course 120 or consent of instructor. Not open to students who have credit for course 403. Management Accounting theory and methods; formulation and analysis of management reports; internal control; planning and budgeting; cost-volumes – profit analysis; elements of cost accounting; price-level accounting; learning curves and capital budgeting.
Mr. Bailey and the Staff

122. Cost Accounting. Prerequisite: course 120 or consent of instructor. The nature, objectives, and procedures of cost accounting and control; job costing and process costing; accounting for manufacturing overhead; cost budgeting; cost reports; joint-product costing; distribution cost; standard costs; differential cost analysis; profit-volume relationships and break-even analysis. The Staff

124. Advanced Accounting. Prerequisite: courses 120, 122, or consent of instructor. Partnerships and joint ventures; installment sales and consignment sales, home office and branch relationships; corporate combinations; the preparation of consolidated statements; foreign branches and subsidiaries; receiverships; estates and trusts, governmental units, actuarial science.
Mr. Bailey and the Staff

130. Business Finance. A study of the forms and sources of financing business firms large and small, corporate and noncorporate. The emphasis is on financial planning and developing judgment in formulating decisions on financial problems. Financial problems are also considered in their social, legal, and economic effects.
Mr. Andersen, Mr. Dominguez, Mr. May

133. Investment Principles and Policies. Principles underlying investment analysis and policy; salient characteristics of governmental and corporate securities; policies of investment companies and investing institutions; relation of investment policy to money markets and business fluctuations; security price-making forces; construction of personal investment programs.
Mr. Eiteman, Mr. Shelton, Mr. Smith

135. Principles of Insurance. Basic principles of risk and insurance and their applications to business management and personal affairs. Analysis of concepts and methods of handling risks; insurance carriers, contracts, and underwriting; loss prevention and settlement; government insurance programs; economic functions of insurance.
Mr. Hofflander

140. Elements of Production and Operations Research. Prerequisite: course 111 or equivalent. Principles and decision analysis related to the effective utilization of the factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. The study of production organizations, analytical models and methods, facilities design, and the design of control systems for production operations.
The Staff

150. Elements of Industrial Relations. Principles and methods of effectively utilizing human resources in organizations. The relationship between social, economic, and other environmental factors and current problems in industrial relations. Mr. Fogel, Mr. Hutchinson, Mr. Mitchell

160. Elements of Marketing. A survey of the major marketing methods, institutions, and practices. The subjects of retailing, wholesaling, distribution channels, marketing legislation, advertising, cooperative marketing, pricing, marketing research, and marketing costs are treated from the standpoint of consumers, middlemen, and manufacturers.
Mr. Kassarjian

163. Advertising Principles and Policies. Prerequisite: course 160. The preparation, use, and administration of advertising, emphasizing the use of research to direct and measure the effectiveness of each stage in the operation. The economic and social implications of advertising also are evaluated. Mr. Kassarjian, Ms. Scott

175. Elements of Real Estate and Urban Land Economics. An examination of business decision making as related to logical forces shaping cities and influencing real estate market functions and land uses. Emphasis is placed on decision making as it relates to appraising, building, financing, managing, marketing, and using urban property.
Mr. Case, Mr. Clapp, Mr. Mittelbach

180. Behavioral Science Foundations. An introduction to selected concepts in behavioral science, their integration and application to management. Organization, group, cultural, individual behavior in relation to managerial environment and functional fields of business administration. Simulations and demonstrations of behavioral science principles. Ms. Lasko, Mr. McKelvey

182. Leadership Principles and Practice. Knowledge and skills leading to effectiveness in interpersonal relations. Understanding oneself as a leader, and others as individuals and as members of working groups. Understanding of group process, including group leadership. Lectures and "sensitivity training' laboratory.
Mr. Culbert, Ms. Lasko, Mr. Massarik

190. Management Theory and Policy. Prerequisite: consent of instructor. A study of the basic concepts and theory of management. Emphasis is on an operational analysis of the manager's role in all types of organizations. The course deals with management issues in the areas of planning, organizing, staffing, directing, and controlling.
Mr. Carrabino and the Staff

191. Judgment of Systems and Systems of Judgment. Prerequisite: upper-division standing; well qualified lower-division students may be admitted with consent of instructor. Action-oriented decision making, from the "systems" viewpoint, with attention focused on the crucial issue of "asking the right questions." Emphasizes complex social/political/economic/professional problems where pertinent facts, goals, and action alternatives are largely matters of judgment. Mr. Jackson

197. Special Topics in Management. Topics of special interest to undergraduate students. Specific subjects to be covered may change each quarter depending on particular interest of instructors or students. May be repeated for credit. The Staff

199. Special Studies in Management. (¼ to 2 courses) Prerequisite: senior standing and consent of instructor and the dean by special petition available in the MBA Program Office. The Staff

GRADUATE COURSES (numbered 200-299)

Graduate courses are ordinarily open to students admitted in graduate status. As a condition for enrollment, the student must submit to the instructor in charge of the course evidence of satisfactory preparation for the work proposed.

200A. Techniques of Business Economics Analysis: Marginalist Models. Prerequisite: course 405 and Economics 145 or consent of instructor. Contemporary business economic principles of resource allocation and the price system are developed. Classical optimization and comparative static techniques are set forth and applied to the models of consumer choice and firm and general production-exchange equilibrium models.
Mr. Granfield, Mr. Krouse, Mr. Osborne

200B. Techniques of Business Economic Analysis: Econometrics. Prerequisite: consent of instructor. Standard topics in applied econometric modeling are developed. The assumptions underlying the classical normal linear regression model, special problems in application, and interpretation of results are stressed. Practical applications are extensively developed in student projects.
Mr. Kimbell, Mr. Krouse, Mr. Mayers

201A. Business Forecasting. Prerequisite: courses 100, 101, or 405, 406 and 115 or 402. The role of business forecasting in managerial planning. Principles and methods of forecasting. Evaluation of the reliability of existing forecasting techniques. Covers both short-term and long-term forecasting of industry, regional, and national business trends.
Mr. Kimbell, Mr. Norton, Mr. R. Williams

201B. Industry Forecasting. Prerequisite: course 201A. Evaluation of various methodologies found useful in preparing industry forecasts; differences between short- and long-range forecasting techniques, etc. Mr. Andersen, Mr. Kimbell

201C. Regional Economic Forecasting. Prerequisite: course 201A. Forecasting of economic activity in a region; emphasizing special problems such as population and industry migration; the effects of external forces on the regional economy.
Mr. Granfield, Mr. Kimbell, Mr. R. Williams

201D. Economic Policy and Business Environment. Prerequisite: consent of instructor. Analysis of economic policies shaping the business policy: stabilizing policy instruments; structural policies for efficiency and progress; policy needs for the future. Treats policy formation and administration as well as design.
Mr. Granfield, Mr. Jacobv, Mr. Nicols

202A. Economic Theories of Business Behavior: Marginal, Managerial, and Behavioral. Prerequisite: course 200A. The economic behavior of the firm and firm groups is considered. Theories extending from those which retain marginal analysis to treat alternative corporate objectives to those viewing the firm as an adaptive mechanism with limited cognitive and information processing capabilities.
Mr. Krouse, Mr. Nicols, Mr. Weston

202B. Principles of Industrial Organization. Prerequisite: course 200A. The course develops analysis principles necessary for understanding the economic structure and behavior of industries. Topics range from substitutability criteria for industry definition and a comparison of alternative classification schemes to the relationships among industry structure, conduct, and performance.
Mr. Granfield, Mr. Krouse, Mr. Weston

202C. Empirical Studies in Industrial Organization. Prerequisite: course 202B. Analyses of factors influencing the size of industries, their size distribution, and the conditions of entry and exit are investigated. Implications of such industry characteristics are derived for decisions having to do with firm output, prices, advertising, and research/development.
Mr. Krouse, Mr. Nicols, Mr. Weston

202D. The Organization of Industry and Business Policy. Prerequisite: consent of instructor. Analysis of economic aspects of long-range planning of firms with respect to horizontal expansion, vertical integration, and diversification, especially the review of statutory and legal decisions affecting internal and external expansion policies.
Mr. Granfield, Mr. Nicols, Mr. Weston

M203A. Economics of Decision. (Same as Economics M203A.) Prerequisite: rudiments of economic theory, calculus, and probabilities of statistics (e.g., course 116A). Norms and facts of decision making in household, business, and government. Consistent behavior in terms of personal utilities and probabilities. Departures from consistency: stochastic theories of behavior and resulting econometric models. Mr. Erlenkotter

M203B. Economics of Information. (Same as Economics M203B.) Prerequisite: rudiments of economic theory of the firm, and of calculus and probabilities or statistics (e.g., course 116A); course M203A, or consent of instructor. Optimal decision and information rules. Amount, cost, and value of information. The Staff

M203C. Economics of Organization. (Same as Economics M203C.) Prerequisite: course 203A-203B. Rational models of teams. Relation to the theory of games. The Staff

205A. International Business Economics. Prerequisite: courses 405, 406, or consent of instructor. The international business environment, international economic institutions, national and regional trade policies and developments, trends in foreign markets, international monetary problems are studied for their influence on the organization and operation of the international corporation.
Mr. R.H. Mason, Mr. Mitchell, Mr. Schöllhammer

205B. Comparative Market Structure and Competition. Prerequisite: course 205A or consent of instructor. A comparative study of public policies toward competition, market structures, and competitive practices in key industries in selected countries.
Mr. Nicols, Mr. Osborne, Mr. R. Williams

205C. Business Forecasting for Foreign Economies. Prerequisite: course 201A or consent of instructor. Forecasting changes in business activity, population, industrial structure, productivity, Gross National Product and its components for selected countries. Mr. Osborne, Mr. R. Williams

207A. Resource Administration of Nonmarket Activities. Prerequisite: courses 405 and 406 or consent of instructor. Examination of the proper economic role of nonmarket institutions, and of the allocation of societal resources between the public and private sectors via market and nonmarket mechanisms. Definition and application of economic efficiency to resource allocations.
Mr. Granfield, Mr. Nicols

207B. Public Services and Private Functions. Prerequisite: courses 405 and 406 or consent of instructor. Sources and uses of federal, state, and local revenues and their impacts on public and private resource allocations. Examination of the proper roles of government and the private sector in the financing and provision of public goods and services. Mr. Granfield, Mr. Osborne

208. Selected Topics in Business Economics. Prerequisite: consent of instructor. Special topics in business economics. Current development in theory or practice in business economics. May be repeated for credit. The Staff

210A. Mathematical Programming. Prerequisite: Mathematics 31C. A comprehensive development of the theory and computational methods of linear programming, with applications to business and related disciplinary areas.
Mr. Geoffrion, Mr. Graves

210B. Applied Stochastic Processes. Prerequisite: Mathematics 150A or Engineering 120A. Sequential stochastic (usually Markovian) decision processes in discrete and continuous time, emphasis is on problem formulation and the characterization and computation of optimal policies, often via dynamic programming; application to inventory, queueing, maintenance, reliability, and replacement problems. Mr. Lippman

210C. Network Flows and Combinatorial Programming. Prerequisite: course 210A. Theory and techniques of discrete models in Operations Research. Integer programming, combinatorial programming, and network flows. Applications to various allocation, coordination, scheduling, and sequencing problems. Mr. Geoffrion, Mr. Graves

211A. Nonlinear Mathematical Programming. Prerequisite: Mathematics 32A. Theory, methods, and application of the optimization of nonlinear systems. Review of classical optimization methods; optimality and duality theory for convex programs; main computational approaches to convex programming; survey of current computer codes and computational experience.
Mr. Geoffrion, Mr. Graves

211B. Large-Scale Mathematical Programming. Prerequisite: two quarters of previous work in linear and nonlinear programming. Theory and computational methods for optimizing large-scale linear and nonlinear programs. Exploitation of special structures with combinatorial, dynamic, multidivisional, and stochastic aspects to obtain practical solution procedures in spite of large numbers of variables and/or constraints.
Mr. Geoffrion, Mr. Graves

212A. Management Science Models I. Prerequisite: Mathematics 31C or equivalent. The use of linear models, and their extensions, for managerial decision making. Formulation and application of linear, network, and integer models in finance, production, distribution, marketing, and public systems. Fundamentals of solution methods and their use in analysis. Mr. Erlenkotter, Mr. Geoffrion

212B. Management Science Models II. Prerequisite: Mathematics 32A, course 212A, or equivalent. The use of nonlinear and time-staged dynamic models for managerial decision making. Applications in finance, marketing, production, facilities design, and energy systems. Survey of nonlinear and dynamic programming solution methods.
Mr. Erlenkotter, Mr. Geoffrion

212C. Management Science Models III. Prerequisites: courses 213A, 212A, and 212B. The use of probabilistic models for managerial decision making under uncertainty. Stochastic programming, probabilistic dynamic programming, Markovian and waiting line models. Applications in finance, production, marketing, and facilities design.
Mr. Erlenkotter, Mr. Jones

213A. Intermediate Probability and Statistics. Prerequisite: previous course work in statistics and mathematics. An introduction to probability theory and hypothesis testing as applied to management.
Mr. Jones, Mr. Lippman, Mr. Roll

213B. Statistical Methods in Management. Prerequisite: course 213A or consent of instructor. An introduction to parameter and interval estimation, simple and multiple linear regression and correlation, fixed, random, and mixed effects analysis of

NOTE: For key to symbols, see page 74

variance models and non parametric statistics, all as they apply to management studies.
Mr. Cooper, Mr. Jones, Mr. Lippman

213C. Introduction to Multivariate Analysis. Prerequisite: course 213B or consent of instructor. Introduction to multivariate technology used in research in socio-technical systems, marketing, psychology, education, and sociology. This course will provide a basic understanding of multiple regression, analysis of covariance, multivariate analysis of variance, discriminant analysis, canonical correlation, and factor analysis.
Mr. Cooper, Mr. Hanssens

214B. Behavioral Science Models. Prerequisite: consent of instructor. Formulation, analysis, and interpretation of mathematical models in the behavioral sciences. Emphasis is on stochastic process models for aspects of individual and group behavior such as learning, problem solving, classification, communication, bargaining, and social exchange systems. Mr. MacQueen

215D. Time Series Analysis. Prerequisite: course 116B or consent of instructor. Econometric models and advanced time series analysis in measuring trends and fluctuations in business series, electronic computers in the analysis of business series; input-output analysis; the learning curve.
Mr. Granfield and the Staff

215E. Statistical Design of Surveys. Prerequisite: course 116B or equivalent. Mathematical theory and practices of statistical survey design and analysis. Mr. Jessen

216A. Simulation of Operational Systems. Prerequisite: courses 113B, 402, or equivalent background in batch computing (APL is not suitable) and statistics. Computer simulation methodology including design, validation, operating procedures, and analysis of results of simulation experiments. Applications of simulation to management problems. Mr. Nelson

216B. Advanced Computer Simulation. Prerequisite: course 216A. Advanced use of computer simulation techniques. Major term projects will be undertaken, either singly or in groups, with the object of developing in students the ability to accomplish all phases of the design and execution of computer simulation. Mr. Nelson

217A. Statistical Decision Theory. Prerequisite: course 116A or equivalent; Mathematics 152A recommended. Relationships among statistical decision theory, game theory, and classical statistical inference, with emphasis on sequential analysis and dynamic decision processes; axiomatic foundations, Bayes' and minimax solutions, applications to selected models of dynamic decision problems in business. Mr. Lippman, Mr. MacQueen

217B. Game Theory. Prerequisite: course 116A; Mathematics 152A recommended. Nature of models for rational behavior in presence of conflicts of interests, zero-sum and nonzero-sum games, two-person and many-person games, state of the art, philosophical and computational limitations, relations with individual and group decision making.
Mr. Jackson, Mr. MacQueen

218A. Selected Topics in Operations Research. (¼ to 1 course) Prerequisite: consent of instructor. Newly developing topics and viewpoints. Topics have included reliability and optimal maintenance theory, large-scale distribution/inventory systems, and Markovian decision processes under uncertainty. May be repeated for credit. The Staff

218C. Selected Topics in Business Statistics. (¼ to 1 course) Prerequisite: consent of instructor. Special topics in statistical methods. Current developments in statistical theory and practice. Analysis of recent literature. Topics and instructors will be announced when they become known. May be repeated for credit. The Staff

218D. Current Problems in Operations Research. (¼ to 1 course) Current research on a variety of topics in the general area of operations research, presented by invited university and outside speakers. May be repeated for credit. The Staff

218XYZ. Current Issues in Operations Research. (¼ to 1 course) Current issues and research on a variety of topics in the general area of operations research. May be repeated for credit. The Staff

220A. Technical Foundations in Accounting. Prerequisite: course 403 or consent of instructor. The role of accounting in the internal management of enterprises is emphasized. Topics include accounting information in production, marketing, and human resources management; investment analysis, cost accounting systems; role of accounting in tax planning, forecasting, budgeting; financial and operational auditing.
Mr. Buckley, Mr. Manegold

220B. Financial Accounting I. Prerequisite: consent of instructor. The course deals with concepts and principles of financial accounting with emphasis upon the pronouncements of the AICPA. Current practice in the recording, valuation, and presentation of financial statements is reviewed. Application of these principles to contemporary problems is stressed. Mr. Bailey, Mr. Manegold

220C. Financial Accounting II. Prerequisite: consent of instructor. In addition to providing a continuation of 220B, this course gives special attention to a range of topics which include accounting for partnerships, mergers, combinations, and parent-subsidiary relationships. Litigation procedures are reviewed including reorganizations, receiverships, and bankruptcy. Mr. Bailey, Ms. Newton

221. Current Issues in Accounting Information Systems. Prerequisite: consent of instructor. Using a colloquium format, the course provides a forum for the discussion of contemporary issues in accounting and information systems. Drawing on prominent speakers in the field, the course requires the student to formulate a position paper on each topic presented. The Staff

222. Cost Accounting. Prerequisite: course 220A or consent of instructor. The nature, objectives, and procedure of cost accounting and control; job costing and process costing; joint product costing, standard costs; theories of cost allocation and absorption; uses of cost accounting data for management decision making.
Mr. Ansari, Mr. McDonough, Ms. Newton

223. Verification of Financial Statements. Problems of examination, verification, and presentation of financial statements from the standpoint of the independent public accountant. Legal and professional responsibilities of public accountants; professional ethics. Operational and management auditing. Mr. Kircher

224A. Computer Systems. Prerequisite: course 225A and either 113B or 113C or consent of instructor. The specification and configuration of computer-based systems for management applications. Methods for costing system hardware and software and for assessing computer performance. Trade-off analysis of comparative computer configurations. Case materials and/or actual examples are used.
Mr. Lientz

224B. Management of Computer-Based Information Systems. Prerequisite: course 224A or consent of instructor. An in-depth coverage of the problems in managing computer-based information systems. Focuses on the definition, evaluation, installation, and continuing management of EDP systems. Issues of planning and control, as well as the organizational impact of computer systems, are stressed.
Mr. McLean

224C. Systems Analysis for Computer-Based Information Systems. Prerequisite: courses 224A and 225A or consent of instructor. The detailed design and specification of computer-based management information systems. Includes studies of existing systems, economic and organizational analyses of alternatives, and tools for determining user requirements. Case materials and/or actual examples are used.
Mr. Chen, Mr. Lientz, Mr. Sprowls

224D. Generalized Data Base Management Systems. Prerequisite: course 113B or 113C or consent of instructor. Examines the features and capabilities of generalized data base management systems. Includes system classification, comparison of software features, and evaluation of specific systems. Emphasis is upon management uses of such systems. A field study project may be required.
Mr. Chen, Mr. Sprowls

224E. Computer Simulation for Management. Prerequisite: Engineering 20 or course 113B or 113C or consent of instructor. Introduction to computer simulation and to general purpose simulation languages (e.g., GPSS, SIMSCRIPT, DYNAMO). Emphasis upon the managerial use of simulation and the development of computer-based models for problem solving and policy analysis. Programming assignments are included. Mr. Chen

224F. Telecommunications and Computer Networks. Prerequisite: course 224A or consent of instructor. Distributed processing. Networked minicomputer systems. Data communication technology. Data security in computer networks. Cost/benefit analysis for the design, configuration, and implementation of computer networks. Applications to computer utilities; command and control systems; and commercial, medical, and government networks. Mr. Lientz

224G. Special Topics in Computing. Prerequisite: consent of instructor. An examination in depth of issues or problems concerned with the theory and practice of computing and the management use of EDP systems. Course may have a single theme or may deal with a number of topics. May be repeated for credit. The Staff

225A. Introduction to Information Systems. Prerequisite: course 404 or consent of instructor. Basic concepts and uses of information systems in organizations. Fundamental design considerations. The role of data processing. Examples of information systems in profit and not-for-profit organizations. Mr. McLean, Mr. Sprowls, Mr. Swanson

225B. Information Systems for Planning and Control. Prerequisite: course 403 or consent of instructor. Design of systems to produce information for planning and control. Survey of approaches and techniques employed at the strategic, managerial, and operational levels. Special consideration of accounting and budgeting methods. Impact of planning and control information on human behavior.
Mr. Flamholtz, Mr. R.O. Mason, Mr. McDonough

225C. Measurement in Information Systems. Prerequisite: familiarity with basic statistics, probability theory, set theory, and accounting, or consent of instructor. A study of the role of measurement in accounting and information systems, from the standpoint of mathematical, economic, behavioral, and organizational consideration.
Mr. R.O. Mason, Mr. Swanson

225D. Special Topics in Information Systems. Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in depth of problems or issues of current concern in information systems. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit. The Staff

226. International Accounting. Prerequisite: graduate status. Comparative analysis of accounting concepts and practices in other countries; study of contrasts between various systems; problems of accounting for international corporations including transfers of funds and income measurement; and accounting influences on economic development.
Mr. Buckley, Mr. Kircher

227A. Tax Accounting. Prerequisite: course 220A or consent of instructor. A study of the fundamentals of income taxation with emphasis on problems in federal and state income, franchise, gift, and estate taxes; study of source material and research methods for ascertaining current rulings and trends in laws and regulations. The Staff

227B. Taxation and Business Policy. Tax systems, tax shifting and burden theory. Impact of taxation law and theory on business decisions. Corporate tax planning. The businessman and tax reform.
The Staff

229A. Accounting Theory. Prerequisite: consent of instructor. A survey of accounting literature, with emphasis on the development of basic accounting concepts. An attempt is made to explain contemporary practice as it has evolved in accordance with basic theory and expanding demands for accounting information. Mr. Ansari

229B. Research Methodology in Accounting. Prerequisite: course 229A or consent of instructor. Design of empirical and theoretical research in accounting. Sources of research problems. Research conduct and methodology in accounting and other fields as they relate to accounting.
Mr. Buckley, Mr. Flamholtz, Mr. Manegold

229C. Special Topics in Accounting. Prerequisite: open primarily to Ph.D. candidates or with consent of instructor. An examination in depth of problems or issues of current concern in accounting. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit. The Staff

230. Theory of Finance. (Formerly numbered 231B.) Prerequisite: course 408. Concerned with decision making under uncertainty, the theory of asset prices, and the efficiency of capital markets. Develops the most recent theoretical constructs and applies them to fundamental issues in corporate financial management such as capital budgeting, capital structure, and dividend policy.
Mr. Copeland, Mr. Geske, Mr. Mayers

231A. Profit Sector Financial Policy. Prerequisite: course 230. Identifying and solving financial problems through the use of cases. Stresses the application of financial theory and financial techniques to business problems, using written reports and classroom discussion.
Mr. May, Mr. Mayers, Mr. Weston

231B. Nonprofit Sector Financial Policy. Prerequisite: course 408. Identifying and solving financial problems for all types of nonprofit organizations through use of cases. Stresses possible application of financial theory for profit-oriented firms. Particular attention to unique problems of resource allocation when market valuation cannot be used as a criterion. Mr. Copeland, Mr. Smith

231C. Working Capital Management. Prerequisite: courses 230 and 231A. More detailed and advanced coverage of the short-range problems of financial management. Coverage of current assets, current liabilities, and their interrelationships.
Mr. Eiteman, Mr. Smith

231D. Applications of Quantitative Methods in Finance. Prerequisite: course 230 and other 230-level seminars. Applications of multiple regression, mathematical programming, and stochastic processes to more complex problems of financial decision making. Comparison of solutions from alternative quantitative methods.
Mr. Mayers, Mr. Smith

232A. Security Analysis. Prerequisite: course 230. Primarily a course in stock market investing, but approach is applicable to all investment assets. Includes techniques of security analysis and security valuation based on financial statements of the organization.
Mr. Eiteman, Mr. Roll, Mr. Shelton

232B. Portfolio Management. Prerequisite: course 230. Focus on entire portfolios rather than individual assets. Review portfolio theory as applied to portfolio decision making and the evaluation of achieved portfolio performance. Case studies of portfolio construction.
Mr. Geske, Mr. Masulis, Mr. Smith

232C. Investment Theory. Prerequisite: courses 232A and 232B or consent of instructor. Review of theoretical literature on investment analysis, valuation, and management. Topics include mathematical techniques for valuation of growth securities, competitive returns on alternative investments, the investment decision process, computers in investment decision making, and functioning of securities markets in the U.S. and abroad.
Mr. Krouse, Mr. Shelton, Mr. Smith

233A. Money and Capital Markets. (Formerly numbered 230A.) Prerequisite: course 230. Application of interest theory and flow funds analysis to the price determination process in the markets for bonds, mortgages, stocks, and other financial instruments. Study of funds flow from credit markets. Analysis of costs of capital in individual industries.
Mr. Andersen, Mr. Dominguez, Mr. Roll

233B. Financial Institutions. (Formerly numbered 230B.) Prerequisite: courses 230 and 233A. Study of the financial policies and practices of commercial banks, savings and loan associations, pension funds, insurance companies, and other major financial institutions. Review of current major problems facing senior managers of these financial institutions.
Mr. Andersen, Mr. Roll, Mr. Shelton

233C. Speculative Markets. Prerequisite: course 230. Study of the theory and evidence of capital market efficiency including the stock market, the bond market, commodity future markets, the options market, money markets, and foreign exchange markets.
Mr. Copeland, Mr. Masulis, Mr. Roll

234A. Multinational Business Finance. (Formerly numbered 233A.) Prerequisite: courses 205A and 408; in addition, course 230 is recommended for Finance majors. Financial problems in the management of multinational businesses. Included are the international financial environment, problems surrounding the decision to commit long-term capital to an international venture, and financial techniques for the daily operation of a multinational firm.
Mr. Dominguez, Mr. Eiteman, Mr. Weston

234B. Advanced Studies in International Finance. Prerequisite: courses 230 and 234A. Study of current and important issues of international financial management. Major focus on the interrelation of advanced theoretical concepts and their implications for the business firm in its international financial management decisions.
Mr. Eiteman, Mr. Weston

235A. Problems in Insurance Management. Prerequisite: course 135 or consent of instructor. Advanced consideration of the problems of insurance management. Treats the actuarial, underwriting, investment, marketing, and regulatory problems relating to insurance activities.
Mr. Hofflander

235B. Risk and Risk Bearing. Prerequisite: course 135 or consent of instructor. Advanced consideration of the theory of risk and risk bearing. The analysis of alternative ways of meeting risk and uncertainty, the scope and limits of insurance, and the economics of insurance. Mr. Hofflander

238. Special Topics in Finance. Prerequisite: course 230 and consent of instructor. Course intended for master's students. Selected topics in finance theory, empirical studies, and financial policy. May be repeated for credit under different Finance faculty members. The Staff

239A. Theory of Exchanges under Uncertainty. Prerequisite: course 230 and consent of instructor. Foundations of the theory of exchange are developed as an introduction to theoretical literature on the pricing of capital assets. Course is primarily intended for doctoral students, but well-prepared master's students may find the course useful in their career preparation.
Mr. Geske, Mr. Krouse, Mr. Roll

239B. Theory of Investment under Uncertainty. Prerequisite: courses 230 and 239A or consent of instructor. Foundations of theory of firm capitalization and investment decisions are developed with special attention to questions of exchange and allocative efficiency. Course primarily intended for doctoral students, but well-prepared master's students may find the course useful in their career preparation.
Mr. Copeland, Mr. Masulis, Mr. Mayers

239C. Empirical Research in Finance. Prerequisite: course 230, training in econometrics, and consent of instructor. In-depth study of empirical research in field of finance with emphasis on market efficiency, capital asset pricing, and option pricing. Course is primarily intended for doctoral students, but well-prepared master's students may find the course useful in their career preparation. Mr. Roll

239D. Doctoral Seminar in Finance. Prerequisite: course 230 and courses in the 239 series. Course intended for doctoral students. Advanced topics in finance theory and empirical research. May be repeated for credit under different Finance faculty members. The Staff

240A. Aggregate Planning and Work Force Scheduling. Prerequisite: course 410. Managerial methods for short-term capacity planning and scheduling in aggregate terms. Theoretical models and management practices in manufacturing and service operations. Model formulation that allocates use of regular and overtime labor, inventories where appropriate, backordering shortages, and outside capacity. Mr. Buffa, Mr. Nelson

240B. Scheduling and Control of Operations. Prerequisite: course 407 and 410 or consent of instructor. Detailed short-term scheduling and control of productive (production or service) operations. Identification of objectives and performance criteria for evaluating scheduling and control procedures. Classification of production and service systems. Scheduling problems and solution approaches for different types of systems. Mr. Nelson

240C. Design of Operational Systems. Prerequisite: course 410. Issues in selection of the capabilities, characteristics, and configuration of service and manufacturing systems as part of overall strategy for attaining organizational goals; planning of capacity, location, processes/technologies, facilities, organizational structures, and jobs.
Mr. Andrews, Mr. Erlenkotter

241. Technological Bases of Jobs and Organizations. Prerequisite: consent of instructor. Technological determinants of operating systems and jobs; productive system design models; behavioral models underlying operating system design, technology, and social system design; operating system veriability, control, and measurement. Mr. Davis

242A. Planning for Facilities Systems. Prerequisite: course 212A or equivalent. Planning of location, expansion, and replacement for interdependent systems of facilities. Examination of spatial and dynamic economic considerations. Applications in selected industries and public systems.
Mr. Erlenkotter

243A. Project Management. Prerequisite: course 407 or equivalent. Management of development projects. Decision-making environment, economic analysis, network analysis, scheduling, and control of development projects. Sequential and aggregate development decisions. The Staff

243B. Inventory Theory. Prerequisite: course 210B or consent of instructor. General discussion of inventory models with emphasis upon characterizing the form of optimal policies and efficient computational methods. Both deterministic and stochastic and discrete and continuous time models are considered. Mr. Lippman

243C. Scheduling Theory: Models for Operations Management. Prerequisite: course 407. Scheduling models and results for single machine, flow shop, job shop, and resource-constrained project networks. Approaches studied include classical models, recent heuristic approaches, current research in coordinated interaction of computer models, and man-machine interaction. Mr. Nelson

244. Policy Issues in the Management of Operations. Prerequisite: second-year status. Case analyses centering on the operations phases of

NOTE: For key to symbols, see page 74

enterprises. Cases selected are at the policy level and are drawn from service, nonmanufacturing, and manufacturing industries. Mr. Buffa

245A. Special Topics in Operations Management. Studies of advanced subjects of current interest in operational management. Emphasis is on recent developments and the application of specialized knowledge to operational problems. Topics change each offering and, in the absence of significant duplication, the course may be repeated. The Staff

245B-245C. Survey of Operations Management. Prerequisite: Enrollment in the master's or the doctoral programs. Survey of the research literature in operations management. Seminar reports dealing with special topics. The Staff

246A. Analysis for Public Policy. Prerequisite: completion of the management analysis requirement for the MBA Program. Application of several analytic techniques for policy analysis. Specific topics include forecasting/scenario writing, multiple objective decision making, cost analysis, risk/benefit analysis, and social experimentation. Limitations of methodologies will be examined and concepts illustrated through current applications and case studies. Mr. Andrews, Mr. Zumeta

246B. Management of Inter-Organizational System. Prerequisite: courses 412 and 246A or consent of instructor. Consideration of public/not-for-profit organizations as members of a network from point of view of public policy for managing entire network and managerial implications for an individual, focal organization. System structure, transactions, levels of collaboration, competition, and dependence. Mr. Boje, Mr. R.O. Mason

246C. Policy Implementation. Prerequisite: courses 246A, 246B, 247A, or consent of instructor. Emphasizes problems, strategies, techniques for implementing policies within the organizational context. Relates public interest needs for accountability and responsibility to the organizational/managerial needs for security and advancement. Includes consideration of public sector entrepreneurship, public personnel management, public sector consulting.
Mr. Hamilton, Mr. Zumeta

247A. Budgeting and Resource Allocations in the Public Sector. Prerequisite: courses 403, 408, and 246A, or consent of instructor. Examines resource allocation objectives/techniques used in federal, state, and local government. Budget analyzed as planning device, vehicle for allocational decision making, financial control mechanism, crucible for political choice. Provides some insight into staff function performed by those responsible for resource allocation.
Mr. Hamilton, Mr. R.O. Mason, Mr. Zumeta

248. Special Topics in Public/Not-for-Profit. Prerequisite: consent of instructor. Studies of advanced subjects of current interest in public/not-for-profit management. Emphasis is on recent developments and the application of specialized knowledge to public/not-for-profit problems. Topics change each offering and, in the absence of significant duplication, the course may be repeated for credit.
The Staff

250A. Human Resource Management. Prerequisite: consent of instructor. First part of a two-course sequence focusing upon the processes and problems of managing human resources. Topics include people as resources; nature of human resource management; human resource planning; designing and organizing tasks and roles; and acquiring and allocating people.
Mr. Fogel, Mr. Massarik

250B. Human Resource Management. Prerequisite: course 250A. Topics include development and training; human resources accounting; behavioral foundations of participating management; motivation, productivity, and satisfaction; designing reward systems; and evaluation of organization effectiveness. Emphasis on understanding, predicting, and influencing human behavior in organizations. Mr. Kleingartner, Mr. Massarik

250C. Systems of Employee-Management Participation. Prerequisite: consent of instructor. Course designed to provide understanding of systems of employee-management participation around the world (apart from traditional collective bargaining systems). Specific concepts such as worker participation in decision making, industrial democracy, joint consultation, workers' councils, profit sharing will be covered. Mr. Adizes, Mr. Meyers

251. The Management of Labor Relations. Consideration, at an advanced level, of the collective bargaining process, the labor-management agreement, the administration of the contract, and the impact of public policy on the management of industrial relations. Case studies, field trips, and visiting lecturers will be part of the seminar curriculum. Mr. Hutchinson, Mr. Meyers

252. Law and Governmental Policy in Industrial Relations. Prerequisite: course 409. Governmental policies on employer-employee relations; historical background; constitutional and common law principles; application of Taft-Hartley, Labor Reform, Antitrust, Anti-Injunction, Fair Labor Standards, Workmen's Compensation, and other acts; trends and proposed legislation on labor-management affairs. Mr. Fogel, Mr. Meyers, Mr. Mitchell

253A. Negotiation and Conflict in Organizations. Prerequisite: graduate status. The occurrence and management of differences throughout the organization. Furnishes a multidisciplinary understanding of conflict phenomena in general, plus an appreciation of critical parameters shaping conflict in specific organizational arenas. Also reviews the arsenal of conflict-management techniques.
The Staff

253B. Conflict Resolution in Labor-Management Relations. Prerequisite: graduate status. Analysis of conflict in the employment relationship. Theoretical and empirical findings are examined. Principles and philosophies that underlie resolution of labor-management impasses are considered with emphasis on grievance procedures, arbitration, mediation, and factfinding. Mr. Prasow

254. Analysis of Labor Markets. Prerequisite: consent of instructor. Problems of verifying hypotheses concerning labor market behavior and the application of data to managerial problems. Problems of operationally defining labor market concepts. Critical evaluation of available labor market data. Case studies applying these data to managerial problems.
Mr. Fogel, Mr. Mitchell

255. Comparative Industrial Relations. Prerequisite: course 409 or an elementary knowledge of labor economics. At national and international level, historical and contemporary analytical comparison of industrial relations systems within their political, social, and economic environments. Included are: the institutions, philosophies, and ideologies of labor, management, and government, and the interaction of their power relationships; the substance and manner of determination of "web of rules" governing the rights and obligations of the parties; and the resolution of conflicts.
Mr. Hutchinson, Mr. Meyers

257. Labor-Management Relations in Public and Nonprofit Sectors. Prerequisite: graduate status. Analysis of labor-management relations in government, including public education, and in nonprofit institutions (i.e., artistic, cultural, recreational, and health care). Emphasis is on negotiations and group relationships rather than on public personnel administration.
Mr. Kaplan, Mr. Prasow, and the Staff

258. Selected Topics in Industrial Relations. (¼ to 1 course) Prerequisite: open primarily to Ph.D. candidates but also to others with consent of instructor. An examination in depth of problems or issues of current concern in industrial relations. Emphasis on recent contributions to theory, research, and methodology of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit. The Staff

259A. Manpower Planning and Evaluation. Prerequisite: course 254 recommended. The developments of programs and practices to meet manpower goals of individual labor force participants, business firms, and communities. Examination of techniques for the evaluation of such programs.
Mr. Fogel, Mr. Mitchell

259B. Utilization of Minority Manpower. Prerequisite: course 254 recommended. Examination of the experience of minority groups – blacks, Chicanos, women, teenagers – in labor markets and employing institutions (business firms, governments, unions). Consideration of equal employment opportunity programs in firms and of societal antidiscrimination programs. Guest speakers as appropriate. Mr. Fogel

260A. Advanced Marketing Management. Prerequisite: course 411 or consent of instructor. A decision oriented course concerned with the solution of product, price, promotion, and distribution channel problems. Extensive use will be made of case studies. Ms. Scott, Mr. Weitz

260B. Marketing Strategy and Planning. Prerequisite: course 260A or consent of instructor. A framework for strategic marketing planning is developed. The cornerstones are the analysis of a few, yet powerful, conceptual frameworks which have broad application. Within the framework of the strategic marketing plan, key elements in the annual marketing planning process will be developed. Mr. Weitz

261A. Management in the Distribution Channel. Prerequisite: course 260A or consent of instructor. An examination of decisions in the distribution channel. Issues of power in the distribution channel and the tradeoffs between alternative channel systems are discussed. Ms. Scott

261B. International Marketing Management. Prerequisite: course 260A or consent of instructor. Opportunities, distinctive characteristics, and emerging trends in foreign markets are analyzed. Includes an exploration of alternative methods and strategies; organizational planning and control; impact of social, cultural, economic, and political differences; and problems of adapting American marketing concepts and methods.
Mr. Hanssens, Mr. Weitz

262. Price Policies. Prerequisite: course 260A or consent of instructor. Consideration of such concepts as product classification, demand, competition, and costs, as they apply to price making. The theory of price leadership, geographical pricing, price discrimination, price warfare, and leader pricing are also studied in relation to the price-making process. In addition, some attention is given to the price policies of individual firms in which these concepts are applicable.
Mr. Nicols and the Staff

263A. Consumer Behavior. Prerequisite: course 411 or consent of instructor. A study of the nature and determinants of consumer behavior. Attention will be focused on the influence of socio-psychological factors such as personality, small groups, demographic variables, social class, and culture on the formation of consumers' attitudes, consumption and purchasing behavior.
Mr. Bettman, Mr. Kassarjian, Mr. Lutz

263B. Theory of Marketing Stimulation. Prerequisite: course 263A. Analysis of factors influencing consumer demand. Techniques for stimulating demand are evaluated in relation to specific marketing objectives. Material is drawn from economics, psychology, sociology, anthropology, and marketing research.
Mr. Kassarjian, Mr. Lutz

264A. Marketing Research: Design and Evaluation. Prerequisite: course 411 or consent of instructor. Methods of measuring and predicting the forces affecting marketing, including quantitative aspects of demand, consumer reaction to product characteristics, effectiveness of advertising and other promotional devices, influence of rewards and organizational systems on sales efficiency, and

effectiveness of competitors' strategies.
Mr. Hanssens, Mr. Kassarjian, Mr. Lutz

264B. Mathematical Models in Marketing. Prerequisite: course 260A, or equivalent, or consent of instructor. A study of the utilization of models for the solution of marketing problems. Discussion will be focused on models concerned with such problems as brand switching, media selection, pricing, competitive strategy, scheduling, allocation problems and waiting time.
Mr. Bettman, Mr. Hanssens, Mr. Jones

264C. Seminar in Multidimensional Scaling. Prerequisite: consent of instructor. A seminar providing for the study of recent developments in metric and nonmetric multidimensional scaling. Mr. Cooper

265A. Marketing and the Law. Prerequisite: course 260A or consent of instructor. A detailed study of the legislative enactments (federal, state, or local) which influence the operation of institutions engaged in marketing activities, together with an analysis of the judicial decisions which have interpreted these laws. Mr. Kassarjian

265B. Social Issues in Marketing. Prerequisite: course 260A or consent of instructor. Environmental impact of marketing in society; study of theories, methods, and relationships for evaluating transaction behavior in a scientific and humanistic context; macroanalytic perspectives in marketing.
The Staff

266A. Product Management. Prerequisite: course 260A. This course develops a framework for identifying and appraising alternative growth strategies of the firm. Product addition, modification, and deletion decisions are examined; and the processes by which these decisions can be made in an optimal manner are discussed. The Staff

266B. Advertising Policy. Prerequisite: courses 260A, 263A, or consent of instructor. A study of the formulation of advertising policies, involving an analysis of cases dealing with: the role of advertising in marketing, the definition of advertising objectives, strategy, appropriation policy, media selection, evaluating advertising results, and the organization of the advertising function.
Mr. Lutz

266C. Sales Force Management. Prerequisite: course 411 or consent of instructor. This course develops a logical framework for the solution of problems in sales force management. It covers the role of selling in the marketing *mix*, the selling interaction, and key problems in planning, organizing, evaluating, and controlling the sales force.
Mr. Weitz

267. Macromethodological Issues in Research on People. Prerequisite: consent of instructor. This course provides a systematic approach to the special issues concerning research on people; criteria for evaluating macromethodologies; development of scientific concepts, models, theories, and law; the problem of private report, and the question of data language. Mr. Cooper

268. Selected Topics in Marketing. (¼ to 1½ courses) Prerequisite: course 260A or consent of instructor. A study of selected areas of marketing knowledge and thought. Specific subjects discussed to be changed each quarter depending on the particular interests of the instructor and students. Individual projects and reports. May be repeated for credit. The Staff

270. Environment of the Art World. Prerequisite: consent of instructor. Consideration and analysis of the political, social, economic, and environmental forces in American society as they affect the existence and development of arts institutions in the U.S. The aim is to explore present policies and trends and potential future developments.
Mr. Cooper

271. Law and the Arts. Prerequisite: consent of instructor. Exploration of the way in which law and the arts relate, the role of the lawyer *vis-a-vis* artist and arts manager, policy underpinnings of the law and effects on the arts, and unsolved problems and issues in areas of interaction. The Staff

272A. The Role of Management in Artistic Decision Making. Prerequisite: consent of instructor. A descriptive study of the criteria for decision making in artistic institutions including the role of the institution in society, the economic environment of the arts, and the artistic value systems of arts organizations. Mr. Kaplan

272B. Programming and Planning Policies in Arts Organization. Prerequisite: consent of instructor. An analysis of the social, artistic, and economic roles of the arts as reflected in programming policy. An examination of the social goals pursued in establishing relationships between the arts and their environment. The Staff

274. Current Issues in Arts Management. Prerequisite: consent of instructor. The seminar of the final quarter is viewed as the major vehicle integrating the academic program and current issues in the management of artistic institutions. Relevant combinations of lectures, discussions, case studies, and team research projects are employed.
Mr. Cooper, Ms. Huff

275A. Urban Issues and Problems. Prerequisite: course 175 or consent of instructor. Study of urban problems and issues including demand for and supply of private and public goods, environmental pollution, transportation, recreational facilities, poverty, housing the poor, city size and efficiency, urban sprawl, taxation, new towns, real estate and building industries. Mr. Clapp and the Staff

275B. Urban Land Economics. Prerequisite: course 175, 405, or consent of instructor. Introduction to development and use of economics and management principles in identifying and analyzing the determinants of urban land use and land values, public policies affecting the urban land market, and the private sector's role in shaping the urban environment. Mr. Clapp, Mr. Mittelbach

275C. Alternative Urban Futures. Prerequisite: consent of instructor. The use of economic tools and business techniques for planning and forecasting alternative urban futures. Urban and World Dynamics models are used to analyze future urban life under various assumptions about the shape, structure, and functions of future cities.
Mr. Case, Mr. Mittelbach

276A. Theory of Urban Property Valuation. Prerequisite: course 408 or equivalent. Systematic analysis of the elements of real property values and of the allocation of land uses over urban space. Students may use APL programs to investigate and critically evaluate methods of valuation and allocation. Mr. Case, Mr. Clapp, Mr. Mittelbach

276B. Comparative and International Urban Land Studies. Analysis of private and public decision making shaping urban development and redevelopment in selected countries. Emphasis on the economic, social, and institutional factors which determine urban growth, structure, and patterns on the land in developed and underdeveloped nations. Mr. Case, Mr. Mittelbach

276C. Urban Dynamics: Degeneration and Regeneration. Prerequisite: consent of instructor. Seminar which identifies, analyzes and evaluates problems and solutions concerning urban blight, rehabilitation, redevelopment, new towns, inner-city revitalization, and inter-governmental relations in the American city, with particular emphasis on the role of private enterprise in dealing with these problems. Mr. Mittelbach

277A. Housing Economics. Prerequisite: consent of instructor. Consideration of determinants of private and public demand for housing. Housing programs and relationships between construction and economic trends are examined in detail.
Mr. Case, Mr. Granfield, Mr. Mittelbach

277B. Housing Policy. Prerequisite: consent of instructor. U.S. and foreign housing programs. Housing low-income groups, new town legislation, improving environment, urban renewal and development and related topics. Criteria for assessing public policy, policy implementation, policy and stages of national economic development, the role of private enterprise.
Mr. Case, Mr. Mittelbach

278A. Urban Real Estate Financing and Investing. Prerequisite: consent of instructor. Theoretical and pragmatic analyses are used to determine the differences between real property and other investments. Real estate investment opportunities are evaluated for their effectiveness in balancing personal and business investment objectives and public land use goals.
Mr. Case, Mr. Clapp, Mr. Mittelbach

278B. Sources, Uses, and Flows of Real Estate Capital. Identification and analysis of sources and uses of real estate credit and equity funds. Policies and programs of lenders are related to real estate construction and market trends, and governmental economic and housing policies and programs.
Mr. Case, Mr. Clapp, Mr. Mittelbach

279A. Special Studies in Urban Land Economics. Open to master's or doctoral candidates working on thesis or dissertation related research. May be repeated for credit. The Staff

279B. Selected Topics in Urban Land Economics. Open to all graduate students who wish to pursue a particular topic in housing, real estate, or urban land economics in depth on an individual or cooperative basis. May be repeated for credit.
The Staff

279X-279Y-279Z. Urban Research and Development. (½ to 1 course) Prerequisite: consent of instructor, graduate status. Exploration of urbania and its problems; prospects and prescriptions for the delivery of a quality life. The exploration will be both macroscopic and microscopic as related to problems of a selected urban area. The Staff

280A. Important Studies in Human Systems. Prerequisite: enrollment in Ph.D. program or consent of instructor. Surveys seminal studies of human systems. Summarizes and critiques literature focal to the evolution and current status of the field. Reviews such topics as personality, motivation, group and intergroup behavior, systems theory, and organizational design and development.
Mr. McKelvey

280B. Survey of Research Philosophies and Methods. Prerequisite: enrollment in Ph.D. program or consent of instructor. Offers a broad introduction to objectivist and subjectivist philosophies of science, and the psychology and sociology of science. Critiques laboratory and field experiments; field studies, analytical and descriptive methods; interview, participant observation, questionnaire and unobtrusive methods of data collection. Mr. Cooper, Mr. Massarik

280C. Personal and Professional Development. Prerequisite: enrollment in Ph.D. program or consent of instructor. Provides a setting where students may explore their own professional values in the process of testing and learning the values and standards important in the Human Systems Ph.D. program and held by the broader community of system researchers and interveners.
Mr. Culbert, Ms. Lasko

280D. Research Design for Human Systems Studies. Prerequisite: course 280A, 280C, or consent of instructor. Acquaints students with temporal and logical sequences in the process of designing studies of human systems, including optimizing the fit of research topic, observation and data collection methods, and data analysis techniques. Actively involves students in the preparation of research proposals. Mr. Cooper

280E. Tutorial in Human Systems Research. Prerequisite: course 280D or consent of instructor. Provides an opportunity for students to offer and receive constructive comment on the design, data analysis, and writing of their doctoral research paper. Mr. McKelvey

280F. Human Systems Research Seminar. Prerequisite: course 280D or consent of instructor. Exploration of various research methods and problems encountered in applying them. Students are

NOTE: For key to symbols, see page 74

actively involved in seminar reports and in class critique of course members' dissertation research designs. May be repeated for credit.
Ms. Huff, Ms. Lasko

281A. Socio-Technical Systems. Prerequisite: graduate status. Introduces systems concepts and views work organizations as interacting social and technical systems open to forces from the surrounding environment. Focus is on developing the socio-technical systems analytic approach and understanding the advantages of this approach for designing and managing organizations.
Mr. McKelvey

281B. People in Organizations. Prerequisite: graduate status. Introduces different philosophical perspectives for understanding human behavior. Theories and concepts important for understanding human behavior in organizations are presented as well as managerial implications of individual, group, and social behavior. Special attention given to knowledge about satisfaction motivation and productivity in organizations.
Mr. Cooper, Mr. Massarik

281C. Situational Factors in Management. Prerequisite: graduate status. Applies a situational, contingency, or "it all depends" perspective to important managerial issues such as personality, motivation, leadership, conflict management, and design of jobs and organizations. Develops a diagnostic way of thinking that is fundamental to managerial effectiveness in diverse organizational situations.
Mr. McKelvey

282. Task Group Processes. Prerequisite: courses 281A, 281B, or consent of instructor. Focuses on the structures, processes, and interrelations of work groups in socio-technical systems. Emphasizes an understanding of how group activities interrelate with the physical/technical environment. Imparts a practical knowledge of task group functioning through class exercises and field observations.
Mr. Culbert

283A. Environmental Settings of Socio-Technical Systems. Prerequisite: course 281A or consent of instructor. Focuses on the complexity and uncertainty of organizational environments. Analyzes environments along socio-cultural, political, and economic dimensions, their interrelationships, and their relations to technology. Diagnoses organizational responses to various environments.
Mr. Davis, Ms. Huff

284A. Organization Design. Prerequisite: course 281A or consent of instructor. Survey of organizational design theories and methods, including bureaucratic, participative, and cognitive models. Develops specific methods ranging from the micro-design of jobs to the macro-design of total organizational structures. Special emphasis on socio-technical and differentiation/integration models.
Mr. Davis

284B. Organization Development. Prerequisite: course 281B or consent of instructor. Analyzes effects of managerial practices on individual self-fulfillment and organizational effectiveness. Presents theories of organization change and the action-research methods of organization development practitioners. Merges theory with practice through seminar discussions of field observations.
Mr. Massarik, Mr. Raia

285A. Leadership, Motivation, and Power. Prerequisite: course 281B or consent of instructor. Studies theoretical and practical approaches to influencing and motivating people. Explores the relative effectiveness of various leadership styles, different motivation theories, and power tactics from a managerial point of view. Uses experience based learning methods to aid diagnosis and understanding of one's own influence styles.
Mr. Culbert, Mr. Massarik

285B. Managerial Interpersonal Communication. Prerequisite: course 281B or consent of instructor. Focuses on organizational, interpersonal, and personality factors affecting managerial communications. Analyzes styles and modes of communication in one-to-one, group, and indirect communication settings. Offers opportunities to deepen understanding of one's own communication styles and skills.
Ms. Lasko

287. Sensitivity Training Groups and Their Facilitation. Prerequisite: consent of instructor through prior application in Department. Develops cognitive and experiential understanding of the dynamics of sensitivity training groups and their facilitation. Analyzes relevant theory, research findings, and case studies; stresses translating these inputs into practice.
Ms. Lasko, Mr. Massarik

288A. Special Studies in Managing Organization Behavior. Prerequisite: open primarily to MBA students but also to others with consent of instructor. An examination, in depth, of problems or issues of current concern in managing organizational behavior. Emphasis on recent theories, research findings, and professional applications of special interest to MBA students and the faculty. May be repeated for credit.
The Staff

288B. Selected Topics in Behavioral Science. Prerequisite: enrollment in Ph.D. program or consent of instructor. Focuses on philosophies and theories of human behavior fundamental to the study of individual, group, organizational, and cultural behavior. Explores in depth selected theoretic positions, extending and consolidating behavioral science knowledge and applications. May be repeated for credit.
The Staff

288C. Current Issues in Socio-Technical Systems and Organization Design. Prerequisite: enrollment in Ph.D. program or consent of instructor. Covers current topics in the analysis and design of organizations as socio-technical systems engaged with various technologies and environments, emphasizing design approaches emanating primarily from Europe and the United States. Includes in depth comparisons of selected job and organizational design approaches. May be repeated for credit.
The Staff

288D. Current Issues in Human Systems Change and Development through Consulting. Prerequisite: enrollment in Ph.D. program or consent of instructor. Current topics in philosophy, art, and technology of improving organizations and increasing managerial effectiveness through consulting interventions. In-depth treatment of consultant entry and leaving, diagnosing, process consultation, consciousness raising, team building, values, etc., depending on student and faculty preferences. May be repeated for credit.
The Staff

288E. Selected Topics in Organization Theory. Prerequisite: enrollment in Ph.D. program or consent of instructor. In-depth treatment of organizations as units of analysis. Emphasizes recent theoretical and empirical development, methodological issues in organizational research, and concepts of organization structure, process, and effectiveness. May be repeated for credit.
The Staff

288F. Selected Topics in Organizational Behavior. Prerequisite: enrollment in Ph.D. program or consent of instructor. Explores psychological and social psychological aspects of human behavior and performance in organizations. Covers theoretical models, empirical findings, and applications of such topics as attitudes and values, cognitive and perceptual processes, behavioral conflict, and individual change processes. May be repeated for credit.
The Staff

288G. Current Issues in Human Systems Studies. Prerequisite: enrollment in Ph.D. program or consent of instructor. In-depth study of theory and research pertaining to a particular subject matter or such topics as cross-cultural, organization change, action, and multivariate research, depending on student and faculty interest. May be repeated for credit.
The Staff

290. Organization Theory. Prerequisite: course 423 or consent of instructor. Analysis of the theory and practice of the managerial function of organizing through study of the literature, case analyses, and seminar discussion. Individual projects and reports.
Mr. Koontz, Mr. McKelvey, Mr. Sedgwick

291. Planning and Control. Prerequisite: course 423 or consent of instructor. Analysis of the theory and practice of the managerial function of planning and control. The implementation of objectives through policy formulation, decision making, and control. Individual projects and reports.
Mr. Carrabino, Mr. Steiner

292A. Research and Development Policy. Examination of research and development as a process and as an element of a goal oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of forecasting technological futures.
Mr. R.H. Mason and Mr. Schöllhammer

292B. Models of Organization Behavior. Prerequisite: consent of instructor. Theoretical frameworks for developing explanatory and predictive models of complex organizations. Exercises in constructing formal models, usually in mathematical or stochastic form and, where appropriate, using materials from field studies to develop empirical tests. These models may be used to discover implications for the systems changes recommended in the socio-technical field study.
The Staff

292C. Comprehensive Planning in the Public Sector. Prerequisite: consent of instructor. Evolving modes of planning under complexity with particular emphasis on the public sector. Development of policy through standard setting, bargaining, and regulating governing relationships; reality and value judgments; social and technical dimensions of alternatives; and social and technological forecasting.
Mr. Andrews

292D. Management in the Not-for-Profit Sector. Prerequisite: graduate status. A study of the not-for-profit sector, the institutions within it, and its relationship to the governmental and business sectors. Special emphasis on management problems peculiar to the not-for-profit sector.
Mr. Case

293. Business and Society. Prerequisite: consent of instructor. A study of the business enterprise as a social institution, with emphasis on the changing purposes of social action. Adjustments of the firm to changes in the social environment. Ethical problems in management. Social responsibilities of the business manager.
Mr. Steiner

294A. Strategy Formulation and Implementation. Prerequisite: consent of instructor. Case course dealing with strategy decisions and their implementation, executive action, and administrative behavior involved in managing total enterprises. The student is confronted with complex company situations to develop ideas essential to overall managerial direction.
Ms. Huff, Mr. Steiner

294B. Environmental Impacts on Management. Prerequisite: consent of instructor. Examination of ways in which business, government, labor, and consumer organizational managers might respond to external environmental problems. Methods are studied for developing and evaluating alternative managerial solutions which permit organizations to assist in improving current and future environmental quality.
Mr. Case, Mr. Rumelt, Mr. Steiner

295A. Entrepreneurship and Venture Initiation. Prerequisite: consent of instructor. An exploration in entrepreneurship particularly concerned with the formation and operation of new business ventures. Significant and crucial aspects of exploring new business opportunities and starting a business.
Mr. Schöllhammer and the Staff

295B. Small Business Management. Prerequisite: consent of instructor. Exploration of crucial aspects in managing small business enterprises. Emphasis is placed on the identification and analysis of characteristic operating problems of small firms

and the application of appropriate methods or techniques for their solution.
Mr. Schöllhammer and the Staff

296A. International Business Management. Prerequisite: course 205A or consent of instructor. Identification, analysis, and resolution of managerial issues of policy and action within the context of an international corporation, with emphasis on problems of adaptation to different sociological, cultural, legal, political, and economic environmental characteristics.
Mr. R. H. Mason, Mr. Schöllhammer, Mr. Tsurumi

296B. International and Comparative Management Research. Prerequisite: enrollment in the Ph.D. program or consent of the instructor. In-depth study of theory and research pertaining to international business and comparative management. Emphasizes recent research developments and methodological issues. Imparts knowledge on the design and the conduct of international/comparative management research. Mr. Goodman

297A. Comparative and International Management. Prerequisite: course 412 or consent of instructor. A comparative study of the practice of management in selected foreign countries, as affected by their social environments and the development of management theory.
Mr. Schöllhammer, Mr. Tsurumi

297B. International Business Policy. Prerequisite: course 205A and consent of instructor. Analysis of key managerial problems encountered in a multinational corporation. Concepts and theories acquired in other courses in International Business and Comparative Management will be applied to a series of complex cases and simulations of international business operation.
Mr. Schöllhammer and the Staff

297C. International Business Law. Prerequisite: courses 205A and 296A. Legal environments in which international business operates; overseas business relationships and organizations; antitrust, taxation, transfer of capital and technology regulations; patent, trademark, and copyright safeguards; arbitration of international business disputes; expropriation of foreign investments; international business and government relations. The Staff

297D. International Business Negotiations. Prerequisite: course 296A. Exploration of international business negotiations of multinational enterprises with governmental agencies and foreign-based firms on a wide range of issues such as establishment/dissolution of joint ventures, extent of foreign ownership/management control, terms/conditions for technology transfer, investment incentives.
Mr. Schöllhammer and the Staff

298A. Special Topics in Management Theory. Prerequisite: open primarily to Ph.D. candidates or with consent of instructor. An examination in depth of problems or issues of current concern in management theory. Emphasis on recent contribution to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit. The Staff

298B. Special Topics in International and Comparative Management. Prerequisite: open primarily to Ph.D. candidates or with consent of the instructor. An examination in depth of problems or issues of current concern in international and comparative management. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit. The Staff

298C. Special Topics in Socio-Technical Systems. Prerequisite: open primarily to Ph.D. candidates or with consent of instructor. An examination in depth of problems or issues of current concern in socio-technical systems. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit. The Staff

298D. Special Topics in Management. Prerequisite: open primarily to Ph.D. candidates or with consent of instructor. An examination in depth of problems or issues of current concern in management. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced doctoral candidates, the academic staff, or distinguished visiting faculty. May be repeated for credit. The Staff

299R. Research Methods in Management. Prerequisite: Ph.D. candidate. Provides feedback and evaluation of papers prepared for the research requirement. Quarterly meetings will be held to discuss expectations of the research committee and the Doctoral Office. Students must enroll the quarter in which they are submitting their research paper. May be repeated for credit. The Staff

PROFESSIONAL COURSES (numbered 400-499)

The following courses in the professional series are acceptable toward the MBA, MS, and Ph.D. degrees within the limitations and conditions prescribed by the curricula of the Graduate School of Management.

400. Mathematics for Management. Prerequisite: graduate status. Fundamental mathematics for business, including topics from matrix algebra, probability, and calculus, with applications to model building and decision making in business firms. S/U only. The Staff

***1401. Managerial Economics.** Prerequisite: graduate status. Introduction to the measurement and determination of economic activity in the aggregate and to the role of prices in the decision making of the organization. National Income Accounting, Basic Economic Policy, Markets and Prices, Competition and Monopoly, Applications.

402. Data Analysis, Statistics, and Decision Making. Prerequisite: graduate status. An introduction to statistics for graduate students who have had no previous course in which emphasis is upon application to business problems. The Staff

403. Managerial Accounting. Prerequisite: graduate status. An introduction to fundamental systems and procedures in financial and managerial accounting, with an emphasis on income measurement, marginal analysis, standard and direct costing. The Staff

404. Managerial Computing. Prerequisite: graduate status. An introduction to the use of computers for management applications. Computer hardware, software, and programming concepts are discussed. Programming problems are assigned, using both batch-type (PL/C) and interactive (APL) languages. The Staff

405. Managerial Economics: The Organization. Analysis of decision making in the firm, competitive policies and market structure, revenue and cost behavior. The Staff

406. Managerial Economics: Forecasting. Prerequisite: graduate status. Sales, costs, and profit forecasting. General business forecasting and cyclical mechanisms. The Staff

407. Managerial Model Building. Prerequisite: courses 400, 402, or equivalent. A survey of the uses of formal modeling approaches in managerial decision making. Emphasis is on model types and formulations, and use of solutions obtained from computer routines. Application areas examined include finance, marketing, production, and public systems. The Staff

408. Managerial Finance. Prerequisite: course 403. Analysis of main decision areas of managerial financial management. Aimed at principles generally applicable to all types of organizations. Emphasis on financial planning and control, sources of funds, developing objectives and standards which lead to effective allocation and use of the organization's resources. The Staff

409. Personnel Management and Labor Relations. Prerequisite: graduate status. Human resources evaluation. Compensation practices. Collective bargaining impacts. Governmental policy impacts on public/private sectors regarding labor-management relations, affirmative action, occupational safety, pension reform. Concepts of labor markets and manpower planning. Innovations such as employee participation and flextime. The Staff

410. Operations Management. Prerequisite: course 111 or 407 or equivalent. Principles and decision analysis related to the effective utilization of the factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. The study of production organizations, analytical models and methods, facilities design, and the design of control systems for production operations. The Staff

411. Elements of Marketing. A study of institutions and functions as they relate to the distribution of goods and services, emphasizing the viewpoint of management in the planning, execution, and measurement of marketing activities and strategies, and the viewpoint of society in the analysis of cost, impact, and results. The Staff

412. Management of Organizations. Prerequisite: completion of two quarters of work towards the MBA degree. Integrative approach to theory and practice of management in complex organizations, emphasizing managerial roles in designing organizational structures, creating/maintaining planning, control, information, incentive systems, different patterns of human interaction such structures and systems tend to produce. The Staff

420. Management Policy. Prerequisite: course 412. Evaluation and formulation of organization's overall policies and strategies. Economic, heuristic, and social process approaches to policy formulation, environmental analysis, and organizational appraisal. Senior management's role in managing the policy process. The Staff

423. Advanced Management Theory. Advanced study of management theory in formally organized enterprise through significant readings; discussing advanced approaches and techniques developed from applying theory; using theory to integrate methods and findings of quantitative and behavioral sciences; lectures on sophisticated application of management theory in practice.
Mr. McKelvey, Mr. Raia

430. Introduction to Managerial Statistics. (½ course) Prerequisite: graduate status. An introduction to probability theory and classical statistics. Statistical description of data. Basic concepts of probability theory. The use of sampling for decision making. Interpretation of tests of hypotheses. Overview in managerial terms of more advanced statistical methods. The Staff

431A. Introduction to Model Building. (½ course) Prerequisite: graduate status. An introduction to formal model building. Use of mathematical models as system descriptors. Characteristics of the major "classes" of models. Formulation of problems in terms of mathematical models. Interpretation of solutions provided by the computer. The Staff

433. Computing Laboratory. (½ course) Prerequisite: graduate status. Use of the computer as an aid in solving management-related problems; interactive, time-shared processing utilizing remote terminals; and the APL computer language. The Staff

434. Managerial Accounting and Finance. Prerequisite: graduate status. An introduction to the fundamentals of accounting and finance with emphasis on the preparation of basic financial statements and the techniques of financial analysis. The Staff

435. Organizational Behavior and Management Processes. Prerequisite: graduate status. A system approach to the theory and practice of management in complex organizations. Provides an integrated view of human behavior and managerial processes in a dynamic organizational society. The Staff

436. Policy and Organizational Environment. Prerequisite: course 441. Environmental settings of organizations; interrelationships among and roles

NOTE: For key to symbols, see page 74

of various sectors of society with special emphasis on business; issues facing managers and management-related specialists; and formulation of organizational strategies and policies. The Staff

440. Managerial Problem Solving: Individual. Prerequisite: graduate status. Study and practice of individual decision making and problem solving including the impacts of personality, motivation, interpersonal communication, and various decision-making techniques. The relationships among the individual, managerial roles, and complex organizations as they influence the managerial process are studied. The Staff

441. Managerial Problem Solving: Complex Systems. Prerequisite: course 440. Study of organizational and interorganizational problem solving including identification, formulation, data collection, forecasting, assumption testing, solution methods, implementation, evaluation, control, and dealing with conflict and ambiguity. Organization of projects in which problem solving is experienced at various levels of complexity. The Staff

444A-444B. Management Field Study. Must be taken in two consecutive quarters in second year. Supervised study of an organization including establishment of client organization/student consultant relationship, identification of problem, design of study, collection and analysis of data, development and reporting of implementable recommendations. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for both quarters of work. The Staff

450. Field Work in Behavioral Science Management Development. (1 or 2 courses) Prerequisite: course 287 and consent of the instructor. Supervised practical work in all phases of laboratory education for management development, such as sensitivity training laboratories, creativity and personal growth laboratories, simulated managerial behavior laboratories, etc. Mr. Culbert, Ms. Lasko, Mr. Massarik

451. Field Work in Organizational Development. (½ to 3 courses) Prerequisite: courses 282B, 283 and/or consent of instructor. Supervised practical field work in organizational development consultation in interpersonal, group, intergroup, total organization, and interorganizational settings. The Staff

452. Field Work in Technical Assistance for Minority Business Enterprise. (¼ to 1 course) Prerequisite: completion of first year of master's program or consent of instructor. Supervised field experience in business consulting and other forms of technical assistance for business firms and management in ethnic communities; seminars and other shared learning experiences in transmitting business administration technology to the urban ghetto. The Staff

453. Field Work in Arts Management. (1 to 3 courses) Prerequisite: consent of instructor. Supervised field experience and practical work in all phases of an arts organization (pictorial, performing, or community), concentrating on its managerial problems and its relationship to the community and society in general. The Staff

INDIVIDUAL STUDY AND RESEARCH COURSES (numbered 500-599)

Individual study or research courses may be used, within limitations and conditions prescribed by the School, to satisfy minimum higher degree requirements.

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA School of Management Graduate Adviser and Assistant Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596A-596N. Research in Management. (¼ to 2 courses) Prerequisite: consent of Director of Master's Program or Director of Doctoral Program by special petition. Directed individual study or research. The Staff

597. Preparation for Qualifying Examinations. (1 or 2 courses) Prerequisite: consent of Director of Master's Program or Director of Doctoral Program by special petition. Preparation for comprehensive examination for the master's degree or the qualifying examination for the Ph.D. degree. The Staff

598. Thesis Research in Management. (1 or 2 courses) Prerequisite: consent of Director of Master's Program by special petition. Research for and preparation of the master's thesis. The Staff

599. Dissertation Research in Management. (1 or 2 courses) Prerequisite: consent of Director of Doctoral Program by special petition. Research for and preparation of the doctoral dissertation. The Staff

MATHEMATICS

(Department Office, 6364 Mathematical Sciences Building)

[6]Richard F. Arens, Ph.D., *Professor of Mathematics.*
Donald G. Babbitt, Ph.D., *Professor of Mathematics.*
Kirby A. Baker, Ph.D., *Professor of Mathematics (Vice Chairman, Undergraduate Studies).*
A.V. Balakrishnan, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
Robert J. Blattner, Ph.D., *Professor of Mathematics.*
Robert F. Brown, Ph.D., *Professor of Mathematics.*
David G. Cantor, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
C.C. Chang, Ph.D., *Professor of Mathematics.*
Alonzo Church, Ph.D., *Professor of Mathematics and Philosophy in Residence.*
Earl A. Coddington, Ph.D., *Professor of Mathematics.*
Julian D. Cole, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
[8]Philip C. Curtis, Jr., Ph.D., *Professor of Mathematics.*
Henry A. Dye, Ph.D., *Professor of Mathematics.*
Robert Edwards, Ph.D., *Professor of Mathematics.*
Hector Fattorini, Ph.D., *Professor of Mathematics and Engineering and Applied Science.*
Thomas S. Ferguson, Ph.D., *Professor of Mathematics.*
Theodore Gamelin, Ph.D., *Professor of Mathematics (Chairman of the Department).*
John Garnett, Ph.D., *Professor of Mathematics.*
[7]David Gieseker, Ph.D., *Professor of Mathematics.*
[8]Basil Gordon, Ph.D., *Professor of Mathematics.*
John W. Green, Ph.D., *Professor of Mathematics.*
[14]Robert E. Greene, Ph.D., *Professor of Mathematics.*
Nathaniel Grossman, Ph.D., *Professor of Mathematics.*
Alfred Hales, Ph.D., *Professor of Mathematics.*
Alfred Horn, Ph.D., *Professor of Mathematics.*
[6]S.T. Hu, Ph.D., D.Sc., *Professor of Mathematics.*
[14]Robert I. Jennrich, Ph.D., *Professor of Mathematics and Biomathematics.*
Paul B. Johnson, Ph.D., *Professor of Mathematics.*
Paul J. Koosis, Ph.D., *Professor of Mathematics.*
Thomas M. Liggett, Ph.D., *Professor of Mathematics (Vice Chairman, Administrative).*
D. Anthony Martin, *Professor of Mathematics.*
Ronald Miech, Ph.D., *Professor of Mathematics.*
Yiannis N. Moschovakis, Ph.D., *Professor of Mathematics (Vice Chairman, Graduate Studies).*
Barrett O'Neill, Ph.D., *Professor of Mathematics.*
Stanley J. Osher, Ph.D., *Professor of Mathematics.*
[14]Lowell J. Paige, Ph.D., *Professor of Mathematics.*
Sidney Port, Ph.D., *Professor of Mathematics.*
James V. Ralston, Jr., Ph.D., *Professor of Mathematics.*
Raymond M. Redheffer, Ph.D., *Professor of Mathematics.*
Bruce L. Rothschild, Ph.D., *Professor of Mathematics.*
Leo Sario, Ph.D., *Professor of Mathematics.*
[7]Murray Schacher, Ph.D., *Professor of Mathematics.*
[14]Robert Steinberg, Ph.D., *Professor of Mathematics.*
Charles J. Stone, Ph.D., *Professor of Mathematics and Biomathematics.*
Ernst G. Straus, Ph.D., *Professor of Mathematics.*
Masamichi Takesaki, Ph.D., *Professor of Mathematics.*
V.S. Varadarajan, Ph.D., *Professor of Mathematics.*
N. Donald Ylvisaker, Ph.D., *Professor of Mathematics.*
E.F. Beckenbach, Ph.D., *Emeritus Professor of Mathematics.*
M.R. Hestenes, Ph.D., *Emeritus Professor of Mathematics.*
Paul G. Hoel, Ph.D., *Emeritus Professor of Mathematics.*
William T. Puckett, Ph.D., *Emeritus Professor of Mathematics.*
Robert H. Sorgenfrey, Ph.D., *Emeritus Professor of Mathematics.*
Angus E. Taylor, Ph.D., *Emeritus Professor of Mathematics.*
Frederick A. Valentine, Ph.D., *Emeritus Professor of Mathematics.*
Rodolfo De Sapio, Ph.D., *Associate Professor of Mathematics.*
Richard S. Elman, Ph.D., *Associate Professor of Mathematics.*
[14]David Gillman, Ph.D., *Associate Professor of Mathematics.*
[6]Mark Green, Ph.D., *Associate Professor of Mathematics.*
[14]Allen E. Hatcher, Ph.D., *Associate Professor of Mathematics.*
Charles G. Lange, Ph.D., *Associate Professor of Mathematics.*
James White, Ph.D., *Associate Professor of Mathematics.*
Pamela Cook-Ioannidis, Ph.D., *Assistant Professor of Mathematics.*
[6]Richard T. Durrett, Ph.D., *Assistant Professor of Mathematics.*
[2]Björn Engquist, Ph.D., *Assistant Professor of Mathematics.*
Steven Krantz, Ph.D., *Assistant Professor of Mathematics.*
John R. Steel, Ph.D., *Assistant Professor of Mathematics.*

•

David Cohen, M.A., *Lecturer in Mathematics.*
Herbert Enderton, Ph.D., *Lecturer in Mathematics.*
John McGhee, M.A., *Lecturer in Mathematics.*

Undergraduate Programs

Students who wish advice or current information on any of the undergraduate mathematics programs should inquire at the Undergraduate Mathematics Office, MS 6356.

Courses taken to fulfill any of the requirements for any of the Mathematics Department's majors must be taken for a letter grade and not on a Pass/Not Pass basis.

Preparation for the Major

Courses 31A-31B-31C, 32A-32B-32C or the corresponding courses in the honors sequence. These courses must be completed with an average grade of C or higher. Prospective majors who qualify are strongly urged to take the honors sequence Mathematics 31AH-31BH-31CH, 32AH-32BH-32CH. Engineering 10C (Engineering 10F may be substituted for Engineering 10C) and three courses in physical sciences chosen from Chemistry 11 or 11H sequences (formerly Chemistry 1 or 3), Physics 6, 8 or 8H sequences, Astronomy 101, Atmospheric Sciences 10, 40A, 40B, or approved upper division courses in Chemistry, Atmospheric Sciences, Geophysics and Space Sciences, and Physics.

Transfer Students

Transfer students, and UCLA students wishing to change their major to mathematics, with 60 or more quarter units of credit must have completed one year of calculus and have a C average or better in all college level mathematics courses completed. Transfer students should consult with a departmental adviser at their earliest opportunity. Particular areas where evaluation and direction may be necessary are linear algebra and differential equations.

The Major

Courses 110A, 115, 120A, 131A, 131B, and at least five additional courses numbered between 105 and 199. Highly recommended for students who may wish to obtain a graduate degree: courses 110B-110C. A reading knowledge of French, Russian or German is strongly recommended for students intending to pursue graduate work.

Honors Calculus Sequence

The first and second year honors sequence, Mathematics 31AH-31BH-31CH-32AH-32BH-32CH, is intended for students (not necessarily mathematics majors) who have a strong interest in mathematics and desire a broader and more comprehensive and demanding introduction to university-level topics. On occasion, the courses may range beyond the stated topics of calculus, linear algebra, and differential equations. Admission to the sequence is by permission of the instructor, and satisfactory performance on the preliminary examination in mathematics. Students who have done unusually well in the standard sequence are welcome to apply for transfer to the honors sequence. (The honors sequence is not connected with the Undergraduate Honors Program described below.)

Undergraduate Honors Program

A student majoring in mathematics and wishing to graduate with Honors in Mathematics should apply for admission to the Honors Program. This may be done any time after the fourth undergraduate

quarter. Minimum entrance requirements for fifth quarter students are the completion of courses 31A-31B-31C and 32A with three A's and one B. Applications from students past the fifth quarter and from transfer students will be judged on prospects for successful completion of the program. Honors will be granted to students in the program who in addition to the usual course requirements: (a) complete courses 110B-110C or approved graduate substitutes; (b) complete course 190, Honors Mathematics Seminar; (c) earn a grade-point average of at least 3.6 in approved upper division and graduate mathematics courses. Students who demonstrate exceptional achievement will be awarded Highest Honors.

Departmental Scholar Program in Mathematics

This program allows exceptionally promising undergraduates to enroll in graduate courses and begin work towards the Master's degree in mathematics. See Departmental Scholar Program.

The Major in the Teaching of Mathematics

Courses 101A-101B-101C, 102A-102B, 152A, 370 and at least three other courses in the 100 series beyond 105. Highly recommended are courses 106, 111A-111B-111C, 115, 120A-120B, 131A-131B, 132, 140A, 142, 144, 152B. A knowledge of Spanish is recommended for students who intend to teach in the Southwest.

Teaching Credentials

Students interested in teaching mathematics in the schools should inquire at the Undergraduate Mathematics Office, MS 6356, about teaching credentials.

The Major in Mathematics-Applied Science

This is a program designed for students with a substantial interest both in mathematics and its applications to related fields.

Preparation for the Major. Mathematics 31A-31B-31C, 32A-32B-32C with an average grade of "C" or better.

The Major. Seven courses in Mathematics in the 100 series chosen from those numbered 110 and above, with an average grade of "C" or better. Seven upper division courses chosen from not more than two related departments approved by the Mathematics-Applied Science Curriculum Committee of the Mathematics Department.

Students contemplating this major should apply during their sophomore year. An adviser in the Mathematics Department will be appointed and a proposed program of study drawn up. Upon approval of the program by the Mathematics-Applied Science Curriculum Committee, the student will be accepted into the program.

The Major in Mathematics-Computer Science

The major, the minimum standards for progress, and the Honors Program in the major are described under the College of Letters and Science.

Departmental Scholar Program in Mathematics-Computer Science

This program allows exceptionally promising Mathematics-Computer Science undergraduates to enroll in graduate courses and begin work towards the Master's degree in Computer Science. See Departmental Scholar Program.

The Major in Mathematics-System Science

This is described under the College of Letters and Science.

Course Repetition

A student may not take a mathematics course for credit if he has credit for a more advanced course which has the first course as a prerequisite.

Conflicts or Duplication of Calculus Sequences

Since each of the sequences 3A-3B-3C, 4A-4B, 31A-31B-31C-32A-32B-32C (and the previous 11A-11B-11C-12A-12B-12C, 11A-11B-11C-13A-13B-13C) has been designed in accordance with the requirements of majors in a particular group of departments, it will be difficult for students to transfer from one sequence to another. Good students who wish to pursue advanced mathematics should be able to enter 31C after completing 3C. Students wishing to continue in mathematics after completing 4B (formerly 2C) should take 3C, followed by 31C. Credit will be given for at most one course in each of the following groups: 1. 11A, 11AH, 31A, 31AH, 4A, 3A, 2B; 2. 11B, 11BH, 31B, 31BH, 4B, 3B, 2C; 3. 11C, 11CH, 31C, 31CH; 4. 12A, 12AH, 31C, 31CH; 5. 12B, 12BH, 13B, 32A, 32AH; 6. 12C, 12CH, 13C, 32B, 32BH; 7. 13A, 130A, 32C, 32CH.

Other changes should be made only with the concurrence of a departmental adviser who will determine the total allowable credit. Similar caution applies to transfer students entering with incomplete calculus sequences. Such students should be prepared to supply complete information as to texts used and chapters covered in their previous work. If necessary, a placement examination may be required.

Advanced Placement in Calculus

Students with transfer credit in calculus or Advanced Placement credit in calculus are exempt from the preliminary examination in mathematics. These students must consult the mathematics department counselor in MS 6356 for appropriate advanced placement in the calculus sequences.

Students who have had a calculus course in high school but who do not have Advanced Placement credit are not exempt from the preliminary examination. Such students who wish advanced placement in the calculus sequences must consult the mathematics department counselor.

Students wishing placement in the 31AH honors calculus sequence must demonstrate satisfactory performance on the preliminary examination in mathematics. Students wishing placement in the 32AH honors calculus sequence may need to pass a placement examination in mathematics. Enrollment in 31AH and 32AH is by consent of the instructor.

Advanced Placement Calculus AB and BC Tests: Students who pass the AB Examination with a score of 3, 4, or 5 receive 5 units of credit and Mathematics 31A equivalency. Students who score 3, 4, or 5 on the BC Examination receive 10 units of credit and Mathematics 31AB equivalency. Students who take both examinations will receive at most 10 units of credit.

Preliminary Examination in Mathematics

All students planning to enroll in Mathematics 3A or Mathematics 31A are required to take the mathematics section of the Chemistry/Mathematics Preliminary Examination during the enrollment period for the quarter in which they intend to enroll in these courses. This examination is designed to test the student's mastery of algebra and precalculus mathematics. During 1979-1980 this preliminary examination is scheduled on September 17, 1979 for the Fall Quarter, January 2, 1980 for the Winter Quarter, and March 26, 1980 for the Spring Quarter. These dates may be changed. The time and location of the examination will be posted outside the Undergraduate Mathematics Office, MS 6356.

Graduate Programs

All mathematics graduate programs are administered by the Graduate Mathematics Office, MS 6375.

Requirements for the Master's Degree

Candidates for the degree of Master of Arts in mathematics must qualify under the Comprehensive Examination Plan. For the general requirements, see Master's Degrees. Eleven quarter courses must be offered. One alternative is to offer eight or more courses in the graduate list; the remainder may be approved upper division courses. The other alternative involves the preparation of a report under the direction of some member of the Department. This is a project designed to train the student in independent study of mathematical literature and the reduction to orderly form of the knowledge thus gained. This alternative requires six or more graduate courses and the remainder approved undergraduate courses; the preparation of the report may be given credit as one of the graduate courses. The candidate must pass a set of qualifying written examinations, one in basic analysis and one in basic algebra.

Requirements for the Master of Arts in Teaching (M.A.T.) Degree

The Mathematics Department also offers a program leading to the M.A.T. degree. Eleven courses are required of which seven must be in mathematics. This includes the five core graduate courses plus Mathematics 596 which leads to the preparation of a Master's essay. Students interested in the Single Subject Instruction Credential must consult the Graduate School of Education for information. Up to four of the courses required for this credential may also be used to satisfy the requirements for the M.A.T. degree. Comprehensive examinations cover both the subject matter of the mathematics courses and the content and philosophy of school mathematics. A variation of this program is available for those interested in a junior college credential.

Requirements for the Doctor's Degree

The requirements are, in general, in accordance with those listed under general requirements for the doctor's degree. At present, the qualifying examinations which must be taken within the Department before the student is advanced to candidacy consist of an examination divided into four parts. The parts consist of (1) algebra, (2) real analysis, (3) complex analysis, and (4) mathematical electives. These written examinations are given twice each year; the student normally should take them during his/her second year of graduate study. There are two additional requirements for the Ph.D. Students must pass satisfactorily at least twelve mathematics courses numbered 205 through 285 but excluding 210A-210B, 245A-245B, 246A-246B; and furthermore, students are required to participate actively in at least two seminars during their graduate study. Exceptions to these requirements may be granted in special cases. A student pursuing the Ph.D. degree can obtain a Master's degree by fulfilling the eleven course requirement, and by passing the Ph.D. algebra qualifying examination and one of the other Ph.D. qualifying examinations.

Applied Mathematics

An interdisciplinary program in applied mathematics is offered leading to the M.A. and Ph.D. degrees in mathematics. The candidate for the M.A. degree must pass a set of written qualifying examinations, one in basic analysis and one chosen from applied mathematics, numerical analysis, or probability and statistics. Four qualifying examinations are required before a Ph.D. student is advanced to candidacy. The student must pass one written examination in applied real and complex analysis, and two chosen from applied differential equations, numerical analysis, and mathematical statistics. A fourth written or oral examination tests the student's competence at a research level in a specialized "outside" field. Examples of these "outside" fields may be found in "Information for Students in Applied Mathematics" available in the Graduate Mathematics Office. In addition to the qualifying examinations, students must pass satisfactorily at least eighteen approved graduate courses, including at least twelve mathematics courses numbered from 205 to 285.

Foreign Language

No foreign language is required for the M.A. degree. For the Ph.D. degree, two foreign languages are required. Preferred languages are French, German, and Russian. Students in the Applied Mathematics program may petition to substitute Computer Programming for the second foreign language.

Lower Division Courses

1A. Intermediate Algebra. (½ course) Prerequisites: Mathematics 1A and 1AN are the same course. Both displace 4 units on the student's study

NOTE: For key to symbols, see page 74

list but Mathematics 1A yields 2 units credit towards the degree while 1AN yields no credit. Enrollment in Mathematics 1A is limited to students with not more than two and one-half years of high school level mathematics. Restrictions: Mathematics 1A may not be used to satisfy College breadth requirements. Not open for credit to students with three years or more of high school level mathematics (students with three years of high school level mathematics see Mathematics 1AN). Not open for credit to students who have credit for other mathematics courses. Arithmetical operations on the real numbers, algebraic notation, polynomials, rational exponents, linear and quadratic equations and inequalities, coordinate geometry. Intended for students requiring a review of elementary and intermediate algebra.

1AN. Intermediate Algebra. (No credit) Prerequisites: Mathematics 1A and 1AN are the same course. Both displace 4 units on the student's study list, but Mathematics 1A yields 2 units credit towards the degree while 1AN yields no credit. Enrollment in Mathematics 1A is limited to students with not more than two and one-half years of high school level mathematics. Restrictions: Mathematics 1AN is only offered on a P/NP basis and may not be used to satisfy College breadth requirements. May not be taken by students who have credit for other mathematics courses. Arithmetical operations on the real numbers, algebraic notation, polynomials, rational exponents, linear and quadratic equations and inequalities, coordinate geometry. Intended for students requiring a review of elementary and intermediate algebra but who have taken three or more years of high school mathematics.

1B. Precalculus. Prerequisite: course 1A or two and one half years of high school mathematics or satisfactory performance on a placement examination given the first class meeting. Not open for credit to students who have credit for other mathematics courses except 38A-38B and 100. The function concept. Linear and polynomial functions and their graphs, zeroes of polynomials. Inverse, exponential and logarithmic functions. Trigonometric functions.

2. Finite Mathematics for Social Science Students. (Formerly Mathematics 2A) Prerequisite: three years of high school mathematics or course 1B. Finite mathematics consisting of elementary logic, sets, combinatorics, probability, vectors and matrices.

3A-3B-3C. Calculus for Life Science Students. Lecture, three hours; discussion, two hours. Prerequisite: a section of Mathematics 3A designed for Economics majors is offered every quarter, except during the summer sessions. Three years of high school mathematics (including trigonometry) or course 1B. Course 3A is not open for credit to students with credit in another calculus sequence. **3A:** techniques and applications of the differential calculus. **3B:** techniques and applications of the integral calculus. **3C:** may be taken after course 4B. Functions of several variables, vectors, partial differentiation, and multiple integration.

4A-4B. Calculus for Social Science Students. (Formerly Mathematics 2B-2C) Prerequisite: three years of high school mathematics (including trigonometry) or course 1B. **4A:** functions, graphs, differentiation and integration with applications. **4B:** further applications of the calculus, differential equations, functions of several variables.

15. Lower Division Seminars. Prerequisite: consent of the instructor. Each quarter the Department will offer a limited number of seminars in various branches of mathematics. The method of teaching will involve substantial student participation and enrollment will be limited to 15 students. Course may be repeated for credit.

31A-31B-31C. Calculus and Analytic Geometry. Prerequisites: At least three years of high school mathematics including some coordinate geometry and trigonometry, or passing of preliminary examination in mathematics. **31A:** Introduction to differentiation and integration with applications. **31B:** Transcendental functions, extremal problems, techniques and applications of integration. **31C:** Infinite series; introduction to matrix theory.

31AH-31BH-31CH. Calculus and Analytic Geometry, Honors Sequence. Prerequisites: Satisfactory performance on the preliminary examination in mathematics and consent of the instructor. An honors course parallel to 31A-31B-31C.

32A-32B. Introduction to Calculus of Several Variables. Prerequisites: course 31C or 31CH or consent of the instructor. **32A:** Introduction to differential calculus of several variables. **32B:** Introduction to integral calculus of several variables.

32AH-32BH. Introduction to Calculus of Several Variables, Honors Sequence. Prerequisites: course 31CH or 31C with grade A or consent of instructor. An honors course parallel to 32A-32B.

32C. Introduction to Differential Equations. Prerequisites: course 31C or consent of instructor. An introduction to the theory of differential equations: separation of variables, linear equations, variation of parameters, partial differential equations, Fourier series.

32CH. Introduction to Differential Equations, Honors Sequence. Prerequisites: course 32BH or consent of the instructor. An honors course parallel to 32C.

38A-38B. Fundamentals of Arithmetic. Lecture three hours, laboratory two hours. Prerequisite: sophomore standing; two years of high school mathematics. Designed for prospective elementary teachers (See also Mathematics 104). The real number system, its origins, development, structure, and use. Emphasis is on understanding of arithmetic procedures. The laboratory includes experience with aids and models. **38A:** May not be used to fulfill Letters and Science breadth requirement. Counting numbers and other subsystems of the rational numbers; sets; operations; relations; algorithms; measurement and approximation; applications. **38B:** prerequisite: course 38A. May not be used to fulfill Letters and Science breadth requirement. The real numbers, functions, elementary ideas of number theory, probability, and statistics. Other topics appropriate for the elementary classroom.

50A-50B. Elementary Statistics. Prerequisites: Mathematics 50A is not open to students with credit for Economics 40. Prerequisite to course 50A: three years of high school mathematics or course 1B or consent of the instructor. Prerequisite to course 50B: course 50A. **50A:** Descriptive statistics, elementary probability, random variables, binomial and normal distributions. Large and small sample inference concerning means. **50B:** Linear regression and correlation, chi-square tests, design of experiments, analysis of variance, nonparametric statistics, computerized statistical analysis via prepackaged routines.

60. Introduction to Mathematical Methods of System Science. Prerequisites: course 31C or consent of the instructor. Selected introductory topics pertinent to the analysis of automata, information transmission, signals, networks. Intended for students in the Mathematics-System Science major, and for other mathematics and science majors.

99. Individual Projects in Programming. (1/8 course) Prerequisites: Mathematics 31A-31B-31C, Engineering 10C or 10F, and consent of instructor. Limited to majors in Mathematics, Teaching of Mathematics, Mathematics/Applied Science, Mathematics/Computer Science, Mathematics/System Science. Course may only be taken on a pass-fail basis and may be taken up to eight times. This is an unstructured course in computer programming. Students submit proposals for their own programming projects and, after approval, proceed to carry them out, either independently or in small groups. To pass this course students must submit a final report indicating what they have actually done, and evidence that they have successfully run computer programs.

Upper Division Courses

GENERAL AND TEACHER TRAINING

100. The Nature of Mathematics. Prerequisite: junior standing. Not open to students majoring in mathematics, engineering, or physical science. A course designed to acquaint students in the arts, humanities, and social sciences with the nature of modern mathematics and the mathematical method.

101A-101B-101C. Topics in Algebra. Prerequisite: course 31C or consent of the instructor. 101A is not open to students having credit for course 110A. A sequence intended primarily for prospective secondary teachers. Group theory, numbers and number systems, relations and equivalence, topics from elementary number theory, the rational numbers, integral domains, rings and fields, the real numbers, cardinals, complex numbers, polynomials, vector spaces, nonconstructibility, nonsolvability. (This course sequence may not be offered every year.)

102A-102B. Topics in Geometry. Prerequisite: course 31C or consent of the instructor. A sequence intended primarily for prospective secondary teachers. Axiomatic methods, advanced topics in Euclidean geometry, hyperbolic and other geometries, constructions, symmetries, isometry and related topics, projective geometry, map coloring, Jordan curve theorem. (This course sequence may not be offered every year.)

104. Fundamental Concepts of Geometry. Lecture three hours, laboratory two hours. Prerequisite: two years of high school mathematics including geometry. Designed for prospective elementary teachers (See also Mathematics 38A-38B). Plane and solid Euclidean geometry; axioms, parallels, congruence, similarity, area and volume, geometric constructions; non-Euclidean geometry.

106. History of Mathematics. Prerequisite: course 31C or consent of the instructor. Topics in the history of mathematics with emphasis on the development of modern mathematics.

ALGEBRA, NUMBER THEORY AND LOGIC

110A-110B-110C. Algebra. Prerequisite: course 115 or consent of the instructor. Course 110A is not open for credit to students with credit for Mathematics 101A or 101B. **110A:** the ring of integers, integral domains, fields, polynomial domains, unique factorization. **110B:** groups, structure of finite groups. **110C:** further topics in rings and modules; field extensions, Galois Theory, applications to geometric constructions and solvability by radicals.

111A-111B-111C. Theory of Numbers. Prerequisite: course 115 or consent of the instructor. Divisibility, congruences, Diophantine analysis, selected topics in the theory of primes, algebraic number theory, Diophantine equations.

112A-112B-112C. Set Theory and Logic. Prerequisite: courses 32A-32B-32C or consent of the instructor. Course 112A deals with informal axiomatic set theory presented as a foundation for modern mathematics. 112B and 112C cover predicate logic, formalized theories. Gödel's completeness and incompleteness theorems.

113. Combinatorics. Prerequisite: course 32A or consent of the instructor. Not open for credit to students who have completed Mathematics 118. Permutations and combinations, counting principles, recurrence relations and generating functions, combinatorial designs, graphs and trees, with applications including games of complete information. Combinatorial existence theorems, Ramsey's theorem.

114. Theory of Computability. Prerequisite: course 31C or consent of the instructor. Machines and recursive functions. Church's thesis. Gödel numbers, enumeration theorem, universal machines. Unsolvable problems. Relative recursiveness. Further topics selected from: word problems, arithmetical relations, subrecursive hierarchies, primitive recursive functions, computational complexity.

115. Linear Algebra. Prerequisite: course 31C or consent of the instructor. Abstract vector spaces; linear transformations and matrices; determinants; similarity; eigenvalues and eigenvectors; Jordan form; inner product spaces; quadratic forms.

118. Combinatorial Algorithms Prerequisites: Mathematics 32A and 32B, Computer Science 141 (formerly Engineering 123A). Not open for credit to students who have completed Mathematics 113. Applied aspects of combinatorial mathematics including counting and enumeration; searching and sorting techniques; recurrence relations; graph algorithms; computational complexity.

GEOMETRY AND TOPOLOGY

120A-120B. Differential Geometry. Prerequisite: course 32B or consent of the instructor. Curves in 3-space, Frenet formulas, surfaces in 3-space, normal curvature. Gaussian curvature. Congruence of curves and of surfaces. Intrinsic geometry of surfaces, isometrics, geodesics, Gauss-Bonnet theorem.

121. Introduction to Topology. Prerequisite: course 131A. Metric and topological spaces, topological properties, completeness, mappings and homeomorphisms, the metrization problem.

122. Projective Geometry. Prerequisite: course 115. Projective spaces, especially lines and planes; homogeneous coordinates; the principles of duality; projectivities, the fundamental theorem, and the theorems of Desargues, Pappus, Steiner and Pascal.

ANALYSIS

131A-131B. Analysis. Prerequisite: 131A: course 32B or consent of the instructor. 131B: courses 131A and 115 or consent of the instructor. 131A: real numbers, point set topology in $\mathbb{R}^n$ and in metric spaces, limits, continuity, derivatives, infinite sequences and series. 131B: functions of bounded variation, Riemann-Stieltjes integral, sequences and series of functions, multivariable differential calculus, implicit and inverse function theorems, extremum problems.

132. Introduction to Complex Analysis. Prerequisite: course 32B or consent of the instructor. Complex numbers, functions, differentiability, series, extensions of elementary functions, integrals, calculus of residues, conformal maps and mapping functions with applications.

133. Integration on Manifolds. Prerequisite: course 131B. Integration theory for functions of several variables, multilinear algebra, differential forms, Stokes' Theorem on manifolds.

134. Measure and Integration. Prerequisite: course 131B or consent of the instructor. An introduction to Lebesgue measure and integration.

135A-135B-135C. Differential Equations. Prerequisite to 135A: 32C (or the discontinued 13A or 130A). Course 135A is not open for credit to students having the former 130B. Prerequisite to 135B: 135A (previously called 130B). Course 135B is not open for credit to students having the former 130C. Prerequisite to 135C: 135B (previously called 130C). Systems of differential equations, linear systems, existence theory, stability of linear and almost linear systems, Lyapunov's Second Method, Sturm-Liouville problems, applications, linear partial differential equations, the wave equation, the heat equation and Laplace's equation.

APPLIED MATHEMATICS

140A-140B-140C. Numerical Analysis. Prerequisite: courses 31A-31B-31C, 32A-32B-32C, 115, and Engineering 10C or 10F, or consent of the instructor. **140A:** Computational methods for linear algebra; solving systems of linear equations; computing eigenvalues and eigenvectors; nonlinear equations. **140B:** Interpolation and approximation; numerical differentiation and integration; Richardson extrapolation. **140C:** Elements of numerical solutions for scalar ordinary differential equations; initial value problems.

142. Introduction to Applied Mathematics. Prerequisite: courses 32A-32B-32C or consent of the instructor. An introduction to the fundamental principles and the spirit of applied mathematics. Emphasis is placed on the manner in which mathematical models are constructed for physical problems. Illustrations are drawn from many fields of endeavor (e.g. physical science, biology, economics, traffic dynamics, etc.).

143. Analytic Mechanics. Prerequisite: courses 32A-32B-32C or consent of the instructor. Foundations of Newtonian mechanics, kinematics and dynamics of a rigid body, variational principles and Lagrange's equations; calculus of variations, variable mass; related topics in applied mathematics.

144. Theory of Games and Linear Programming. Prerequisite: course 115 or consent of the instructor. The basic theorems of two person zero-sum matrix games including the minimax theorem; applications to games of chance and strategy; principles of linear programming, the duality theorem, and simplex methods; applications to industrial and business problems.

145A-145B. Methods of Applied Mathematics. Prerequisites: course 32A-32B-32C or consent of the instructor. Calculus of variations, linear integral equations (Volterra and Fredholm) and applications to differential equations, Fourier series and integrals, elements of tensor calculus, special topics as time permits.

PROBABILITY AND STATISTICS

The 150 and 152 sequences are parallel courses and transferring between them is not permitted.

150A-150B-150C. Probability and Statistics. Prerequisite: course 32B or consent of the instructor. 150A and the first half of 150B constitute an introduction to probability theory. The second half of 150B and 150C constitute an introduction to statistics. These courses emphasize both theory and applications.

M151. Stochastic Processes. (Same as Engineering M120C.) Prerequisite: Engineering 120A or courses 150A-150B, or 152A and consent of the instructor. An introduction to the theory and application of stochastic models, emphasizing Markov chains and pure jump processes; illustrations from queueing systems, point processes, birth and death processes, renewal theory; Poisson processes, Brownian motion.

152A-152B. Applied Mathematical Statistics. Prerequisite: course 32B or consent of the instructor. A basic introductory course in the theory and application of statistical methods. This course condenses 150A-150B-150C into two quarters mainly by devoting less time to the underlying theory.

M153. Introduction to Computational Statistics. (Same as Biomathematics M153.) Prerequisite: Mathematics 150C or Mathematics 152B or the equivalent. Statistical analysis of data by means of package programs. Regression, analysis of variance, discriminant analysis, and analysis of categorical data. Emphasis will be on understanding the connection between statistical theory, numerical results, and analysis of real data.

190. Honors Mathematics Seminar. Prerequisite: admission to Mathematics honors program and consent of the instructor. A participating seminar on advanced topics in mathematics.

191. Upper Division Seminars. (½ to 1 course) Prerequisite: courses 32A-32B-32C or consent of the instructor. Each quarter the Department will offer a limited number of seminars in various branches of mathematics. The method of teaching will involve substantial student participation and enrollment will be limited to 15 students. Course may be repeated for credit.

199. Special Studies in Mathematics. (¼ to 1 course) Prerequisite: approval of the chairman and consent of the instructor. At the discretion of the chairman and subject to the availability of staff, individuals or groups may study topics suitable for undergraduate course credit but not specifically offered as separate courses. Course may be repeated for credit, but no more than one 199 course may be counted towards the ten upper division courses required for the major.

Graduate Courses

TEACHER PREPARATION

201A-201B-201C. Topics in Algebra and Analysis. Prerequisite: B.A. degree with mathematics major or equivalent. A course for students in the mathematics-education program. Students may not receive credit toward the M.A. degree in Mathematics for this course. Important ideas of algebra, geometry and calculus leading effectively from elementary to modern mathematics. Approaches to the number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions.

202A-202B. Mathematical Models and Applications. Prerequisite: B.A. degree with mathematics major or equivalent. A course designed for students in the mathematics-education program. Students may not receive credit toward the M.A. degree in Mathematics for this course. A development of mathematical theories describing various empirical situations. Basic characterizing postulates are discussed and a logical structure of theorems developed. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences.

NUMBER THEORY

205A-205B-205C. Number Theory. Prerequisite: courses 246A and 210A or consent of the instructor. Topics from analytic algebraic and geometric number theory, including distribution of primes and factorization in algebraic number fields. Also selected topics from additive number theory, Diophantine approximation, partitions, class-field theory, lattice point problems, valuation theory, etc.

206A-206B. Combinatorial Theory. Prerequisite: consent of the instructor. Generating functions. Probabilistic methods. Polya's theorem. Enumerative graph theory. Partition theory. Number theoretical applications. Structure of graphs, matching theory, duality theorems. Packings, pavings, coverings, statistical designs, difference sets, triple systems, finite planes. Configurations, polyhedra. Ramsey theory, finite and transfinite, and applications.

ALGEBRA

210A-210B-210C. Algebra. Prerequisite: courses 110A-110B-110C or consent of the instructor. Students may not receive credit toward the Master's degree for both 210B and 110B and/or 210C and 110C. Group theory including the theorems of Sylow and Jordan-Holder-Schreier; rings and ideals, factorization theory in integral domains, modules over principle ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

211. Structure of Rings. Prerequisite: course 210A or consent of the instructor. The radical, irreducible modules and primitive rings, rings and algebras with minimum condition.

212. Homological Algebra. Prerequisite: course 210A or consent of the instructor. Modules over a ring, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules.

213A-213B. Theory of Groups. Prerequisite: course 210A or consent of the instructor. Topics chosen from representation theory, transfer theory, infinite Abelian groups, free products and presentations of groups, solvable and nilpotent groups, classical groups, algebraic groups.

214A-214B. Algebraic Geometry. Prerequisite: course 210A or consent of the instructor. Preliminaries from the theory of commutative rings and algebras. Theory of algebraic varieties. Topics chosen from plane curves, resolution of singularities, invariant theory, intersection theory, divisors and linear systems.

215A-215B. Commutative Algebra. Prerequisite: course 210A or consent of the instructor. Topics from commutative ring theory, including techniques of localization, prime ideal structure in commutative Noetherian rings, the principal ideal

NOTE: For key to symbols, see page 74

theorem, Dedekind rings, modules, projective modules, the Serre conjecture, regular local rings.

LOGIC AND FOUNDATIONS

220A-220B-220C. Mathematical Logic and Set Theory. Prerequisites: courses 112A-112B-112C or equivalent. Model theory: compactness theorem; Lowenheim-Skolem theorems; definability; ultraproducts; preservation theorems; interpolation theorems. Recursion function theory: Church's thesis; recursively enumerable sets; hierarchies; degrees. Formal proofs: completeness and incompleteness theorems; decidable and undecidable theories; quantifier elimination. Set theory: Zermelo-Fraenkel and von Neumann-Gödel axioms; cardinal and ordinal numbers; continuum hypothesis; constructible sets; independence results and forcing.

222A-222B. Lattice Theory. Prerequisites: course 210A and some knowledge of topology, or consent of instructor. Partially ordered sets, lattices, distributivity, modularity, completeness, ideal theory, representation theory. Interaction with algebra, combinatorics, topology, and logic.

223A. Model Theory. Prerequisites: courses 220A-220B-220C. Topics will be chosen from ultraproducts, preservation theorems, interpolation theorems, saturated models, omitting types, categoricity, two cardinal theorems, enriched languages, soft model theory, and applied model theory.

223B. Set Theory. Prerequisites: courses 220A-220B-220C. Topics will be chosen from constructibility theory, Cohen extensions, large cardinals, and combinatorial set theory.

223C. Recursion Theory. Prerequisites: courses 220A-220B-220C. Topics will be chosen from degrees of unsolvability, recursively enumerable sets, undecidable theories, inductive definitions, admissible sets and ordinals, and recursion in higher types.

223D. Descriptive Set Theory. Prerequisites: courses 220A-220B-220C. Classical descriptive set theory: Borel and projective sets. Effective descriptive set theory. Consequences of strong set-theoretic hypotheses.

GEOMETRY

226A-226B-226C. Differential Geometry. Prerequisite: course 231A or consent of the instructor. Manifold theory; connections, curvature, torsion, and parallelism. Riemannian manifolds; completeness, sub-manifolds, constant curvature. Geodesics; conjugate points, variational methods, Myers theorem, nonpositive curvature. Further topics such as: pinched manifolds, integral geometry, Kahler manifolds, symmetric spaces.

228. Convex Sets. (Formerly numbered 228A-228B.) Prerequisite: course 121 or 245A or consent of the instructor. Basic concepts for convex sets in topological linear spaces; separation theorems and support functions; local convexity; convex functions; Helly type theorems; duality.

229A-229B-229C. Lie Groups and Lie Algebras. Prerequisites: Knowledge of basic theory of topological groups and knowledge of differentiable manifolds. Lie groups, Lie algebras, subgroups, subalgebras. Exponential map. Universal enveloping algebra. Campbell-Hausdorff formula. Nilpotent and solvable Lie algebras. Cohomology of Lie algebras. Theorems of Weyl, Levi-Mal'cev. Semisimple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl's character formula.

TOPOLOGY

230. General Topology. Prerequisite: courses 131A-131B or consent of the instructor. Students may not receive credit toward the Master's degree for both 230 and 121. Topological spaces and maps, products, quotient spaces, connectedness and compactness, separation properties, local properties, completeness. Homotopy and the fundamental group.

231A. Manifold Theory. Prerequisites: courses 131A-131B and 121 or consent of the instructor. Manifolds, tangent and cotangent spaces, vector fields and integral curves, Lie brackets, differential forms and exterior derivative, Stokes' theorem on manifolds.

231B. Introduction to Homology Theory. Prerequisite: course 231A, or consent of the instructor. Elementary concepts of homotopy theory. Singular chains and the boundary operator, definition of homology, Mayer-Vietoris sequence, calculation of homology of standard spaces.

231C. Further Topics in Geometry and Algebraic Topology. Prerequisites: courses 231A-231B, or consent of the instructor. Topics may include: cohomology and duality theorems, de Rham's theorem, cup products, and transversality intersection theory of submanifolds. Additional topics as time permits.

232A-232B-232C. Algebraic Topology. Prerequisite: course 121 or 230 or consent of instructor. Fundamental group; homology theory, singular theory, cellular theory, computation of homology groups; cohomology theory, cup and cap products, duality; homotopy theory, fiberspaces, Hurewicz theorem, obstruction theory.

236. Advanced Topics in Geometric Topology. Prerequisite: courses 231A, 231B or consent of the instructor. Handlebody theory, transversality; PL topology; surgery; topic varies from year to year.

237. Advanced Topics in Algebraic Topology. Prerequisite: courses 232A-232B-232C or consent of the instructor. K-theory; fixed point theory; extraordinary cohomology theories; topic varies from year to year.

ANALYSIS AND DIFFERENTIAL EQUATIONS

240. Methods of Set Theory. Prerequisites: course 131A-131B, 110A-110B. (Also Math 121 or its equivalent.) Naive, axiomatic set theory, the axiom of choice and its equivalents, wellorderings, transfinite induction, ordinal and cardinal arithmetic. Applications to algebra; Hamel bases, the Stone representation theorem. Applications to analysis and topology; the Cantor-Bendixson theorem, counterexamples in measure theory, Borel and analytic sets, Choquet's theorem.

245A-245B-245C. Real Analysis. Prerequisites: courses 131A-131B and course 121 or the equivalent. (e.g. 230 can be taken concurrently). Students cannot receive credit toward the Master's degree for both 245A and 134. Basic measure theory. Measure theory on locally compact spaces. Fubini theorem. Elementary aspects of Banach and Hilbert spaces and linear operators. Function spaces. Radon-Nikodym theorem. Fourier transform and Plancherel on R^n and T^n.

246A-246B-246C. Complex Analysis. Prerequisite: courses 131A-131B. Students may not receive credit toward the Master's degree for both 246A and 132. Cauchy-Riemann equations. Cauchy's theorem. Cauchy's integral formula and the residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann surfaces. Infinite products. Partial fractions. The classical transcendental functions. Elliptic functions.

247A-247B. Classical Fourier Analysis. Prerequisite: course 245 and 1 quarter of course 246. Distribution on R^n and T^n. Principal values; other examples. Distributions with submanifolds as supports. Kernel theorem. Convolution; examples of singular integrals. Tempered distributions and Fourier transform theory on R^n. Distributions with compact or one-sided supports and their complex Fourier transforms.

249A-249B-249C. Calculus of Variations and Optimal Control Theory. Prerequisite: course 246A or consent of the instructor. Conditions for minima or maxima of functionals. The problems of Lagrange, Bolza, and Mayer, with or without inequality constraints. Mathematical aspects of optimal control theory. Multiple integral problems. The theory of quadratic forms in Hilbert space with applications to elliptic partial differential equations. Existence theorems.

250A. Ordinary Differential Equations. Prerequisite: course 246A or consent of the instructor. Basic theory of ordinary differential equations. Existence and uniqueness of solutions. Continuity with respect to initial conditions and parameters. Linear systems and n-th order equations. Analytic systems with isolated singularities. Self-adjoint boundary value problems on finite intervals.

250B. Nonlinear Ordinary Differential Equations. Prerequisite: course 250A. Asymptotic behavior of nonlinear systems. Stability. Existence of periodic solutions. Perturbation theory of two-dimensional real autonomous systems. The Poincaré-Bendixson theory.

250C. Advanced Topics in Ordinary Differential Equations. Prerequisite: course 250A-250B. Selected topics, such as spectral theory or ordinary differential operators, nonlinear boundary value problems, celestial mechanics, approximation of solutions, and Volterra equations.

251A. Introductory Partial Differential Equations. Prerequisite: consent of the instructor. Classical theory of heat, wave and potential equations; fundamental solutions, characteristics and Huygens principle, properties of harmonic functions. Classification of second order differential operators. Maximum principles, energy methods, uniqueness theorems. Additional topics as time permits.

251B-251C. Topics in Partial Differential Equations. Prerequisite: consent of the instructor. An in depth introduction to topics of current interest in partial differential equations or their applications.

252A-252B-252C. Advanced Topics in Complex Analysis. Prerequisites: courses 245A-245B-245C and 246A-246B-246C, or consent of instructor. Potential theory, subharmonic functions, harmonic measure; Hardy spaces; entire functions; univalent functions; Riemann surfaces; extremal length, variational methods, quasiconformal mappings; topics vary from year to year.

253A-253B. Several Complex Variables. Prerequisites: courses 245A-245B-245C and courses 246A-246B-246C, or consent of the instructor. Introduction to analytic functions of several complex variables. The problem, Cousin problems, domains of holomorphy, complex manifolds.

254A-254B. Trigonometrical Series. Prerequisite: course 246A or 245A, taken previously or concurrently; or consent of the instructor. Selected topics in Fourier series, power series, orthogonal polynomials, almost periodic functions, and completeness of sets of functions.

FUNCTIONAL ANALYSIS

255A. Functional Analysis. Prerequisites: courses 246A, 245A-245B; or 246A, 265A-265B; or consent of the instructor. Banach spaces, basic principles. Weak topologies. Compact operators. Fredholm operators. Special spaces including Hilbert spaces and C(X).

255B-255C. Topics in Functional Analysis. Prerequisites: course 255A. Topics chosen from Banach algebras, operators on Banach spaces and Hilbert space, semigroups of operators, linear topological vector spaces, and other related areas.

256A-256B-256C. Topological Groups and Their Representations. Prerequisite: course 255 or consent of the instructor. Topological groups and their basic properties. Haar measure. Compact groups and their representations. Duality and Fourier Analysis on locally compact abelian groups. Induced representations, Frobenius reciprocity. Representations of special groups (Lorentz, Galilean, etc.). Projective representations. Representations of totally disconnected groups.

258A-258B. Commutative Banach Algebras. Prerequisite: course 246 and courses 255A and 255B. The Gel'fand theory of commutative Banach algebras. Applications to harmonic analysis on locally com-

pact abelian groups. Algebras of holomorphic functions. Special topics.

259A-259B. Operator Algebras in Hilbert Space. Prerequisite: courses 255A-255B-255C. Selected topics from the theories of C^* and von Neumann algebras. Applications.

APPLIED MATHEMATICS

260. Introduction to Applied Mathematics. Prerequisite: course 142 or consent of the instructor. This course represents a continuation of course 142. It is concerned with the construction, analysis and interpretation of mathematical models of problems which arise outside of mathematics.

M263. Hydrodynamic Instabilities and Turbulence. (Same as Earth and Space Sciences M211.) An introduction to the theories of hydrodynamic instability and the non-statistical description of turbulence; stability bounds by the energy method; linear theory of instability; finite amplitude theories of post-instability flows; bounds on properties of turbulent flows by variational techniques.

264. Applied Complex Analysis. Prerequisite: course 246A or consent of the instructor. Topics chosen from contour integration conformal mapping, differential equations in the complex plane, special functions, asymptotic series, Fourier and Laplace transforms, singular integral equations.

265A-265B. Real Analysis for Applications. (Formerly numbered 265A-265B-265C.) Prerequisite: course 131A-131B or consent of the instructor. This course is not open for credit to students with credit in 245A-245B-245C. Lebesgue measure and integration on the real line, absolutely continuous functions, functions of bounded variation, L^2 and LP spaces, Fourier series. General measure and integrations, Fubini and Radon-Nikodym theorems, representation of functionals, Fourier integrals.

266A. Applied Ordinary Differential Equations. Prerequisites: courses 131A-131B; 132, and 135A-135B; or courses 132, 145A-145B. Spectral theory of regular boundary value problems and examples of singular Sturm-Liouville problems, related integral equations, phase-plane analysis of nonlinear equations.

266B-266C. Applied Partial Differential Equations. Prerequisites: course 266A or consent of the instructor. Classification of equations, classical potential theory, Dirichlet and Neumann problems. Green's functions, spectral theory of Laplace's equation in bounded domains, first order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

267A-267B. Applied Algebra. Prerequisite: course 110A or the equivalent. Students may not receive credit toward the master's degree for 267A and 210A. Linear algebra, eigenvalues and quadratic forms; linear inequalities, finite fields and combinatorial analysis. Group theory, with emphasis on representations. Application to physical problems.

268B-268C. Topics in Applied Functional Analysis. Prerequisites: course 255A. Topics include spectral theory with applications to ordinary differential operators, eigenvalue problems for differential equations, generalized functions and partial differential equations.

269A-269B-269C. Advanced Numerical Analysis. Prerequisites: courses 115, 135A, 140A-140B-140C or consent of instructor. Numerical solution for systems of ordinary differential equations; initial and boundary value problems. Numerical solution for elliptic, parabolic, and hyperbolic partial differential equations. Topics in computational linear algebra.

271A. Tensor Analysis. Prerequisite: course 131A or consent of the instructor. Algebra and calculus of tensors on n-dimensional manifolds. Curvilinear coordinates, and coordinate-free methods. Covariant differentiation. Green-Stokes theorem for differential forms. Applications to topics such as continuum and particle mechanics.

271B. Analytical Mechanics. Prerequisite: course 271A and some knowledge of mechanics. Newtonian and Lagrangian equations. Hamilton's principle. Principle of least action. Holonomic and nonholonomic systems. Hamilton's canonical equations, contact transformations, applications.

271C. Introduction to Relativity. Prerequisite: course 271A and some knowledge of mechanics. Restricted theory of relativity. Extensions to general theory. The relativistic theory of gravitation.

272. Advanced Topics in Continuum Mechanics. Prerequisite: courses 142 and 251A or the equivalent. Mathematical aspects of solid and/or fluid mechanics. Instability, wave propagation, nonlinear and stochastic phenomena.

273. Wave Mechanics. Prerequisite: consent of the instructor. General concepts of mechanical systems (states, space-time, "logics," etc.). Classical and quantum examples. Correspondence principle. Spinors.

M274A. Asymptotic and Perturbation Methods I. (Same as Mechanics and Structures M292A.) Prerequisites: Engineering 192A or equivalent; Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase. Watson's lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems.

M274B. Asymptotic and Perturbation Methods II. (Same as Mechanics and Structures M292B.) Prerequisites: Engineering course 192A or equivalent or Mathematics 132 or equivalent. The fundamental mathematics of asymptotic analysis, limit process expansions, regular and singular perturbation problems, matching of asymptotic expansions, multiple scale methods, application to partial differential equations, near and far fields.

PROBABILITY AND STATISTICS

275A-275B. Probability Theory. Prerequisite: course 245A or 265A. Connection between probability theory and real analysis. Weak and strong laws of large numbers, central limit theorem, conditioning, ergodic theory, martingale theory.

275C. Stochastic Processes. Prerequisite: courses 275A-275B. Selected topics such as Brownian motion and potential theory. Markov processes, infinite particle systems, Gaussian processes. Content varies from year to year and the course may be repeated for credit.

276A-276B. Mathematical Statistics. (Formerly numbered 276C.) Prerequisites: courses 150A-150B-150C or 152A-152B and courses 131A-131B. 276A: Bayes, admissible and minimax decision rules; sufficiency and completeness; uniformly most powerful tests. 276B: Fisher information; Cramer-Rao inequality; asymptotic properties of tests and estimators; maximum likelihood estimators; likelihood ratio and chi-square tests of hypotheses.

276C. Statistical Decision Theory. (Formerly numbered 276A-276B.) Prerequisite: course 276A. Invariant estimates and tests; best unbiased and locally best tests; multiple decision problems; application to the general linear model; other topics.

277. Sequential Analysis. Prerequisite: Course 276A. Bayes sequential decision rules, stopping rule problems, optimality of the sequential probability ratio test, Wald's fundamental identity.

278. Nonparametric and Robust Statistics. Prerequisite: course 276C. Nonparametric and robust procedures are developed for hypothesis testing, estimation in one and two sample problems, linear and nonlinear regression, multiple classification, density estimation.

M279A-279B-279C. Linear Statistical Models. (Same as Public Health M205A-205C.) Prerequisites: Mathematics 150C or 152B and Public Health 100C, or equivalent. Topics include linear algebra, applied to linear statistical models, distribution of quadratic forms, the Gauss-Markov theorem, fixed and random component models, balanced and unbalanced designs.

M280. Computational Statistics. (Same as Biomathematics M280 and Public Health M207J.) Prerequisite: Mathematics 115 and 150C or equivalent. Introduction to theory and design of statistical programs: pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance including the mixed model, iterative rescaling and other methods for log-linear models.

M282. Probability Theory for Applications. (Same as System Science M273B.) Prerequisites: Mathematics 131A; and either Engineering 120A or Mathematics 150A-150B or Mathematics 152A-152B; or consent of instructor. This course is not open for credit to students with credit in Mathematics 275A. This course is designed to prepare students for graduate courses in statistics and applied stochastic processes. Summary of measure and integration as applicable to probability theory, distribution and characteristic functions, conditioning, independence, convergence of random variables, limit theorems.

285. Seminars. (1 course each) Prerequisite: consent of instructor. No more than two 285 courses can be applied toward the Master's degree course requirement, except by prior permission of the Vice-Chairman for Graduate Studies. Topics in various branches of mathematics and their applications by means of lecturers and informal conferences with members of the staff.

285A. Seminar in the History and Development of Mathematics.

285B. Seminar in Number Theory.

285C. Seminar in Algebra.

285D. Seminar in Logic.

285E. Seminar in Geometry.

285F. Seminar in Topology.

285G. Seminar in Analysis.

285H. Seminar in Differential Equations.

285I. Seminar in Functional Analysis.

285J. Seminar in Applied Mathematics.

285K. Seminar in Probability.

285L. Seminar in Statistics.

286A-286M. Participating Seminars. Prerequisite: consent of the instructor. Seminars and discussion by staff and students. No course credit will be given, but these may be used to satisfy the participating seminar requirement for the Ph.D.

286A. Participating Seminar in the History and Development of Mathematics.

286B. Participating Seminar in Number Theory.

286C. Participating Seminar in Algebra.

286D. Participating Seminar in Logic.

286E. Participating Seminar in Geometry.

286F. Participating Seminar in Topology.

286G. Participating Seminar in Analysis.

286H. Participating Seminar in Differential Equations.

286I. Participating Seminar in Functional Analysis.

286J. Participating Seminar in Applied Mathematics.

286K. Participating Seminar in Probability.

286L. Participating Seminar in Statistics.

286M. Participating Seminar in Mathematics.

290. Seminar in Current Literature. A seminar for Ph.D. candidates. Readings and presentations of papers in mathematical literature under the supervision of a staff member.

NOTE: For key to symbols, see page 74

Professional Course in Method

370. The Teaching of Mathematics. Prerequisite: course 31B, 3B, or 4B and senior standing. A critical inquiry into present-day tendencies in the teaching of mathematics.

Individual Study and Research

596. Directed Individual Study or Research. (½ to 1 course) Supervised individual reading and study on a project approved by a faculty member, which may be preparation for the master's essay. May be repeated for credit, but only two such courses may be applied toward the master's degree unless departmental approval is obtained.

599. Research in Mathematics. (½ to 2 courses) Study and research for the Ph.D. dissertation. May be repeated for credit.

MEDICAL HISTORY

See Department of Anatomy.

METEOROLOGY

See Department of Atmospheric Sciences.

MICROBIOLOGY

(Department Office, 5304 Life Sciences Building)

R. John Collier, Ph.D., *Professor of Microbiology.*
Frederick A. Eiserling, Ph.D., *Professor of Microbiology.*
C. Fred Fox, Ph.D., *Professor of Molecular Biology in Microbiology (Chairman of the Department).*
June Lascelles, Ph.D., *Professor of Microbiology.*
Rafael J. Martinez, Ph.D., *Professor of Microbiology*
Donald P. Nierlich, Ph.D., *Professor of Microbiology.*
M. J. Pickett, Ph.D., *Professor of Microbiology.*
Sydney C. Rittenberg, Ph.D., *Professor of Microbiology.*
William R. Romig, Ph.D., *Professor of Bacteriology.*
Eli E. Sercarz, Ph.D., *Professor of Microbiology.*
[4]John H. Silliker, Ph.D., *Adjunct Professor of Microbiology.*
[18]Jack G. Stevens, D.V.M., Ph.D., *Professor of Virology.*
Meridian Ruth Ball, Sc.D., *Emeritus Professor of Bacteriology.*
Gregory J. Jann, Ph.D., *Emeritus Professor of Bacteriology.*
Anthony J. Salle, Ph.D., *Emeritus Professor of Bacteriology.*
[14]David R. Krieg, Ph.D., *Associate Professor of Bacteriology.*
Gary L. Wilcox, Ph.D., *Associate Professor of Microbiology.*
Arnold J. Berk, M.D., *Assistant Professor of Microbiology.*
Bernadine Wisnieski, Ph.D., *Assistant Professor of Microbiology.*

•

Alfred E. Brown, Ph.D., *Assistant Research in Microbiology.*
Donald A. Kaplan, Ph.D., *Assistant Research in Microbiology.*
Robert A. Mah, Ph.D., *Professor of Public Health.*
Alexander Miller, Ph.D., *Associate Research Microbiologist.*
Robert E. Williams, M.S., *Assistant Research Microbiologist.*
[3]Raouf E. Yuja, M.D., *Assistant Clinical Professor of Hematology.*

Preparation for the Major

Biology 4A-4B or 5, 7; Chemistry 11A-11B-11BL-11C-11CL, 21, 23, 25; Mathematics 3A-3B-3C (or 31A-31B-31C); Physics 6A-6B-6C (or 8A-8B-8C-8D).

Pre-major

Students (new, transfer, or change of major) desiring to major in microbiology will first register as pre-microbiology students. After a minimum of two quarters in this status, pre-microbiology students may petition to change to the Microbiology major on completion of the following: Ten of the 14 courses required in preparation for the major, completion of Microbiology 101 with a grade of C or better. Students entering with 80 or more units credit, in order to specify pre-microbiology as their major, must have completed general chemistry, one year; Biology 4A-4B or 5, 7 or equivalent; and one of the following: organic chemistry with laboratory, two courses; physics, one year; calculus, one year.

The Major

The degree program in Microbiology has as its goals not only the introduction of the student to general and medical Microbiology, but also to the inseparably associated subdisciplines of biochemistry, genetics, cellular physiology, immunology and molecular biology. To qualify a student for study in such broadly related subjects, a heavy concentration of courses in the basic sciences (chemistry, mathematics and physics) is required. The student is then prepared for the advanced discussion of specialized topics required of him/her in the upper division courses. These include, in addition to the broad survey of general and medical microbiology presented in Microbiology 101, 102, and 103, courses in the subcellular structure and physiology of bacteria, genetics, and specialized courses in microbiology which include advanced laboratory training. In addition to the core program, the student may choose elective courses from a diversity of microbiology-related topics to complete the program. It is this combination of rigor in the study of fundamentals and diversity and flexibility in making up the actual microbiology major that makes this program appropriate preparation for those planning careers in a laboratory of microbiology or biochemistry, or for further studies leading to higher academic or professional degrees in such fields as microbiology, medicine, dentistry, biochemistry, pharmacology, immunology, genetics, cellular physiology, and molecular biology.

Microbiology 101, 102, 103, 111, 112, M132, M185; Chemistry 152. One additional course chosen from Microbiology upper division courses. Two or three (to make total of 11 full courses) additional upper division Microbiology courses from departmental list or courses from other science departments chosen with the approval of the Department. In addition to requirements for graduation prescribed by the College of Letters and Science, the student is required to maintain a minimal grade-point average of 2.0 (C) in the Department of Microbiology major. Additionally, a student must obtain a C or better in Microbiology 101, 102, 103 before continuing with further departmental upper division courses. A student repeating one of these courses must obtain a grade of B or better to remain in the Major.

Graduate Study

The Department of Microbiology in The College of Letters and Science offers programs of study and research leading to the M.A. and Ph.D. degrees in Microbiology (see the Graduate Division). The general University regulations for admission to and requirements for these programs are described in the Announcement of the Graduate Division.

For admission to the graduate program in Microbiology, the student must have completed an undergraduate major in bacteriology or microbiology, or in a related field such as biology, chemistry, or biochemistry, with superior scholastic achievement. In addition to microbiology, the following are also required in our undergraduate program: calculus; introductory physics; general biology; comparative genetics; general, organic, and biochemistry. A student may be admitted with background deficiencies to be remedied previous to or concurrent with the graduate program. Financial aid is available to qualified graduate students in the form of teaching assistantships, traineeships and research assistantships. More detailed information may be obtained by writing to the Graduate Adviser, Department of Microbiology.

Advisement

Each graduate and undergraduate student must confer with a departmental adviser upon entrance and at least once during every subsequent quarter. Departmental advisers are assigned in Life Science 5304.

Lower Division Courses

6. Introduction to Microbiology. Lecture, three hours. Not open for credit to students having credit for Microbiology 10, 101, Biology 4A-4B or 5, 6, 7, 8, or equivalent courses taken elsewhere. For the nontechnical student; an introduction to the biology of microorganisms (bacteria, viruses, protozoa, algae, fungi), their significance as model systems for understanding fundamental cellular processes, and their role in human affairs. The Staff (F,W,Sp)

10. General Microbiology. Lecture, three hours; laboratory-discussion, six hours. Prerequisite: Biology 4A-4B, or 5, 7; Chemistry 11A, 15. For Health Sciences students; not open for credit to students with credit in Microbiology 101; does not substitute for Microbiology 101 in the major. An introduction to the biology of bacteria and their role in diseases of man. The Staff (Sp)

Upper Division Courses

101. Fundamentals of Bacteriology. Lecture, three hours; laboratory, discussion, six hours. Prerequisites: Biology 4A-4B or 5, 7; Chemistry 21, 23. The historical foundations of the sciences; the structure, physiology, ecology and applications of bacteria. Ms. Lascelles (Sp), Mr. Rittenberg (F)

102. Introductory Virology. Lecture, three hours; laboratory, four hours. Prerequisite: Microbiology 101. Biological properties of bacterial and animal viruses; replication; methods of detection; interactions with host cells and multicellular hosts. Mr. Berk, Mr. Romig, Mr. Stevens (W)

103. Host-Parasite Interactions. Lecture, four hours; discussion, one hour. Prerequisite: Microbiology 101 and Chemistry 152. Biochemistry and biology of host-parasite interactions; host responses to invasion; mechanisms of virulence, bactericidal mechanisms; discussion on the immunity to infection by bacteria. Mr. Martinez (Sp)

105. Bacterial Diversity. Lecture, three hours; laboratory, six hours. Prerequisite: course 101. The biology of the major groups of bacteria, and the application of elective culture procedures. Mr. Rittenberg (Sp)

106. Principles of Microbial Ecology. Lecture, three hours. Prerequisites: Biology 4A-4B or 5, 7; Chemistry 23; Microbiology majors must have completed Microbiology 101. An introduction to the interactions of microbes and their environment, stressing the basic biological, biochemical, and physiological elements controlling growth in selected habitats and systems. Mr. Mah, Mr. Nierlich (W)

108. Hematology. (½ course) Prerequisite: senior standing and consent of the instructor. Diagnostic procedures used for the study of normal and pathological blood cells. Mr. Yuja (W)

110. The Microbiology of Infection. Lecture, three hours, laboratory, six hours. Prerequisite: Microbiology 101, 102 and Chemistry 152, or consent of the instructor. The salient characteristics of bacteria, rickettsiae, and viruses, both pathogenic and adventitious, associated with diseases of man. Mr. Pickett (F)

110C. The Laboratory Diagnosis of Infection. Lecture, two hours; laboratory, nine hours. Prerequisite: Microbiology 110. Techniques in the laboratory examination of clinical material. Mr. Pickett (W)

111. Structure and Assembly in Bacteria. Lecture, three hours, discussion, one hour. Prerequisite: Microbiology 101 and Chemistry 152; or consent of instructor. A review of current knowledge of the structural organization of procaryotic cells. Emphasis on isolation methods, chemical composition, structure and assembly of subcellular components, including membranes, walls, flagella, ribosomes and viruses. Mr. Collier, Mr. Eiserling, Ms. Wisnieski (W)

112. The Biochemistry of Bacterial Growth. Lecture, three hours. Prerequisites: Microbiology 101,

M132 or equivalent, Chemistry 152; or consent of instructor. A review of current knowledge of bacterial growth and reproduction, considered at the molecular level. Discussions of the synthesis of DNA, RNA, and protein, the regulation of metabolism, and general cellular physiology.
Mr. Collier, Ms. Lascelles, Mr. Nierlich (Sp)

113. Bacterial Metabolism. Lecture, three hours; discussion, one hour. Prerequisite: Chemistry 152; or consent of instructor. The major patterns of energy generation and biosynthesis, and their regulation. Discussion sections on selected topics will be centered around readings from the current literature. Ms. Lascelles (W)

***119. Phage and Bacterial Genetics.** Lecture, three hours. Prerequisite: courses 102, M132, or consent of instructor. Genetics of bacteria and bacteriophage with emphasis on mechanisms of transmission and recombination, episomes and viral reproduction.

M132. Comparative Genetics. (Same as Biology M132.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 4A-4B or 5, 7 with grades of C or better, or consent of the instructor. Chemistry 23 or equivalent course in biochemistry, or consent of instructor. Mendelian principles; the gene: its structure, function, and chemistry, with emphasis on mutation, coding regulation, and transmission. Not open to students who have had Biology 134.
The Staff

151. Principles of Food Microbiology. Lecture, three hours. Prerequisite: course 101 (or equivalent with consent of instructor). The course covers the fundamental principles of food microbiology. Emphasis is on basic microbiological principles as they apply to food products and processing. The approach is science-oriented rather than technology oriented. The course will have as a formal prerequisite Bacteriology 101, or its equivalent, which in turn has as prerequisites a year of general chemistry and a year of organic chemistry and Biochemistry. The course will consist of a series of formal lectures with an assigned text and readings in past and current research literature in food microbiology. Mr. Silliker (Sp)

M185. Immunology. (Same as Biology M185 and Microbiology and Immunology M185.) Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 23, 25; course M132. Concurrent enrollment in Chemistry 152 or 156 is recommended. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cell immune reactions.
Mr. Clark, Mr. Sercarz (F)

M186. Immunology Laboratory. (½ course) (Same as Biology M186 and Microbiology and Immunology M186.) Laboratory, four hours. Prerequisites: course M185 and consent of instructor. This course will focus on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments. Must be taken concurrently with Microbiology M187. Mr. Clark, Mr. Sercarz (W)

M187. Immunology Seminar. (½ course) (Same as Biology M187 and Microbiology and Immunology M187.) Discussion, two hours. Prerequisites: course M185 and consent of instructor. Student presentation of selected papers from the immunology literature. Designed to serve as a forum for the critical analysis of research papers. Must be taken concurrently with Microbiology M186. Mr. Clark, Mr. Sercarz (W)

M188. Immunological Techniques. (½ course) (Same as Microbiology and Immunology M188.) Prerequisites: course M185 with an A grade; consent of instructor. Techniques in immunochemistry and immunobiology. State of the art advanced technology for performance of experiments in modern immunology in a workshop format. Each workshop is of approximately two full days duration.
Mr. Sercarz (W)

195. Proseminar. (½ course) Discussion, one hour. Prerequisite: senior standing and consent of instructor. Small groups of students and instructor discuss current research literature. Topic announced each quarter. Enrollment limited.
The Staff (F,W,Sp)

199. Special Studies in Microbiology. (½ to 4 courses) Prerequisites: open only to students with superior academic standing, and consent of instructor and Department Chairman, based on written research proposal. Maximum enrollment for four quarters. The Staff (F,W,Sp)

Microbiology

Graduate Courses

203. Advanced Microbial Genetics. (¾ course) Lecture and discussion, three hours. Prerequisites: Microbiology 101; Microbiology M132; Chemistry 152 or equivalent; undergraduate seniors may enroll with consent of the instructor. Discussion of genetic and biochemical principles and techniques used in the construction of bacterial strains. Topics discussed will include transduction, conjugation, transformation, restriction endonucleases, and DNA cloning. Mr. Wilcox (Sp)

204. Microbial Genetics. Lecture, one hour; laboratory, nine hours. Prerequisite: consent of the instructor. Advanced methodology for the study of bacterial and viral genetics. Mr. Romig (W)

M211. Advanced Immunology Workshops. (No Credit) (Same as Microbiology and Immunology M211.) Lecture, one hour; discussion, two hours; laboratory, three hours. Prerequisite: consent of the instructor. Combined laboratory, lecture and seminar sessions covering specialized subjects and methods in immunology will be offered in intensive periods of two to three day duration at appropriate times. The Staff

M212. Laboratory Procedures in Immunological Research. (½ course) (Same as Immunology M212.) Prerequisite:course M185 or equivalent and the consent of instructor. A series of 12 intensive laboratory workshops designed to acquaint the student with the advanced methodologies utilized for immunological research. Workshops will be offered at regular intervals and will have a duration of 2-3 days. Successful completion of four workshops constitutes the requirements for one course. Enrollment will be limited to 25. May be repeated for credit if different projects are undertaken. Grade S/U. Students must enroll through Microbiology and Immunology.
Mr. Ashman, Mr. Bonavida, Mr. Stevens (F,W,Sp)

213. Membrane Molecular Biology. Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 152 or equivalent; Microbiology 111, M132 and Chemistry 110A recommended but not required; undergraduate seniors may enroll with consent of instructor. The structural organization and properties of lipids and proteins in model and biological membranes, membrane isolation techniques, physical chemistry of lipid monolayers and bilayers, membrane transport, assembly of cellular and viral membranes, properties of membranes of tumor cells. Offered alternate years.
Mr. Fox, Ms. Wisnieski (Sp)

214. Methods in Membrane Biology. Lecture and discussion, three hours; laboratory, nine hours. Prerequisite: consent of instructor. Emphasis on the basic techniques for isolating and characterizing biological membranes and component molecules. Basic and advanced techniques of membrane biochemistry and biophysics. Offered alternate years, beginning Winter Quarter 1978.
Ms. Wisnieski (W)

221U-221Z. Seminars and Symposia on Molecular Biology. (½ to 1 course each) Lecture, two hours; discussion, three hours. Prerequisite: consent of instructor. Seminar courses which integrate topically with symposia organized and sponsored by the Molecular Biology Institute. These international symposia feature leading researchers in selected areas of molecular biology. Students registering for one of these seminars will receive an abstract booklet for the symposium and will use the abstracts as the starting point for weekly presentations on the topics to be treated at the symposium. The student will in this way prepare for participation in the symposium. Topics are announced each year on September 1 by the Department of Microbiology and the Molecular Biology Institute.
Mr. Fox and the Staff (W)

222A-222I. Advanced Topics in Microbiology. (½ course each) Lecture and discussion, two hours. The subject matter of this course will be in an advanced field of microbiology in which the instructor has special proficiency. The fields for each quarter will be announced in the Schedule of Classes. Course will be taught Fall, Winter and Spring. The Staff

225. Biochemical Methods in Microbial and Cell Biology. (2 courses) Lecture and discussion, three hours: laboratory, twelve hours. Prerequisite: consent of instructor. Emphasis will be on techniques for purification and characterization of proteins, including cell disruption, column chromatography, gel electrophoresis, ultracentrifugation, various optical methods, and use of radiosotopes.
Mr. Collier, Mr. Wilcox (W)

M226. Chromosome Structure and Regulation. (Same as Biological Chemistry M226, Biology M226, Chemistry M226, and Microbiology and Immunology M226.) Lecture, three hours. Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes. Satisfactory/unsatisfactory grades are used for this course.
Mr. Martinson, Mr. Tobin, Mr. Wall

M230A. Structural Molecular Biology. (½ course) (Same as Biology M230A and Chemistry M230A.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor, based on a written research proposal. Fundamentals of electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals.
Mr. Eiserling (F)

M230B. Structural Molecular Biology. (½ course) (Same as Biology M230B and Chemistry M230B.) Lecture, two hours; discussion, one hour. Prerequisites: Physics 6C, Mathematics 3C and consent of instructor. Selected topics from the following: principles of biological structure; structures of globular proteins and RNAs; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and x-ray diffraction; optical and computer filtering; three-dimensional reconstruction. Mr. Eiserling (W)

M230C. Structural Molecular Biology Laboratory. (½ course) (Same as Biology M230C and Chemistry M230C.) Laboratory, 10 hours. Prerequisite: consent of instructor, based on a written research proposal. Laboratory: practical experience with electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals. Mr. Eiserling (F)

M230D. Structural Molecular Biology Laboratory. (½ course) (Same as Biology M230D and Chemistry M230D.) Laboratory, ten hours. Prerequisite: course M230B concurrent. Methods in structural molecular biology, including experiments utilizing the following procedures: single crystal x-ray diffraction, low angle x-ray diffraction, electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building.
Mr. Eiserling (W)

M239. Laboratory Techniques in Nucleic Acid Research. (2 courses) (Same as Biology M239.) Lecture, two hours; discussion, one hour; laboratory, 12 hours (open lab). Prerequisite: consent of instructor. Procedures in the manipulation of nucleic acids, including: isolation of DNA and RNA

NOTE: For key to symbols, see page 74

and physical and chemical characterization by several means; characterization of circular DNA molecules by electron microscopy, gradient centrifugation and restriction enzyme analysis; in vitro transcription and hybridization analysis.
Mr. Nierlich, Mr. Simpson (Sp)

250. Seminar in Microbial Metabolism. (½ course)
Ms. Lascelles, Mr. Rittenberg

251. Seminar in Regulation and Differentiation. (½ course) Graded S/U only.
Mr. Nierlich, Mr. Wilcox

252. Seminar in Medical Microbiology. (½ course)
Mr. Pickett

253. Seminar in Biochemistry of Host Defense Mechanisms. (½ course) Lecture and discussion one hour. Prerequisite: consent of instructor. Discussion of the literature dealing with host defense mechanisms. The biochemical mechanisms of action of host defense will be stressed. May be taken for letter grade or S/U.
Mr. Collier, Mr. Martinez

255. Seminar in Bacterial Viruses. (½ course)
The Staff

256. Seminar in Microbial Genetics. (½ course)
Mr. Eiserling, Mr. Romig

M257. Seminar in Host-Parasite Relationships. (½ course) (Same as Microbiology and Immunology M257.) Prerequisite: consent of instructor. This course discusses recent advances in our knowledge of host-parasite interactions and means of controlling the parasites. Mr. Miller, Mr. Pickett

M258A. Advanced Immunology. (½ course) Lecture, three hours; discussion, one hour. (Same as Microbiology and Immunology M258A; formerly numbered M258.) Prerequisite: the equivalent of Microbiology M185 or Microbiology and Immunology 201 or consent of instructor. This two term lecture discussion course is designed to provide continuity between the basic immunology courses and the original research literature. The major aspects of the immune system will be intensively examined with emphasis on fundamental principles and on advances of the past five years. The first term will consist of lectures dealing with the development of B and T lymphocytes and the interaction of these two lymphocyte subpopulations in the production of immunoglobulin. In addition to the lectures there will be five discussion sessions for those enrolled in the course. To be offered in the Fall Quarter of each academic year. Grade or S/U. Mr. Fahey, Mr. Stevens (F)

M258B. Advanced Immunology. (½ course) (Same as Immunology M258B.) Prerequisites: the equivalent of Microbiology M185 or Microbiology and Immunology 201 and M258A or consent of instructor. A continuation of M258A which will consider the details of antibody structure, T lymphocyte function and selected topics of broad immunological significance. To be offered in the Winter Quarter of each academic year. Mr. Clark (W)

M260. Immunology Forum. (½ course) (Same as Microbiology and Immunology M260.) Lecture, two hours. Prerequisite: Microbiology M185. A broad range of current topics in immunology will be presented and discussed at an advanced frontier level. This is a continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments. The Staff

M263. Cellular Immunology Seminar. (½ course) (Same as Microbiology and Immunology M263.) Prerequisite: consent of instructor. Critical discussions of the current literature in T and B cell immunology with emphasis on molecular mechanisms. Mr. Sercarz

M264. Molecular Basis of Atherosclerosis. (½ course) (Same as Biological Chemistry M264 and Chemistry M264.) Prerequisite: course M261 or equivalent with consent of instructor. The course will cover the biochemistry, morphology and physiology of atherosclerosis. Emphasis will be placed on the chemistry of lipoproteins and the role of plasma lipoproteins on the regulation of tissue lipid metabolism and the development of atherosclerosis. The Staff

285. Seminar in Biological Membranes. (½ course) Lecture and discussion, one hour. Prerequisites: consent of instructor. A review of current research literature on molecular topics in membrane biology. Mr. Fox (F)

M293. Major Concepts in Oncology. (Same as Dentistry M293, Microbiology and Immunology M293 and Pathology M293.) Lecture, three hours. Prerequisite: graduate standing or consent of instructor. Course designed for graduate students contemplating research in oncology. Lecture. Topics include cancer pathophysiology, genetics; membranes, macromolecular synthesis and control, cell cycle, growth control; physical, chemical and viral oncogenesis, epidemiology of cancer; tumor immunology; principles of cancer surgery, radiation therapy and chemotherapy.
Mr. Baluda and the Staff

M298. Seminar in Current Topics in Molecular Biology. (½ course) (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology and Immunology M298 and Molecular Biology M298.) Prerequisites: enrollment must be approved by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics. The Staff

Individual Study and Research

596. Directed Individual Research. (½ to 3 courses) The Staff

598. Research for Master's Thesis. (½ to 3 courses)
The Staff

599. Research for Doctoral Dissertation. (½ to 3 courses) The Staff

MICROBIOLOGY

Graduate Study

The M.A. and Ph.D. degrees in Microbiology are offered in the Department of Microbiology, College of Letters and Science. More detailed information regarding admission requirements and opportunities for graduate studies in this program may be obtained by writing to the graduate adviser F.A. Eiserling, Department of Microbiology, 5304 Life Sciences Building.

MICROBIOLOGY AND IMMUNOLOGY

(Department Office, 43-239 Center for Health Sciences; Graduate Student Affairs Office, 43-312 Center for Health Sciences)

John L. Fahey, M.D., *Professor of Microbiology and Immunology/Immunology and Oncology, and Professor of Medicine (Chairman of the Department).*
William H. Hildemann, Ph.D., *Professor of Microbiology and Immunology/Immunology and Immunogenetics.*
Dexter H. Howard, Ph.D., *Professor of Microbiology and Immunology/Mycology, (Vice Chairman of the Department).*
David T. Imagawa, Ph.D., *Professor of Pediatrics and Microbiology and Immunology/Virology.*
William J. Martin, Ph.D., *Professor of Microbiology and Immunology in Residence/Bacteriology.*
James N. Miller, Ph.D., *Professor of Microbiology and Immunology/Immunology and Bacteriology.*
Debi P. Nayak, D.V.Sc., Ph.D., *Professor of Microbiology and Immunology/Virology and Oncology.*
A.F. Rasmussen, Jr., M.D., Ph.D., *Professor of Microbiology and Immunology/Virology.*
Jack G. Stevens, D.V.M., Ph.D., *Professor of Microbiology and Immunology/Virology, Professor of Bacteriology, and Professor of Neurology.*
Marietta Voge, Ph.D., *Professor of Microbiology and Immunology/Parasitology.*
Felix O. Wettstein, Ph.D., *Professor of Microbiology and Immunology/Molecular Biology (Vice Chairman of the Department).*
Telford H. Work, M.D., M.Ph.H., D.T.M.&H., *Professor of Microbiology and Immunology, Professor of Infectious and Tropical Diseases, and Professor of Preventive Social Medicine.*
Ruth A. Boak, M.D., Ph.D., *Emeritus Professor of Microbiology and Immunology/Bacteriology, Emeritus Professor of Public Health, and Emeritus Professor of Pediatrics.*
John F. Kessel, Ph.D., *Emeritus Professor of Microbiology and Immunology/Infectious Diseases.*
Margret I. Sellers, Ph.D., *Emeritus Professor of Microbiology and Immunology/Virology.*
Stephen Zamenhof, Ph.D., *Emeritus Professor of Microbiology and Immunology/Microbial Genetics.*
Benjamin Bonavida, Ph.D., *Associate Professor of Microbiology and Immunology/Immunology.*
George Fareed, M.D., *Associate Professor of Microbiology and Immunology/Virology.*
Sidney H. Golub, Ph.D., *Associate Professor of Microbiology and Immunology/Immunology in Residence, and Associate Professor of Surgery/Oncology.*
Jerrold A. Turner, M.D., *Associate Professor of Microbiology and Immunology in Residence, and Professor of Medicine.*
Randolph Wall, Ph.D., *Associate Professor of Microbiology and Immunology/Molecular Biology.*
David McVickar, M.D., Ph.D., *Emeritus Associate Professor of Microbiology and Immunology.*
Henry E. Weimer, Ph.D., *Emeritus Associate Professor of Microbiology and Immunology/Immunology and Immunochemistry.*
Robert F. Ashman, M.D., *Assistant Professor of Microbiology and Immunology/Immunology, and Assistant Professor of Medicine.*
Ronald H. Stevens, Ph.D., *Assistant Professor of Microbiology and Immunology/Molecular Immunology.*
Jacob Zighelboim, M.D., *Assistant Professor of Microbiology and Immunology/Immuno-Oncology, and Assistant Professor of Medicine.*
Seymour Froman, Ph.D., *Associate Clinical Professor of Microbiology and Immunology.*
Margery L. Cook, Ph.D., *Associate Research Virologist.*
Nina Dabrowa, Ph.D., *Associate Research Mycologist.*
Yoko S. Mullen, M.D., Ph.D., *Assistant Research Immunologist.*
Maurice L. White, Ph.D., *Lecturer in Microbiology and Immunology.*

The Department of Microbiology and Immunology in the School of Medicine offers the Ph.D. degree in microbiology and immunology. Graduate study may be in the fields of bacteriology, immunology, immunogenetics, microbial genetics, mycology, parasitology, virology, viral oncology, tumor biology, molecular biology, or cell biology. The graduate program is primarily designed for students seeking advanced training leading to the Ph.D. degree in any one of these special fields, or for students with a broader interest in the biology of infectious agents, immunology and host-parasite relationships who may elect to combine two or more fields.

Admission to Graduate Status

For admission to the graduate program, a student must meet the requirements of the Graduate Division, and must hold an approved bachelor's degree with a major in either the biological or physical sciences. Candidates are selected on the basis of an evaluation of the applicant's potential for graduate work as determined by:

1. Undergraduate, and where applicable, graduate scholastic record.

2. An interview with members of the Department, when needed.

3. Letters of recommendation.

4. Graduate Record Examination.

Requirements for the Doctor's Degree

1. The general Graduate Division requirements (see Graduate Division). (Proficiency in a foreign language is not required.)

2. Course Requirements:

a. Microbiology and Immunology 202 survey course or equivalent.

b. Directed Individual Study or Research 596 — participation in the laboratory rotation program.

c. Three courses in biochemistry. (Prerequisites: Mathematics through calculus and general physical chemistry.)

These will ordinarily be chosen from the following list but other substitutes may be selected with the approval of the Graduate Adviser: Microbiology 213 – Membrane Molecular Biology; Chemistry 253 – Proteins and Nucleic Acids; Chemistry 255 – Biological Catalysis; Chemistry 257 – Physical Chemistry of Biological Macromolecules; Chemistry 263 – Cellular Metabolism; Chemistry 267 – Nucleic Acid and Protein Biosynthesis; Biological Chemistry 269 – The Biochemistry of Differentiation.

3. Examinations:

a. Departmental Written Qualifying Examination – to be taken at the end of the first year of graduate study. The examination consists of two parts: 1) Molecular Biology (mandatory) and 2) four of the following six areas of Microbiology: Bacteriology, Genetics (and Immunogenetics), Immunology, Mycology, Parasitology and Virology. The student may choose an alternate way of fulfilling part two by selecting two of the aforementioned six areas to be examined on and indicating two other areas from among the six to be credited on the basis of course work. A list of appropriate courses for fulfilling the latter is available from the Graduate Adviser. The course work may be completed any time up to the end of the second year. A score of 75% is required to pass each part of the written examination. Parts failed have to be repeated.

b. Oral Qualifying Examination – to be taken within three years of enrolling in the Department. Administered by student's Doctoral Committee. The Oral Examination includes:

1) The defense of a prepared "proposition".

2) Explanation of research plans and results to date.

3) A demonstration of general knowledge of microbiology and immunology.

4. Participation in teaching of a laboratory section in a course presented by the Department.

Upper Division Courses

M185. Immunology. (Same as Microbiology M185 and Biology M185.) Prerequisites: course M132; Chemistry 22 and 24; concurrent enrollment in Chemistry 152 or 156 is recommended. Introduction to immunobiology and immunochemistry. Cellular and molecular aspects of humoral and cell-mediated immune reactions. The Staff (F)

M186. Immunology Laboratory. (½ course) (Same as Biology M186 and Microbiology M186.) Prerequisite: course M185 and consent of instructor. This course will focus on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments. Must be taken concurrently with Biology M187. Mr. Clark, Mr. Sercarz

M187. Immunology Seminar. (½ course) (Same as Microbiology M187 and Biology M187.) Prerequisites: Microbiology M185 and consent of instructor. Student presentation of selected papers from the immunology literature. Designed to serve as a forum for the critical analysis of research papers. Must be taken concurrently with Microbiology and Immunology M186. Mr. Clark, Mr. Sceraz (W)

M188. Immunological Techniques. (½ course) (Same as Microbiology M188.) Prerequisites: course M185 with an A grade; consent of instructor. Techniques in immunochemistry and immunobiology. State of the art advanced technology for performance of experiments in modern immunology in a workshop format. Each workshop is of approximately two full days duration. Mr. Sercarz (W)

199. Directed Individual Research Studies in Microbiology and Immunology. (½ to 2 courses) Prerequisites: senior standing and consent of instructor, based on written research proposal. Individual research projects carried out under direction of individual professor. The Staff

Graduate Courses

Immunology

M211. Advanced Immunology Workshop. (No Credit) (Same as Microbiology M211.) Prerequisite: consent of instructor. Combined laboratory, lecture and seminar sessions covering specialized subjects and methods in immunology will be offered in intensive periods of two- to three-day duration at appropriate times. The Staff

M212. Laboratory Procedures in Immunological Research (½ course) (Same as Microbiology M212.) Prerequisite: course M185 or equivalent and the consent of instructor. A series of 12 intensive laboratory workshops designed to acquaint the student with the advanced methodologies utilized for immunological research. Workshops will be offered at regular intervals and will have a duration of 2-3 days. Successful completion of four workshops constitutes the requirements for one course. Enrollment will be limited to 25. May be repeated for credit if different projects are undertaken. Graded S/U.Students must enroll through Microbiology and Immunology. Mr. Ashman, Mr. Bonavida, Mr. Stevens (F,W,Sp)

254. Immunogenetics. (½ course) Review of current literature in the field of immunogenetics, with emphasis on fundamental studies involving genetic and immunologic principles and techniques. Selected topics will be discussed and results interpreted; conclusions and experimental methods will be evaluated. Mr. Hildemann (Sp)

M258A. Advanced Immunology. (½ course) (Same as Microbiology M258A.) Prerequisite: the equivalent of Microbiology and Immunology 185 or Prerequisite: the equivalent of Microbiology and Immunology 185 or Microbiology and Immunology 201 or consent of instructor. This two term lecture discussion course is designed to provide continuity between the basic immunology courses and the original research literature. The major aspects of the immune system will be intensively examined with emphasis on fundamental principles and on advances of the past five years. The first term will consist of lectures dealing with the development of B and T lymphocytes and the interaction of these two lymphocyte subpopulations in the production of immunoglobulin. In addition to the lectures there will be discussion sessions for those enrolled in the course. To be offered in the Fall Quarter of each academic year. Grade or S/U. Mr. Sercarz (F)

M258B. Advanced Immunology. (½ course) (Same as Microbiology M258B.) Prerequisites: the equivalent of Microbiology and Immunology 185 or Microbiology and Immunology 201 and M258A or consent of instructor. A continuation of M258A which will consider the details of antibody structure, T lymphocyte function and selected topics of broad immunological significance. To be offered in the Winter Quarter of each academic year. Grade or S/U. Mr. Zighelboim (W)

M260. Immunology Forum. (½ course) (Same as Microbiology M260.) Prerequisite: Microbiology and Immunology M185. A broad range of current topics in immunology will be presented and discussed at an advanced frontier level. This is a continuing UCLA-wide, general graduate level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments. Mr. Clark (F,W,Sp)

261. Tumor Immunology. (½ course) Prerequisite: course M258 or equivalent. Experimental basis for investigation of immune response to tumors; review of cell-mediated immunity and related humoral immunity; evidence for tumor-associated antigens in man; evaluation of attempts at immunotherapy of tumors. Letter grade. Mr. Golub (Sp)

262. Seminar in Immunobiology of Cancer. (¼ course) Prerequisite: consent of the instructor. Review of recent literature in the fields of immunology, biology and biochemistry of cancer with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens and new techniques. Reports on scientific meetings will be discussed and evaluated. Graded S/U. Mr. Bonavida

M263. Cellular Immunology Seminar. (½ course) (Same as Microbiology M263.) Prerequisite: consent of instructor. Critical discussions of the current literature in T and B cell immunology with emphasis on molecular mechanisms. Mr. Sercarz (F,W,Sp)

264. Molecular Immunology. (½ course) Prerequisite: consent of instructor. Ongoing seminar reviewing control processes at a molecular level during proliferation and differentiation of cells in the immune responses and relationship to similar processes in other differentiation cell systems. Graded S/U. Mr. Wettstein (F)

276. Viral Immunology. (½ course) Prerequisite: MI 202 (or equivalent) and consent of instructor. This course will focus on selected areas of immunovirology: principles of non-specific and specific immunity to viruses, immunological effector mechanisms in the maintenance of viral latency, influence of virus infections on different immune functions and the immune response to virally induced tumors. The Staff (F)

Microbiology

201. Microbiology and Immunology. (2½ courses) Lectures and laboratory. Study of infectious agents of human disease with emphasis on host-parasite relationships and immunologic phenomena in immunity and disease, including identification of bacteria, fungi, animal parasites and viruses, and principles of prevention, treatment, and laboratory diagnosis. For medical students only. The Staff (F)

202. Microbiology and Immunology. (2 courses) Lecture and Laboratory. Prerequisite: consent of instructor. Study of infectious agents of human disease with emphasis on host parasite relationships and immunologic phenomena in immunity and disease, including identification of bacteria, fungi, animal parasites and viruses, and principles of prevention, treatment, and laboratory diagnosis. For graduate students only. The Staff (F)

210. Medical Mycology. (½ course) Prerequisite: Microbiology 101, 103 and 185: recommended Microbiology 110. Consent of instructor may be obtained in special cases. A study of the morphology, physiology, and pathogenicity of fungi causing human and animal diseases. Mr. Howard (Sp)

210L. Medical Mycology. (½ course) Prerequisite: Microbiology 101, 103 and 185: recommended Microbiology 110. Consent of instructor may be obtained in special cases. Laboratory application of principles discussed in 210. Laboratory must be taken by undergraduate students. Mr. Howard (Sp)

214. Bacterial Pathogenesis. (½ course) Prerequisite: Microbiology and Immunology 202 and/or consent of instructor. A study of the genetic and biochemical properties of bacteria and factors of the host which are relevant to the pathogenesis of bacterial diseases. The Staff

251. Seminar in Microbiology and Immunology. (½ course) Consideration of the history of infectious diseases, their host-parasite relationships, etiology, pathogenesis, epidemiology, diagnosis, and immunity. Mr. Howard (W)

252. Seminar in Viral Disease. (¼ course) A consideration of basic phenomena involved in pathogenesis of viral disease, using carefully selected examples. Emphasis will be given to those systems which have been meaningfully dissected by quantitative biochemical methods. Mr. Stevens

253. Seminar in Medical Parasitology. (½ course) Review of current and recent literature in the field of medical parasitology, emphasizing experimental

NOTE: For key to symbols, see page 74

work of medical or public health importance. Students will be expected to prepare reviews of selected subjects, and to discuss the contributions of various workers from the standpoint of experimental methods, results, their interpretation and their evaluation. Mrs. Voge (Sp)

255. Seminar in Medical Mycology. (½ course) Review of current and recent literature in the field of medical mycology, with emphasis on the host-parasite relationships in the human and animal mycoses. Students will be expected to prepare reviews of selected subjects and to discuss contributions of various workers from the standpoint of experimental methods, results, their interpretation and evaluation. Must be taken in conjunction with 210 by Graduate students. Graded S/U.
Mr. Howard (Sp)

M257. Seminar in Host-Parasite Relationships. (½ course) (Same as Microbiology M257.) This course discusses recent advances in our knowledge of host-parasite interactions and means of controlling the parasites. Mr. Miller, Mr. Pickett (Sp)

M293. Major Concepts in Oncology. (Same as Microbiology M293, Dentistry M293, and Pathology M293.) Prerequisite: graduate standing or consent of instructor. Course designed for graduate students contemplating research in oncology. Lecture. Topics include cancer pathophysiology, genetics, membranes, macromolecular synthesis and control, cell cycle, growth control; physical, chemical and viral oncogenesis, epidemiology of cancer; tumor immunology; principles of cancer surgery, radiation therapy and chemotherapy. Mr. Golde (W)

Cell Biology and Virology

208. Animal Virology. Prerequisites: courses in general biochemistry and in general microbiology, including virology. Consent of the instructor may be obtained in special cases. Recommended for advanced undergraduate students with a major in public health, biology or microbiology and for graduate students with an interest in any field of biology or chemistry. The course encompasses an overview of animal viruses including viral structure, virus cell interaction, virus replication and viral oncogenesis. Special emphasis is placed in understanding the molecular mechanism involved in the control and regulation of replication, transcription and translation of viral genome and its complex interaction with host.
Mr. Nayak (Sp)

M226. Chromosome Structure and Regulation. (Same as Microbiology M226, Biology M226, Biological Chemistry M226 and Chemistry M226.) Prerequisite: consent of instructor. Lectures and panel discussions on the structural and functional organization of eukaryotic chromosomes. Graded S/U. The Staff

250. Topics in New Biology. Lectures and student seminar presentations. A review of selected current topics in molecular and cell biology. Topics will be selected from recent experimental results on the organization, expression and regulation of genes in eukaryotic cells. Graded S/U. Mr. Wall (W)

256. Seminar in Viral Oncology. (½ course) An advanced research seminar designed to consider the current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation. Mr. Baluda (F,W,Sp)

265. Co-Seminar in Animal Virology. (½ course) Prerequisites: Animal Virology 208 or must be concurrently enrolled in course 208 and the consent of the instructor. Critical review and analysis of the selected papers in the field. Topics will include structure and biology of animal viruses and virus-host interaction at the cellular and molecular level.
Mr. Nayak (Sp)

271. Research Seminar in Virology. (½ course) Prerequisite: consent of instructor. Selected topics in virology including viral structures, host virus interaction, and regulation of viral and host gene expression will be presented and discussed in depth. Mr. Nayak (Sp)

M298. Seminar in Current Topics in Molecular Biology. (½ course) (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology M298, and Molecular Biology M298.) Prerequisite: Approval by the instructor and by the Graduate Adviser of the Interdepartmental Molecular Biology Ph.D. Committee. Each student enrolled conducts or participates in discussions on assigned topics. May be repeated for credit. The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 1 course) Laboratory by arrangement. Consent of Graduate Adviser. The Staff

597. Preparation for the Qualifying Examination for the Ph.D. in Microbiology and Immunology. (½ to 1½ courses) The Staff

599. Research for and Preparation of the Doctoral Dissertation in Microbiology and Immunology. (½ to 2 courses) Prerequisite: Bacteriology and/or Biochemistry. Research on an original problem in the field of Microbiology and Immunology, to be selected by the graduate student with the advice of the instructor. Fields of study may be in bacteriology, immunochemistry, immunogenetics, microbial genetics, mycology, parasitology, virology, viral oncology, tumor biology, or cell biology.
The Staff

MILITARY SCIENCE

(Department Office, 127 Men's Gymnasium)

Peter A. Gray, M.A., *Lieutenant Colonel, Military Police Corps, Professor of Military Science.*
Eric K. Azuma, M.S., *Major, Chemical Corps, Assistant Professor of Military Science.*
Lawrence C. Hinkle, M.S., *Captain, Signal Corps, Assistant Professor of Military Science.*
Frederick R. Jones, M.Ed., *Captain, Air Defense Artillery, Assistant Professor of Military Science.*
Charles Tillman, M.A., *Captain, Infantry, Assistant Professor of Military Science.*

Army Reserve Officers' Training Corps

The Department offers a general Military Science curriculum which conforms to the academic pattern of the UCLA campus. Military Science classes are open to all students; enrollment as an ROTC cadet is not required. Cross-enrollment is available through the UCLA Extension for students attending other colleges that do not offer Army ROTC.

The Military Science curriculum is a part of the Army Reserve Officers Training Corps (ROTC) program. Enrollment in the ROTC program is on a voluntary basis and is limited to qualified full-time male and female students.

The Military Science curriculum is divided into two parts: (1) the Basic Course, two years of lower division study to prepare the student for advanced instruction, and (2) the Advanced Course, two years of upper division study. Satisfactory completion of the Advanced Course and attainment of a Bachelor degree leads to a commission as a second lieutenant in the Army Reserve, National Guard, or Active Army. Distinguished students may qualify for a commission in the Regular Army.

Transfer students and others who were unable to enroll in the Basic Course can receive equivalent credit by attending a six-week camp during the summer between their sophomore and junior year. Successful completion of this camp will qualify the student for direct entry into the Advanced Course. Attendees are given an allowance for travel expenses and are paid for attendance. Equivalent ROTC credit is granted to those students who have participated in the Junior ROTC program for a minimum of two years.

Eligible veterans and members of the Reserve or National Guard can enroll directly into the Advanced Course. Veterans may receive VA benefits concurrently with Advanced Course subsistence allowances.

Admission to the Advanced Course is limited to selected students who meet all academic and physical requirements. Enrolees in this course receive a subsistence allowance of $100 for each of the twenty academic months. Upon completion of the Advanced Course and fulfillment of degree requirements, the student is commissioned as a second lieutenant in one of the Army's speciality areas. Insofar as possible, the student's desires and academic major will be considered.

Students selected for Advanced ROTC must attend a six-week Advanced Camp between their junior and senior years. Attendees will receive an allowance for travel expenses and are paid for attendance.

Army ROTC scholarships are available for various terms to selected applicants. Scholarships pay all costs associated with tuition, books, and other student fees. In addition, scholarship recipients receive a subsistence allowance of $100 per month for the academic year. Full four-year scholarships are offered to high school seniors selected by national competition. Three, two, and one-year scholarships are also available.

The active duty obligation for those students electing to enter the Reserves or National Guard is only three months. Students accepting ROTC Scholarships, a commission in the Regular Army, or who choose to enter the Active Army will serve longer terms. ROTC students desiring to obtain advanced degrees may be granted a delay in reporting to their initial assignment. For further information contact the Department of Military Science located in the Men's Gym, telephone 825-7384, or 825-7381.

Four-Year Program. Students are enrolled in the Basic Course (Freshman and sophomore years) on a voluntary basis. Upon completion of the Basic Course and entrance into the Advanced Course (Junior and Senior years), students are required to execute a contract with the Department of the Army agreeing to complete the Advanced Course, enlist in the United States Army Reserve, and accept a commission if offered. Advanced Course students receive $100 subsistence allowance per academic month, military science books, and uniforms.

Two-Year Program. This program is primarily designed for students with prior military service or three years of Junior ROTC in high school. In addition, students that do not have any prior military experience and have less than four years of schooling remaining may qualify for this program by attending an ROTC basic camp offered in the summer. Students receive allowances for travel expenses and are paid for camp attendance. Upon successful completion of this basic camp, the student will enter the advanced course under the same requirements as stated for the four-year program.

11. U.S. Defense Establishment. (½ course) A study of the evolution of the U.S. Department of the Defense; includes a study of the military services, with emphasis on the U.S. Army. Capt. Jones

12. U.S. Defense Establishment. (½ course) A study of the military institution and other elements of national power as instruments of national policy and strategy in conditions of peace and war.
Capt. Jones

13. Theory of Warfare. (½ course) Inquiry into the theory, nature, causes, and elements of warfare, with attention also directed to the evolution of weapons and warfare. Capt. Jones

21. United States Military History. (½ course) Prerequisite: CADET: Completion of Military Science 11, 12, and 13 or equivalent; NON-CADET: College student. In depth study of U.S. Army from 1755-1860, with emphasis on leaders and combat actions. An introductory survey of opposing strategies and relationships to the men leading and serving in the U.S. Army. Capt. Tillman

22. United States Military History. (½ course) Prerequisite: CADET: Completion of Military

Science 11, 12, and 13 or equivalent; NON-CADET: College student. In depth study of the U.S. Army from the beginning of the Civil War to World War II (1860-1939) with emphasis on leadership at all levels and campaigns involving the U.S. Army. Emphasis on the development of strategy and combat operations of both sides. Capt. Tillman

23. United States Military History. (½ course) Prerequisite: CADET: Completion of Military Science 11, 12, and 13 or equivalent; NON-CADET: College student. In depth study of the U.S. Army from World War II to present, with emphasis on strategies and leadership on both sides. Capt. Tillman

111. Psychology of Leadership. (½ course) Prerequisite: CADET: Completion of Basic Course or equivalent; NON-CADET: Upper division standing. Introduction to Psychology 10 (for both). Familiarization of the student with current concepts in the behavioral sciences which builds the theoretical framework for understanding human behavior in relating to the basic problems of management and the organizational context of leadership. Emphasis is placed on the leader/manager problems of directing and controlling resources. Maj. Azuma

112. Theory of Learning Applied to Teaching I. (½ course) Prerequisite: CADET: Completion of Basic Course or equivalent; NON-CADET: upper division. An examination of learning theories to support development of knowledge, skills and attitudes necessary for the instructing-teaching application. Emphasis is placed on the education/instructional processes. Maj. Azuma

113. Theory of Learning Applied to Teaching II. (½ course) Prerequisite: CADET: Completion of Basic Course or equivalent; NON-CADET: upper division completion of Military Science 112 or equivalent (both). A study of instructional processes, lesson content planning procedures, techniques for applicatory education, role of testing including evaluation and analysis. Emphasis is placed on improvement of teaching and group process. Maj. Azuma

123. Military Legal Systems. (½ course) Prerequisite: CADET: first year Advanced Military Science; NON-CADET: upper division standing. An introduction to the theory and application of military law and legal systems. Course focuses on the Uniform Code of Military Justice and the rights of the accused under the constitution. LTC. Gray

124. Military-Societal Relations. (½ course) Prerequisite: CADET: First year Advanced Military Science, Management 190, and Political Science 138A, or equivalent; NON-CADET: upper division standing, Political Science 138A, or equivalent. An advanced study of the U.S. Army as a professional organization: its relationship to society; professional ethics; and social problems. Capt. Hinkle

125. Decision-making. (½ course) Prerequisite: CADET: one introductory course in Probability and Statistics, one course in Computer Science and Management 190; NON-CADET: same as for cadet; consent of instructor. Theory of decision-making, functions of the decision-making process, optimizing decisions, information systems, operations research, systems management. Capt. Hinkle

MOLECULAR BIOLOGY (INTERDEPARTMENTAL)

(Molecular Biology Institute Bldg. Room 171)

D.E. Atkinson, Ph.D., *Professor of Chemistry.*
Marcel A. Baluda, Ph.D., *Professor of Viral Oncology.*
Paul D. Boyer, Ph.D., *Professor of Chemistry.*
William R. Clark, Ph.D., *Professor of Cell Biology*
R. John Collier, Ph.D., *Professor of Microbiology.*
David S. Eisenberg, Ph.D., *Professor of Molecular Biology in Chemistry.*
F.A. Eiserling, Ph.D., *Professor of Microbiology.*
John Fessler, Ph.D., *Professor of Molecular Biology in Biology.*
C. Fred Fox, Ph.D., *Professor of Molecular Biology in Microbiology.*
Dohn G. Glitz, Ph.D., *Professor of Biological Chemistry.*
Issac M. Harary, Ph.D., *Professor of Biological Chemistry.*
James A. Lake, Ph.D., *Professor of Molecular Biology in Biology.*
George Laties, Ph.D., *Professor of Plant Physiology.*
Donald P. Nierlich, Ph.D., *Professor of Microbiology.*
George Popjak, Ph.D., *Professor of Psychiatry and Biological Chemistry.*
Dan S. Ray, Ph.D., *Professor of Molecular Biology in Biology.*
W.R. Romig, Ph.D., *Professor of Microbiology.*
Winston A. Salser, Ph.D., *Professor of Molecular Biology in Biology.*
Verne N. Schumaker, Ph.D., *Professor of Molecular Biology in Chemistry.*
Larry Simpson, Ph.D., *Professor of Cell Biology.*
Fritiof S. Sjostrand, Ph.D., *Professor of Biology.*
Emil Smith, Ph.D., *Professor of Biological Chemistry.*
Roberts A. Smith, Ph.D., *Professor of Chemistry.*
Clara Szego, Ph.D., *Professor of Biology.*
Philip Thornber, Ph.D., *Professor of Molecular Biology in Biology.*
Felix Wettstein, Ph.D., *Professor of Molecular Biology in Microbiology and Immunology.*
Samuel Wildman, Ph.D., *Professor of Biology.*
Irving Zabin, Ph.D., *Professor of Biological Chemistry.*
Clifford Brunk, Ph.D., *Associate Professor of Biology.*
George C. Fareed, Ph.D., *Associate Professor of Molecular Biology in Microbiology and Immunology.*
Richard N. Halpern, M.D., *Associate Professor of Medicine in Residence.*
Harvey Herschman, Ph.D., *Associate Professor of Biological Chemistry.*
Bruce Howard, Ph.D., *Associate Professor of Biological Chemistry.*
John M. Jordan, Ph.D., *Associate Professor of Molecular Biology in Chemistry.*
Harumi Kasamatsu, Ph.D., *Associate Professor of Molecular Biology in Biology.*
David S. Sigman, Ph.D., *Associate Professor of Biological Chemistry.*
Randolph Wall, Ph.D., *Associate Professor of Microbiology and Immunology.*
William T. Wickner, Ph.D., *Associate Professor of Molecular Biology in Biological Chemistry.*
Gary Wilcox, Ph.D., *Associate Professor of Microbiology.*
Patrice Zamenhof, Ph.D., *Associate Professor of Biological Chemistry.*
Arnold J. Berk, Ph.D., *Assistant Professor of Microbiology.*
Steven G. Clarke, Ph.D., *Assistant Professor of Chemistry.*
Jay Gralla, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Michael Grunstein, Ph.D., *Assistant Professor of Molecular Biology in Biology.*
Judith Lengyel, Ph.D., *Assistant Professor of Molecular Biology in Biology.*
Harold B. Martinson, Ph.D., *Assistant Professor of Chemistry.*
Emil Reisler, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Robert M. Sweet, Ph.D., *Assistant Professor of Molecular Biology in Chemistry.*
Allan J. Tobin, Ph.D., *Assistant Professor of Biology.*
Richard L. Weiss, Ph.D., *Assistant Professor of Chemistry.*
Bernadine Wisnieski, Ph.D., *Assistant Professor of Microbiology.*

Undergraduate Study

Undergraduate studies which readily lead to advanced work or employment in the molecular biology area include undergraduate majors in biochemistry, biology, or physics. Students may wish to supplement their course programs in consultation with the appropriate undergraduate advisers. In making preparation for graduate study, attention should be given to recommendations given below for preparation for the Ph.D. degree in molecular biology.

The Ph.D. Program

A program of study for the Ph.D. degree is supervised by the Interdepartmental Degree Committee for Molecular Biology. The Molecular Biology Institute was established to encourage fundamental research in molecular biology, biophysics, and biochemistry, and to support graduate instruction for qualified students. Members and Associates of the Institute supervise graduate work in a variety of areas as indicated later. Applicants for the Ph.D. degree program should have a major in a biological or physical science or mathematics. Course work should include mathematics through calculus, one year each of general and of organic chemistry, a year each of physics and physical chemistry based on use of calculus, and a year of biology. Modification in undergraduate requirements may be made for qualified candidates with interests in certain areas. Candidates may enter the program with some course deficiencies but with anticipation these will be made up in the early part of the graduate program.

The Individual Study Program

An individual program of study will be worked out for each student depending upon his particular background and area of specialization. A Student Guidance Committee selected from Molecular Biology Institute Members and Associates will be appointed by the Graduate Adviser for each first-year student. The Committee will meet with the student before the beginning of each quarter and once again at the end of the year. Its functions are to aid in the design of a course program tailored to fit the needs of the student, to help select three laboratories for the student's first year research experience, and to evaluate the student's progress. The supervision of the student's second-year curriculum and research will be transferred from the Guidance Committee to the student's Dissertation Research Supervisor, together with the Graduate Adviser. It is anticipated that by the conclusion of the second year, the student will have completed his course work, his qualifying examinations, and made a start on his dissertation research.

Minor Field of Study

Each student is required to design and follow a program of study leading to proficiency in some subject related to, but outside of, Molecular Biology. This requirement can be satisfied by a set of courses or other program of individual study developed in consultation with the Graduate Adviser following guidelines established by the Ph.D. Committee.

Qualifying Examination

A qualifying examination for the doctoral degree usually will be held 1½ to 2 years after entrance to the program. The examination will include preparation of a written research proposition and its defense. The Examination Committee may also require an additional written examination at its discretion.

Dissertation Research

The final period of the student's graduate training is devoted to intensive research in one of a variety of fields:

1. Molecular Basis of Cellular Functions — The molecular changes, controls, and structures involved in development and in evolution; the understanding of neural processes at the molecular level; the chemical, genetic, and physical changes involved in carcinogenesis and in possible cancer control.

2. Molecular Genetics and Virology — Molecular basis of transmission and expression of genetic information and of viral replication and action.

3. Structure-Function Relationships of Cell Biopolymers — The detailed linear and 3-dimensional structure and chemical properties of nucleic acids and proteins, in both the isolated state and living organism; biological ultrastructure as revealed by x-ray analysis and electron microscopy.

4. Bioenergetics, Catalysis, and Control Molecular nature of active transport, photosynthesis, oxidative phosphorylation and related processes; mechanisms of biological catalyses; control mechanisms in catalysis, metabolism, growth and differentiation.

The program leading to a doctoral program in molecular biology will usually require four years.

501. Cooperative Program. (½ to 2 courses) Prerequisites: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

NOTE: For key to symbols, see page 74

Courses Related to Molecular Biology

The following courses offered by the departments listed are particularly appropriate to the research areas mentioned above. With the approval of the Guidance Committee or Research Supervisor, other related courses may be included in a student's program.

Bacteriology 131A-131B. Microbial and General Genetics.

Biological Chemistry M251. Bioorganic Catalysis. (Same as Chemistry M251.)

M253. Macromolecular Structure. (Same as Chemistry M253.)

M255. Protein Dynamics and Function. (Same as Chemistry M255.)

M259. Biochemical Endocrinology.

M261. Advanced Chemistry and Biochemistry of Lipids. (Same as Chemistry M261.)

M263. Cellular Metabolism and Its Regulation. (Same as Chemistry M263.)

M267. Macromolecular Metabolism and Subcellular Organization. (Same as Chemistry M267.)

M269. Developmental Biochemistry. (Same as Chemistry M269.)

Biology M132. Comparative Genetics. (Same as Bacteriology M132.)

144. Introduction to Molecular Biology.

154. Functional Ultrastructure of Cells.

M220. Gene Structure and Function. (Same as Microbiology M220.)

225. Biochemical Analysis of Development.

227. Chromosome Structure and Replication.

229. Structural Macromolecules.

238. Structure, Function and Biogenesis of the Mitochondrion.

280. Seminar in Chromosome Structure and Replication.

294. Seminar on Current Aspects of Photosynthesis.

Chemistry 156. Physical Biochemistry.

Microbiology 204. Microbial Genetics.

208. Regulatory Mechanisms in Microbial Physiology.

213. Membrane Molecular Biology.

M233A-233B. Electron Microscopy. (Same as Biology M233A-233B.)

M285. Seminar in Biological Membranes. (Same as Biology M285.)

Microbiology and Immunology 208. Animal Virology.

250. Topics in New Biology.

251. Seminar in Microbiology and Immunology.

254. Seminar in Immunogenetics.

256. Seminar in Viral Oncology.

M258. Advanced Immunology. (Same as Microbiology M258.)

M259. Advanced Immunology Co-Seminar. (Same as Microbiology M259.)

261. Tumor Immunology.

262. Seminars in Immunology of Cancer.

264. Molecular Immunology.

265. Co-Seminar in Animal Virology.

266. Immunochemistry.

Molecular Biology M298. Seminar in Current Topics in Molecular Biology. (Same as Microbiology M298, Biological Chemistry M298, Biology M298, Chemistry M298, and Microbiology and Immunology M298.)

Physiology 202. Permeability of Biological Membranes to Ions.

225. Biological and Artificial Membranes.

MUSIC

(Department Office, 2449 Schoenberg Hall)

Elaine R. Barkin, Ph.D., *Professor of Music.*
Peter C. Crossley-Holland, M.A. *Professor of Music.*
Frank A. D'Accone, Ph.D. *Professor of Music.*
Paul E. Des Marais, M.A., *Professor of Music.*
Maurice Gerow, Ph.D., *Professor of Music.*
Marie Louise Gollner, Ph.D., *Professor of Music (Chairman of the Department).*
Edwin H. Hanley, Ph.D., *Professor of Music.*
Richard A. Hudson, Ph.D., *Professor of Music.*
Nazir A. Jairazbhoy, Ph.D., *Professor of Music.*
Henri Lazarof, M.F.A., *Professor of Music.*
Jan C. Maegaard, Ph.D., *Professor of Music.*
David Morton, Ph.D., *Professor of Music.*
J.H.K. Nketia, B.A., *Professor of Music.*
Gilbert Reaney, M.A., *Professor of Music.*
Abraham A. Schwadron, Mus. A.D., *Professor of Music.*
Robert M. Stevenson, Ph.D., *Professor of Music.*
Roy E. Travis, M.A., *Professor of Music.*
Robert L. Tusler, Ph.D., *Professor of Music.*
D.K. Wilgus, Ph.D., *Professor of English and Anglo-American Folk Song.*
Mantle L. Hood, Ph.D., *Emeritus Professor of Music.*
Boris A. Kremenliev, Ph.D., *Emeritus Professor of Music.*
W. Thomas Marrocco, Ph.D., *Emeritus Professor of Music.*
Robert U. Nelson, Ph.D., *Emeritus Professor of Music.*
H. Jan Popper, Ph.D., *Emeritus Professor of Music.*
Clarence E. Sawhill, Mus. D., *Emeritus Professor of Music.*
Alden B. Ashforth, Ph.D., *Associate Professor of Music.*
Murray C. Bradshaw, Ph.D., *Associate Professor of Music.*
Malcolm S. Cole, Ph.D., *Associate Professor of Music.*
Frederick F. Hammond, Ph.D., *Associate Professor of Music.*
William R. Hutchinson, Ph.D., *Associate Professor of Music.*
James W. Porter, M.A., *Associate Professor of Music.*
Paul V. Reale, Ph.D., *Associate Professor of Music.*
David E. Draper, Ph.D., *Assistant Professor of Music.*
Max. L. Harrell, Ph.D., *Assistant Professor of Music.*
Charlotte A. Heth, Ph.D., *Assistant Professor of Music.*
Kathleen R. Murray, Ph.D., *Assistant Professor of Music.*
A. Jihad Racy, Ph.D., *Assistant Professor of Music.*
James E. Westbrook, D.M.A., *Assistant Professor of Music.*
Robert S. Winter, M.A., *Assistant Professor of Music.*
——, *Assistant Professor of Music.*
——, *Assistant Professor of Music.*

•

Salome R. Arkatov, M.A., *Lecturer in Music.*
Edward Auer, B.M., *Lecturer in Music.*
Aubrey J. Bouck, B.M., *Lecturer in Music.*
David M. Breidenthal, *Lecturer in Music.*
Majorie Call, B.M., *Lecturer in Music.*
Mario Carta, *Adjunct Assistant Professor of Music.*
Alan J. Gilbert, *Lecturer in Music.*
Jeffrey Goodman, M.A., *Lecturer in Music.*
Gary C. Gray, M.M., *Lecturer in Music.*
John A. Guarnieri, *Lecturer in Music.*
John L. Hall, M.M., *Lecturer in Music.*
Thomas F. Harmon, Ph.D., *Lecturer in Music and University Organist.*
Johana Harris, *Lecturer in Music.*
Maureen D. Hooper, Ed.D., *Lecturer in Music.*
Freeman K. James, M.A., *Senior Lecturer in Music.*
John T. Johnson, B.M., *Lecturer in Music.*
Bess Karp, M.A., *Lecturer in Music.*
Leon Knopoff, Ph.D., *Professor of Geophysics and Physics.*
Samuel Krachmalnick, *Senior Lecturer in Music.*
Kobla Ladzekpo, B.F.A., *Lecturer in Music.*
Sidney M. Lazar, M.A., *Lecturer in Music.*
Danny Lee, *Lecturer in Music.*
Garby Leon, Ph.D., *Lecturer in Music.*
James R. Low, B.M., *Lecturer in Music.*
Tsun Y. Lui, *Lecturer in Music.*
Shirley L. Marcus, B.M., *Lecturer in Music.*
Peter Mercurio, M.A., *Lecturer in Music.*
Theodore Norman, *Lecturer in Music.*
Barbara R. Patton, B.A., *Lecturer in Music.*
Stanley E. Plummer, *Lecturer in Music.*
David Raksin, B.M., *Lecturer in Music.*
Sven H. Reher, M.A., *Lecturer in Music.*
Peggy Ann Sheffield, M.M., *Lecturer in Music.*
Donald J. Staples, B.A., *Lecturer in Music.*
Sheridon W. Stokes, *Lecturer in Music.*
Paul O. W. Tanner, M.A., *Lecturer in Music.*
Milton Thomas, *Lecturer in Music.*
Suenobu Togi, *Lecturer in Music.*
Alexander Treger, *Lecturer in Music.*
Aube Tzerko, B.M., *Senior Lecturer in Music.*
Allan Vogel, M.M.A., *Lecturer in Music.*
Roger Wagner, Mus.D., *Senior Lecturer in Music.*
Donn E. Weiss, M.M., *Senior Lecturer in Music.*
Erwin Windward, B.A., *Lecturer in Music.*
Ikuko Yuge, *Lecturer in Music.*
——, *Lecturer in Music.*
——, *Lecturer in Music.*
——, *Lecturer in Music.*
——, *Lecturer in Music.*
——, *Lecturer in Music.*
——, *Lecturer in Music.*

Requirements for Entering Music Students

All applicants for admission are required to pass an audition in their principal performing medium.

Students planning to complete a major in music whether or not they have taken courses elsewhere, are required to pass a piano skills test. Aptitude and achievement tests are required for enrollment in Theory of Music 17A. These examinations are administered during registration week only. Students with exceptional ability and achievement may satisfy lower division requirements in Theory of Music by examination. Further information may be obtained from the Department of Music.

General Requirements

All music majors will be required to complete two years of applied music instruction in their major performance medium at the intermediate or advanced level.

All music majors must enroll in a performance organization for no credit each quarter in residence. They must participate in a minimum of two different organizations, one of which must be from 90A-90H or 91A-91Z.

Preparation for the Major

Courses 17A through F, 26A-26B-26C. Three quarters of either French, German, or Italian, or the equivalent. Students who plan to specialize in Historical or Systematic Musicology are urged to take six quarters, or the equivalent, of German.

The Major

A minimum of 10 courses in the upper division, including 105 or 107A, 126A-126B-126C; five courses selected from one of the specializations listed below and one course free elective for all areas except music education.

1. Composition and Theory: courses 106A-106B, 107B-107C and one elective course from 101, 103A-103B, 104A-104B, 108, 109A-109B-109C, 110A-110B, 111A-111B, 140-149, and 156A-156B.

2. History and Literature: one course from 127A-127C; one course from 127D-127F, one course from 140A-140B-140C, and two electives from 104A-104B, 108, 130-131, 133-135, 151A-151B, 156-157, 187 and 188A-188Z.

3. Ethnomusicology: 140A-140B-140C, and two courses selected from 108, 127A-127F, 131A-131B, 141-143, 145-149, 152, 153A-153B-153C, 157, and 190A-190B.

4. Applied Music: Two courses in applied music 160-165, one course from 175 and 8 units of elective no more than 4 of which can be additional chamber ensembles. Recommended: 101, 110A-110B, 111A-111B, 112A-112B, 119A-119B-119C, 127A-127F, 135A-135B-135C, 139, 140A-140B-140C, 151A-151B, or 187.

5. Music Education: 193, 195, 100A-100B-100C, 110A, 111A, eight units from 115A-115E, and two units of electives selected under advisement from 110B, 111B, 112A-112B, 140A-140B-140C, 185, 187, and 199.

6. Systematic Musicology: five courses from the following list, taken on the advice and with the approval of the undergraduate adviser in systematic musicology. Music 103A-103B, 108, 138, one course from 140A-140B-140C, 149, 187, 199, and Anthropology 144.

Graduate Division

The Music Department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy in the fields of historical musicology, ethnomusicology, systematic musicology, composition, and music education and a program leading to the degree of Master of Fine Arts in Performance Practices. New students will be admitted for gradu-

ate study to the Department of Music only once a year, at the beginning of the Fall term.

Admission Timetable

Application for admission by students requesting financial aid must be received by: December 15th.

Departmental examinations will be administered: First week in February.

Notice of acceptance or denial: March 15th.

Application for admission by all other students must be received by: February 15th.

Departmental examinations will be administered: First week in April.

Notice of acceptance or denial: May 15.

Admission to the Master of Arts and Master of Fine Arts Program

All applicants must have completed a Bachelor of Arts degree with a major in music (or the equivalent degree) as described in this bulletin. See Graduate Division. Transcripts must show an average grade of B in the basic areas that normally constitute the undergraduate core curriculum in music (harmony, counterpoint, the history of music, analysis and musicianship), plus one college year (or its high school equivalent) of French, German, or Italian. In addition, all applicants are required to take the departmental entrance examination (see below) and are asked (a) to submit a letter describing the background of study and stating their reasons for wishing to pursue graduate studies in music; (b) to request three former instructors to write letters of recommendation in their behalf (form letters are included in the application for admission). Applicants for the M.A. are required to submit written examples of their work; for all branches of musicology and music education a paper on an appropriate subject in the applicant's area; for composition, music scores. Applicants for the M.F.A. are required to (1) submit a repertoire list and sample programs of recitals or concerts, and (2) demonstrate by audition their general musical proficiency in one of the specified areas. Further information concerning specific audition requirements may be obtained from the Department of Music. No application can be considered until the examination has been taken and all of the above materials are received.

Admission to the Doctor of Philosophy Program

The applicant must have completed a Master of Arts degree in music (or the equivalent degree) as described in this bulletin. See Graduate Division. The degree normally will have been taken in the same field of concentration as the proposed doctorate. If a student wishes to obtain a doctorate in a field other than that of his M.A., he must complete additional work as prescribed by the Department. All applicants who have received an M.A. from a university other than UCLA are required to take the departmental entrance examination (see below) and are asked (a) to submit a letter describing their reasons for wishing to pursue graduate studies in music; (b) to request three former instructors to write letters of recommendation on their behalf (form letters are included in the application for admission); (c) to submit a copy of their M.A. thesis or composition. No application can be considered until the examinations have been taken and the above materials are received.

Departmental Entrance Examination

The departmental entrance examination will be administered at Schoenberg Hall on the UCLA campus two times a year in February and in April (see admission timetable). Applicants outside of the Southern California area who find it impossible to take the examination on campus should make arrangements with the Department of Music to have the examination administered in absentia on or about one of the dates mentioned here. (For details, further information, write the Music Counselor, Department of Music, UCLA). The departmental entrance examination is approximately three hours in length and consists of five parts: (1) written exercises in harmony and counterpoint, (2) harmonic and formal analysis; (3) identification of music terms; (4) an essay on two historical subjects; (5) two-part dictation, chord recognition, sightsinging and piano sightreading. For M.A. and Ph.D. applicants, solo performance in the student's principal performing medium. For M.F.A. applicants an audition. In addition to the above, a comprehensive examination will be required of students in Music Education. Entrance examinations are evaluated by the Graduate Committee of the Music Department to determine the applicant's fitness for graduate study.

Teaching Credentials.

Students may earn credentials for teaching music and other subjects in California elementary and secondary schools. Completion of the Teacher Credential Program in the Teacher Education Laboratory is required. Consult with the Graduate School of Education (201 Moore Hall) for information. Consultation with music education faculty advisor is required.

Requirements for the Master of Arts Degree

General Requirements. For general requirements see Graduate Division. Students are required to complete a minimum of nine courses, five of which must be 200 level. Upper division courses that may be counted toward the minimum of nine courses include: 103A-103B, 104A-104B, 106A-106B, 107B-107C, 108, 109A-109B-109C, 110A-110B, 111A-111B, 112A-112B, 119A-119B-119C, 127A-127B-127C-127D-127E-127F, 140A-140B-140C**, 141, 142A-142B, 143A-143B, 145, 146A-146B-146C, 147, 148, 149, 151A-151B, 153A-153B-153C, 156A-156B, 157, 175, M180, M181, 184, 185, 187. A maximum of one course in chamber ensembles may be counted toward the degree. Course 598 serves to guide the preparation of the thesis and should normally be taken during the last quarter of residence.

**Will not count for students whose emphasis is ethnomusicology.

Language Requirement. A reading knowledge of German or French is required in ethnomusicology, systematic musicology and composition; of German, French, Italian, or Spanish in music education, and of German and a choice of French, Italian or Latin in historical musicology. Students lacking these requirements must begin language study during the first year of residence.

Course of Study

Each student must plan his program under the guidance of the graduate adviser in his field of concentration. Course requirements for each field of concentration are as follows:

1. Historical musicology: 200A, 200B, either 210 or 211 (students planning to enter the Ph.D. program are strongly advised to take both 210 and 211 in the first year of residence), three terms of 260A-260F and one seminar from 250A-250B, 256, 257, 266A-266B, or 269; the remaining courses are elective upon the recommendation of the graduate adviser.

2. Systematic musicology: 200A, 200B, three terms of 272, and one term of 255, 269, 273 or 275; the remaining courses are elective upon the recommendation of the graduate adviser.

3. Ethnomusicology: 190A, 190B, 200A, 200B, the remaining courses are elective upon the recommendation of the graduate adviser.

4. Composition: 200A, one from 251A-D, three terms of 252 one of which may be substituted with 596A; and 266A or 266B; the remaining courses are elective upon recommendation of the graduate adviser.

5. Music Education: 185, 200A, 200B, and two terms of 270A-270F; the remaining courses are elective upon the recommendation of the graduate adviser. Students may elect either the Thesis Plan (see below) or the Comprehensive Examination Plan. The Comprehensive Examination Plan is not acceptable for future Ph.D. candidates. In lieu of a thesis the student is expected to pass a comprehensive examination consisting of a three-hour examination in one selected area (general, choral, instrumental); a three-hour examination in the broad field of music education; and a two-hour examination in either theory, composition, historical musicology, systematic musicology or ethnomusicology.

Thesis

In historical musicology, ethnomusicology and systematic musicology the thesis will be an extended essay. For students of composition the thesis will be a work for chamber ensemble or orchestra. Students in music education may elect either the Thesis Plan or the Comprehensive Examination Plan (see program in Music Education above).

Final Examination

The final examination is oral and includes both discussion of the thesis and related matters. This examination does not apply to music education candidates electing the comprehensive examination plan.

Requirements for the Master of Fine Arts Degree

General Requirements. For general requirements see Graduate Division. Students are required to complete a minimum of eighteen courses, including six or more at the 200 level and six or more in the 400 series. The student must participate in a public performance of soloistic nature each quarter in residence; however, only one of the performances each year (see Annual Performance Project below) must be a complete solo recital.

The minimum residence requirements for the M.F.A is two years.

Language Requirement. A reading knowledge of French, German, or Italian is required. Candidates in the Opera specialty must also be fluent in speaking one of these languages. In addition, all M.F.A. students are required to pass a departmental examination covering musical performance terminology in French, German, and Italian.

Course of Study. Each student must plan his program under the guidance of the graduate advisor in performance. Course requirements are as follows: 200A, three terms of 261A-261F; six terms of 400 level courses, two terms of 598, six electives. Recommended electives: 108, 127A-127F, 138, 139, 140A-140B-140C, 175, 187, and additional courses from the 200 and 400 level series. Course 598 serves to guide the preparation of the final project and should normally be taken during the last two quarters of residence.

Annual Performance Project. A recital or concert on campus (usually a noon concert) to be evaluated by a faculty committee is required during each year of residence. Program notes are to be written by the candidate.

Final Project. (To be completed during the final quarters of residence.) A solo recital and an appropriate scholarly paper will be required in all areas. In addition a major operatic performance is required in the area of Opera. The scholarly paper should be an independent study and analysis of an extended composition or group of shorter compositions posing significant problems in performance practices. The work(s) studied should be part of the solo recital to be evaluated by a faculty committee.

Requirements for the Doctor of Philosophy Degree

General Requirements. For general requirements see Graduate Division. The status of students in all fields of concentration is provisional subject to departmental approval of the Form I Application (Notice of Intention to Proceed to Candidacy for the Ph.D. degree). Normally this application is filed at the end of the first year of residence. Upon approval of the application and completion of the language requirement, the student may request that a guidance committee be appointed. The guidance committee will assist him in preparing for the written and oral qualifying examinations which are

NOTE: For key to symbols, see page 74

administered by the same committee. After successful completion of the examinations, a doctoral committee will be appointed. This committee guides the student in writing his dissertation.

Language Requirement. A reading knowledge of French and German is required in systematic musicology, ethnomusicology and music education; of French, German and a third language approved by the Council in historical muscicology. In the field of composition two languages are required (one of which must be German or French), the other language may be chosen from Latin, Italian, or Russian.

Course of Study

Each student must plan his program under the guidance of the graduate adviser in his field of concentration. Course requirements for each field of concentration are as follows:

1. Historical musicology: 200A, 200B, 210, 211, five terms of 260A-260F and one seminar from 250A-250B, 256, 257, and 266A-266B or 269. Students who have received the M.A. in historical musicology from UCLA will normally take a minimum of two terms of 260A-260F in the Ph.D. program. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A., and 200 level courses upon recommendation of their adviser.

2. Systematic musicology: 200A, 200B, five terms of 272 and one term of 255, 269, 273 or 275. Students who have received the M.A. in systematic musicology from UCLA will normally take a minimum of two terms of 272 in the Ph.D. program. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A. and 200 level courses, upon recommendation of their adviser.

3. Ethnomusicology: 190A, 190B, 200A, 200B, and six seminars of which at least three shall be 280, the others to be chosen from 248, 253, 254A-254B, or 255. Students are also expected to complete two area studies courses. Parts of these requirements may be completed at the M.A. level. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A., and 200 level courses, upon recommendation of their adviser.

4. Composition: 200A, one from 251A-D, six terms of 252, two of which may be substituted with 596A; 266A or 266B. Students who have received the M.A. in composition from UCLA will normally take a minimum of three terms of 252 in the Ph.D. program. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A. and 200 level courses, upon recommendation of their adviser.

5. Music Education: 185, 200A, 200B, 274, and five terms of 270A-270F. Students who have received the M.A. in music education from UCLA will normally take a minimum of three terms of 270A-270F in the Ph.D. program. Under advisement two of the three terms of 270A-270F may be completed under special studies (596C). Students who wish to pursue the Ph.D. in Music Education with a minor in Ethnomusicology will be required to take 185, 190A-190B, 200A, 200B, three terms of 270A-270F, 274, and two courses from 141-143, 145-149, 152, 153A-153B-153C, 281-288. Electives are 140A-140B-140C, M180, M181, 187, 254A-254B, 255, and 280. Students may complete their residence requirements by electing courses from the 100 series listed under the general requirements for the M.A. and 200 level courses upon recommendation of their graduate adviser.

Examinations

Before he is admitted to candidacy, the student must pass a series of written and oral qualifying examinations; after he has completed his dissertation he must pass a final examination, concerned primarily with the dissertation.

In fields of Historical Musicology, Ethnomusicology and Music Education the written examinations consist of the following: (a) history of musical styles in Western civilization (three hours); (b) analysis of form and style (three hours); (c) an examination to demonstrate a basic knowledge of music in non-Western cultures (two hours); and (d) a choice of one or more: acoustics of music, aesthetics of music, psychology of music, and organology (two hours). Further written examinations, totaling six hours are required in two areas: (1) Historical Musicology; one area to be selected from Ancient, Medieval, Renaissance, or Baroque music; the other area from Classic, Romantic or 20th-Century music. (2) Ethnomusicology: two areas to be selected from contrasting musical cultures. (3) Music Education: two areas; one to encompass historical, philosophical and psychological bases, the other to be selected from music education emphasizing elementary, secondary, or college-university levels. For the student in Music Education with a minor in Ethnomusicology the second examination will relate the fields of Ethnomusicology and Music Education.

In the field of Systematic Musicology, the written qualifying examinations consist of the following: (a) history of musical styles in Western civilization (three hours); (b) analysis of form and style (three hours); (c) an examination to demonstrate a basic knowledge of music in non-Western cultures (two hours); (d) a general examination in systematic musicology (two hours); (e) two areas to be selected from acoustics, psychology of music, aesthetics of music, sociology of music and organology (six hours).

In the field of Composition, the written qualifying examinations consist of the following: (a) composition of a short homophonic and a short polyphonic piece (three hours); (b) general history of music (three hours); (c) one or more of the following: acoustics, psychology of music, aesthetics of music, or ethnomusicology (two hours); (d) 20th-Century Music (two hours); (e) analysis of form and style (three hours); and (f) music theory from the medieval period to the present, with optional emphasis on theoretical writings before or after 1700 (three hours).

Dissertation

In all fields but composition the dissertation will be an extended monograph. In the field of composition the dissertation will consist of (1) an extended composition accompanied by a short description of the style and techniques of the work, and (2) an analytical monograph dealing with some aspect of 20th Century music.

Note: Check the Schedule of Classes for courses restricted to majors only.

Lower Division Courses

1. Fundamentals of Music. Five hours weekly, including two laboratory hours. Singing, ear training, reading music and harmonization of simple melodies are the basic skills developed in this course. Mrs. Karp, Mrs. Patton

2A-2B-2C. Introduction to the Literature of Music. Five hours weekly, including two laboratory hours. 2A is prerequisite to 2B; 2B is prerequisite to 2C. Designed for the general university student. Will not count for the Music Major. A survey of the stylistic development of Western art music within its cultural context. 2A Gregorian Chant through the Renaissance; 2B Monteverdi through Beethoven; 2C Schubert through the present. Mr. Bradshaw

4A-4B-4C. Basic Piano for Music Majors. (No credit) Three hours weekly. Remedial class instruction in the fundamentals of piano. Miss Sheffield

5A-5B-5C. Fundamentals of Sound and Music of the World. (½ course each) Prerequisite: consent of the instructor. The acoustical make-up of sound (pitch, tone quality); tuning systems; modes and scales; harmony and polyphony, rhythm and meter; notational systems; relationships of music to culture. Laboratory: Ear training and instrumental techniques. Mr. Drapper, Mr. Hutchinson

10. Computer Assisted Sight-Singing Laboratory. (½ course) Three hours weekly, including one laboratory hour. Prerequisites: course 1 or its equivalent and consent of the instructor. An individualized, self-instructional approach for the development of sight-singing skills through the use of a music computer, keyboard instrument, and linear program learning. Mr. Gerow

16. Contrapuntal Techniques. (½ course) Three hours weekly. Prerequisites: One year of music theory. Not open to students who have received credit for 17ABC. Must be taken concurrently with 17D. Introduction to two- and three-part species counterpoint; will include written exercises and analysis. Mr. Des Marais

17A-17F. Theory of Music. Eight hours weekly, including four laboratory hours. Prerequisites: Aptitude, Achievement and the Piano Skills Test. Series must be taken in order A, B, C, D, E, F. An integrated study of theoretical and practical techniques. First Year: harmony through chromatic embellishment of diatonic progressions; elementary contrapuntal techniques; structural analysis; keyboard skills including open-score clef-reading and figured bass; melodic and rhythmic dictation and sight-singing. Second Year: advanced harmony through modulations and total chromaticism; stylistic counterpoint including motet and invention; basic instrumentation; advanced keyboard skills; dictation and sight-singing of modulating melodies. The Staff

18A-18B-18C. Keyboard Techniques. (½ course each) Two hours weekly. Prerequisites: courses 17A-17B-17C; 18A is prerequisite to 18B; 18B is prerequisite to 18C. This course is an intensive workshop in the development of keyboard skills and is designed to supplement the development of keyboard facility beyond 17C. Techniques of figured bass, score reading, transposition, and keyboard harmony will be stressed. Mrs. Karp

19. Instrumentation. (½ course) Two hours weekly. Prerequisite: Two years of music theory. Not open to students who have received credit for 17A through 17F at UCLA. The study of ranges and transpositions of all orchestral instruments; instrumental characteristics, exercises in orchestration, and orchestral analysis. The Staff

26A-26B-26C. History and Literature of Music I. Five hours weekly, including one laboratory hour. Prerequisites: courses 17A-17B-17C. 26A is prerequisite to 26B; 26B is prerequisite to 26C. The history and literature of music from the beginning to the Christian era to 1750, with emphasis upon analysis of representative works of each style period. Materials selected will illustrate the history of style and changing techniques of composition. The Staff

60-65. Applied Study of Music Literature: Intermediate. (1 course per year) For Music Majors Only. Private instruction of one hour per week. Prerequisite: Audition. May be repeated for credit in entire year sequence only. This course is offered on an In-Progress basis, which requires students to complete the full three-quarter sequence, at the end of which time a grade is given for all quarters of work. Students will be admitted in the Fall Quarters only. All students must perform in a practicum once during the academic year. Examination by jury in Spring Quarter.

Strings: 60A. Violin; **60B.** Viola; **60C.** Cello; **60D.** String Bass; **60E.** Harp; **60F.** Classical Guitar; **60G.** Viola da gamba; **60K.** Lute.

Woodwinds; 61A. Flute; **61B.** Oboe; **61C.** Clarinet; **61D.** Bassoon; **61E.** Saxophone.

Brass; 62A. Trumpet; **62B.** French Horn; **62C.** Trombone; **62D.** Tuba.

Percussion: 63. Percussion.

Keyboard: 64A. Piano; **64B.** Organ; **64C.** Harpsichord.

Voice: 65. Voice.

80A-80N. Performance Organizations. (¼ course each) *For Non-Music Majors Only.* (90A-90N is for the music major) Three hours weekly. Prerequisite: Audition. May be repeated for credit.

80A.A Cappella Choir; **80B.** University Chorus; **80C.** Madrigal Singers; **80D.** Opera Workshop; **80E.** Symphony Orchestra; **80F.** Concert Band; **80G.** Symphonic Wind Ensemble; **80H.** Collegium Musicum; **80J.** Men's Glee Club; **80K.** Women's Glee Club; **80L.** Musical Comedy Workshop; **80M.** Marching and Varsity Bands; **80N.** Jazz Band.

81A-81Z. Ethnomusicology Performance Organizations. (¼ course each) *For Non-Music Majors Only.* (91A-91Z is for the music major) Three hours weekly. Prerequisite: consent of the instructor. May be repeated for credit.

81A. Music and Dance of the American Indian; **81B.** Music and Dance of Bali; **81C.** Music and Dance of Bulgaria; **81D.** Music and Dance of China; **81E.** Music and Dance of Ghana; **81F.** Music and Dance of India; **81G.** Music and Dance of Japan; **81H.** Music of Java; **81J.** Music of Korea; **81K.** Music of Mexico; **81L.** Music of Persia; **81M.** Music of Thailand; **81N.** Music of the Near East; **81Z.** Open Ensemble.

90A-90N. Performance Organizations. (No Credit) *For Music Majors Only.* (80A-80N is for the non-music major) Three hours weekly. Prerequisite: Audition. May be repeated. Music majors may enroll in only one performance organization per quarter.

90A.A Cappella Choir; **90B.** University Chorus; **90C.** Madrigal Singers; **90D.** Opera Workshop; **90E.** Symphony Orchestra; **90F.** Concert Band; **90G.** Symphonic Wind Ensemble; **90H.** Collegium Musicum; **90J.** Men's Glee Club; **90K.** Women's Glee Club; **90L.** Musical Comedy Workshop; **90M.** Marching and Varsity Bands; **90N.** Jazz Bands.

91A-91Z. Ethnomusicology Performance Organizations. (No credit) *For Music Majors Only.* (81A-81Z is for the non-music major) Three hours weekly. Prerequisite: consent of the instructor. May be repeated. Music majors may enroll in only one performance organization per quarter.

91A. Music and Dance of the American Indian; **91B.** Music and Dance of Bali; **91C.** Music and Dance of Bulgaria; **91D.** Music and Dance of China; **91E.** Music and Dance of Ghana; **91F.** Music and Dance of India; **91G.** Music and Dance of Japan; **91H.** Music of Java; **91J.** Music of Korea; **91K.** Music of Mexico; **91L.** Music of Persia; **91M.** Music of Thailand**91N.** Music of the Near East; **91Z.** Open Ensemble.

Upper Division Courses

100A-100B-100C. Music in American Education. (1/2 course each) Three hours weekly. Prerequisites: courses 17A-17F. 26A-26B-26C, 193, and 195. 110A is prerequisite to 100B; 111A is prerequisite to 100C. 100A is not prerequisite to 100B; 100B is not prerequisite to 100C. A critical study of principles and practices in music education, historical and current, at elementary and secondary levels. 100A. General Music; 100B. Choral Music; 100C. Instrumental Music. 100A-100B-100C may be taken in any order. The Staff

101. Keyboard Harmony and Score Reading. Four hours weekly. Prerequisites: courses 17A-17F. Emphasizes the reading of figured bass, sequences, modulations in the harmonic vocabulary of the 18th and 19th centuries. Reading at the piano of multistaff notation, the various C clefs, and parts for transposing instruments; chamber music and simple orchestral scores. Mr. Bradshaw

***[1]103A-103B. Advanced Theory.** Three hours weekly. Prerequisites: courses 17A-17F. 103A or consent of the instructor is prerequisite to 103B. Techniques of tonal coherence studied through analysis and compositional exercises in the styles of given periods.

***[1]104A-104B. Advanced Counterpoint.** Three hours weekly. Prerequisites: courses 17A-17F. 104A or consent of the instructor is prerequisite to 104B. Comparative contrapuntal practices and forms from all periods studied through analysis and compositional exercises in the styles of the given periods. (Not open to students who have received credit for 104 or 105.)

105. Introduction to Composition. Three hours weekly. Prerequisites: courses 17A-17F. This course is intended for music majors whose specializations are in areas other than composition. The nature of the compositional process will be explored with selected exercises exploring specific techniques and styles. Mr. Des Marais, Mr. Morton

106A-106B. Advanced Orchestration. Three hours weekly. Prerequisites: courses 17A-17F. Course 106A is prerequisite to 106B. Scoring and analysis for ensembles and full orchestra. (106A is not open to students who have received credit for 106B; 106B is not open to students who have received credit for 106C.) Mr. Reale

107A-107B-107C. Composition. Three hours weekly. Prerequisites: courses 17A-17F. 107A is prerequisite to 107B; 107B is prerequisite to 107C. This course is designed for students specializing in composition and theory. Vocal and instrumental composition in the smaller forms, including style composition and 20th century techniques. Mr. Travis

108. Acoustics. Three hours weekly. Prerequisite: consent of the instructor. The interrelationship of acoustical and musical phenomena. Tuning systems, consonance and dissonance, tonal quality. Lecture, demonstration, and discussion and tours of instrumental collections and acoustical research facilities. Mr. Hutchinson

109A-109B-109C. Composition for Motion Pictures and Television. (½ course each) Two hours weekly. Prerequisites: courses 17A-17F or consent of the instructor. 109A is prerequisite to 109B; 109B is prerequisite to 109C. Composition of music for the dramatic and documentary film in cinema and television. Techniques used in recording and editing. Mr. Raksin

110A-110B. Study and Conducting of Choral Literature. (½ course each) Three hours weekly. Prerequisite: courses 17A-17F and 26A-26B-26C. 110A is prerequisite to 110B. The theory and practice of conducting as related to the study of choral works from the Renaissance to the present day. **110A.** Conducting fundamentals including basic skills, techniques, analysis and repertoire. **110B.** Stylistic interpretation of music literature. Mr. Weiss

111A-111B. Study and Conducting of Instrumental Literature. (½ course each) Three hours weekly. Prerequisite: courses 17A-17F and 26A-26B-26C. 111A is prerequisite to 111B. The theory and practice of conducting as related to the study of instrumental works for string and wind ensembles. **111A:** Conducting fundamentals including basic skills, techniques, analysis and repertoire. **111B:** Stylistic interpretation of music literature. Mr. James, Mr. Westbrook

112A-112B. Practical Scoring. Four hours weekly. Prerequisites: courses 17A-17F, 26A-26B-26C, and consent of the instructor. Emphasis on practical problems in scoring for small and large ensembles at various educational levels. **112A.** Band Scoring; **112B.** Choral Scoring. Mr. James

113A-113B. Music Literature for Children. Four hours weekly, including one laboratory hour. Prerequisites: course 1, 2A, or consent of the instructor. 113A is not prerequisite to 113B. Designed for the non-music major, particularly the elementary education student. A study of music literature applicable to elementary school programs. 113A: Emphasis on listening analysis, movement, and improvisation. 113B: Emphasis on class performance – music reading, singing, and folk instruments. Mr. Gerow, Miss Hooper

115A-115E. Study of Instrumental and Vocal Techniques. (½ course each) Five hours weekly. Prerequisites: courses 17A-17F, 26A-26B-26C, and 193. Applied studies in basic performance techniques and tutorial materials. **115A.** Strings; **115B.** Woodwinds; **115C.** Brass; **115D.** Percussion; **115E.** Voice. The Staff

***[1]119A-119B-119C. Advanced Study and Conducting of Choral Literature. (½ course each)** Three hours weekly. Prerequisites: courses 110A-110B. 119A is prerequisite to 119B; 119B is prerequisite to 119C. Advanced theory and practice of conducting; the study of representative choral works from the conductor's viewpoint.

126A-126B-126C. History and Literature of Music II. Five hours weekly, including one laboratory hour. Prerequisites: courses 17A-17F and 26A-26B-26C. 126A is prerequisite to 126B; 126B is prerequisite to 126C. The history and literature of music from 1750 to the present with emphasis upon analysis of representative works of each style period. Materials selected will illustrate the history of style and changing techniques of composition. The Staff

127A-127F. Selected Topics in the History of Music. Three hours weekly. Special aspects of the music of each period, studied in depth. Each course may be repeated once for credit by graduate students only. **127A.** Middle Ages; **127B.** Renaissance; **127C.** Baroque; Prerequisites: course 17A-17F and 26A-26B-26C. **127D.** Classic. Prerequisites: courses 17A-17F, 26A-26B-26C, and 126A. **127E.** Romantic. Prerequisites: courses 17A-17F, 26A-26B-26C, and 126A-126B. **127F.** Twentieth Century. Prerequisites: courses 17A-17F, 26A-26B-26C, and 126A-126B-126C. The Staff

130. Music of the United States. Four hours weekly. Prerequisite: course 2A or consent of the instructor. A survey of art music from colonial times to the present. Mr. Stevenson

131A-131B. Music of Hispanic America. Four hours weekly. Prerequisites: consent of the instructor. 131A is not prerequisite to 131B. Survey of art music including attention to ethnic developments and Peninsular background. **131A.** Mexico, Central America and the Caribbean isles; **131B.** Hispanic South America. Mr. Stevenson

132A-132B. Development of Jazz. Four hours weekly, including one laboratory hour. Prerequisite: course 2A or consent of the instructor. Course 132A is prerequisite to 132B. An introduction to jazz; its historical background and its development in the United States. Mr. Tanner

133. Bach. Four hours weekly, including two laboratory hours. The life and works of Johann Sebastian Bach. Mr. Harmon, Mr. Tusler

134. Beethoven. Four hours weekly, including two laboratory hours. The life and works of Ludwig van Beethoven. Mr. Hanley, Mr. Hudson

135A-135B-135C. History of the Opera. Five hours weekly, including one laboratory hour.

135A: Opera of the Baroque and Classical Periods; **135B:** Opera of the Romantic Period; **135C:** Opera of the Twentieth Century. Mr. Hammond, Mr. Winter

137A-137B. Psychology of Music. Four hours weekly. 137A: An introduction to the psychology of music; historical background and the broad field of study to include the use of music as a stimulus, tests and measurements, and related modes of musical behavior. 137B: A study of the psychological factors and problems in music from the points of view of the listener, performer, and composer. Ms. Murray

138. Aesthetics of Music. Three hours weekly. Recommended for the non-music major. An historical survey of musical aesthetic thought and practice. Selected readings and musical examples. Mr. Schwadron

139. History and Literature of Church Music. Four hours weekly. Prerequisite: course 2A or consent of the instructor. A study of the forms and liturgies of western church music. Mr. Stevenson

140A-140B-140C. Musical Cultures of the World. Four hours weekly. Prerequisite: consent of the

NOTE: For key to symbols, see page 74

instructor. 140A is not prerequisite to 140B, 140B is not prerequisite to 140C. A survey of the musical cultures of the world (excluding western art music), the role of music in society and its relationship to other arts; consideration will also be given to scale structure, instruments, musical forms and performance standards.
Mr. Jairazbhoy, Mr. Porter

141. Survey of Music in Japan. Three hours weekly. A survey of the main genres of Japanese traditional music, including Gagaku, Buddhist chant, Biwa music, Koto music, Shamisen music, and the music used in various theatrical forms. Mr Harrell

***†142A-142B. Music of the Balkans.** Five hours weekly, including two laboratory hours. Prerequisites: courses 140A-140B-140C or consent of the instructor. 142A is prerequisite to 142B. **142A** surveys the folk music of Bulgaria, including a study of eastern and western elements; performance on representative instruments; **142B** investigates vocal and instrumental styles of other Balkan countries, with emphasis on Yugoslavia. (142A-142B is not open to those students who have had 142.)

143A-143B. Music of Africa. Five hours weekly, including two laboratory hours. Prerequisite: courses 140A-140B-140C or consent of the instructor. Course 143A is prerequisite to 143B. An investigation of the historical aspects, social functions and relationships of music to other art forms in selected areas of Africa. Mr. Nketia

144. American Popular Music. Five hours weekly, including two laboratory hours. Prerequisites: course 1 or its equivalent is recommended. A survey of the history and characteristics of American popular music and its relationship to American culture, with emphasis on 20th-century popular music and its major composers, including a comparison between traditional pre-1950 popular music and trends in post-1950 popular music.
Mr. Morton

***†145. History of Chinese Opera.** Four hours weekly. Prerequisite: consent of the instructor. A survey of dramatic elements in Chinese operas, incorporating singing, dance, and acrobatics. Emphasis on traditional and modern Peking opera and its relation to Cantonese and other genres.

146A-146B-146C. Studies in Chinese Instrumental Music. Four hours weekly, including one laboratory hour. Prerequisite: consent of the instructor. 146A is not prerequisite to 146B; 146B is not prerequisite to 146C. 146A: A study of the literature, major sources, paleography, theory, and philosophy of the Ch'in and P'i P'a, including transcription and analysis. 146B: A comprehensive study of Chinese musical instruments, classification system, specific musical notation, and use in the context of Chinese society. 146C: A study of the rules of improvisation, particularly as related to the Shanghai style, as realized on the P'i P'a, Ti, Er Hu, San Shien, Sheo, and related instruments.
Mr. Lui

***†147A-147B. Music of China.** Five hours weekly, including two laboratory hours. Prerequisites: courses 140A-140B-140C, or consent of the instructor. 147A is prerequisite to 147B. 147A: History and theory of the music of China, including a survey of various provinces. Instrumental techniques. 147B: Introduction to various notational systems. Analysis of representative styles. 147A is not open for credit to students who have credit for 147.

***†148. Folk Music of South Asia.** Prerequisite: consent of instructor. An illustrated survey of some of the regional genres, styles, and musical instruments found in India and Pakistan, with special reference to the religious, social, economic, and cultural context of their occurrence. Mr. Jairazbhoy

149. The Anthropology of Music. A cross-cultural examination of music in the context of social behavior, and how musical patterns reflect patterns exhibited in other cultural systems; including economic, political, religious and social structure.
Mr. Draper

151A-151B. History of Musical Performance Practices. Four hours weekly. Prerequisites: courses 17A-17F and 26A-26B-26C. A general survey of musical interpretation and re-creation from the viewpoint of stylistic authenticity. **151A** Medieval through Baroque; **151B** Classic through 20th Century. Not open for credit to those who have had 151. Mr. Harmon

152. Survey of Music in India. Four hours weekly. A consideration of the main music genres in India, with particular reference to the religious, socio-cultural and historical background of the country.
Mr. Jairazbhoy

153A-153B-153C. Music of the American Indians. Four hours weekly. American Indian music will be studied within the broader context of styles, cultural values, and sources. Films, recordings, lectures, and limited group singing and dancing will relate the music to the culture producing it. **153A:** Musics of the Eastern, California-Yuman, Great Basin, and Northwest Coast areas; **153B:** Musics of the Athabascan, Pueblo, Plains, and modern Pan-Indian trends; **153C:** Sociology of American Indian Music with specific reference to the manner in which cultural values, prescriptions, oral traditions, language and technological advances have affected music of various tribes.
Mr. Draper, Miss Heth

M154A-154B. The Afro-American Musical Heritage. (Same as Folklore M154A-154B.) Four hours weekly. Prerequisite: course 1 or consent of the instructor. 154A is prerequisite to 154B. A study of the Afro-American rhythm, dance music, field hollers, work songs, spirituals, blues, and jazz; the contrast between West African, Afro-American and Afro-Brazilian musical traditions. Mrs. Dje Dje

156A-156B. Techniques of Electronic Music. (Formerly numbered 156.) Prerequisites: courses 107A or equivalent and consent of instructor. 156A is not open for credit to students who have credit for 156. 156A is prerequisite to 156B. Manipulation of analog synthesizers and auxiliary equipment, tape techniques, and realization of original compositional materials. Mr. Ashforth

157. Music of Brazil. Four hours weekly. Prerequisites: consent of the instructor and some knowledge of Portuguese. History of ethnic and art music in Brazil with some reference to Portuguese antecedents. Mr. Stevenson

158. New Orleans Jazz. Three hours weekly. Major black and creole figures in the origin and development of jazz in New Orleans from the turn of the twentieth century through the nineteen-sixties, with emphasis on polycultural roots, local municipal traditions, and stylistic analysis.
Mr. Ashforth

159. The Development of Rock. Four hours weekly. Prerequisite: consent of the instructor. The history of rock from the 1950's to the 1970's. An in-depth survey of stylistic trends illustrated by pertinent examples and accompanied by extensive musical analysis. Mr. Stevenson

160-165. Applied Study of Music Literature: Advanced. (1 course per year) *For Music Majors Only.* Private instruction of one hour per week. Prerequisite: Audition. May be repeated for credit in entire year sequence only. This course is offered on an In-Progress basis, which requires students to complete the full three-quarter sequence, at the end of which time a grade is given for all quarters of work. Students will be admitted in Fall Quarters only. Applied majors must perform in a noon concert once during their junior year and will be required a full recital in their senior year. All other students enrolled will be required to participate in a practicum once during the academic year. Examination by jury in Spring Quarter.

Strings: 160A. Violin; **160B.** Viola; **160C.** Cello; **160D.** String Bass; **160E.** Harp; **160F.** Classical Guitar; **160G.** Viola Da Gamba; **160K.** Lute.

Woodwinds: 161A. Flute; **161B.** Oboe; **161C.** Clarinet; **161D.** Bassoon; **161E.** Saxophone.

Brass; 162A. Trumpet; **162B.** French Horn; **162C.** Trombone; **162D.** Tuba.

Percussion; 163 Percussion.

Keyboard; 164A. Piano; **164B.** Organ; **164C.** Harpsichord.

Voice: 165. Voice.

175. Chamber Ensembles. (½ course) Two hours weekly. Prerequisite: Audition. Students must be at the advanced level of their instrument to participate in the course. May be repeated for credit. Students may not enroll in more than two sections per quarter and may receive credit for a maximum of 12 units toward the degree. Applied study of the performance practices of literature appropriate to the ensemble. The Staff

M180. Analytical Approaches to Folk Music. (Same as Folklore M180.) Four hours weekly. Prerequisites: Music 5A-5B-5C. An intensive study of the methods and techniques necessary to the understanding of Western folk music. Mr. Porter

M181. Folk Music of Central and Western Europe. (Same as Folklore M181.) Four hours weekly. Prerequisite: Music 5A-5B-5C, or 140A, or 140B, or 140C, or consent of the instructor. An analysis of the folk musical styles of Europe, excluding the Balkans and Soviet Russia. Particular attention will be paid to the comparative study of European folk music.
Mr. Porter

184. Experimental Research in Music. Three hours weekly. Prerequisites: courses 17A-17F and 26ABC, or consent of the instructor. Theories and processes in various modes of musical experimentation: physical, perceptual, psychological, pedagogical, quantificational, statistical procedures. Recommended for music majors in all specializations. Mrs. Murray

***†185. Historical and Philosophical Foundations of Music Education.** Three hours weekly. Prerequisites: completion of the undergraduate specialization in music education. The development of music education in the United States according to established schools of thought.

187. Problems in Musical Aesthetics. Three hours weekly. Prerequisites: courses 17A-17F and 26A-26B-26C. Critical approach to musical problems of aesthetic analysis, description, values, theories; including both Western and non-Western considerations. Recommended for students in all specializations of music. Mr. Schwadron

188A-188Z. The Master Composer. Four hours weekly, including one laboratory hour. A survey of the works of an outstanding composer in Western art music, considered within the context of his age. **188A.** Josquin; **188B.** Palestrina; **188C.** Monteverdi; **188D.** Purcell; **188E.** A. Scarlatti; **188F.** Vivaldi; **188G.** Handel; **188H.** Haydn; **188J.** Mozart; **188K.** Schubert; **188L.** Schumann; **188M.** Berlioz; **188N.** Chopin; **188P.** Brahms; **188Q.** Wagner; **188R.** Verdi; **188S.** Mahler; **188T.** Debussy; **188U.** Schoenberg; **188V.** Stravinsky; **188W.** Bartok; **188X.** Copland, **188Y.** Webern; **188Z.** Ives. The Staff

***†189. The Symphony.** Four hours weekly, including one laboratory hour. A survey of symphonic literature from Haydn through the 20th Century with special emphasis upon the current symphonic programs of the Los Angeles Philharmonic Orchestra and other performing groups in the Los Angeles area.

Proseminars

190A-190B. Proseminar in Ethnomusicology. Three hours weekly. Prerequisites: courses 140A-140B-140C. Mr. Nketia

193. Proseminar in Music Education. (½ course) Two hours weekly. Prerequisites: courses 17A-17B-17C. This course is prerequisite to all courses in the music education specialization. A historical and philosophical introduction to the field.
Mr. Schwadron

195. Field Studies in Music Education. (½ course) Four hours weekly, including two laboratory

hours. Prerequisite: course 193. Discussion and observation of current practices. Miss Hooper

199. Special Studies in Music. Prerequisite: senior standing, consent of the instructor and adviser, and a 3.0 grade-point average. Individual studies in Music resulting in a research project. May be repeated to a maximum of eight units. The Staff

Graduate Courses

Not open to undergraduate students. See College of Fine Arts, Unit Requirements.

200A. Research Methods and Bibliography. Three hours weekly. A survey of general bibliographic material in music. The Staff

200B. Research Methods and Bibliography. Three hours weekly. Prerequisite: course 200A. Guided writing, utilizing specific bibliography in historical musicology, systematic musicology, ethnomusicology, and music education. The Staff

210. Medieval Notation. Three hours weekly. Prerequisite: consent of the instructor. Vocal and instrumental notation; paleography of the period. Mrs. Göllner

211. Renaissance Notation. Three hours weekly. Prerequisite: consent of the instructor. Vocal and instrumental notation; paleography of the period. Mr. Hudson

248. Seminar in Comparative Music Theory. Prerequisite: consent of the instructor. The comparative study of the codified music theories of select cultures – Western and non-Western – considered in themselves and as expressions of their societies. Theory considered as a science of music; its place between cultural values and artistic practice in different civilizations. Mr. Crossley–Holland

250A-250B. Seminar in the History of Music Theory. (Formerly numbered 250.) Prerequisite: course 200A. 250A is not prerequisite to 250B. 250A: Music Theory from Antiquity through Zarlino; 250B; Music Theory from Rameau to the present. Mr. D'Accone, Mr. Maegaard

251A-251D. Seminar in Special Topics in Composition and Theory. Three hours weekly. May be repeated for credit. An intensive exploration of specialized aspects of composition. **251A.** Orchestration; **251B.** Specific media; **251C.** Specific styles; **251D.** Compositional Analysis. Mr. Ashforth, Mr. Des Marais

252A-252B-252C. Seminar in Composition. Three hours weekly. Prerequisites: courses 160B and 107C. 252A is prerequisite to 252B; 252B is prerequisite to 252C. May be repeated for credit. Course may be taken out of sequence only by consent of the instructor. Mr. Lazarof

253. Seminar in Notation and Transcription in Ethnomusicology. Three hours weekly. Prerequisites: courses 140A-140B-140C, 190A-190B, or consent of the instructor. Mr. Nketia

254A-254B. Seminar in Field and Laboratory Methods in Ethnomusicology. Prerequisites: courses 190A-190B or consent of the instructor. Training includes experience in handling of technical apparatus, films, recording, processing and editing; field projects. Mr. Jairazbhoy

255. Seminar in Musical Instruments of the Non-Western World. Three hours weekly. Prerequisites: courses 140A-140B-140C, 190A-190B, or consent of the instructor. Mr. Crossley-Holland

256. Seminar in Musical Form. Three hours weekly. Prerequisites: courses 126A-126B-126C. The analysis of structural organizations in music. Mrs. Göllner

***1257. Seminar in Music of the United States and Canada.** Three hours weekly. Prerequisite: course 130.

M258. Seminar in Folk Music. (Same as Folklore M258.) Three hours weekly. Prerequisite: consent of the instructor. Mr. Porter

260A-260F. Seminar in Historical Musicology. Three hours weekly. Prerequisites: courses 200A, 200B, 210 or 211. Students may enroll in 200B, 210 or 211 concurrently. May be repeated for credit. **260A.** Medieval Music; **260B.** Renaissance; **260C.** Baroque; **260D.** Classical; **260E.** Romantic; **260F.** General Topics. The Staff

261A-261F. Problems in Performance Practices. Three hours weekly. May be repeated for credit. Prerequisites: courses 151A-151B or consent of the instructor. An investigation of primary source readings in performance practices as related to the period; analytical reports and practical applications in class demonstrations. **261A.** Medieval; **261B.** Renaissance; **261C.** Baroque; **261D.** Classical; **261E.** Romantic; **261F.** Contemporary. Mr. Hammond, Mr. Winter

266A-266B. Seminar in Music of the Twentieth Century. Three hours weekly. Prerequisites: courses 126A-126B-126C. Students who have received credit for 266 may take either 266A or 266B. 266A: Discussion and analysis of the major works of the 20th Century before World War II. Emphasis will be placed on the study of groups of works written at the same time in history. 266B: Discussion and analysis of composers and their works from 1945 to the present. Mrs. Barkin, Mr. Maegaard

269. Seminar in the History of European Instruments. Three hours weekly. Mr. Reaney

270A-270F. Seminar in Music Education. Three hours weekly. Prerequisite: consent of the instructor. May be repeated for credit. **270A.** Tests and Measurements; **270B.** Non-Western Musics; **270C.** Curriculum Innovations; **270D.** Administration and Supervision; **270E.** Historical Foundations; **270F.** General Topics. Mr. Schwadron

***1272. Seminar in Systematic Musicology.** Three hours weekly. Prerequisite: course 108 and consent of the instructor. May be repeated for credit.

273. Seminar in the Acoustics of Music. Prerequisite: course 108 or consent of the instructor. May be repeated once for credit. Mr. Hutchinson

***1274. Seminar in the Philosophy of Music Education.** Three hours weekly. May be repeated once for credit.

275. Seminar in Aesthetics of Music. Three hours weekly. Prerequisite: course 187, or consent of the instructor. May be repeated once for credit. Mr. Schwadron

276. Seminar in the Psychology of Music. Three hours weekly. Prerequisites: course 184 or consent of the instructor. May be repeated for credit. Selected topics in the psychology of music to include: recent findings in brain research, musical perception, learning, cognition, memory, therapy, affect, meaning, and measurement. Mrs. Murray

280. Seminar in Ethnomusicology. Three hours weekly. Prerequisite: courses 190A-190B and 200A-200B. May be repeated for credit. Mr. Crossley–Holland

281A-281B. Music of Indonesia. Three hours weekly. Prerequisite: consent of the instructor. The 2000-year old cultural history of Indonesia will serve as a background for the materials of this course. During the first quarter emphasis will be on the music of related performing arts of Java, including an analytical and comparative concentration on music as well as exercises in the melodic writing of classical gending; a similar emphasis in the second quarter will be devoted to the music and performing arts of Bali. Concurrent participation in one of the Indonesian performance groups is required. Mr. Harrell

282. Music of Iran and other non-Arabic Speaking Communities. Three hours weekly. Prerequisite: consent of the instructor. A comparative study of the music of Iran and other related areas including Turkey, with particular reference to their historical and cultural background, sources on music theory and aesthetics, instruments, style, technique of improvisation and contemporary practice. Concurrent participation in the Near East Performance group is required. Mr. Racy

***1283. Music of Thailand.** Three hours weekly. Prerequisite: consent of the instructor. A study of the traditional music of Thailand; historical background and intercultural influences, instruments and ensembles, theatrical and dance music, the music in its social context; analysis of forms and styles through examination of representative compositions, with practice in composing in basic styles. Concurrent participation in the Thailand performance group is required.

284. Music of the Arabic Speaking Near East. Three hours weekly. Prerequisite: consent of the instructor. A comparative study of the music cultures of Arabic speaking Near Eastern communities with particular reference to pre-nineteenth century Arabic sources on music theory and aesthetics, and contemporary musical practice considered in respect of social contexts, musical genres, relationship between theory and practice, and trends. Mr. Racy

285. Music of Tibet. Three hours weekly. Prerequisite: consent of the instructor. A study of the traditional music of ethnic Tibet as ritual, art and folklore in its cultural matrix, and its relationship with other arts. Topics include traditional instruments and ensembles and studies in formal and stylistic analysis. Mr. Crossley-Holland

286A-286B. Classical Music of India. Three hours weekly. Prerequisite: consent of the instructor. A study of the history, theory and practice of North and South Indian classical music. The first quarter will be concerned primarily with music history and traditional theory, while the second quarter will involve analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in the Indian performance group is required. Mr. Jairazbhoy

287. Seminar in African Music. Three hours weekly. Prerequisites: courses 140A-140B-140C, 143A-143B, 200A, and 200B. Intensive investigation of musical style, historical, social and cultural aspects of indigenous musical traditions and related art forms. Mr. Nketia

288. Seminar in North American Indian Music. Three hours weekly. Prerequisite: consent of the instructor. A survey of representative musical styles of Native North American Indians, including problems of transcription, methods of analysis, symbolic implications of song texts. Emphasis will be placed on interrelationship between music and cultural context. The influence of Western music in acculturative contexts will also be discussed. Mr. Draper

Professional Courses

370. Music in General Education. (½ course) Two hours weekly. Prerequisite: acceptance into the teacher training program through the School of Education. All music students shall take Music 370 concurrently with Education courses 100, 112, 312, 315, and supervised teaching. May be repeated for credit up to six units. Critical discussions related to supervised teaching in progress. Miss Hooper, Mr. James

460A-465. Master Class in Applied Literature. One hour of private instruction and two hours of performance laboratory per week. Prerequisite: Admission to the M.F.A. program. May be repeated for credit. Intensive study and preparation of musical literature in the area of specialization.

String Classes: 460A. Violin. **460B.** Viola; **460C.** Cello; **460D.** String Bass; **460E.** Harp; **460F.** Classical Guitar; **460G.** Viola da gamba; **460K.** Lute.

Woodwind Classes: 461A. Flute; **461B.** Oboe; **461C.** Clarinet; **461D.** Bassoon; **461E.** Saxophone.

Brass Classes: 462A. Trumpet; **462B.** French Horn; **462C.** Trombone; **462D.** Tuba.

Percussion Class: 463. Percussion.

Keyboard Classes: 464A. Piano; **464B.** Organ; **464C.** Harpsichord.

Voice Class: 465A. Voice.

NOTE: For key to symbols, see page 74

472. Master Class in Opera. Three hours weekly. Prerequisite: consent of the instructor. Intensive study and preparation of opera literature. May be repeated for credit. The Staff

475. Master Class in Conducting. Three hours weekly. Prerequisite: consent of the instructor. Intensive study and preparation of musical literature in the specialized field of conducting. The Staff

Individual Study and Research

596A. Directed Individual Studies in Orchestration and Composition. (½ to 1 course) May be repeated for credit. A maximum of two courses (eight units) may be applied for credit for the M.A. degree. The Staff

596B. Directed Individual Studies in Musicology. (½ to 1 course) The Staff

596C. Directed Individual Studies in Music Education. (½ to 1 course) The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ or 1 course) The Staff

598. Guidance of Master's Thesis or M.F.A. Final Project. (1 or 2 courses) M.A. candidates may apply 4 units toward degree requirements. M.F.A. candidates may apply 8 units toward degree requirements. May be repeated for credit. The Staff

599. Guidance of Doctoral Disseration. (1 or 2 courses) The Staff

Related Courses in Other Departments

Dance 154. Music as Dance Accompaniment.

206. Music for Dance.

Folklore 106. Anglo-American Folk Song.

M123B. Finnish Folksong and Ballad.

M243A. The Ballad.

M243B. Problems in Ballad Scholarship.

NAVAL SCIENCE

(Department Office, 123 Men's Gymnasium)

George I. Thompson, M.A., M.S., *Captain, U.S. Navy, Professor of Naval Science (Chairman of the Department).*
Linda P. Richardson, M.A., *Commander, U.S. Navy, Assistant Professor of Naval Science (Vice Chairman of the Department).*
William T. Meyers, M.S., *Lieutenant Commander, U.S., Navy, Assistant Professor of Naval Science.*
George A. Carlson, B.S.E.E., M.B.A., *Major, U.S. Marine Corps, Assistant Professor of Naval Science.*
Dale E. Baugh, M.S., *Lieutenant, U.S. Navy, Assistant Professor of Naval Science.*
Gregory B. Jones, M.S., *Lieutenant Commander, U.S. Navy, Assistant Professor of Naval Science.*

In June 1938, by action of the Secretary of the Navy and the Regents of the University of California, a Naval Reserve Officers' Training Corps (NROTC) was established on the Los Angeles campus. The primary objective of the NROTC is to provide an education at civil institutions which will qualify selected students for regular or reserve commissions in the U.S. Navy or Marine Corps as elected by the student.

The Department of Naval Science offers several programs:

1. Naval ROTC College Program: This is a four-year, non-scholarship program open to physically qualified men and women between the ages of 17 and 21. Freshmen, and sophomores in a five-year baccalaureate program, are the most likely candidates for this program. Students receive a $100 per month stipend in their junior and senior years and complete one summer training cruise after their third year. Upon graduation, the student will be commissioned as Ensign, U.S. Naval Reserve or Second Lieutenant, U.S. Marine Corps Reserve. A three year active duty obligation is incurred. Application should be made in the summer or early in the fall quarter. Scholarships may be offered to highly qualified College Program students.

2. NROTC Two-Year Program: This program is open to men and women who will be entering their junior year of undergraduate study. Applications are sought from UCLA students as well as incoming junior college transfers. After a six-week summer training period at the Naval Science Institute, students enroll in the NROTC Unit as juniors, with the same obligations and privileges as in the College Program described above. U.S. citizenship is required and the age limit is 27 years at the time of graduation. Applicants should contact the Department of Naval Science no later than April 1st of their sophomore year of study.

3. Two-Year Scholarships: These programs are open to academically and physically qualified students in their second year of undergraduate study, who have had some background in college physics and calculus. As with the Two-Year Program described above, candidates will attend a summer Naval Science Institute before their junior year. They will receive full tuition, fees, book expense and $100 per month during their last two years. Upon graduation, they will receive Regular Navy commissions and enter nuclear power training or other Navy fields as Ensigns. Applications should be made by April 1st, usually in the sophomore year.

4. NROTC Scholarship Program: This is a nationwide competition open to physically qualified men and women between the ages of 17 and 21. U.S. citizenship is required. High school seniors and students enrolled in the NROTC College Program are eligible to apply. Successful applicants receive $100 per month for four years, plus full payment for tuition, fees, and book expenses. Three summer training cruises are required. Upon graduation, the student receives a commission in the Regular Navy or Marine Corps, with a four year active duty obligation. December 1st is the application deadline for Fall 80 admissions.

Naval Science courses may be taken as free elective courses and applied toward the total departmental course requirements. It is important to contact the Naval Science Department and the cognizant college or department to determine the number of free elective courses for which Naval Science courses may be substituted.

For further information on program requirements, etc., contact the Professor of Naval Science, 123 Men's Gymnasium.

Freshman Year

1A. Introduction to Naval Science. (¼ course) An introduction to the structure of the Department of the Navy and its legal framework. Relationships in the Department of Defense. Components of the Naval Service. Shipboard organization. The Staff

1B. Naval Ship Systems I. An introduction to the principles of ship hull and superstructure design. The concepts of ship structural integrity, stability and buoyancy are examined in detail. Basic thermodynamic principles, inherent in ship power generation propulsion and salt water distillation systems are analyzed. D.E. Baugh

Sophomore Year

20A. Seapower and Maritime Affairs. (½ course) A conceptual study of seapower, emphasizing the historical development of naval and commercial power. Seapower is examined in relation to economic, political and cultural strengths, focusing on current abilities of specific nations to utilize the oceans to attain national objectives. G. Carlson

20B. Naval Ship Systems II. A study of naval weapons systems with emphasis on target designation and acquisition, methods of solving fire control problem and target detection systems. Analysis of transfer and feedback functions inherent in weapon systems. Infra-red, radar and sonar principles. D.E. Baugh

Junior Year

101A. Navigation I. A study of principles of piloting, rules of the road, shiphandling and basic concepts of multiple ship formations in ocean transit. Course includes in depth discussion of problems associated with high seas and inland water, applying to small craft and supertankers alike. G. Jones

101B. Navigation II. Prerequisites: course 101A or consent of instructor. A continuation of Navigation I to include a detailed study of electronic and celestial navigation employed in the determination of a ship's position at sea. The course includes spherical trigonometry, mathematical analysis, sextant sights and the use of navigational aids. G. Jones

***103. Military Operations.** A study of the evolution of warfare including historical and comparative consideration of the influence that leadership, political, economic, and sociological and technological development factors have had on warfare, and the influence they will continue to exert in the age of limited warfare. G. Carlson

*Courses to be taken by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101A, 101B, 102B and 102C.

Senior Year

102B. Naval Leadership Management I. An examination of both current and classical leadership and management theories and their application to the military environment. Various aspects of the leadership process are examined in detail including interpersonal communication, counseling theory, moral and professional ethics, conflict resolution, and management of change. The unique leadership problems created by racism, sexism, alcoholism, and drug abuse are also discussed. W.T. Meyers

102C. Naval Leadership and Management II. Prerequisite: course 102B. A continuation of Naval Science 102B which examines current leadership and management utilized by the U.S. Navy. Areas covered include human resources management, personnel management, material management, and performance and career evaluation. W.T. Meyers

***104. Amphibious Operations.** A study of the art of amphibious operations including the historical development of techniques used to project military power from sea to land. The evolution of amphibious doctrine and techniques is examined through study of the U.S. landings during World War II, the Korean Conflict and the Vietnam War. G. Carlson

*Courses to be taken by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101A, 101B, 102B and 102C.

NEAR EASTERN LANGUAGES AND CULTURES

(Department Office, 376 Kinsey Hall)

Amin Banani, Ph.D., *Professor of Persian and History (Chairman of the Department).*
Arnold Band, Ph.D., *Professor of Hebrew.*
Andras Bodrogligeti, Ph.D., *Professor of Turkic and Iranian.*
Seeger A. Bonebakker, Ph.D., *Professor of Arabic.*
Giorgio Buccellati, Ph.D., *Professor of Ancient Near East and History.*
Herbert A. Davidson, Ph.D., *Professor of Hebrew.*
Avedis K. Sanjian, Ph.D., *Professor of Armenian.*
Hanns-Peter Schmidt, Ph.D., *Professor of Indo-Iranian.*
Stanislav Segert, Ph.D., *Professor of Biblical Studies and Northwest Semitics.*
Wolf Leslau, Docteur-ès-Lettres, *Emeritus Professor of Hebrew and Semitic Linguistics.*
Moshe Perlmann, Ph.D., *Emeritus Professor of Arabic.*
John Callender, Ph.D., *Associate Professor of Egyptology.*
Thomas Penchoen, Ph.D., *Associate Professor of Berber.*
Ismail Poonawala, Ph.D., *Associate Professor of Arabic.*
Yona Sabar, Ph.D., *Associate Professor of Hebrew.*
Claude-France Audebert, Ph.D., *Assistant Professor of Arabic.*
Elizabeth Carter, Ph.D., *Assistant Professor of Near Eastern Archaeology.*

Lev Hakak, Ph.D., *Assistant Professor of Hebrew.*
Deborah Lipstadt, Ph.D., *Assistant Professor of Jewish Studies.*
Steven West, Ph.D., *Assistant Professor of Turkish.*

•

Shimeon Brisman, *Lecturer in Hebrew.*
Jay D. Frierman, M.A., *Lecturer in Near Eastern Archaeology.*
David L. Lieber, D.H.L., *Lecturer in Hebrew.*
Stanford Shaw, Ph.D., *Professor of History.*

Bachelor of Arts Degree

Department Programs. The department offers the Bachelor of Arts degree in four fields: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Hebrew, and (4) Jewish Studies. In each of these fields the student must meet the prerequisites and take the courses prescribed for majors. Each student is assigned an adviser who will assist the student in devising a plan of study developed around his interests.

There are four options for a major in Ancient Near Eastern Civilizations: (1) Mesopotamia, (2) Egypt, (3) Syria-Palestine, and (4) Biblical Studies. The prerequisites for options 1 and 2 (Mesopotamia and Egypt) are German 1 and 2; the prerequisites for options 3 and 4 (Syria-Palestine and Biblical Studies) are Greek 1 and 2, Hebrew 1A-1B-1C, and Hebrew 102A-102B-102C. Majors in all four fields will be expected to continue their study of German or Greek beyond the prerequisite levels. Also, majors in all four options are required to take 14 quarter courses selected in consultation with the program adviser.

Majors selecting options 1, 2 and 3 are required to take four language courses as follows: option 1 (Mesopotamia), Semitics 140A-140B, 141, 142; option 2 (Egypt), Ancient Near East 120A-120B-120C, 121A; option 3 (Syria-Palestine), Semitics 130, and three quarters of Hebrew 120. The remaining 10 courses for all three options are to be selected from the following list of courses: three literature courses from Ancient Near East 150A-150B-150C, Jewish Studies 150A; three courses in history and religion from Ancient Near East 130, 170, 171, 172, History 117, 124C, 138A, 140A-140B, 203; Iranian 169, 170; three courses in archaeology and art from Ancient Near East 160A-160B, 161A-161B-161C, 162, Art 101A-101B-101C-101D; and one course in research methodology (such as Anthropology 175 or Linguistics 120) to be taken preferably in another department with the consent of the adviser.

Majors selecting option 4 (Biblical Studies) in Ancient Near Eastern Civilizations are required to take 14 quarter courses as follows: Three quarters of Hebrew 120; Ancient Near East 150C, 162, 170; English 108B; Greek 130; Jewish studies 150A; History 138A; and Semitics 130. The remaining three courses may be selected from the following: Ancient Near East 130, 150A-150B, 160A-160B, 171, 172; Art 101D, 105A; Classics 166B; Greek 200C; History 117, 124C, 140A-140B, 203; Iranian 169, 170.

For a major in Arabic the prerequisites are Arabic 1A-1B-1C, 150A-150B. The student is required to take 14 quarter courses as follows: Arabic 102A-102B-102C, 103A-103B-103C, 130A-130B-130C; three courses of Arabic 111A-111B-111C or 140A-140B-140C; and History 134A-134B.

For a major in Hebrew the prerequisites are Hebrew 1A-1B-1C, 102A-102B-102C, Jewish 150A-150B or their equivalents. The student is required to take 16 quarter courses distributed as follows: Hebrew 103A-103B-103C; three quarters of Hebrew 120; two courses from Hebrew 130A-130B-130C-130D; two courses from Hebrew 140, 160; both Hebrew 190A and 190B; two additional courses in Hebrew or Aramaic to be approved by the adviser; and two quarter courses from History 137A-137B, 138A-138B.

For a major in Jewish Studies the prerequisites are Hebrew 1A-1B-1C, History 138A-138B or their equivalents. The student is required to take 16 quarter courses including: Hebrew 102A-102B-102C, 103A-103B-103C, Jewish Studies 150A-150B, Jewish Studies 151A-151B, 199 (undergraduate thesis), and five other upper division courses. At least two of the five must be courses in the areas of Hebrew, Jewish History, or Yiddish. The remaining three may be chosen either from those areas or from courses with Jewish content given in other departments and approved by the Jewish Studies adviser.

In addition to courses offered at UCLA a number of courses in Jewish studies offered at the University of Judaism are accepted by UCLA for concurrent enrollment credit. Additionally, an agreement between UCLA and the University of Judaism establishes a Joint Undergraduate Program of concurrent enrollment leading to an award of two degrees: Bachelor of Arts in Jewish Studies by the University of Judaism and Bachelor of Arts or Bachelor of Science by UCLA. A list of University of Judaism courses accepted for concurrent enrollment at UCLA as well as general information concerning the Joint Program are available from the office of Admissions of the University of Judaism and the Honors Program Office of UCLA's College of Letters and Science.

Requirements for the Master's Degree

General Requirements. See Master's Degree.

Department Programs. The M.A. degree is offered in seven areas of specialization: (1) Ancient Near Eastern Civilizations. (2) Arabic, (3) Armenian, (4) Hebrew, (5) Iranian, (6) Semitics, and (7) Turkish. The department follows the Comprehensive Examination Plan that does not require a thesis. The candidate's program of study will be devised by a guidance committee of at least three members of the department faculty under the chairmanship of his adviser. The requirement for admission to all the M.A. programs is a bachelor's degree or its equivalent in the language area chosen for the degree.

Departmental General Requirements. The requirements for all the M.A. degree programs are:

1. A minimum of nine upper division and graduate level courses, of which at least six courses must be on the graduate level. All candidates will be required to take one quarter of Near Eastern Languages 200 (Bibliography and Method). The candidate may concentrate on either language or literature in his chosen field but will be required to do work in both. In the case of the Ancient Near Eastern field, the candidate may concentrate on a combination of both language and literature with Near Eastern archaeology.

2. The candidate will be required to have competent knowledge of the history of his major culture area.

3. The candidate will be required to pass an examination in one major modern European language other than English by the end of the third quarter of residence. The choice of the language will be determined in consultation with his adviser. The student has the option of satisfying this requirement by one of the following methods: a) Educational Testing Service, b) departmentally administered examination, c) two years college level or equivalent in the language selected. It is strongly recommended that the student who intends to continue towards a Ph.D. degree acquire a knowledge of a second major European language other than English while still a candidate for the M.A.

4. Upon completion of his course requirements, the candidate will be required to take a comprehensive final examination administered by the departmental guidance committee.

Specific Requirements. The specific requirements for the M.A. degree in the several areas of specialization are as follows: The candidate in Ancient Near Eastern Civilizations will be required to study two ancient languages, one of which must be one of the major languages of the Ancient Near East (Ancient Egyptian, Akkadian, or Hebrew), and the history and archaeology of the related area. The major area of concentration may be either the linguistic, literary, or archaeological aspect of the discipline. The candidate in Hebrew will be required to study Hebrew and another Semitic language; in Semitics, three Semitic languages; in Turkish, two Turkic languages; and in Arabic, Armenian and Iranian, one other related Near Eastern language in addition to his major language area.

Doctor of Philosophy Degree

General Requirements. See Doctoral Degrees.

Department Programs. The Ph.D. degree is offered in seven areas of specialization: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Armenian, (4) Hebrew, (5) Iranian, (6) Semitics, and (7) Turkish. The candidate may concentrate on either language or literature in his chosen field but will be required to do work in both. In all areas of specialization, the student's program of study will be devised in consultation with his adviser. Prior to admission to the Ph.D. program the candidate is expected to take the M.A. degree in his field.

Specific Requirements. A candidate specializing in the languages of the Near East is expected to take the equivalent of one year of general linguistics and one year of grammar in his field of concentration (e.g. Semitics or Turkic). He is also required to achieve competence in three related languages within his field of concentration with particular emphasis on two major languages. It is mainly the structural mastery of the languages and familiarity with their development and their position within the appropriate family of languages that are required. The student is also advised to acquaint himself with the historical, literary, religious, and social background of the various language areas of his interest.

A candidate specializing in the literatures of the Near East is required to achieve competence in two languages; his second language must be a literary language taken from the cultural area related to his first language (e.g., a Hebraist can choose Akkadian, Arabic, Aramaic, or Yiddish; an Arabist can choose Persian or Turkish, and so on). The candidate will also be required to be familiar with the history of literary criticism and methods of literary research. This requirement may be fulfilled by taking courses offered by various departments at UCLA, particularly the course in literary criticism offered by the English department or the course in the Methodology of Comparative Literature.

A candidate specializing in Ancient Near Eastern Civilizations will be required to achieve competence in two ancient languages. His major area of concentration may be in either the linguistic, literary, or archaeological aspect of the discipline.

Language Requirements. The candidates for the Ph.D. degree in all areas of specialization will be required to have a reading knowledge of two major modern European languages other than English. The choice of languages must be approved by the adviser. The student has the option of satisfying the language requirements by one of the following methods: a) Educational Testing Service, b) departmentally administered examination, c) two years college level or equivalent in the languages selected. The examination in one of the two languages must be taken at the beginning of his first quarter in residence; the examination in the second language not later than at the beginning of the fourth quarter. The adviser may require additional language skills in modern and/or ancient languages if such skills are needed for scholarly work in the area of the student's interest.

Qualifying Examinations. The candidate in languages will be examined in three Near Eastern languages and the literary and historical background of at least two of them. The candidate in literature will be examined in the literatures written in two languages within the cultural area of his concentration, and the historical and cultural background of these languages with emphasis on one of them. The candidate in Ancient Near Eastern Civilizations will be examined in two ancient languages, and the history and archaeology of the major areas of the Ancient Near East.

Upon the successful completion of the written and oral qualifying examinations the student is eligible

NOTE: For key to symbols, see page 74

to advance to candidacy and receive the Candidate in Philosophy degree.

The department does not require an oral defense of the dissertation except in circumstances deemed necessary by the candidate's Doctoral Committee.

Ancient Near East

(Akkadian, Aramaic, Phoenician, and Ugaritic are listed under Semitics.)

Upper Division Courses

***[2]120A-120B-120C. Elementary Ancient Egyptian.** Lecture, three hours; laboratory, two hours. Prerequisite: consent of the instructor. Grammar and texts. Mr. Callender

***[2]121A-121B-121C. Intermediate Ancient Egyptian.** Three hours. Prerequisites: courses 120A-120B-120C. Readings in Ancient Egyptian literature. Mr. Callender

***[3]123A-123B. Coptic.** Three hours. Prerequisite: consent of the instructor. An introduction to Coptic grammar and reading of Coptic texts. The quarters this course is offered vary from year to year. Check with department. Mr. Callender

***[3]124. Middle Egyptian Technical Literature.** Prerequisite: course 121C. Reading of Middle Egyptian Technical literature in hieroglyphic transcription. Included are medical, veterinary, mathematical and astronomical texts. Mr. Callender

***[3]130. Ancient Egyptian Religion.** Lecture, three hours. An introductory survey of various Ancient Egyptian religious beliefs and practices, their origin and development. Included will be discussions of religio-political institutions such as divine kingship and pious foundations. Mr. Callender

***[5]140A-140B. Elementary Sumerian.** Lecture, three hours. Prerequisite: Semitics 140A-140B. Elementary grammar and reading of royal inscriptions, letters and administrative texts from the Ur III period. The Staff

***[2]145. Sumerian Literary Texts.** Lecture, three hours. Prerequisites: courses 140A and 140B or consent of instructor. Reading and interpretation of selected Sumerian literary texts. The Staff

***[2]150A-*[2]150B-*[4]150C. Survey of Ancient Near Eastern Literatures in English.** Lecture, three hours. Courses 150A and 150B and 150C may be taken independently for credit. 150A: Mesopotamia; 150B: Egypt; 150C: Syria and Palestine, Asia Minor, Persia. Mr. Buccellati, Mr. Callender, Mr. Segert

***[3]160A-*[7]160B. Introduction to Near Eastern Archaeology.** Lecture, three hours. Terminology, geography, principles, strategy of research, bibliography and a general survey of Near Eastern archaeology. Ms. Carter, Mr. Frierman

***[3]161A-161B-161C. Archaeology of Mesopotamia.** Prerequisite: consent of the instructor. Survey of the main archaeological periods in Mesopotamia with special emphasis on late prehistoric and early historical periods and with reference to neighboring cultural areas. May be taken independently for credit. Ms. Carter

162. Archaeology of Palestine. Lecture, three hours. A survey of the archaeology of Palestine and the Sinai Peninsula from the Paleolithic to the destruction of Jerusalem in 586 B.C. with emphasis on the geographic setting and relationships to the other cultures of the Near East. Mr. Frierman

***[3]163. Archaeology of Iran.** Lecture three hours. Prerequisites: None. A lecture course designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. Lectures would cover geography and settlement patterns, early prehistory, Ancient Elam, the Iranian Plateau in the third and second millenniums B.C. and the rise of the Achaemenid Empire. Ms. Carter

164A-164B-*[6]164C. The Archaeology of the Historic Periods in Mesopotamia. Prerequisite: History 140A-140B. Ancient Near East 161A-161C or consent of the instructor. Survey of the main archaeological periods in Mesopotamia with special emphasis on the historic periods and with reference to neighboring cultural areas. May be taken independently for credit.

***[4]170. Introduction to Biblical Studies.** Lecture, two hours. The Bible (Old and New Testaments) as a book. Canon, text and versions. Linguistic, literary, historical and religious approaches to Bible study. Survey of history of interpretation from antiquity to the present. Knowledge of original languages not required. Mr. Segert

***[4]171. Old Testament: Hebrew and Septuagint Texts.** Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C and Greek 1, 2, or consent of the instructor. Study of the Hebrew original and of the Greek version of the Old Testament books. Mr. Segert

***[4]172. Semitic Background of the New Testament.** Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C, Semitics 130, Greek 1 and 2, or consent of the instructor. Study of the Semitic elements in the Greek New Testament: Traditions transmitted in Aramaic, relations to the Old Testament and to the Post-Biblical Literature, and Palestinian Judaism. Mr. Segert

199. Special Studies in the Ancient Near East. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

Graduate Courses

***[5],*[3]210. Late Egyptian.** (Formerly numbered 122A-122B.) Lecture, three hours. Prerequisites: courses 121A-121B-121C and consent of the instructor. Late Egyptian grammar and reading of both hieroglyphic and hieratic texts. The quarters in which this course is offered vary from year to year. Check with department. May be repeated for credit. Mr. Callender

***[3]211A-211B. Texts of the Greco-Roman Period.** Prerequisite: course 121C. Introduction to the grammar and orthography of hieroglyphic texts from Greco-Roman temples. Text readings and translation of various textual types. Mr. Callender

***[5],*[3]220. Seminar in Ancient Egypt.** Three hours. Prerequisite: consent of the instructor. May be repeated for credit. Mr. Callender

***[3]221A-221B. Demotic.** Prerequisite: course 121C. Introduction to Demotic grammar and orthography. Reading of texts from various genres. Mr. Callender

***[2]240A-240B-240C. Seminar in Sumerian Language and Literature.** Lecture, two hours. Prerequisites: consent of instructor. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history. The Staff

250. Seminar in Ancient Mesopotamia. Prerequisite: consent of the instructor. Selected topics on the political, social and intellectual history of ancient Mesopotamia. May be repeated for credit. Mr. Buccellati

250X. Seminar in Ancient Mesopotamia. (¼ course) Prerequisite: consent of instructor. Selected topics on the political, social and intellectual history of ancient Mesopotamia. May be repeated for credit. Ancient Near East 250X is a one unit course for students who participate regularly in class meetings without the homework required of students in the regular course, Ancient Near East 250. The Staff

260. Seminar in Ancient Near Eastern Archaeology. Lecture, two hours. Prerequisite: consent of the instructor. May be repeated for credit. The Staff

261. Practical Field Archaeology. (½ to 2 courses) Two hours. Prerequisite: consent of the instructor. Participating in archaeological excavations or other archaeological research in the Near East under supervision of the staff. May be repeated. Mr. Buccellati, Miss Carter

262. Seminar in Object Archaeology. Discussion, two hours; laboratory, one hour. Prerequisite: consent of instructor. Selected topics in the analysis and interpretation of Near Eastern archaeological finds in museum collections. Students will work with objects in the Heeramanek Collection of the Los Angeles County Museum of Art. Miss Carter

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses) The Staff

597. Examination Preparation. (½ to 2 courses) The Staff

599. Dissertation Research and Preparation. (½ to 2 courses) The Staff

Releated Courses in Other Departments

Art 101A. Egyptian Art and Archaeology.

210. Egyptian Art.

History 117. History of Ancient Egypt.

124C. Religions of the Ancient Near East.

140A-140B. History of Ancient Mesopotamia and Syria.

240J. Topics in History.

Arabic

Lower Division Courses

***[12]1A-1B-1C. Elementary Arabic.** Lecture, four hours; laboratory, two hours. Basic structure. Miss Audebert

***[12]102A-102B-102C. Intermediate Arabic.** Four hours. Prerequisites: courses 1A-1B-1C or consent of the instructor. Readings in both classical and modern Arabic, composition, conversation. Miss Audebert

***[12]103A-103B-103C. Advanced Arabic.** Four hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. Review of grammar, continued reading of literary works. Composition, conversation and a weekly lecture in Arabic. Mr. Poonawala

***[5]110. Introduction to Islam.** Lecture, three hours. The course will treat the genesis of Islam, its doctrines and practices with readings from the Qur'an; forms of Islam: tensions and schism; reform and modernism. Mr. Poonawala

***[12]111A-111B-111C. Spoken Arabic.** Lecture, three hours; laboratory, three hours. Prerequisites: courses 102A-102B-102C. Introduction to one Arabic dialect with some comparison of the other dialects. May be repeated for credit with consent of instructor. The Staff

***[5]113A-113B-113C. Spoken Iraqi Arabic.** Three hours. Prerequisite: courses 102A-102B-102C. Introduction to the contemporary Arabic dialect of Iraq. Phonology, morphology and syntax will be presented with emphasis on oral practice. The Staff

***[1],*[12]114A-114B-114C. Spoken Moroccan Arabic.** Lecture, three hours; laboratory, one hour. Introduction to the Spoken Arabic dialect of Morocco. Phonology, morphology and syntax will be presented. Emphasis will be on developing oral skills. Mr. Penchoen

***[5]130A-130B-130C. Classical Arabic Texts.** Lecture, three hours. Prerequisites: courses 102A-102B-102C. Reading and interpretation of texts from classical Arabic literature: Koran, historiography, geography and poetry. Mr. Bonebakker

132A-132B-132C. Philosophical Texts. Three hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. A study of excerpts from the major works of medieval Arab philosophy. The Staff

***[5]140A-140B-140C. Modern Arabic Texts.** Lecture, three hours. Prerequisites: courses 102A-102B-102C. Readings and interpretation of modern Arabic texts. Miss Audebert

***2141. Modern Arabic Literature.** Prerequisite: course 140 or its equivalent. Readings of selected texts representing the most important modern styles and trends. May be repeated for credit with the consent of the instructor. Miss Audebert

***2150A-150B. Survey of Arabic Literature in English.** Lecture, three hours. Knowledge of Arabic is not required. Courses 150A and 150B may be taken independently for credit. Mr. Bonebakker

199. Special Studies in Arabic. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

Graduate Courses

***5220A-220B-220C. Islamic Texts.** Lecture, two hours. Scripture and interpretation in Islam; traditional Scholarship; historical and literary problems of modern research; selections from various fields of Islamic thought. May be repeated for credit. Mr. Poonawala

***2230A-230B-230C. Arabic Poetry.** Lecture, two hours. Prerequisite: consent of the instructor. Readings in Arabic poetry from various periods. May be taken independently for credit. Mr. Bonebakker

***2240A-240B-240C. Arab Historians and Geographers.** Two hours. Readings from the works of the most outstanding Arab historians and geographers of the classical period of Islam. Mr. Poonawala

***5250A-250B-250C. Seminar in Arabic Literature.** Two hours. May be repeated for credit with the consent of the instructor. Mr. Bonebakker

***5260A-260B-260C. Introduction to Modern Arabic Dialects.** Lecture, three hours. Prerequisites: Arabic 103A-103B-103C or consent of the instructor. Survey of partition and geographic distribution of Modern Arabic dialects; common structural features and contrasts with Classical Arabic; sociolinguistic evaluation of the Arabic diglossia; analysis of representative texts. The Staff

***5280. Structure of Classical Arabic.** Three hours. Prerequisites: Arabic 103A-103B-103C or consent of the instructor. The patterning of Classical Arabic at the morpho-phonemic, morpho-logical, and morpho-syntactic structural levels; application of traditional, statistical, and generative methods to the synchronic investigation of structural features. The Staff

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses) The Staff

597. Examination Preparation. (½ to 2 courses) The Staff

599. Dissertation Research and Preparation. (1/2 to 2 courses) The Staff

Related Courses in Another Department

History 134A-134B. Near and Middle East from 600 A.D.

267A-267B. Seminar in Near Eastern History.

Armenian

***12101A-101B-101C. Elementary Modern Armenian.** Four hours. Armenian grammar, conversation and exercises. The Staff

***12102A-102B-102C. Intermediate Modern Armenian.** Four hours. Prerequisites: courses 101A-101B-101C or the equivalent. Reading of selected texts, composition and conversation. The Staff

103A-103B. Advanced Modern Armenian. Three hours. Prerequisites: courses 102A-102B-102C or the equivalent. Readings in advanced modern Armenian texts. Mr. Sanjian

***2130A-130B. Elementary Classical Armenian.** Three hours. Grammar of the Classical Armenian language and readings of selected texts. Mr. Sanjian

***2131A-*6131B. Intermediate Classical Armenian.** Three hours. Prerequisites: courses 130A-130B or the equivalent. Reading of selected texts. Mr. Sanjian

***7132A-*8132B. Advanced Classical Armenian.** Three hours. Prerequisites: courses 131A-131B or the equivalent. Readings in advanced Classical Armenian texts. Mr. Sanjian

***5150A-150B. Survey of Armenian Literature in English.** Three hours. Knowledge of Armenian is not required. Courses 150A and 150B may be taken independently for credit. Mr. Sanjian

***5160A-160B. Armenian Literature of the 19th and 20th Centuries.** Three hours. Prerequisites: courses 102A-102B-102C or the equivalent. Reading of texts and discussion of various genres of modern Armenian literature, within the context of the Armenian Cultural Renaissance. Mr. Sanjian

***8170. Soviet Armenian Literature.** Lecture three hours. Prerequisites: courses 102A-102B-102C or the equivalent. The course deals with various aspects of Armenian literature developed in Soviet Armenia during the years 1920 to the present time. It covers such genres as poetry, the novel and drama, and concentrates on the works of the most prominent authors in each of these literary fields. The Staff

199. Special Studies in Armenian Language and Literature. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

Graduate Courses

***8207. Armenian Intellectual History.** Lecture, three hours. Prerequisites: none. Intellectual and cultural trends reflected in Armenian literature, historiography, religious and philosophical thought. Mr. Sanjian

***2210. History of the Armenian Language.** Three hours. Prerequisite: consent of the instructor. The development of the Armenian language in its various stages: Classical, Middle, and Modern. Mr. Sanjian

***2220. Armenian Literature of the Golden Age (A.D. Fifth Century).** Three hours. Prerequisites: courses 131A-131B or the equivalent. Readings of texts and discussion of literary genres; the course will concentrate on both original works and those translated from Greek and Syriac. Mr. Sanjian

***2250A-250B. Seminar in Armenian Literature.** Three hours. Prerequisite: consent of the instructor. Selected topics from various periods of Armenian literature. May be repeated for credit. Mr. Sanjian

***8290. Seminar in Armenian Paleography.** Three hours. Prerequisite: consent of the instructor. Discussion of variety of Armenian scripts and training in the use of manuscripts. Mr. Sanjian

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses) Mr. Sanjian

597. Examination Preparation. (½ to 2 courses) Mr. Sanjian

599. Dissertation Research and Preparation. (½ to 2 courses) Mr. Sanjian

Related Courses in Other Departments

History 131A-131B-131C. Armenian History.

132. The Caucasus since 1801.

207. Armenian Intellectual History.

228. Methods in Armenian Oral History.

230S. Advanced Historiography: Armenian.

240. Topics in History: Armenia and the Caucasus.

286A-286B. Seminar in Armenian History.

Indo-European Studies M150. Introduction to Indo-European Linguistics.

Berber

Upper Division Courses

***12,*1101A-101B-101C. Elementary Berber.** Lecture, three hours; laboratory, two hours. Development of oral proficiency and analysis of basic grammatical structure. Mr. Penchoen

***12,*1102A-102B-102C. Advanced Berber.** Prerequisites: courses 101A-101B-101C or consent of the instructor. Advanced study of Berber. Regional and stylistic variants in folk literature. Mr. Penchoen

***12,*1120A-120B-120C. Introduction to Berber Literature.** Three hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. The development of Berber literary forms: systematic analysis of texts and a study of Berber writing systems. Mr. Penchoen

***1130. The Berbers.** Examination of the main features of Berber societies and cultures with particular attention being given to social structures and institutions on the one hand, and to customs, values and beliefs on the other. The course will present a broad framework within which the study of particular aspects of Berber cultures may be fruitfully pursued. Mr. Penchoen

***1199. Special Studies in Berber Languages. (½ to 2 courses)** Prerequisite: consent of the instructor. Study based on the requirements of the individual student. Mr. Penchoen

Related Courses in Other Departments

History 133A-133B. History of North Africa from the Muslim Conquest.

Linguistics 225M. Linguistic Structures: Berber.

Caucasian Languages

***1111A-111B-111C. Elementary Georgian.** Three hours. Prerequisite: consent of the instructor. Script, grammar, simple reading in this main Caucasian language.

***1199. Special Studies in Caucasian Languages. (½ to 2 courses)** Prerequisite: consent of the instructor. The Staff

Hebrew

Lower Division Courses

***121A-1B-1C. Elementary Hebrew.** Lecture, three hours; laboratory, two hours. Structural principles of grammar. Students who have previous knowledge of reading and some vocabulary are advised to take courses 10A-10B-10C. Students with credit for 10A will not receive credit for Hebrew 1A. Students with credit for 10B will not receive credit for 1B or 1C. The Staff

***1210A-10B-10C. Accelerated Elementary Hebrew.** Open to students who wish to cover the equivalent of two years college Hebrew in one academic year; for students who have previously studied the rudiments of Hebrew. Students with credit for Hebrew 1A will not receive credit for 10A. Students with credit for 1B and/or 1C will not receive credit for 10B. The Staff

Upper Division Courses

***12102A-102B. Intermediate Hebrew.** Lecture five hours. Prerequisites: courses 1A-1B-1C or the equivalent. Amplification of grammar; reading of vocalized texts from modern, Biblical, and Medieval/Rabbinic literature. Section I for students with strong grammatical background. Section II for students with strong conversational background. The two sections should be equal in both language skills by the end of the Winter Quarter. Mr. Sabar

***12103A-103B-103C. Advanced Hebrew.** Five hours. Prerequisites: courses 102A-102B-102C or the equivalent. Reading of unvocalized texts, primarily modern literature. Mr. Hakak

NOTE: For key to symbols, see page 74

*12120. **Biblical Texts.** Three hours. Prerequisites: courses 102A-102B-102C or the equivalent. Translations and analysis of Old Testament texts with special attention given to texts of primary literary and historical importance. May be repeated for credit. Mr. Lieber

130. Rabbinic Texts. Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of the instructor. Readings in Mishnah, Talmud, and/or Midrash. May be repeated for credit. Mr. Davidson

135. Medieval Hebrew Texts. Lecture, three hours. Prerequisites: Hebrew 103A-103B-103C or consent of instructor. Readings in Medieval Hebrew Prose and Poetry. May be repeated for credit up to four times. Mr. Davidson

*5140. **Modern Hebrew Poetry and Prose.** Lecture, three hours. Prerequisites: 103A, 103B, 103C, and consent of the instructor. A study of the major Hebrew writers of the past one hundred years: prose-Mendele, Ahad Ha'am, Agnon, Yizhar; poetry-Bialik, Tchernichovsky, Greenberg, Shlonsky, Alterman, Amihai. May be repeated for credit. Mr. Hakak

*8160. **The Hebrew Essay.** Three hours. Prerequisites: courses 103A-103B-103C or consent of the instructor. The Hebrew essay from its rise in Europe in the late eighteenth century to the contemporary Israeli essay; the literary, political, philosophical, and scholarly essay will be studied. May be repeated for credit. Mr. Hakak

*5190A-190B. **Survey of Hebrew Grammar.** Three hours. Prerequisites: courses 102A-102B-102C or consent of the instructor. Descriptive and comparative study of the Hebrew phonology and morphology. Mr. Sabar

199. Special Studies in Hebrew. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

Graduate Courses

*2210. **History of the Hebrew Language.** Prerequisites: courses 103A-103B-103C or consent of the instructor. The development of the Hebrew language in its various stages: Biblical, Mishnaic, Medieval, Modern, and Israeli; differences in vocabulary, morphology, syntax, and the influence of other languages; problems of language expansion in Israeli Hebrew. May be repeated for credit. Mr. Sabar

220. Studies in Hebrew Biblical Literature. Lecture, three hours. A critical study of the Hebrew text in relation to the major versions; philological, comparative, literary, and historical study of various Biblical books. May be repeated for credit. Mr. Segert

230. Seminar in Medieval Hebrew Literature. Three hours. May be repeated for credit. Mr. Davidson

231. Texts in Judaeo-Arabic. Prerequisites: a reading knowledge of Hebrew and Arabic. Reading of Philosophic Texts in Judaeo-Arabic. Mr. Davidson

*5241. **Studies in Modern Hebrew Prose Fiction.** Studies in specific problems and trends in Hebrew prose fiction of the last two centuries. May be repeated for credit. Mr. Band

*2242. **Studies in Modern Hebrew Poetry.** Studies in specific problems and trends in Hebrew poetry of the last two centuries. Mr. Band

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses) The Staff

597. Examination Preparation. (½ to 2 courses) The Staff

599. Dissertation Research and Preparation. (½ to 2 courses) The Staff

Related Courses in Another Department

History 137A-137B. Jewish Intellectual History.

138A-138B. Jewish History.

Iranian

Lower Division Courses

10A-10B-10C. Persian Conversation. (½ course each) Three hours. Prerequisite: consent of the instructor. Systematic and structured conversation Persian. The Staff

Upper Division Courses

*12101A-101B-101C. **Elementary Persian.** Lecture, four hours; laboratory, two hours. The Staff

*12102A-102B-102C. **Intermediate Persian.** Lecture, three hours; laboratory, three hours. Prerequisites: courses 101A-101B-101C or the equivalent. The Staff

*12103A-103B-103C. **Advanced Persian.** Lecture, three hours. Prerequisites: 102A-102B-102C or the equivalent. Mr. Banani

*5140. **Contemporary Persian Belle Lettres.** Three hours. Prerequisites: courses 103A-103B-103C or equivalent and consent of the instructor. A study of the major Persian poets and prose writers of the twentieth century; prose Jamalzadeh, Hedayat, Chubuk, Al Ahmad, Sa'edi, Golestan; poetry Nima, Shamlu, Farrokhzad, Akhavan. Mr. Banani

*5141. **Contemporary Persian Analytical Prose.** Three hours. Prerequisites: courses 102A-102B-102C or equivalent and consent of the instructor. A study of selected modern Persian analytical and expository prose texts with emphasis on social sciences, literary criticism and history. Mr. Banani

150A-150B. Survey of Persian Literature in English. Three hours. Knowledge of Persian not required. Courses 150A and 150B may be taken independently for credit. Mr. Banani

*1169. **Civilization of Pre-Islamic Iran.** (Formerly Indo-European Studies 169.) A survey of Iranian culture from the beginnings through the Sasanian period. Mr. Schmidt

*1170. **Religion in Ancient Iran.** Lecture, four hours. History of religion in Iran from the beginnings to the Mohammedan conquest; Indo-Iranian background, Zoroastrianism, Manichaeism, Mazdakism. Mr. Schmidt

*2190A-190B. **Introduction to Modern Iranian Studies.** Three hours. Prerequisites: Persian 101A-101B-101C or their equivalent. Survey of the Iranian languages. Comparative and historical grammar. Mr. Bodrogligeti

199. Special Studies in Iranian. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

Graduate Courses

*5210A-210B. **The History of the Persian Language.** Lecture, three hours. Prerequisite: consent of the instructor. Survey of the development of the new Persian language against the background of Middle and Old Persian. Mr. Bodrogligeti

*5211A-211B. **Modern Iranian Dialects.** Four hours. Prerequisites: Linguistics 100 or equivalent and consent of the instructor. A survey of the Northwestern and Southwestern Iranian languages, and their interaction with the non-Iranian languages of Iran. Discussion includes historical development, linguistic affinities and modern distribution. Material gathered in the field will supplement lectures. May be repeated for credit with the consent of the instructor. The Staff

*2220A-220B. **Classical Persian Texts.** Three hours. Prerequisites: courses 103A-103B-103C or consent of the instructor. Study of selected classical Persian texts. May be taken independently for credit. Mr. Banani

*5211. **Rumi the Mystic Poet of Islam.** Three hours. Prerequisites: course 220A or 220B or equivalent and consent of the instructor. A study of the life and works of Rumi in the context of interaction of Sufism and poetic creativity. Mr. Banani

*7M222A-*8222B. **Vedic.** (Formerly numbered Indo-European Studies 222A-222B and same as Oriental Languages M222A-222B.) Four hours. Prerequisites: A knowledge of Sanskrit equivalent to Oriental Languages 162, and consent of the instructor. Characteristics of the Vedic dialect and readings in the Rig-Vedic hymns. M222B only may be repeated for credit. Mr. Schmidt

*7230A-*8230B. **Old Iranian.** (Formerly numbered Indo-European Studies 230A-230B.) Four hours. Prerequisite: consent of the instructor. Studies in the grammars and texts of Old Persian and Avestan. Comparative considerations. 230B only may be repeated for credit. Mr. Schmidt

*9231A-231B. **Middle Iranian.** (Formerly numbered Indo-European Studies 231A-231B.) Four hours. Prerequisite: consent of the instructor. Studies in the grammars and the texts of such Middle Iranian languages as best serve the students' needs (e.g., Pahlavi, Sogdian, Sakian). 231B only may be repeated for credit. Mr. Schmidt

*2250. **Seminar in Classical Persian Literature.** Three hours. Prerequisites: courses 103A-103B-103C and Iranian 199 or consent of the instructor. May be repeated two times for credit. Mr. Banani

*5251. **Seminar in Contemporary Persian Literature.** Three hours. Prerequisites: course 140 or equivalent and consent of the instructor. Studies in specific problems and trends in Persian poetry and prose in the twentieth century. Mr. Banani

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses) The Staff

597. Examination Preparation. (½ to 2 courses) The Staff

599. Dissertation Research Preparation. (½ to 2 courses) The Staff

Related Courses in Other Departments

History 130A-130B-130C. Islamic Iran.

Oriental Languages 160. Elementary Sanskrit.

161. Intermediate Sanskrit.

162. Advanced Sanskrit.

Indo-European Studies 210. Indo-European Linguistics: Advanced Course.

260A-260B. Seminar in Indo-European Mythology.

280A-280B. Seminar in Indo-European Linguistics.

Linguistics 225U. Persian Phonology and Syntax.

226V. Persian Syntax. Prerequisite: course 225U.

Music 71K. Music of Persia.

Music 171K. Music of Persia.

Islamics

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses) The Staff

597. Examination Preparation. (½ to 2 courses) The Staff

598. Thesis Research and Preparation. (½ to 2 courses) The Staff

599. Dissertation Research and Preparation. (½ to 2 courses) The Staff

Related Courses in Another Department

History 135. Introduction to Islamic Culture.

136. Islamic Institutions and Political Ideas.

209A-209B. The Modern Middle East.

Jewish Studies

Upper Division Courses

110. Social, Cultural and Religious Institutions of the Jews. This course will examine aspects of Jewish culture that are not treated in literature or history courses. The character and development of subjects such as the following will be considered: Jewish communal institutions; trades and occupations; contact with non-Jews; family institutions; educational institutions; folk beliefs and attitudes. The Staff

***3140A-140B. American Jewish History.** Lecture, three hours. An examination of the social and cultural history of the American Jewish community from its inception to the present, with emphasis upon the integration of successive immigrants and the development of institutions. 140A covers from 1654 to 1914; 140B covers from 1914 to the present. Ms. Lipstadt

***6141. Modern Anti-Semitism.** Lecture, three hours. An examination of modern antisemitism from the 18th century to the present; a comparison of modern racist idiologies with pre-modern theories; case studies, e.g. The Dreyfus affair, the Beiliss Trail, the Holocaust; Jewish reactions to these phenomena. Ms. Lipstadt

***3142. The History and Institutions of the State of Israel.** Lecture, three hours. A study of the social and cultural development of the State of Israel from its pre-state institutional structures to the present with emphasis upon major trends, personalities, and ideologies, and the state's position in the wider framework of modern Jewish history. Ms. Lipstadt

***2150A-150B. Hebrew Literature in English.** Lecture, three hours. 150A and 150B may be taken independently for credit. 150A: Biblical and Apocryphal literature. 150B: Rabbinic and Medieval literature. Mr. Band, Mr. Davidson

***2151A-*2151B. Modern Jewish Literature in English.** Lecture, three hours. Jewish Studies 151A-Diaspora literature, Jewish Studies 151B-Israeli literature. Both courses may be taken independently for credit. Mr. Band

190. Undergraduate Seminar in Jewish Studies. This course will examine a single topic in depth with the object of encouraging and guiding students' research in the area of Jewish Studies. Literary, cultural and historical subjects will be taken up in successive years, including: midrash; messianic; medieval communal institutions; relations of Jews to non-Jews in the late middle ages. The Staff

199. Special Studies (Jewish Studies). (½ to 2 courses) Prerequisite: Jewish Studies majors only. The Staff

Near Eastern Languages

Upper Division Course

198. Special Studies in Near Eastern Languages. (½ to 2 courses) Prerequisite: consent of the instructor. The Staff

Graduate Courses

200. Bibliography and Method of Near Eastern Languages and Literatures. Two hours. Prerequisite: consent of the instructor. One quarter required for the M.A. in Near Eastern Languages and Literatures. Introduction to bibliographical resources and training in methods of research in various areas of specialization offered by the department. May be repeated for credit. The Staff

***8210.Survey of Afro-Asiatic Languages.** Lecture, three hours. Prerequisite: consent of the instructor. A survey of the structures of a number of the representative languages from various major branches of the Hamito-Semitic (Afro-Asiatic) language family. This course is equivalent to Linguistics 225. The Staff

***5M241. Folklore and Mythology of the Near East.** (Same as Folklore M241.) Prerequisite: Folklore 101 or the equivalent. The Staff

***5290. Seminar in Paleography.** Three hours. To provide the students with the ability to cope with varieties of manuscripts.

Individual Study and Research

501. Near Eastern Languages Cooperative Program. (½ to 2 courses) Prerequisite: Approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

596. Directed Individual Study. (½ to 2 courses) The Staff

597. Examination Preparation. (½ to 2 courses)

599. Dissertation Research and Preparation. (½ to 2 courses) The Staff

Semitics

Upper Division Courses

***12101A-101B-101C. Elementary Amharic (Modern Ethiopic).** Lecture, three hours. Elements of Amharic, and national language of Ethiopia; grammar and reading of texts. The Staff

102A-102B-102C. Advanced Amharic (Modern Ethiopic). Lecture, three hours. Prerequisites: courses 101A-101B-101C or consent of the instructor. The Staff

110. Neo-Aramaic. Lecture, three hours. Grammar and reading of selected texts (folktales, homilies, songs) in the modern Aramaic dialects of the Jews and Christians of Kurdistan. Mr. Sabar

***5130. Biblical Aramaic.** Lecture, three hours. Prerequisites: Hebrew 102A-102B-102C or consent of the instructor. Grammar of Biblical Aramaic and reading of texts. Mr. Segert

***5140A-140B. Elementary Akkadian.** Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian. Mr. Buccellati

***5141. Advanced Akkadian.** Three hours. Prerequisite: consent of the instructor. Old Babylonian syntax; reading of basic Old Babylonian texts. Mr. Buccellati

142. Akkadian Literary Texts. Three hours. Prerequisite: consent of the instructor. Selected readings from Akkadian myths and epics, with an introduction to the historical tradition of the works and their literary structure. Mr. Buccellati

Graduate Courses

201A-201B-201C. Old Ethiopic. Lecture, two hours. Grammar of Old Ethiopic and reading of texts. The Staff

202A-202B-202C. Readings in Old Ethiopic Literature. Lecture, two hours. Prerequisites: courses 201A-201B-201C. The Staff

209A-209B-209C. Comparative Study of the Ethiopian Languages. Two hours. Prerequisite: consent of the instructor. Comparative study of the various Semitic Ethiopic languages: Geez, Tigrinya, Tigre, Amharic, Harari, Gurage, and Gafat. The Staff

***4210. Ancient Aramaic.** Two hours. Prerequisite: course 130 or consent of the instructor. Reading of the surviving inscriptions and papyri. May be repeated for credit. Mr. Segert

***2215A-215B. Syriac.** Two hours. Morphology and syntax of the Syriac language; readings in the Syriac translation of the Bible and Syriac literature. 215B only may be repeated for credit. Mr. Segert

***5220A-220B. Ugaritic.** Two hours. Prerequisites: Hebrew 102A-102B-102C or consent of the instructor. Study of the Ugaritic language and literature. 220B only may be repeated for credit. Mr. Segert

***4225. Phoenician.** Two hours. Prerequisites: Hebrew 102A-102B-102C or consent of the instructor. Study of Phoenician language and inscriptions. May be repeated for credit. Mr. Segert

***4230. Seminar in Northwest Semitic Languages and Literatures.** Two hours. Prerequisite: consent of the instructor. May be repeated for credit. Mr. Segert

240. Seminar in Akkadian Language. Two hours. Prerequisite: consent of the instructor. Readings of texts from various dialects of Akkadian; selected problems in the linguistic analysis of Akkadian dialects. May be repeated for credit. Mr. Buccellati

240X. Seminar in Akkadian Language. (¼ course) Prerequisite: consent of instructor. Readings of texts from various dialects of Akkadian; selected problems in the linguistic analysis of Akkadian dialects. May be repeated for credit. Semitics 240X is a one unit course for students who participate regularly in class meetings without producing the homework required of students in the regular course, Semitics 240. Mr. Buccellati

241. Seminar in Akkadian Literature. Two hours. Prerequiste: consent of the instructor. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. May be repeated for credit. Mr. Buccellati

241X. Seminar in Akkadian Literature. (¼ course) Prerequisite: consent of instructor. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. May be repeated for credit. Semitics 241X is a one unit course for students who participate regularly in class meetings without producing the homework required of students in the regular course, Semitics 241. Mr. Buccellati

280A-280B-280C. Seminar in Comparative Semitics. Two hours. The Staff

290A-290B-290C. Comparative Morphology of the Semitic Languages. Two hours. Prerequisites: courses 280A-280B-280C or consent of the instructor. Comparative study of the noun and verb of the various Semitic languages (Arabic, Hebrew, Ethiopic, Akkadian, and Aramaic). Mr. Leslau

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses) The Staff

597. Examination Preparation. (½ to 2 courses) The Staff

599. Dissertation Research and Preparation. (½ to 2 courses) The Staff

Turkic Languages

Upper Division Courses

***12101A-101B. Elementary Turkish.** Five hours. Grammar, reading, conversation and elementary composition drills. Mr. West

***12102A-102B. Intermediate Turkish.** Five hours. Prerequisites: courses 101A-101B or the equivalent. Continuing study of grammar, reading, conversation and composition drills. Mr. West

***11103A-103B. Advanced Turkish.** Five hours. Prerequisites: courses 102A-102B or equivalent. Reading in modern literature and social science texts; conversation and composition. Mr. West

***2112A-112B-112C. Uzbek.** Three hours. Prerequisite: Turkic 102A or consent of the instructor. Grammar, composition drills, reading of literary and folkloric texts. Mr. Bodrogligeti

***5114A-114B-114C. Bashkir.** Three hours. Prerequisites: Turkic 102A or consent of the instructor. Grammar, reading of literary and folkloric texts. Mr. Bodrogligeti

***5160A-160B. Cultural History of the Turks.** Lecture, three hours. Prerequisites: none. A survey of

NOTE: For key to symbols, see page 74

the cultural history of the Turks, as seen primarily through their literature, from their early history to the present. Mr. West

***2180A-180B-180C. Introduction to Turkic Studies.** Three hours. Prerequisite: consent of the instructor. Obligatory for everyone in the Turkish program. Introduction to Turkic Philology and an ethnic and cultural survey of the Turkic people.
Mr. Bodrogligeti

199. Special Studies in Turkic Languages. (½ to 2 courses) Prerequisite: consent of the instructor.
The Staff

Graduate Courses

210A-210B-210C. Ottoman. Lecture, three hours. Prerequisites: 101A-101B-101C or 112A-112B-112C or 114A-114B-114C or consent of the instructor. Introduction to Ottoman: descriptive grammar, Arabic and Persian elements in grammar and vocabulary. Reading and composition drills.
Mr. West

***5211. Ottoman Diplomatics.** Three hours. Prerequisites: courses 210A-210B-210C or the equivalent. Organization and contents of the Ottoman archives; reading and discussion of documents and registers. Introduction to the use of Ottoman archive materials as a source for historical research.
Mr. Shaw

220A-220B-220C. Chagatay. Lecture, three hours. Prerequisites: Turkic 101A-101B-101C or 112A-112B-112C or 114A-114B-114C or consent of the instructor. Introduction to Chagatay: descriptive grammar, Arabic, Persian and Tajik elements in grammar and vocabulary. Readings and composition drills. Mr. Bodrogligeti

***2225A-225B-225C. Old Turkic: Turk and Uygur.** Lecture, three hours. Prerequisites: Turkic 180A-180B-180C and consent of the instructor. Textual and linguistic analysis of Turk and Old Uygur documents: inscriptions, manichean and buddhist literary works. Given in alternate years; to be given 1978-1979. Mr. Bodrogligeti

***5230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages.** Three hours. Prerequisites: Turkic 180A-180B-180C. Extinct and living Turkic languages. The history of Turkic: developments in the phonemic, grammatical and lexical systems from the 8th to the 20th centuries. Structural analysis of the Turkic languages on a comparative basis. Mr. Bodrogligeti

***5235A-235B. Middle Turkic: Karakhanid, Khorazmian, Mamlukkipchak and Old Anatolian.** Lecture, three hours. Prerequisites: Turkic 180A-180B-180C and consent of the instructor. A survey of Middle-Turkic documents. Textual and linguistic analysis of Middle-Turkic texts from various literary genres. Given in alternate years; to be given 1978-1979. Mr. Bodrogligeti

240A-240B-240C. Islamic Texts in Ottoman. Three hours. Prerequisites: Turkic 210A-210B-210C or consent of the instructor. A philological and linguistic survey of the basic Islamic source material written in the Ottoman literary language. Reading and discussion of Ottoman texts on Islamic topics. Mr. Bodrogligeti

250A-250B-250C. Islamic Texts in Chagatay. Three hours. Prerequistes: Turkic 220A-220B-220C or consent of the instructor. A philological and linguistic survey of the basic Islamic source material written in the Chagatay literary language. Reading and discussion of Chagatay texts on Islamic topics. Mr. Bodrogligeti

***1280A-280B. Seminar in Modern Turkish Literature.** Seminar, two hours. Prerequisites: Turkic 102B or the equivalent and the consent of the instructor. Specific issues and trends in the development of Turkish literature from the middle of the 19th century to the present. Mr. West

***5290A-290B. Seminar in Classical Turkic Literatures: Ottoman, Chagatay and Azeri.** Lecture, two hours. Prerequisites: Turkic 210 and/or 220 and consent of the instructor. Survey of the Islamic literatures of the Turks in the Classical period. Readings of Ottoman, Chagatay and Azeri texts from various literary genres. Discussion of stylistic, prosodic and linguistic characteristics.
Mr. Bodrogligeti

Individual Study and Research

596. Directed Individual Study. (½ to 2 courses)
The Staff

597. Examination Preparation. (½ to 2 courses)
The Staff

599. Dissertation Research and Preparation. (½ to 2 courses) The Staff

Course in Another Department

History 201A. History of the Eurasian Nomadic Empires.

Urdu

Upper Division Courses

***1101A-101B-101C. Elementary Urdu.** Three hours. Prerequisite: consent of the instructor. Elements of Urdu, the language of Pakistan.

***1199. Special Studies in Urdu.** Prerequisite: consent of the instructor.

Related Courses in Another Department

South Asian Languages 171A-171B-171C. Hindi.

NEUROSCIENCE (INTERDEPARTMENTAL)

An interdisciplinary program of graduate training leading to the Ph.D. in Neuroscience is offered, utilizing facilities, resources, and activities of the Brain Research Institute and administered by an interdepartmental degree committee.

Applicants must satisfy minimum requirements for admission to the Graduate Division. See Admission to Graduate Status. The program is designed particularly for students from the health and life sciences, but applications are encouraged from prospective trainees from the physical sciences and engineering as well. Recommended preparation includes mathematics through calculus, and at least one year each of general chemistry, organic chemistry, physics and basic biology. The Graduate Record Examination or Medical College Admission Test is required.

All students are required to complete a core curriculum designed to provide basic knowledge of the anatomy, physiology, and chemistry of neural function. Thereafter, the student may pursue an educational experience through any of the nine subdisciplines: neuroanatomy, neurochemistry, neurophysiology, behavior, neurocybernetics and communications, neuroendocrinology, neuropharmacology, neuropathology and immunology.

Both the core and in-depth curricula include major commitments to appropriate courses listed by departments, in addition to offerings shown below. Written and oral qualifying examinations normally are taken as the formal instruction period approaches completion.

Prospective applicants may inquire concerning the availability of this curriculum by consulting the Program Coordinator, 73-375 Brain Research Institute, Center for the Health Sciences.

Graduate Courses

200A-200B-200C. Clinical Concepts in the Neurosciences. (½ course each) Presents information concerning neurological and psychiatric disorders for students from basic science backgrounds.
Mr. Walter

M201A-201B-201C. The Functional Organization of Behavior. (½ course each) (Same as Psychiatry M201A-201B-201C.) Prerequisites: consent of instructor; admission to M201B requires completion of M201A; admission to M201C requires completion of M201A-201B. The course is divided into three quarters. The Fall Quarter focuses on species characteristic behaviors and features of behavioral organization primarily in nonhuman primates and man. The Winter Quarter focuses on behavioral organization and its relationship to survival and reproduction. Special emphasis is placed on the effect of changing ecological parameters and resulting alterations in behavioral organization. The Spring Quarter relates the content of the previous two quarters to psychopathological behavior in humans and nonhuman primates. Mr. McGuire

M204. Structure and Function of the Limbic System. (½ course) (Same as Neurology M204.) Prerequisite: consent of instructor. Current knowledge of the mammalian limbic system will be presented by surveying studies of its developmental anatomy, intrinsic synaptic organization, synaptic chemistry, afferent and efferent circuits and dysfunctions in memory and cognition association with limbic system function. The pathophysiology of limbic epilepsy will be related to normal limbic system structure and function. Mr. Babb

***1205. Brain-Behavioral Strategies for the Neurosciences. (¾ course)** Prerequisite: consent of instructor. Emphasis will be placed on behavioral designs, methods and instruments employed to test specific neurological afferent-efferent and integrative systems of the central nervous system. The programming of signals and incentives in arousal, habituation, classical conditioning and operant conditioning paradigms will be discussed in terms of the neural challenges for the coping animal. Behavioral methods will be emphasized along with concurrent recording of neurophysiological data. This course is designed primarily to present practical behavioral techniques for the neuroscience students. Mr. McGuire

M206A-206B. Neurosciences: The Introductory Course for Graduate Students. (1¼ courses, 1¾ courses) (Same as Anatomy M206A-206B.) Two hours of lecture and two of lab per week in the winter quarter; five hours of lecture and two of lab per week in the spring quarter. Prerequisite: a course (or equivalent) in basic and/or general physiology such as Biology 171 or Physiology 101 or consent of instructor. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Introductory course in the basic principles of the nervous system for graduate students as a prerequisite to more advanced courses. Fundamental approaches to neuroanatomy (Winter Quarter), neurophysiology and the brain mechanisms for behavior (Spring Quarter) will be stressed.
Mr. Scheibel and the Staff

233. Seminar in Neuroscience. (½ course) Topics of current importance will be presented for discussion. Subject matter will be announced. The Staff

254. Interdisciplinary Research Seminar. (½ course) Lectures and discussions concern many different disciplinary approaches to knowledge of brain function. The subject matter serves to broaden the experience of students studying in different fields other than that of the lecturer and offers new information in depth from students in fields closely related to the subject discussed.
The Staff

***1256A-256B-256C. Survey of the Basic Neurological Sciences. (½ course each)** Summary information concerning methodologies utilized in different research approaches to brain study, (e.g., neurophysiology, neuroendocrinology, brain ultrastructure, neuropharmacology, and others) and brief review of present state of knowledge available from each. For students with interest in interdisciplinary aspects of brain research.
Mr. Sterman

259A-259B-259C. Neurophysiology of Behavior: The Fetus, Newborn, and Infant. (½ course each)

An integrated review of neuroanatomic, neurophysiologic, and behavioral development of human and animal fetuses and infants. Behavior will be correlated with the development of the brain during this period of rapid change in both. Mr. Parmelee

M260. Fundamental Concepts of Neuroendocrinology. (Same as Anatomy M260.) Two hours of lecture and two of discussion per week in the winter quarter of odd-numbered calender years. Prerequisites: Biochemistry 101C, Anatomy 206A-206B, or consent of instructor. Basic concepts of neuroendocrine integration including analysis of the current literature and research techniques. Mr. Gorski

596. Directed Individual Study or Research. (½ to 3 courses) Prerequisite: consent of instructor. Mr. Eiduson

597. Preparation for the Doctoral Qualifying Examination. (½ to 3 courses) Prerequisite: consent of instructor. Mr. Eiduson

599. Dissertation Research for Ph.D. Candidates. (1 to 3 courses) For students requiring special instruction or time to work on dissertation. Mr. Eiduson

NURSING

(Department Office, 12-138 Center for the Health Sciences)

Harriet C. Moidel, R.N., M.A., *Professor of Nursing.*
Mary E. Reres, R.N., M.P.N., Ed.D., *Professor of Nursing.*
Maria W. Seraydarian, Ph.D., *Professor of Nursing.*
Donna L. Vredevoe, Ph.D., *Professor of Nursing.*
Lulu Wolf Hassenplug, R.N., M.P.H., Sc.D., *Emeritus Professor of Nursing.*
Dorothy E. Johnson, R.N., M.P.H., *Emeritus Professor of Nursing.*
Agnes A. O'Leary, R.N., M.P.H., *Emeritus Professor of Nursing.*
Pamela J. Brink, R.N., Ph.D., *Associate Professor of Nursing.*
Beatrice M. Dambacher, R.N., D.N.Sc., *Associate Professor of Nursing.*
Phyllis A. Putnam, R.N., Ph.D., *Associate Professor of Nursing.*
Sharon J. Reeder, R.N., Ph.D., *Associate Professor of Nursing.*
Sumiko Fujiki, R.N., Ph.D., *Visiting Associate Professor of Nursing.*
Luz Porter, R.N., Ph.D., *Visiting Associate Professor of Nursing.*
Betty L. Chang, R.N., D.N.Sc., *Assistant Professor of Nursing.*
Barbara A. Clemence, R.N., D.N.Sc., *Assistant Professor of Nursing.*
Loucine M. Huckabay, R.N., Ph.D., *Assistant Professor of Nursing.*
Maryalice Jordan-Marsh, R.N., Ph.D., *Assistant Professor of Nursing.*
Sally A. Thomas, R.N., Ph.D., *Assistant Professor of Nursing.*
Donna F. Ver Steeg, R.N., Ph.D., *Assistant Professor of Nursing.*
Marilynn J. Wood, R.N., Dr. P.H., *Assistant Professor of Nursing.*
Norberta W. Brown, R.N., Ed.D., *Assistant Professor of Nursing in Residence.*
Nancy L. Anderson, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Christine P. Burr, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Randy Caine, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Anayis Derdiarian, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Maire L. Friel, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Roberta Gerds, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Joleen Heath, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Doris Holm, R.N., M.N., M.S., *Assistant Clinical Professor of Nursing.*
Jackline Knable, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Juanita Lee, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Brooke P. Randell, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Laurel Skilling, R.N., M.S., *Assistant Clinical Professor of Nursing.*
Carolyn F. Troupe, R.N., M.A., *Assistant Clinical Professor of Nursing.*
Gwen C. Uman, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Linda West, R.N., M.N., *Assistant Clinical Professor of Nursing.*
Jean Kerr, R.N., Ph.D., *Lecturer in Nursing.*
Ann D. Drice, R.N., M.S., *Lecturer in Nursing.*
Charles K. Ferguson, Ed.D., *Lecturer in Nursing.*
Joy Dan Graves, R.N., M.S., *Lecturer in Nursing.*
Evelyn K. Guilbert, R.N., M.S., *Lecturer in Nursing.*
Arleen Caufield, R.N., M.S., *Acting Assistant Professor of Nursing.*
Esther Seeley, R.N., M.N., *Lecturer in Nursing.*

The School of Nursing accepts students of junior or higher standing and offers curricula leading to the degrees of Bachelor of Science and Master of Nursing.

Preparation for the Major

Completion of 21 courses (84 quarter units) of college work including the courses listed under the Prenursing Curriculum in the College of Letters and Science.

The Major

At least 25 courses (100 quarter units) of required upper division nursing courses and elective courses designed to prepare university students for professional nursing responsibilities in the care of the patient and his family.

Admission to Graduate Status

Requirements for admission to graduate status are: 1) Graduation from a recognized college or university having an accredited baccalaureate nursing program equivalent to that of the School of Nursing, University of California, Los Angeles and satisfactory to the Graduate Division, Los Angeles. Students who have completed other curricula (e.g., students who have graduated from a foreign institution) may be required to enroll in certain undergraduate nursing courses which generally will not be accepted in fulfillment of the requirements for advanced degrees. 2) Status as a registered nurse. Prior to entry into any clinical practicum, evidence of status as a registered nurse in the State of California is mandatory. 3) An upper division statistics course, or a lower division statistics course with content equivalent to Public Health 100A must be completed prior to entrance into the School of Nursing. 4) Professional and/or academic competence in nursing attested through letters of recommendation. 5) A scholarship record satisfactory to the Graduate Division, Los Angeles and to the School of Nursing, University of California.

Master of Nursing Degree Requirements

1. A minimum of three quarters in full time (8 credits/quarter) academic residence.

2. A minimum of ten courses (40 credits) in the 100, 200, 400 and 500 series; eight of these courses must be taken in the School of Nursing with five (20 credits) in the 200 and 400 series.

3. A minimum grade point average of 3.0.

4. A comprehensive examination or a thesis.

Required Courses

The candidate for the M.N. degree must successfully complete a minimum of one course from each of the following areas:

1. Research in Nursing (N 204).

2. Selected Problems in Nursing Care (N 210, 211, 221, 222, 223, 224, 225).

3. Supervised Practice in Nursing Care (N 402, 421A, 422A, 423A, 424A, 425A).

4. Clinical Nursing Specialization (N 421B, 422B, 423B, 424B, 425, 429A).

Upper Division Courses

101. Introduction to Art and Science of Nursing. (2 courses) Lecture, four hours, discussion two hours; laboratory, 12 hours, auto-tutorial laboratory, variable; seminars, variable. An introduction to nursing theory and practice. The content will include the following modules: nursing process, pharmacology, interpersonal and technical skills. Methodology will include laboratory, lectures, discussion, seminars, autotutorial laboratory and clinical application. Ms. Canfield

104A. Behavior of Man in Health and Illness. Lecture, four hours. An examination of the health-illness continuum from the framework of social and biological sciences. Content includes role theory, developmental theory, transcultural communication theory and other theories relevant to nursing practice. Ms. Fujiki

104B. Behavior of Man in Health and Illness. Lecture, four hours. Prerequisite: course 104A. An examination of the health-illness continuum from the framework of illness as a stressor and the possible responses to such stress. Content includes anxiety, pain, cognitive disturbances, loss and other responses relevant to nursing practice. Ms. Fujiki

104C. Behavior of Man in Health and Illness. Lecture, four hours. Prerequisites: courses 104A and 104B. Continuation of the examination of the health-illness continuum from the framework of illness as a stressor and the possible responses to such stress. Content includes anxiety, pain, cognitive disturbances, loss and other responses relevant to nursing practice. Ms. Fujiki

109. Communication in Health Care. Lecture, two hours; laboratory, six hours. Study of basic communication and group process theory and its application to practice. Laboratory experience emphasizes development of each individual's ability to communicate effectively in a diad and in a small group. Ms. Fujiki

120A. Clinical Nursing. Five weeks. Lecture, four hours; laboratory, 24 hours. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical concepts related to the nursing care of the child and his family. Ms. Porter

120B. Clinical Nursing. Five weeks. Lecture, four hours; laboratory, 24 hours. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical concepts of reproduction to the nursing care of the family. Ms. Gerds

120C. Clinical Nursing. Five weeks. Lecture, four hours; laboratory, 24 hours. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical content related to the nursing care of the patient undergoing medical interventions. Ms. Kerr

120D. Clinical Nursing. Five weeks. Lecture, four hours; laboratory, 24 hours. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of the theoretical content related to the patient undergoing surgical intervention. Ms. Caine

120E. Clinical Nursing. Five weeks. Lecture, four hours; laboratory, 24 hours. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical content will include pathophysiology, pharmacology and treatment modalities. Application of mental health content related to the nursing care of individuals, groups or communities. Ms. Graves

120F. Clinical Nursing. Five weeks. Lecture, four hours; laboratory, 24 hours. Prerequisites: courses 101, 109 and Physiology 105N. Clinical application of nursing theory in community situations: acute care, convalescent and ambulatory. Theoretical

NOTE: For key to symbols, see page 74

content will include pathophysiology, pharmacology and treatment modalities. Application of community health concepts to nursing care in public health agencies. Ms. Jordan-Marsh

M158. Health in Culture and Society. (Same as Anthropology M158.) Prerequisite: upper division standing. An examination of the theories and methods of medical anthropology in relation to cross-cultural health systems, role networks, attitude and belief systems of the participants. Emphasis will be placed upon interaction networks in health care systems. Ms. Brink

184. Evolution and Dynamics of the Nursing Profession. Lecture, four hours. A study of the evolution of nursing focusing on historical, ethical, moral, legal, and institutional ramifications of nursing practice. In addition, consideration will be given to the rights, obligations, societal, and institutional expectations of the professional nurse. Ms. Ver Steeg

188. Seminar in Physiology. (½ course) Discussion, two hours. Prerequisite: Physiology 105N or equivalent. Student presentation of selected topics in physiology based on recent monographs, review articles and original research papers. Topics selected each quarter designed to amplify and extend information presented in lectures in physiology 105N. May be repeated for credit. Ms. Seraydarian

189. Human Sexuality. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Lectures, discussions and case presentations considering human sexuality, its joys and pleasures, pitfalls and problems. An interdisciplinary approach encompassing anatomic, physiologic, psychologic and social aspects of heterosexual and homosexual relationships; including development of gender identity, intercourse, pregnancy, abortion, contraception and venereal disease. Ms. Reeder

190A. Advanced Clinical Nursing. (1½ courses) Lecture, two hours; laboratory, 20 hours. Prerequisites: successful completion of courses 101, 104 series and 120 series. Beginning concentration in a clinical area of students choice. Ms. Caine and the Staff

190B. Advanced Clinical Nursing. (1½ courses) Lecture, two hours; laboratory, 20 hours. Prerequisites: successful completion of courses 101, 104 series, 120 series and 190A. Beginning concentration in a clinical area of students choice. Ms. Caine and the Staff

193. Introduction to Research. Lecture, four hours. An introduction to planning a research project based upon a simple question. Includes rules for definition of terms, alternative methods of writing purposes, selecting a sample, choosing a data collection instrument, planning for data analysis, protection of human rights, reading research reports, and writing a research proposal. Ms. Thomas, Ms. Vredevoe

195. Principles of Change and Change Agent Roles. Lecture, two hours; discussion, two hours. Theories and methods of change and their application to nursing. Principles of leadership, teaching-learning, health delivery systems, organization of nursing care and patient advocacy. Ms. Clemence

196. Health Care Problems of Minority Group Members. Prerequisite: Sociology 1A or 101. Description and discussion of the special health care problems which members of minority groups face. These problems may be related to socioeconomic status as well as ethnic background and subcultural differences. Ms. Drice

199. Special Studies in Nursing. (½ to 4 courses) Prerequisites: senior standing and/or consent of the instructor. Individual study of a problem in the field of nursing. May be repeated for credit but only one quarter course (4 quarter units) may be applied toward the Bachelor of Science degree. Grading basis (passed/not passed or letter grade) is to be determined by the student and instructor. The Staff

Graduate Courses

I. Theory and Research in Nursing

203. Theoretical Framework for Nursing Practice. Lecture, four hours. Comparative study of selected conceptual models of nursing and the recipient of nursing, with particular emphasis on the regulatory model, the adaptation model, the supplementary model, and the complementary model. Ms. Derdiarian

204. Research in Nursing. Lecture, four hours. Prerequisite: introductory statistics, course 193 or equivalent. Indepth examination of the research process relating to delineation and investigation of nursing problems. Emphasis on development and use of theoretical frameworks. A variety of methodologies and data analysis techniques are examined as they apply to the development of complex research questions. Ms. Brink, Ms. Wood

205A. Qualitative Research Methods in Nursing. Lecture, four hours. Prerequisite: course 204. Emphasis is placed upon nursing research designs utilizing the field method approach, ethnomethodology, and/or inductive methods. Ms. Brink

205B. Quantitative Research Methods in Nursing. Lecture, four hours. Prerequisite: course 204. Emphasis is placed on nursing research designs requiring statistical analysis of data. Ms. Vredevoe

II. Selected Problems in Nursing Care.

210. Respiratory Physiology As It Related to Nursing. Lecture, three hours; discussion, one hour; seminars. Prerequisite: upper division course in human physiology. An advanced treatment of the topic presented in lectures and seminars with emphasis on current research. Application of knowledge to nursing problems will be stressed. Ms. Seraydarian

211. Cardiovascular Physiology As It Relates to Nursing. Lecture, three hours; discussion, one hour; seminars. Prerequisite: upper division course in human physiology. An advanced treatment of the topic presented in lectures and seminars with emphasis on current research. Application of knowledge to nursing problems will be stressed. Ms. Seraydarian

212. Discontinuities in Family Health During the Reproductive Years. Lecture, two hours; discussion, one hour. An overview of selected problems with health connotations that are potentially disruptive to the family during their childbearing years. Selected problems are examined in depth. Pertinent variables affecting the family's definition of the situation, their resources, strategies for coping, and utilization of professional services are explored and their relevance for nursing practice is examined. Ms. Reeder

M217. Selected Topics in Medical Anthropology. (Same as Anthropology M269N.) Lecture, three hours. Prerequisite: M158 or consent of instructor. Any of the topics covered in upper division course, M158, will be selected each quarter, for intensive literature review and independent projects. The course may be repeated for credit. Ms. Brink

221. Theoretical Frameworks for Developmental Problems, Middle and Later Years. Lecture, four hours. Aspects of life span development relevant to understanding health needs in middle and later years will be studied. Changes in biological, cognitive, and psychosocial processes will be explored and implications for prevention and rehabilitative care considered. Ms. Putnam

222. The Concept of Grief and Loss. Lecture, three hours; laboratory, two to four hours. Prerequisite: enrollment in a clinical nursing course or concurrent. This course will deal with the concepts and theories of grief and loss, with a particular emphasis on the loss of a significant other. There will also be discussions about death and the dying person with the intent of assisting the care giver to deal more effectively with a person and/or family involved in a life-threatening experience. The Staff

223. Management of Development Problems, Early Years. Lecture, four hours. Study of selected human developmental theories, hypotheses, and concepts. Problems relevant to nursing are examined through the critique of pertinent literature. Ms. Porter

224. Problems in Patient Motivation. Lecture, our hours. The major purpose of this course will be an exploration of the phenomena which may occur when a person assumes the role of a sick patient. Ms. Thomas

225. Problems in Environmental Management. Lecture, four hours. The prevention and treatment of nursing problems related to conditions of the physical and social environment. Ms. Porter

234. Issues in Health Care. Prerequisite: consent of instructor. A comprehensive course dealing with present and future views of health care and the roles of health team members as viewed by society and influenced by societal values. Selected health care issues will be debated by students utilizing an in-depth literature review on the issue. Ms. Ver Steeg

250. Seminar: Nursing in Other Cultures. Lecture, four hours. Prerequisite: consent of instructor. Discussion of anthropological principles which affect nursing care in a particular cultural environment. Individual research projects based upon the medical problems found in such an environment and the projected nursing interventions relative to these findings. Ms. Brink

264. Seminar in Primary Ambulatory Care. (½ course) Seminar, two hours. Prerequisites: to be taken concurrently with 402A and/or B, or consent of instructor. Discussion of the concepts of team practice, inter- and intra-professional relationships, legal issues, and the socioeconomic aspects of primary care. To be graded S/U only. Ms. Ver Steeg

III. Clinical Specialization

A. Nursing Assessment

401. Nursing Assessment and Intervention. Lecture, two hours; laboratory, four to eight hours. Prerequisite: course 203 or concurrent. Instruction and experience in the systematic assessment of patients for the identification of nursing problems. Discussion and evaluation of major modes of interventive practice. Ms. Derdiarian

402A-402B. Primary Diagnosis for Nurse Practitioners. Laboratory, four hours; discussion, demonstration and practice, six hours. Prerequisites: satisfactory completion of anatomy and physiology pre-test, consent of instructor. Collection, analysis, and reporting of data used by the nurse practitioner in identification of patient problems. Principles and practice in history-taking, physical examination, laboratory, and other diagnostic methodology. Pathology and pathophysiology are integrated in a systems approach. Ms. Holm

403. Physical Assessment for the Clinical Specialist. (1 to 1½ courses) Lecture, four hours; optional seminars, two hours. Prerequisite: consent of instructor—not open to Primary Ambulatory Care majors. An introductory study of the basic techniques of history-taking and physical examination which are used by clinical specialists as part of the total nursing assessment process. Includes theory, demonstration, and practice of physical assessment methodology. Optional seminars provide content pertinent to selected specialty areas. Ms. Holm

404. Comprehensive Group Theory. Lecture, two hours; laboratory, two hours. This course will offer an in-depth study of group dynamics and group therapy, applicable to any health service area. It will focus on the study and application of group theory and practice relevant to nursing. The student will gain in-depth knowledge of group dynamics and group therapy, know how to apply the above theory to any area of nursing, develop a beginning ability to function as both leader and

participant in the area of group dynamics and/or group therapy, and develop the ability to evaluate the effectiveness of group therapy. The Staff

405. Assessment in Psychiatric Nursing. Lecture, three hours; laboratory, two hours. A preparatory course for advanced clinical practice in mental health nursing. The theoretical portion of the course includes an overview of theories of personality, communication, psychopathology, development and treatment. The focus of the course is the application of this content through utilization of the nursing process to mental health populations. The laboratory will involve group experience and the opportunity to assess the students' interviewing skills and his/her ability to establish a therapeutic relationship. Ms. Dambacher

M410A-410B-410C. Nursing Care of the Developmentally Disabled. (Same as Psychiatry M472A-472B-472C.) Lecture, one and one-half hours; discussion, one hour; laboratory, eight hours. Prerequisite: enrollment in the Master's Program of the School of Nursing. Study of the handicapping conditions of childhood and their effects upon the child and his/her family. This course combines didactic material and supervised clinical experience. Focus is on prevention, systematic assessment, planning, implementation and evaluation of nursing care. During the final quarter, the student participates in the assessment, planning and delivery of health care to the developmentally disabled in the community. Ms. Savino

414. Current Perspectives in Respiratory and Cardiovascular Nursing. (½ course) Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. Exploration of selected problems, trends and issues in respiratory and cardiovascular health care, with emphasis on their significance for the clinical nurse specialist. Ms. Holm

415. Assessment in Respiratory and Cardiovascular Nursing. (½ to 1½ courses) Lecture, one to four hours; laboratory, four to eight hours. Prerequisites: course 210 or 211, 414. Introduction to the basic methods of assessing respiratory and cardiovascular function in health and illness, with emphasis on their application in clinical nursing practice. Ms. Skilling

416. Oncology and Treatment of Cancer. Lecture, two hours; discussion one hour; laboratory, eight to ten hours. The emphasis is on providing the graduate student with the basic knowledge from biological, medical, physical, chemical sciences related to development, diagnosis, treatment, and prognosis of cancer. Also, providing of knowledge related to specific nursing care related to diagnostic and treatment modalities. Ms. Friel

417. Systematic Approach to Oncologic Nursing. Lecture, two hours; discussion, two hours; laboratory, eight-ten hours. Prerequisite: course 416. The emphasis is on the clinical management of the person who has cancer. The focus is on the assessment of special physical and psychosocial problems of patients with diagnoses of cancer in a specific site. The focus is also providing the student with theoretical and technical skills necessary for the interventions of these problems. Ms. Friel

B. Clinical Practica

421A. Clinical Nursing of Children. Discussion, two hours; laboratory up to 16 hours. Prerequisite: one course in Selected Problems in Nursing Care. Use of a theoretical model as a guide to practice in a pediatric setting. Refinement of skills and increased knowledge to prepare for clinical specialist role with emphasis on skills required to use a diagnostic nursing process. The Staff

421B. Advanced Clinical Nursing of Children. (2 courses) Discussion, two hours, laboratory, up to 30 hours. Prerequisites: course 421A, consent of instructor. To develop increased competence in managing total care of pediatric patients with emphasis on patients with a particular nursing problem, disease entity or age group. To attain skill in working collaboratively as a leader with other health personnel. The Staff

421C. Clinical Specialization in Nursing of Children. (2 courses) Discussion, two hours, laboratory, up to 30 hours. Prerequisites: course 421B, consent of instructor. Refinement and extension of professional knowledge and skills in the nursing of children. The Staff

422A. Clinical Maternity Nursing. (Discussion, two hours; laboratory, up to 16 hours. Prerequisites: consent of instructor, one course in Selected Problems in Nursing Care. Intensification and expansion of knowledge and expertise in giving care to mothers and infants in all phases of reproductive process. Pertinent variables considered as well as nursing process. Care of selected patients in family life and health care system. Ms. Reeder

422B. Advanced Clinical Maternity Nursing. (2 courses) (Formerly numbered 470.4.) Discussion, two hours, laboratory, up to 30 hours. Prerequisites: consent of instructor, course 422A. Refinement and extension of knowledge and expertise in the field of maternity nursing. Caring for mothers and infants at risk or normal reproductive processes with problems. Emphasis on role of clinical specialist, adaptation of role to various settings within organizational structure. Ms. Reeder

422C. Clinical Specialization in Maternity Nursing. (2 courses) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 422B. The refinement and extension of professional knowledge and skills in the practice of advanced maternity nursing. Ms. Reeder

423A. Clinical Medical-Surgical Nursing. Lecture, two hours; laboratory, eight to ten hours. Prerequisite: one course in Selected Problems in Nursing Care. An advanced course in the theory and practice of the nursing care of adults (medical-surgical). The major emphasis is on the assessment and diagnosis of nuring problems within a conceptual framework for nursing practice. The assessment focuses on physiological and behavioral reactions to changes in health state. Students select a specific patient population for concentration in the course. Ms. Chang

423B. Advanced Clinical Medical-Surgical Nursing. (2 courses) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 423A. A study of clinical specialization and other expanding roles in nursing. Emphasis is placed upon continued refinement and extension of professional knowledge and skills in a selected clinical area. Practicum is planned in congruence with student's nursing career goals. Ms. Chang

423C. Clinical Specialization in Medical-Surgical Nursing. (2 courses) Discussion, two hours; laboratory, up to 30 hours. Prerequisites: consent of instructor, course 423B. The refinement and extension of professional knowledge and skills in the practice of advanced medical-surgical nursing. Ms. Chang

424A. Clinical Psychiatric Nursing. Discussion, three hours; laboratory, up to 10 hours. Prerequisite: one course in Selected Problems in Nursing Care. Development and demonstration of advanced competence in the identification and classification of variables which affect the interpersonal process. Emphasis is placed upon the assessment process. Ms. Dambacher

424B. Advanced Clinical Psychiatric Nursing. (2 courses) Discussion, three hours; laboratory, up to 20 hours. Prerequisites: consent of instructor, course 424A. Refinement and extension of knowledge and skills in clinical field of psychiatric nursing. Emphasis is placed upon learning and application of a variety of nursing intervention techniques. Ms. Dambacher, Ms. Thomas

424C. Clinical Specialization in Psychiatric Nursing. (2 courses) Discussion, two hours; laboratory, up to 20 hours. Prerequisites: consent of instructor, course 424B. The refinement and extension of professional knowledge and skills in the practice of advanced psychiatric nursing. Ms. Thomas

425A. Clinical Gerontological Nursing. Discussion, two hours; laboratory, up to 16 hours. Prerequisite: one course in Selected Problems in Nursing Care. Principles and practice of assessment of psychosocial variables in health problems of elderly. Emphasis placed on integrated understanding of multiple variable influences in total health. Ms. Putnam

425B. Advanced Clinical Gerontological Nursing. (2 courses) Discussion, two hours; laboratory, up to 30 hours. Prerequisite: course 425A. Application of knowledge and skills of psychosocial nursing intervention in rehabilitation of the chronically ill aged. Ms. Putnam

425C. Clinical Specialization in Gerontological Nursing. (2 courses) Discussion, two hours; laboratory, up to 30 hours. Prerequisite: course 425B. Extension and demonstration of competencies in planning and implementation of nursing support programs in health problems of the elderly. Ms. Putnam

429A-429B. Preceptorship in Primary Ambulatory Care Nursing. (2 courses each) Lecture, three hours; discussion, three hours; laboratory, minimum of sixteen hours. Prerequisite: courses 402A-402B; consent of instructor. Theory and clinical practice in nursing management of common minor acute and stable chronic health problems in a selected ambulatory population. Prevention of illness and health maintenance are emphasized. Attention is given to the development and cognitive needs of clients in relation to family, social, and cultural structure. Ms. Anderson

429C. Advanced Preceptorship in Primary Ambulatory Care Nursing. (2 courses) Discussion, three hours; laboratory, 24 hours. Prerequisites: courses 429A-429B; consent of instructor. Advanced specialization in primary ambulatory care of a specific patient population. Emphasis is placed upon the refinement and extension of assessment and management skills, family health care, and community concepts. Ms. Anderson

440A-440B. Clinical Specialization in Community Mental Health Consultation. Lecture, three hours; clinical, ten hours. Prerequisites: consent of instructor, course 424B, concurrent with 441A and 441B. The study and application of mental health consultation theory and practices relevant to community mental health nursing. The development of the nursing role in the interdisciplinary health team approach to mental health services. This course is offered on an In Progress basis which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Ms. Brown

441A-441B. Clinical Specialization in Community Organization. Lecture, three hours; clinical, ten hours. Prerequisites: consent of instructor, course 424B, concurrent with 440A and 440B. Theories and practices relevant to community development; mental health program planning; health advocacy; primary and secondary prevention of mental illness; and planned changes are stressed. This course is offered on an In Progress basis which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Ms. Clemence

IV. Functional Preparation

*Courses numbered in the 300 series are not applicable to University Minimum requirements for graduate degrees.

***370. Supervised Practice Teaching in Nursing.** Lecture, two hours; laboratory, ten hours. Prerequisite: course 472. The application of specific teaching strategies and the principles of learning and instruction into actual supervised practice teaching situations. Ms. Huckabay

470. Conditions of Learning and Instruction in Nursing. Lecture, four hours; audio-visual instruction. A systematic study of theories of learning and instruction, and critical analysis of the relevant issues and patterns of nursing education. Focuses

NOTE: For key to symbols, see page 74

on the development of a theory of nursing instruction by integrating theories of learning with conceptual models of nursing. Ms. Huckabay

471. Curriculum Development in Nursing. Lecture, four hours. Prerequisite: course 470. A critical appraisal of patterns of nursing education from the standpoint of the changing order. Focuses on the relationship between philosophy, objectives, selection and organization of learning experiences and the evaluative process. Ms. Huckabay

472. Microteaching in Nursing. Lecture, two hours; laboratory, four hours. Prerequisite: course 471. Instructional skills and the application of theories of learning and instruction to the practice and teaching of nursing within a micro teaching laboratory setting. Reference is made to ways in which teaching skills relate to broader educational issues. Ms. Huckabay

473. Generic Consultation. (1 to 2 courses) Discussion, three hours; laboratory, 10 to 20 hours. Prerequisite: introductory and intermediate clinical practicums, and one course in group dynamics and process or the equivalent. The study and application of consultation theory and practice relevant to nursing. Emphasis will be placed on the refinement of knowledge and skills necessary to establish a nursing role as an interdependent clinical nursing consultant. The concepts presented in this course are based on those theories from the following areas: group dynamics, learning, communication, change and nursing process.
Ms. Brown, Ms. Clemence

475. Human Relations in Administration. Lecture, four hours. A systematic study of the principles of human relations in administration with emphasis upon their application to the field of nursing.
Mr. Ferguson

476. Nursing Administration. Lecture, four hours. A study of theories of management and their relationship to nursing in health care facilities. Emphasis is placed on organizational theory, decision making and the process of change.
Ms. Wood

477A. Supervised Practice in Nursing Administration. (1 to 2 courses) Laboratory, 10 to 20 hours; seminar, two hours. Prerequisite: course 476. Application of management theory in nursing service settings. Critical appraisal of theory and process. Guided experience in administration in hospitals or health agencies. Ms. Wood

477B. Internship in Nursing Administration. (2 courses) Seminar, two hours; laboratory, 30 hours. Prerequisite: course 477A. Directed learning in nursing service organizations with critical appraisal of the applicability of administrative theories. May be repeated for credit. Ms. Wood

V. Individual Study and Research

596. Directed Individual Studies for Graduate Students. (1 to 2 courses) Prerequisite: consent of instructor. Opportunity for graduate students in nursing to pursue special research interests. May be repeated for credit, but only one quarter course (4 quarter units) may be applied toward the Master of Nursing degree. Graded only on a satisfactory/unsatisfactory basis. The Staff

597. Individual Study for Comprehensive Examination. (1 to 2 courses) Individual study for comprehensive examination. May be repeated for credit, but only one quarter course (4 quarter units) may be applied toward the Master of Nursing degree. Graded only on a satisfactory/unsatisfactory basis. The Staff

598. Research for Thesis. (1 to 2 courses) Prerequisite: consent of instructor. May be repeated for credit, but only one quarter course (4 quarter units) may be applied toward the Master of Nursing degree. Graded only on a satisfactory/unsatisfactory basis. The Staff

ORIENTAL LANGUAGES

(Department Office, 222 Royce Hall)

Hartmut E. F. Scharfe, Ph.D., *Professor of Indic Studies (Chairman of the Department).*
Ensho Ashikaga, M. Litt., Giko, *Emeritus Professor of Oriental Languages.*
Kenneth K. S. Chen, Ph.D., *Emeritus Professor of Oriental Languages.*
Kan Lao, B.A., Academician, *Emeritus Professor of Oriental Languages.*
Richard C. Rudolph, Ph.D., *Emeritus Professor of Oriental Languages.*
Ben Befu, Ph.D., *Associate Professor of Oriental Languages.*
Hung-hsiang Chou, Ph.D., *Associate Professor of Oriental Languages.*
Robert C. Epp, Ph.D., *Associate Professor of Oriental Languages.*
Shirleen S. Wong, Ph.D., *Associate Professor of Oriental Languages.*
E. Perry Link, Jr., Ph.D., *Assistant Professor of Oriental Languages.*
Herbert E. Plutschow, Ph.D., *Assistant Professor of Oriental Languages.*
Richard E. Strassberg, Ph.D., *Assistant Professor of Oriental Languages.*
____, *Assistant Professor of Oriental Languages*
____, *Assistant Professor of Oriental Languages.*

•

Y. C. Chu, M.A., *Lecturer in Chinese.*
Kuo-yi Pao (Unensečen), M.A., M.S., *Lecturer in Oriental Languages.*
Hanns-Peter Schmidt, Ph.D., *Professor of Indo-Iranian Studies.*
George Takahashi, M.A., *Lecturer in Japanese.*

Department undergraduate advisers: Kuo-yi Pao, Chinese; Robert Epp, Japanese.

Department graduate advisers: Shirleen Wong, Chinese; Herbert Plutschow, Japanese.

Advising: At the beginning of each academic year all majors in the department should see the adviser concerning their program of studies. New students entering the Department should consult immediately with the appropriate adviser concerning their proposed study program.

Aim: The Department of Oriental Languages aims to provide the general undergraduate student with an exposure to the cultural heritage of China and Japan. This is accomplished through courses in civilization, religion, archaeology and literature in translation. For those undergraduates who wish to major in Oriental Languages, the Department offers a program leading to the B.A. degree in Chinese or Japanese, in which the emphasis is on a more specialized knowledge of the language and literature of the area of major interest. In the language program, the emphasis proceeds from an acquaintance with the spoken language (either Chinese or Japanese) to a reading knowledge of the modern and classical forms of the language.

No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

Preparation for the Major

For the major in Chinese, courses 1A-1B-1C, 11A-11B-11C, 13A-13B, and 40A or 46; also History 9B and 9C. For the major in Japanese, courses 9A-9B-9C, 19A-19B-19C, and 40B; also History 9B and 9C. Recommended for Chinese majors: course 13C. Recommended for both majors: Anthropology 5C, 22 and English 2.

The Major

Required for the major in Chinese: Seven upper division language courses which must include:

a. Two courses to be chosen from 121A, 121B, 121C, 122A, 122B, 124A, 124B, 124C and 126.

b. Two courses to be chosen from 113A, 113B, 151, 152A, 152B, 163A, 163B and 163C.

Also: 140A, 140B or 140C; one course chosen from 170A, 170B, 173 or 183; 199 (at least 1/2 course), Art 114B and either History 191A, 191B, 191C or 191D.

Required for the major in Japanese: Seven upper division courses chosen from 119A, 119B, 129, 134A, 134B, 137, 139, 142A, 142B, 153A, 153B, 175, 179A, 179B. The seven courses must include 119B, 129 and 134A or 134B or 153A or 153B. Also, 141A or 141B, one course chosen from 174, 184; 199 (at least 1/2 course), Art 114C and either History 195A, 195B or 195C.

Recommended for both majors: English 100A, 100B, 100C, Geography 186 and additional courses in history. Those planning to undertake graduate study are urged to include in their undergraduate program three courses in classical Chinese or Japanese at the upper division level. Those planning to undertake advanced graduate study are urged to include five quarters of French or German.

Requirements for Admission to Graduate Study

Students seeking admission to graduate status in Oriental Languages are expected to meet, in addition to general University requirements, not only the minimum requirements for the undergraduate major but, in addition, a minimum of three courses in classical Chinese or Japanese at the upper division level. Students whose undergraduate preparation was not in the field of Oriental Languages will be admitted only if they can meet the departmental standards in linguistic competence and complete the minimum departmental requirements for the equivalent of a B.A. degree within the period of one year. Selection will be based on 1) prior scholastic performance (at the junior, senior and/or graduate levels), 2) recommendations by professors and others, 3) score on the Graduate Record Examination (aptitude test), and 4) degree of commitment to the field of study. Foreign students furthermore, are required to attain a satisfactory score on the Test of English as a Second Language administered by the Educational Testing Service, and may be required to take English 106J (Advanced Composition for Foreign Students) and 109J (Introduction to Literature) beyond the minimum University requirements in English. The M.A. Committee will evaluate the student's total performance during his first year and will determine whether he will be permitted to continue his studies.

Requirements for the M.A. Degree

General Requirements: See Masters Degree.

Fields of Specialization: The Department recognizes two fields of specialization at the M.A. level: Chinese language and literature and Japanese language and literature.

Course Requirements: Completion of at least five graduate courses and the requisite number of courses for a total of eleven courses. With the approval of the department, up to two courses taken outside the department will count toward the eleven courses but not toward the five graduate courses. Course 295 is required for students whose major language is Chinese; 296 for those whose major language is Japanese. Students majoring in Chinese will be required to present evidence of completion of one year of Japanese with a grade of B or better, and those majoring in Japanese will be required to present evidence of completion of one year of Chinese with a grade of B or better.

Comprehensive Examinations and the Research Paper: All students will take comprehensive examinations in the areas of Chinese or Japanese 1) language, 2) literature and 3) civilization. In addition, a brief research paper embodying the results of independent investigation will be required. The results of the examinations and the quality of the research paper will determine whether the student will be permitted to enter the Ph.D. program.

Requirements for the Ph.D. Degree

General Requirements: See Doctoral Degree.

Admission to the Doctoral Program: The M.A. degree in the department or its equivalent is required for admission to the doctoral program. A student admitted with an M.A. degree in Oriental Languages from another institution may be required to take supplementary courses before proceeding to the doctoral program. A student admitted with an M.A. degree in a field other than Orien-

tal Languages must fulfill our course requirements for the M.A. degree. In either case, the student may be required to submit a brief research paper demonstrating his ability to conduct original research and his aptitude in communicating his findings.

Course Requirements: A minimum of five courses beyond the M.A. degree is required. In addition, students whose major field of interest is Chinese language and literature will present evidence of successful completion of three courses in modern Japanese at the intermediate level (19A-19B-19C) or higher; those whose major field of interest is Japanese language and literature will present evidence of successful completion of three courses in classical Chinese (13A-13B-13C) or higher. Those whose major field of interest is Buddhism must take five quarters of Sanskrit and, in addition, one quarter of Pali. A grade of B or better is required for all language courses.

Foreign Language Requirements: The student will demonstrate a reading knowledge of French and German by passing the Graduate School Foreign Language Test administered by the Educational Testing Service (minimum passing score: 500), or by successful completion of a level 5 course (with a grade of B or better). (With the approval of the department, one of these languages may be substituted by another language or an additional year of Japanese for the Chinese major or Chinese for the Japanese major.)

Guidance Committee: A guidance committee consisting of three members, two of whom will be from the student's major language area and one from the minor language area, will be appointed for all entering doctoral level students. The student will select his fields of examination with the approval of this committee.

The Language Examination: The student will take a language examination in his major language area well in advance of the written qualifying examinations. The examination will consist of translations into English to test the student's ability to render the Language into English accurately and in an acceptable style.

Written Qualifying Examinations: The student will take three written examinations, as follows:

1. For the major in Chinese language and literature

a. A general examination in Chinese language and literature

b. An examination in poetry, drama, fiction or archaeological inscriptions

c. An examination in one of the following fields: Japanese language and literature, Buddhism (Chinese), Chinese archaeology (not open to those who offer archaeological inscriptions as a subfield) or a cognate field offered in another departmental or interdepartmental program in the graduate school and approved by the department.

2. For the major in Japanese language and literature

a. A general examination in Japanese language and literature

b. An examination in ancient, medieval, early modern or modern Japanese literature

c. An examination in one of the following fields: Chinese language and literature, Buddhism (Japanese) or a cognate field offered in another department or interdepartmental program in the graduate school and approved by the department.

3. For the major in Buddhism

a. A general examination in Buddhism

b. An examination in a specified subfield in Buddhism

c. A general examination in Chinese or Japanese language and literature or a cognate field.

All three examinations must be taken within four weeks. The student will take these written qualifying examinations after satisfying all language and course requirements. With the approval of the department, a student may repeat the examinations once only.

The Oral Qualifying Examinations: The student must pass an oral qualifying examination on the proposed dissertation topic and in appropriate related areas of study.

The Dissertation: The student will present a dissertation embodying the results of independent investigation. If the student changes his dissertation topic after being advanced to candidacy, he will be required to take written examinations in fields relevant to the new topic. Students who fail to meet the maximum time limit for the completion of the dissertation will be required to take the written qualifying examinations again.

A final oral defense of the dissertation will be optional at the discretion of the doctoral committee.

Lower Division Courses

1A-1B-1C. Elementary Modern Chinese. Lecture, five hours. Not open to students with previous training. An introduction to standard spoken Chinese and Chinese characters with emphasis on conversation. Mr. Chu, Mr. Pao

3A-3B-3C. Basic Cantonese. An introduction to a major dialect of the Chinese language. Basic grammar and culture of the dialect will be given with emphasis on conversational patterns. Basic Chinese characters will also be introduced. The Staff

9A-9B-9C. Elementary Modern Japanese. Lecture, five hours. Not open to students with previous training. Introduction to modern Japanese with attention to conversation, grammar and the written forms. Conversation drill to be based on material covered in class. Mr. Takahashi

10A-10B-10C. Intermediate Spoken Chinese. (½ course each) Prerequisite: course 1C. To be taken in conjunction with second year Chinese to enhance command of spoken Mandarin at the intermediate level and above. Permission of the department required. Mr. Link, Mr. Pao, Mr. Strassberg

11A-11B-11C. Intermediate Modern Chinese. Lecture, three hours; laboratory, one hour. A continuation of 1A-1B-1C, with balanced instruction in reading, writing and conversation. Mr. Pao

13A-13B-13C. Introduction to Classical Chinese. Lecture, three hours; reading or discussion, one hour. Prerequisite: course 1C or consent of the instructor. Study of the development of the writing system and introduction to literary Chinese. Mr. Chou

15A-15B-15C. Intermediate Spoken Japanese. (½ course each) Prerequisite: course 9C. Enrollment limited; permission of the Department required; priority to be given Japanese majors. The Staff

19A-19B-19C. Intermediate Modern Japanese. Lecture, three hours; laboratory, one hour. A continuation of 9A-9B-9C. Readings in modern Japanese with emphasis on comprehension and structural analysis. Mr. Epp, Mr. Takahashi

40A. Chinese Civilization. No knowledge of Chinese required. A survey of the development of the outstanding aspects of Chinese culture from prehistoric to modern times. Mr. Chou

40B. Japanese Civilization. No knowledge of Japanese required. A survey of the development of Japanese culture and its relationship to the Asiatic mainland. The Staff

46. Chinese Civilization in Modern Times. Prerequisite: no knowledge of Chinese required. A survey of developments in Chinese culture from the late 19th century to the present. Mr. Link

Upper Division Courses

113A-113B. Intermediate Classical Chinese. Lecture, three hours; reading or discussion, one hour. Prerequisite: courses 13A-13B. Further readings in the classics. Ms. Wong

115A-115B-115C. Advanced Spoken Japanese. (½ course each) (Formerly numbered 119C.) Prerequisite: course 19C. Enrollment limited; permission of the Department required; priority to be given Japanese majors. The Staff

119A-119B. Advanced Modern Japanese. Lecture, three hours; laboratory, one hour. A continuation of 19A-19B-19C. Emphasis on comprehension, grammar and proficiency in reading, composition and conversation in modern Japanese. Mr. Takahashi

121A-121B-121C. Advanced Modern Chinese. Lecture, four hours. Prerequisite: course 11C. Readings in modern prose and newspaper style. Mr. Chu

122A-122B. Readings in Modern Chinese Literature. Lecture, three hours. Prerequisite: course 121B or consent of the instructor. Readings and discussion of masterpieces of modern Chinese literature. (A) poetry and prose; (B) drama and fiction. Mr. Link

124A-124B-124C. Readings in Modern Expository Chinese. Lecture, three hours. Prerequisite: course 121B or consent of the instructor. Readings in the social sciences, including Chinese Communist materials: (A) Nationalist Chinese materials including the May 4th Movement; (B) Political and military materials of Communist China; (C) Economic and educational materials of Communist China. Mr. Chu

126. Post-1949 Chinese Literature. Prerequisites: course 121B or consent of the instructor. Reading and discussion of selected works in contemporary poetry, drama and fiction with emphasis on the People's Republic of China. Mr. Link

129. Introduction to Classical Japanese. Lecture, three hours. Prerequisite: course 119B or consent of the instructor. Introduction to literary Japanese, with readings and discussions in the prose and poetry of the Heian Period. Mr. Befu

*13 **134A. Introduction to Kawabata Yasunari.** Lecture, three hours. Prerequisite: course 19C. Reading and analysis of the Nobel Laureate's short stories with particular emphasis on their emotional structure. Mr. Epp

*13 **134B. Introduction to Mushakoji Saneatsu.** (Formerly 153B.) Lecture, three hours. Prerequisite: course 19C. Reading and discussion of Mushakoji's prose, fiction and poetry. Mr. Epp

135. Buddhist Themes in Asian Literature. No knowledge of Asian languages required. A survey of selected works of Buddhist literature of India, China and Japan. Includes canonical works like the *Lotus Sutra* and non-canonical works of poetry, prose and drama containing Buddhist themes. The Staff

137. Introduction to Kambun and Other Literary Styles. Lecture, three hours. Prerequisite: course 119B or consent of the instructor. Introduction to Kambun, the Japanese literary rendering of Classical Chinese, and Sorobun, the epistolary style. Mr. Befu, Mr. Plutschow

139. Introduction to Buddhist Texts. Lecture, three hours. Prerequisite: course 13C, 121A or 119A. Studies in Buddhist terminology. The Staff

140A-140B-140C. Chinese Literature in Translation. No knowledge of Chinese required. Lectures and collateral reading of representative works in English translation. (A) Poetry from earliest times to the 19th century; (B) Drama and fiction from the 13th century to the end of the Ch'ing period; (C) 20th-century poetry, drama, fiction. Mr. Link, Ms. Wong

141A-141B. Japanese Literature in Translation. No knowledge of Japanese required. A survey of Japanese literature from the beginning to modern times, emphasizing Chinese, Buddhist and Western influences: (A) Beginning to 1600; (B) 1600 to modern times. Mr. Plutschow

*13 **142A. Readings in the Japanese Family System.** Lecture, three hours. Prerequisite: course 119B. Analysis and discussion of articles describing and criticizing the family-system mindset, how this mindset permeates interpersonal relationships, and the way the system has functioned in the past. Mr. Epp

NOTE: For key to symbols, see page 74

***[13]142B. Human Problems in the Modernization of Japan.** Lecture, three hours. Prerequisite: course 119B. Analysis and discussion of articles that deal with the definition of modernization, with its relation to traditional values and self awareness, and with the role of the intellectual. Mr. Epp

145. Readings in Modern Expository Japanese. Prerequisite: course 119A. Readings in contemporary affairs, including politics, economics, trade and social issues. The reading material will be taken from current Japanese newspapers and journals. Mr. Plutschow

151. Readings in Traditional Chinese Fiction. Prerequisite: course 113A. Readings range from the *pien-wen* stories to the novels of the Ming and Ch'ing periods. Mr. Strassberg

***[13]152A-152B. Readings in Classical Chinese Poetry.** Lecture, three hours. Prerequisite: course 113A or consent of the instructor. Discussion and collateral reading of representative works selected on the basis of such critical concerns as thematic patterns, image clusters, genres, and the characteristics of major poets. Ms. Wong

***[13]153A. Kawabata's Contemporaries.** (Formerly 134B.) Lecture, three hours. Prerequisite: course 119A, or 134A or 134B. Readings in the fiction and poetry of Ibuse Masuji, Maruyama Kaoru, Ozaki Kazuo, Tsuboi Sakae and Yokomitsu Riichi. Mr. Epp

***[13]153B. Introduction to Shiga Naoya.** (Formerly 153A.) Lecture, three hours. Prerequisite: course 119A, or 134A or 134B. Reading and discussion of Shiga's short stories with special emphasis on his I-novel technique. Mr. Epp

154A-154B. Mongolian. Lecture, three hours; laboratory, one hour. To be offered when requested by a sufficient number of students. Mr. Pao

160. Elementary Sanskrit. Introduction to script and grammar, with reading exercises and attention to the significance of Sanskrit for the understanding of other Indo-European languages. Mr. Scharfe

161. Intermediate Sanskrit. Prerequisite: course 160 or equivalent. Advanced aspects of grammar and the reading of literary texts. Mr. Scharfe

162. Advanced Sanskrit. Prerequisite: course 161 or equivalent. In this course the entire Bhagavadgita or a comparable amount of other Sanskrit literature is read. Mr. Scharfe

163A-163B-163C. Readings in Chinese Literary Texts. Lecture, three hours. Prerequisite: course 113B. (A and B) Literary texts. (C) Historical texts. The Staff

165. Readings in Sanskrit. Prerequisite: course 162 or equivalent. Extensive reading in such texts as best serve the students' needs. Mr. Scharfe

167. Introduction to Indic Philosophy. A survey of the main trends in Indian philosophy from ancient to modern times. Mr. Scharfe

170A-170B. Archaeology in Early and Modern China.

(A) Introduction to Chinese archaeology: early Chinese study of their own past, types of artifacts, antiquarianism, and the beginnings of scientific archaeology in China before 1949.

(B) Archaeology in the People's Republic of China: survey of major excavations of sites of all periods carried out under the intensive archaeological program of the PRC, and the interpretation of the archaeological findings. Mr. Chou

172. Introduction to Buddhism. No language requirement. Not open to students who received credit for 172A or 172B. Life of the Buddha and fundamental doctrines of Buddhism; Buddhist writings; the monastic order; early sects. The popular cult. The rise and development of Mahayana Buddhism: writings and doctrines. The Tantric doctrines and the end of Indian Buddhism. The Staff

173. Chinese Buddhism. No language requirement. The introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of the Chinese schools of Buddhism such as Pure Land and Zen, contributions to Chinese culture. The Staff

174. Japanese Buddhism. No language requirement. The development of Buddhism in Japan and its influence on Japanese culture with emphasis on the arts. The Staff

175. The Structure of the Japanese Language. Lecture, three hours; reading or discussion, one hour. Prerequisite: consent of the instructor. Phonology, morphology and syntax of Japanese. Mr. Takahashi

179A. Readings in Medieval Japanese Literature. Lecture, three hours. Prerequisite: course 129 or consent of the instructor. Readings and discussion in the prose, poetry and drama up till 1600. Mr. Befu

179B. Readings in Edo Literature. Lecture, three hours. Prerequisite: course 129. Readings and discussion in the prose, poetry and drama from 1600 to 1868. Mr. Befu

183. Introduction to Chinese Thought. No language requirement. A general survey of indigenous Chinese thought from the Chou period to circa 1800, covers Confucianism, Taoism, Mo-tzu, the Legalists, the study of the Classics, pseudo-scientific thoughts, the rise of the skeptical tradition, the penetration of Buddhism, the development of neo-Taoism and neo-Confucianism. Buddhism will be touched on only in the general context of Chinese thought. The Staff

184. Introduction to Japanese Thought. No language requirement. A general survey of Japanese thought from the earliest records to the Tokugawa period with primary emphasis on indigenous elements. Deals with the religious ideas that shaped Shinto, the encounter of Shinto with Buddhism, the formation of "syntheses" such as Ryobu Shinto, the rise of pessimistic attitudes (mappo), philosophies of history and the growth of Japanese self-consciousness, the rise of new Shinto sects in the medieval period, Confucianism in the Tokugawa period and the "National Learning" movement. The Staff

199. Special Studies in Oriental Languages. (½ to 1 course) Prerequisite: senior standing in the Department or advanced reading knowledge of Chinese or Japanese, and consent of the instructor. Required of incoming senior majors transferred from other institutions. Special individual study. May be repeated only once with consent of the instructor. The Staff

Graduate Courses

203A-203B. Chinese Philosophical Texts. May be repeated for credit with the consent of the instructor. Mr. Strassberg

213. Chinese Buddhist Texts. May be repeated for credit with the consent of the instructor. The Staff

214A-214B. Pali and Prakrits. A knowledge of Sanskrit equivalent to course 161, and consent of instructor. Grammatical studies and reading of texts. Comparative considerations. Mr. Scharfe

221A-221B. Introduction to Panini's Grammar. Prerequisite: course 162 or equivalent. Reading of selected passages of the text with an introduction to Panini's technique. Mr. Scharfe

M222A-222B. Vedic. (Same as Near Eastern Languages (Iranian Section) M222A-222B.) Prerequisite: a knowledge of Sanskrit equivalent to course 162, and consent of instructor. Characteristics of the Vedic dialect and readings in the Rig-Vedic hymns. M222B only may be repeated for credit. Mr. Schmidt

223. History of the Japanese Language. The Staff

229A-229B. Japanese Buddhist Texts. May be repeated for credit with the consent of the instructor. The Staff

240. Advanced Chinese Classics. Prose and poetry in the Classical style. May be repeated for credit with the consent of the instructor. Ms. Wong

242A-242B. Japanese Classics.

242A. Prose and poetry up to 1600.

242B. Prose and poetry from 1600 to 1868. May be repeated for credit with the consent of the instructor. Mr. Befu

244. Seminar in Chinese Fiction. Prerequisites: course 113B and 151 and graduate standing in the department. Discussion of the historical development of Chinese fiction, and readings from *pien-wen, ch'uan-ch'i* stories, *hua-pen* stories, traditional and modern novels. Mr. Strassberg

245. Seminar in Modern Japanese Literature. May be repeated for credit with the consent of the instructor. Mr. Epp

247. Selected Readings in Sanskrit Texts. May be repeated for credit with the consent of the instructor. Mr. Scharfe

250. Seminar in Medieval Japanese Literature. Prerequisite: one year of classical Japanese. Selected readings in travel poetry, travel diaries and other genres of Japanese travel literature of the Heian, Kamakura, Nambokucho and Muromachi periods. May be repeated for credit with the consent of the instructor. Mr. Plutschow

251. Seminar: Selected Topics in Chinese Literature. May be repeated for credit. Ms. Wong

252. Seminar: Selected Topics in Japanese Literature. May be repeated for credit. Mr. Befu

253. Seminar: Selected Topics in Japanese Buddhism. May be repeated for credit. The Staff

255. Seminar: Selected Topics in Chinese or Indian Buddhism. May be repeated for credit. The Staff

261A-261B. Seminar in Classical Chinese Poetry. Prerequisites: course 152A and/or B, or consent of the instructor. **261A.** Chinese poetry from the *Shih-ching* phase to the sixth century, with emphasis on the evolution of the lyric form during the Southern Dynasties (ca. 400-600). **261B.** The development of *shih* and *tz'u* from the T'ang period (ca. 600-900) and onward; traditional and modern critical approaches to classical Chinese poetry. Ms. Wong

270. Seminar: Selected Topics in Chinese Archaeology. Prerequisites: course 170A or 170B, or consent of the instructor. May be repeated for credit. Mr. Chou

275. Seminar: Selected Topics in Chinese Cultural History. May be repeated for credit. Mr. Chou

285. Selected Topics in Buddhist Culture. May be repeated for credit with the consent of the instructor. The Staff

295. Bibliography and Methods of Research in Chinese. Required of all graduate students in Chinese. Mr. Chou

296. Bibliography and Methods of Research in Japanese. Required of all graduate students in Japanese. Mr. Befu

Professional Courses

301. Teaching an Oriental Language as a Foreign Language. The Staff

Individual Study and Research

All of these courses will be graded Satisfactory/Unsatisfactory. A student may repeat these courses with the consent of the instructor; however, none of these may apply toward the minimum course requirement for the M.A.

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Individual Studies. (1 to 3 courses) The Staff

597. Preparation for the Comprehensive Examination for the M.A. or the Qualifying Examination for the Ph.D. The Staff

599. Research for and Preparation of the Doctoral Dissertation. (1 to 3 courses) The Staff

Related Courses in Other Departments

Anthropology 103C. Peoples of Asia: Japan.

139. Comparative Minority Relations.

206. Culture and Personality of Japan: Selected Topics.

209. Asian-Americans: Personality and Identity.

211. Selected Topics in Comparative Minority Relations.

Art 114A. The Early Art of India.

114B. Chinese Art.

114C. Japanese Art.

115A. Advanced Indian Art.

115B. Advanced Chinese Art.

115C. Advanced Japanese Art.

260. Asian Art.

English 100A. Introduction to Poetry.

140. Criticism.

201. Approaches to Literary Criticism.

Geography 186. Eastern Asia.

286. Eastern Asia.

History 124A. Introduction to the History of Religions.

124B. History of Religions: Buddhism in India.

191A-191E. History of China.

193. Diplomatic History of the Far East.

195A-195B-195C. Japanese History.

196A. Early History of India.

201B. Themes in Early and Modern Chinese History.

214. Social and Intellectual History of Recent Japan.

230. Advanced Historiography: L. China. M. Japan. P. History of Religions.

240. Topics in History: L. China. M. Japan. P. History of Religions.

279A-279B. Seminar in Chinese History.

281A-281B. Seminar in Modern Japanese History.

282A-282B. Seminar in the History of Religions.

Linguistics 103. Introduction to General Phonetics.

120A. Linguistic Analysis: Phonology.

120B. Linguistic Analysis: Grammar.

220. Linguistic Areas: H. Far East.

225. Linguistic Structures. H. Japanese. P. Chinese.

Music 81. Ethnomusicology. Performance Organization: D. Music of China. G. Music and Dance of Japan. J. Music and Dance of Korea.

141. Survey of Music in Japan.

145. History of Chinese Opera.

146A-146B-146C. Studies in Chinese Instrumental Music.

147A-147B. Music of China.

Political Science 135. International Relations of China.

136. International Relations of Japan.

159. Chinese Government and Politics.

160. Japanese Government and Politics.

250. Seminars in Regional and Area Political Studies: C. Chinese and East Asian Studies. D. Japanese and Western Pacific Studies.

Sociology 134. Comparative Social Institutions of East Asia.

PATHOLOGY

(Department Office, 13-267 Center for the Health Sciences)

Marcel A. Baluda, Ph.D., *Professor Pathology.*
Luciano Barajas, M.D., *Professor of Pathology in Residence.*
[16]W. Jann Brown, M.D., *Professor of Pathology and Psychiatry.*
Walter F. Coulson, M.D., *Professor of Pathology (Vice-Chairman of the Department).*
Robert Y. Foos, M.D., *Professor of Pathology.*
Hideo E. Itabashi, M.D., *Professor of Pathology and Neurology in Residence.*
Harrison Latta, M.D., *Professor of Pathology.*
M. Michael Lubran, M.D., Ph.D., *Professor of Pathology in Residence.*
William J. Martin, Ph.D., *Professor of Pathology in Residence.*
Byron A. Myhre, M.D., Ph.D., *Professor of Pathology in Residence.*
Donald E. Paglia, M.D., *Professor of Pathology.*
David D. Porter, M.D., *Professor of Pathology.*
Denis O. Rodgerson, Ph.D., *Professor of Pathology in Residence.*
George S. Smith, M.D., *Professor of Pathology.*
Julien L. Van Lancker, M.D., *Professor of Pathology (Chairman of the Department).*
[16]M. Anthony Verity, M.D., *Professor of Pathology.*
Jerry Waisman, M.D., *Professor of Pathology.*
Roy L. Walford, M.D., *Professor of Pathology.*
Luciano Zamboni, M.D., *Professor of Pathology in Residence (Vice-Chairman of Department).*
William H. Carnes, M.D., *Emeritus Professor of Pathology.*
Paul C. Fu, Ph.D., *Associate Professor of Pathology in Residence.*
Ruth Gussen, M.D., *Adjunct Associate Professor of Pathology.*
Klaus J. Lewin, M.D., *Associate Professor in Pathology.*
Joseph M. Mirra, M.D., *Associate Professor of Pathology.*
Robert J. Morin, M.D., *Associate Professor of Pathology in Residence.*
Uwamie Tomiyasu, M.D., *Associate Clinical Professor of Pathology.*
Garth E. Austin, M.D., Ph.D., *Assistant Professor of Pathology.*
David S. Barkley, Ph.D., *Assistant Professor of Pathology in Residence.*
Judith A. Berliner, Ph.D., *Assistant Professor of Pathology in Residence.*
Arthur H. Cohen, M.D., *Assistant Professor of Pathology in Residence.*
Faye A. Eggerdling, M.D., Ph.D., *Assistant Professor of Pathology.*
Thomas Gossett, M.D., *Assistant Professor of Pathology in Residence.*
Juan Lechago, M.D., Ph.D., *Assistant Professor of Pathology in Residence.*
Geoffrey H. Moyer, M.D., Ph.D., *Assistant Professor of Pathology.*
Frances Naeim, M.D., *Assistant Professor of Pathology in Residence.*
C. Michael O'Donnell, M.D., *Assistant Professor of Pathology in Residence.*

•

Dorothy Rosenthal, M.D., *Lecturer in Pathology.*
Joseph Raymond, M.D., *Lecturer in Pathology.*
Takanori Tomura, M.D., Ph.D., *Specialist in Pathology.*

Admission to Graduate Status

Students intending to take advanced degrees in the Department of Pathology must have a Bachelor's degree in Physical or Biological Sciences or in the premedical curriculum. M.D.'s are also encouraged to apply. Minimum course requirements for admission normally include 1 year of Calculus, 1 year of Physics, 1 year of General Chemistry, 1 year of Organic Chemistry, and 1 year of Biological Sciences. Physical Chemistry, a course in Molecular Biology, and a course in Histology are also strongly recommended. In some cases, deficiencies in the prerequisite requirements may be fulfilled in the first year of study.

Requirements for the Ph.D. Degree

1. The following courses are required: Pathology 231A, M240, 242A, 242B, and 242C, 244, 251, and 250. In addition, students beginning the program with a Bachelor's degree select 40 units from other areas of individual interest. Students entering the program with a Master's degree may have fewer elective units to complete toward the Ph.D.

2. There is no language requirement.

3. The student must complete successfully both written and oral qualifying examinations, gain teaching experience in Introductory Pathology, and present and defend his dissertation on his research. His total program will require 4-5 years to complete.

Graduate Courses

200A. Dental Pathology. (¾ course) Prerequisite: consent of instructor. Course of Pathology for Dental Students emphasizing the fundamental causes of disease processes, using as examples selected lesions or diseases of major organ systems. Mr. Foos and the Staff

231A. Pathological Anatomy and Physiology. Prerequisite: regular graduate student status and completion of curriculum satisfying basic requirements for study of human pathology. Lectures, demonstrations and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides will be presented. Concentration will be in the area of General Pathology. (Fall Quarter.) The Staff

231B-231C. Pathophysiology of Disease. (¾ course each) Prerequisite: course 200A. Regular graduate student status and completion of curriculum satisfying basic requirements for study of human pathology. Lectures, demonstrations and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides will be presented. The major disease states are presented using an interdepartmental approach as manifestations of pathophysiologic processes rather than as isolated entities. This course is offered on an In Progress Basis which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. The Staff

232. Topics in Vertebrate Neurobiology. (½ course) An introduction to the cell biology of the vertebrate central nervous system with special reference to its development, structure, and potential disease processes. The Staff

235A-235B. Regulation of Gene Expression in Mammalian Cells. (½ course each) Prerequisite: consent of instructor. Description of intracellular information flow in mammalian cells by stimuli of different natures as well as induced changes such as induction, repression, differentiation and neoplastic transformation will be analyzed. Use of culture models and its biopathological implications will be stressed. To be offered alternate years. 235A, Fall Quarter, and 235B, Winter Quarter. The Staff

M240. Immunopathology. (½ course) Lecture, two hours per week. (Same as Medicine M240.) Prerequisite: Immunology course and consent of instructor. Study of the role of immunologic phenomena in the production of lesions and disease. Topics will include immuno complex disease, antitissues antibody, immunologic mediators, cell-mediated immunity, and infectious diseases. Mr. Glassock, Mr. Porter

242A. Molecular Mechanisms in Disease. (½ course) Prerequisite: course 231A, consent of instructor. The course concerns itself with a description of molecular events resulting from administration of injurious chemical and physical agents (u.v., x-rays, carcinogens, toxins, etc.) and from reactions to injuries (e.g., necrosis, degeneration, hyperplasia, neoplasia, inflammation, etc.); and also with an interpretation of structural and functional disturbances in terms of the molecular alterations. Mr. Van Lancker and the Staff

242B. Molecular Mechanisms in Disease. (½ course) Prerequisite: course 242 or 242A; consent of instructor. This course is a continuation of Pathology 242A, both of which concern themselves with descriptions of molecular events resulting from administration of injurious chemical and physical agents (u.v., x-rays, carcinogens, toxin, etc.) and from reactions to injuries (e.g., necrosis, degeneration, hyperplasia, neoplasia, inflammation, etc.); and also with an interpretation of struc-

NOTE: For key to symbols, see page 74

tural and functional disturbances in terms of molecular alterations.
Mr. Van Lancker and the Staff

242C. Molecular Mechanisms in Disease. (½ course) Prerequisite: course 242A, 242B; consent of instructor. This course is a continuation of Pathology 242A and 242B which deal with the biochemistry and molecular biology of disease processes produced by nutritional deficiencies, inherited metabolic errors and the administration of injurious chemical or physical agents. This particular segment will cover aspects of neoplasia relation to alternations in the control of cell growth, chemical carcinogenesis and the biology of cancer.
Mr. Moyer and the Staff

244. Electron Microscopy in Experimental Pathology. (¾ course) Prerequisite: consent of the instructor. Ultrastructural aspects of pathology including introduction to use of modern methods of electron microscopy in pathological studies, essentials of normal ultrastructure and ultrastructural phenomena in general pathology.
Ms. Berliner, Mr. Zamboni

245. Environmental Pathology. Prerequisite: graduate student status and consent of the instructor. This course is designed to explore the interrelationships of man with his total environment. A series of special topics will be presented to discuss the effect on man of changes in the compositions of air, water, soil and other materials. Graded S/U.
Mr. O'Donnell and the Staff

250A-250B-250C. Pathology Graduate Student Seminar. Prerequisite: open only to students in experimental pathology. Required for all pathology graduate students. Review and discussion of current literature and research in special topics of experimental pathology. The Staff

251. Pathology Graduate Student Laboratory Seminar. Prerequisite: consent of instructor. The course consists of ten, two-hour seminars which may include demonstrations of apparatus and methods dealing with new and advanced experimental techniques of value in experimental pathology. The seminars will be conducted by pathology department staff and guest lecturers. Subjects covered will include the biochemistry, biological and morphological techniques in tissue fractionation, tissue culture and radioautography (electron microscopy, etc.) that are frequently in the study of disease mechanisms.
Mr. Lubran, Mr. Rodgerson

[*8]253. Free Radical Pathology. (½ course) Lecture, four and one half hours per week. Prerequisites: Basic biochemistry, Physical Chemistry. Free radicals, mechanisms of formation, properties and reactions. Their reactions with significant biomolecules. Modes of production *in vivo*. Reactions *in vivo*. Protection against and sensitization towards these damaging effects. Mr. O'Donnell

M256. Seminar in Viral Oncology. (½ course) (Same as Microbiology and Immunology M256.) An advanced research seminar designed to consider the current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

[*7]260. Quantitative Approaches to Microscopic Anatomy. (½ course) Lecture, two hours per week. Prerequisite: consent of instructor. Practical and theoretical approaches in the application of measurement to anatomical structures. General principles of estimation of volume, surface area and number will be covered by stereology and other techniques. Ms. Berliner

M293. Major Concepts in Oncology. (Same as Bacteriology M293, Dentistry M293, and Microbiology and Immunology M293.) Prerequisite: graduate standing or consent of instructor. Course designed for graduate students contemplating research in oncology. Lecture. Topics include cancer pathophysiology, genetics; membranes, macromolecular synthesis and control, cell cycle, growth control; physical, chemical and viral oncogenesis; epidemiology of cancer; tumor immunology; principles of cancer surgery, radiation therapy and chemotherapy.

596. Directed Individual Study or Research. (1 to 3 courses) Individual research with members of our staff or of other departments, the latter for the purpose of supplementing programs available in our department. Graded S/U.

597. Preparation for Qualifying Exams. (½ to 2 courses) Prerequisite: one year of course work in pathology. Individual study for qualifying exam. Graded S/U.

599. Preparation of Doctoral Dissertation. (½ to 2 courses) Prerequisite: completion of qualifying exam and most of doctoral research. Completion and writing of thesis. Graded S/U.

PHARMACOLOGY

(Department Office, 23-278 Center for the Health Sciences)

[16]John A. Bevan, B.Sc., M.B., B.S., *Professor of Pharmacology.*
[16]Arthur K. Cho, Ph.D., *Professor of Pharmacology (Vice Chairman of the Department).*
[16]Robert George, Ph.D., *Professor of Pharmacology.*
[16]Donald J. Jenden, B.Sc., M.B., B.S., *Professor of Pharmacology and Biomathematics (Chairman of the Department)*
[16]Peter Lomax, M.D., D.Sc., *Professor of Pharmacology.*
[16]Dermot B. Taylor, M.A., M.D., *Professor of Pharmacology.*
Jeremy H. Thompson, M.D., F.R.C.P.I., *Professor of Pharmacology.*
Rosemary D. Bevan, M.D., *Adjunct Associate Professor of Pharmacology.*
Don H. Catlin, M.D., *Associate Professor of Pharmacology and Medicine.*
Matthew E. Conolly, M.D., *Associate Professor of Pharmacology and Medicine.*
[16]M. David Fairchild, Ph.D., *Adjunct Associate Professor of Pharmacology.*
Sue P. Duckles, Ph.D., *Assistant Professor of Pharmacology in Residence.*
Larry A. Wheeler, Ph.D., *Adjunct Assistant Professor of Pharmacology.*

•

Il Jin Bak, Ph.D., D.D.S., *Adjunct Associate Professor of Neurology and Pharmacology.*
Robert O. Bauer, M.D., *Professor of Anesthesiology, Obstetrics and Gynecology and Pharmacology.*
Joseph H. Beckerman, Pharm.D., *Lecturer in Pharmacology.*
Yi-Han Chang, Ph.D., *Adjunct Associate Professor of Medicine and Pharmacology.*
Mark A. Goldberg, M.D., Ph.D., *Professor of Neurology and Pharmacology.*
William L. Hewitt, M.D., *Professor of Medicine and Pharmacology.*
Murray E. Jarvik, M.D., Ph.D., *Professor of Pharmacology and Psychiatry.*
Louis Levy, Ph.D., *Professor of Medicine and Pharmacology.*
R. Craig Kammerer, Ph.D., *Lecturer in Pharmacology.*

Admission to Graduate Status

In addition to meeting the requirements of the Graduate Division, the student must have received the bachelor's degree in a biological or physical science or in the premedical curriculum, provided that the following, or their equivalents, have been completed: 6 semester units of college mathematics, 8 units of physics, 16 units of chemistry (including quantitative analysis and organic chemistry), 8 units of zoology (including comparative gross and microscopic anatomy), 8 units of mammalian physiology (including laboratory), 10 units of biochemistry (including laboratory).

In suitable cases, students who have not completed the above requirements may be admitted to graduate status, but the deficiencies will have to be removed within a specified time.

Requirements for the Degree of Master of Science

Students entering graduate study in the Department of Pharmacology will be expected to pursue the Ph.D. degree. Exceptional cases may be considered for the degree of Master of Science. In those cases, candidates for the master's degree must meet the general requirements set by the Graduate Division for this degree.

Requirements for the Doctor of Philosophy Degree

Advancement to Candidacy. In addition to the general requirements of the Graduate Division, the student may be required to pass a series of qualifying examinations both written and oral. The Departmental Guidance Committee may also stipulate additional requirements. This committee will be appointed by the Chairman of the Department.

The responsibility for completion of all technical requirements for the doctor's degree rests solely with the candidate.

Departmental Requirements. In addition to the general requirements of the Graduate Division the student must complete the following courses or their equivalents; Anatomy 103; Biological Chemistry 101A-101B-101C; one course in Biostatistics; Pharmacology 200 (Introduction to Laboratory Research – must be taken three times); Pharmacology 201 (Principles of Pharmacology and Toxicology); Pharmacology 202 (Pharmacological Basis of Therapeutics); Pharmacology 234A-234B-234C (Experimental Methods in Pharmacology); Pharmacology 237 (Neurotransmission); Pharmacology 241 (Introduction to Chemical Pharmacology); Pharmacology 251 (Seminar); Pharmacology 291 (Selected Topics – must be taken three times); Physiology 101; Physiology 102; Physiology 103.

Upon completion of the first two years of study each student will be required to take a comprehensive examination at which time the student will be recommended 1) for continuation of his studies towards the Ph.D. degree; 2) for further remedial study or; 3) for termination.

Upper Division Courses

101A-101B-101C. Elements of Pharmacology. (2 courses) Prerequisite: enrollment in School of Dentistry or consent of the instructor. Required course for junior dental students. A general consideration of the modes of action and the pharmacological and toxicological effect of drugs with a more detailed study of those agents used in clinical dentistry and the principles governing their use.
Mr. Lomax in charge

199. Special Studies. (½ to 2 courses) Prerequisite: consent of instructor and Chairman of the Department. Special studies in pharmacology, including either reading assignments or laboratory work or both, designed for appropriate training of each student who registers in this course.

Graduate Courses

200. Introduction to Laboratory Research. (½ to 1 course) Prerequisite: consent of the instructor. Individual projects in laboratory research for beginning graduate students. At the end of each quarter the student will submit to his/her supervisor a report covering the research performed. Pharmacology graduate students must take this course three times during their first two years in residence. The Staff

201. Principles of Pharmacology. Prerequisite: Mammalian Physiology and Biochemistry. A systematic consideration of the principles governing the interaction between drugs and biological systems, and of the principal groups of drugs used in therapeutics. Particular attention is focussed on the modes of action, pharmacokinetics and disposition to provide a scientific basis for their rational use in medicine. Mr. Bevan in charge

202A-202B. Clinical Pharmacology. (2 courses) A series of lectures and case presentations designed to illustrate the principles of pharmacology in a clinical context, and the solution of problems of practical therapeutics by reference to pharmacokinetics, mechanisms of action and disposition of drugs.
Mr. Conolly in charge

212A-212B. Graduate Commentary: Clinical Pharmacology. (½ course each) Prerequisite: Mammalian Physiology and Biochemistry. A supplementa-

tion of topics covered in Pharmacology 202A and 202B. Primarily for graduate students.
Mr. Conolly

234A-234B-234C. Experimental Methods in Pharmacology. (½ course each) Prerequisite: consent of instructor. A survey of experimental methods and instrumentation used in the analysis, identification, and study of mechanisms of action of pharmacologically active compounds.
Mr. Chang, Mr. Cho, Mr. George

236. Neuropharmacology. Prerequisite: neurophysiology. Advanced neuropharmacology, including actions and modes of action of drugs acting on the central nervous system, interactions between drugs and nervous tissue, movements of drugs through the blood brain barrier, and distribution to the central nervous system, problems of central transmission. Mr. George

***1237. Neurotransmission.** Prerequisite: courses 241, 234A-234B-234C. Consent of instructor. A detailed examination of neurochemical transmission, dealing in particular with the cholinergic and adrenergic transmission mechanisms and pharmacological agents that affect them. The evidence for mechanisms involving other possible transmitters will also be critically examined.
Mr. Bevan, Mr. George, Mr. Jenden

***1M239. Psychopharmacology.** (Same as Psychiatry M239.) Prerequisite: consent of the instructor. A presentation of the effects of drugs upon behavior with special attention to drugs used in psychiatry and drug seeking behavior. Physiological and biochemical mechanisms underlying such actions will be analyzed. Reports on relevant current research will be made. Mr. George, Mr. Jarvik

241. Introduction to Chemical Pharmacology. Prerequisite: Organic and Biological Chemistry. Introduction to general principles of pharmacology. The role of chemical properties of drugs in their distribution, metabolism and excretion. Mr. Cho

251. Seminar in Pharmacology. (½ course each)
Mr. Chang

***1253. Seminar in Environmental Toxicology. (½ course)** Prerequisite: consent of the instructor. Oral reports and discussions of current research on chemical pollutants in the environment, their effects on biological systems and the mechanism of these effects. Mr. Jenden

***1261. Introduction to Clinical Pharmacology. (½ course)** Prerequisite: consent of the instructor. Lectures, case presentations and discussions designed to acquaint graduate students with the special problems and effects encountered in clinical use of drugs, including absorption, metabolism and excretion, drug interactions and interference with clinical laboratory analysis. The Staff

291. Special Topics in Pharmacology. (½ to 1 course) Prerequisite: consent of instructor. Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced doctoral candidates, academic staff or visiting faculty. May be taken for credit three times. The Staff

Individual Study and Research

596. Directed Individual Research in Pharmacology. (1 to 3 courses) The Staff

599. Research for and Preparation of the Doctoral Dissertation. (1 to 3 courses) The Staff

PHILOSOPHY

(Department Office, 321 Dodd Hall)

Marilyn Adams, Ph.D., *Professor of Philosophy.*
Robert Merrihew Adams, Ph.D., *Professor of Philosophy.*
Rogers Albritton, Ph.D., *Professor of Philosophy.*
Alonzo Church, Ph.D., *Professor of Philosophy and Mathematics in Residence.*
Keith S. Donnellan, Ph.D., *Professor of Philosophy.*
Philippa Foot, M.A., *Professor of Philosophy.*
Montgomery Furth, Ph.D., *Professor of Philosophy.*
Donald Kalish, Ph.D., *Professor of Philosophy.*
David Kaplan, Ph.D., *Professor of Philosophy.*
Herbert Morris, Ph.D., *Professor of Philosophy and Law.*
Richard Wasserstrom, Ph.D., *Professor of Philosophy and Law.*
Robert M. Yost, Ph.D., *Professor of Philosophy.*
Hugh Miller, Ph.D., *Emeritus Professor of Philosophy.*
Wesley Robson, Ph.D., *Emeritus Professor of Philosophy.*
Tyler Burge, Ph.D., *Associate Professor of Philosophy.*
Thomas E. Hill, Jr., Ph.D., *Associate Professor of Philosophy.*
Warren S. Quinn, Ph.D., *Associate Professor of Philosophy.*
Gregory Kavka, Ph.D., *Assistant Professor of Philosophy.*

•

Preparation for the Major

Courses 21, 22, 31, and one other lower division course in Philosophy.

The Major

Twelve upper division or graduate philosophy courses (48 units). Seven of the twelve courses must be distributed among the groups into which the undergraduate and graduate courses are divided, in the following manner: two courses (8 units) in each of three of the groups, and one course (4 units) in the remaining group.

Courses listed under "No Group" may apply toward the major, but not toward a group requirement. A maximum of eight units of course 199 may apply toward the major but not toward a group requirement. No course employed to satisfy the major or preparation requirements may be taken on a P/NP basis.

Upon the recommendation of the Philosophy Department faculty, honors in philosophy will be awarded at graduation to a major whose grade point average in upper division philosophy courses is 3.3 and who has completed two graduate courses (8 units) in philosophy with an average grade of 3.5.

Students intending to do graduate work in Philosophy should consult with the graduate adviser as well as with the undergraduate adviser.

Admission to Graduate Status

Students interested in admission to graduate study should write to the Graduate Adviser, Department of Philosophy, for documents describing the graduate program.

An undergraduate major in Philosophy is not required, although some undergraduate preparation is expected.

The graduate program is designed for those who wish to work for the Ph.D. degree. Normally, persons are not admitted who wish to pursue only an M.A. program.

Admission is normally granted for the Fall Quarter only.

First Year Graduate Program

During the Fall, Winter, and Spring Quarters of his first full academic year, each graduate student enrolls in Philosophy 200-200B-200C. These courses serve as the core of the first year graduate program.

First Year Examination

During the first year of graduate study, each student takes a written examination on the material covered in Philosophy 200A-200B-200C that year, plus a written examination on elementary logic.

Candidates for the M.A. may, if necessary, repeat the First Year Examination during their second year, since it serves as the M.A. Comprehensive Examination.

Admission to the Doctoral Program

At the end of a student's first year, the faculty determines whether the student is to be admitted to the doctoral program. This decision is based on his performance in his first year courses, including Philosophy 200A-200B-200C, on his performance in the First Year Examination, and on any other available evidence concerning his ability to complete the program successfully. (Passage of the First Year Examination is neither necessary nor sufficient for admission to the doctoral program.) In exceptional circumstances the decision may be postponed to the second year.

Requirements for the Master's Degree

General Requirements. See Master's Degrees.

Foreign Language. A reading knowledge of one of the following languages: Greek, Latin, French, or German. On petition to the Department, another language relevant to the candidate's field of specialization may be chosen.

Comprehensive Examination. Passage of the First Year Examination which all graduate students are required to take.

Course Requirement. At least nine courses (36 units) numbered over 100 (excluding 199), five courses (20 units) of which must be in philosophy courses numbered between 200 and 296, including 200A-200B-200C.

Requirements for the Candidate in Philosophy Degree

The Candidate in Philosophy Degree (C.Phil.) is awarded upon a Ph.D. candidate's formal advancement to candidacy. A student is advanced to candidacy for the doctorate when he has completed all requirements for the Ph.D. except the dissertation, and the final examination. The Candidate in Philosophy is not a terminal degree. The Department will not recommend a student for advancement to candidacy and at the same time disqualify him for continued registration and further study or research on his dissertation. If a student withdraws from the University after advancement to candidacy and at award of the C.Phil., then the Department will readmit him upon application, provided the period of absence has not exceeded seven years. Any student, of course may himself decide not to proceed beyond the C.Phil. Four quarters of academic residence, three of which (normally the last three) must be spent in continuous residence at UCLA, are required for the C.Phil.

Requirements for the Doctor's Degree

General Requirements. See Candidate in Philosophy Degree.

Foreign Language. A good reading knowledge of one of the following languages: Greek, Latin, French, German. On petition to the Department, another language relevant to the candidate's field of specialization may be substituted. This requirement may be met either (a) by the completion, at UCLA or elsewhere, of the equivalent of the final course in a two year sequence of college courses in the chosen language, with a grade of C or better, or (b) by passing a translation examination, administered by the Department, from a philosophical book selected by the candidate with Departmental approval.

Course Requirement. Twelve courses in the 100 and 200 series (excluding 199), distributed as follows:

Logic: 135 and either 133 or 134. Two upper division or graduate courses in logic in either the Philosophy or Mathematics Department approved of by the student's advisor.

Metaphysics and epistemology: Two courses or seminars in the 200 series, including the required first year seminar in metaphysics and epistemology.

Ethics and value theory: Two courses or seminars in the 200 series, including the required first year seminar in ethics.

History of philosophy: Three courses or seminars in the 200 series, including the required first year seminar in the history of philosophy.

Elective: Three additional upper division or graduate courses or seminars, of the student's choice.

First Year Examination. Before admission to the doctoral program, each student must take a First Year Examination on the contents of the three required first year seminars (200A-200B-200C) and on the contents of the beginning logic courses (31 and 32). Passage of the examination is a requirement for the M.A. but not for the Ph.D. Performance in the examination, however, is an important part of the evidence considered in determining admission to the doctoral program (see above).

NOTE: For key to symbols, see page 74

Proposition Requirement. Two accepted propositions, one in Ethics and Value Theory, the other in Metaphysics and Epistemology. A proposition is a substantial research paper which formulates a philosophical problem, reviews some of the pertinent history and contemporary literature, proposes further steps toward a solution, and surveys difficulties to be anticipated in working out that solution.

Preparation for Admission to Candidacy. In the term following completion of the course and proposition requirements, the student must submit a general indication of a topic or problem area for his dissertation. A faculty dissertation supervisor is then chosen, with whom the student must register for at least four units of course 596 each quarter that he is registered until he is admitted to candidacy. In any case, substantial written evidence of progress in the dissertation project must be submitted before the oral qualifying examination can be held.

Oral Qualifying Examination. An oral examination, administered by the doctoral committee appointed by the Dean of the Graduate Division. The candidate is examined (a) on substantial written evidence of progress in the dissertation project (as described above) which he has submitted to the committee at least ten days in advance of the examination, and (b) on the field of the dissertation and any related fields in which competence is required for successful completion of the dissertation.

Dissertation. A dissertation on a subject chosen by the candidate and approved by his doctoral committee and the Dean of the Graduate Division.

Final Examination. An oral examination in the field of the student's special interest as represented by his dissertation may be required at the option of members of the doctoral committee who are to approve the dissertation. Normally, the decision whether to require such an examination is made at the time of the oral qualifying examination.

For details of requirements for all graduate degrees in Philosophy as well as the timetable under which the various requirements are to be completed, consult the department's *Graduate Manual*, obtainable upon request from the Department office.

Lower Division Courses

All lower division courses are introductory and without prerequisites except as otherwise stated.

1. The Beginnings of Western Philosophy. Lecture, three hours; discussion section, one hour. The views of Plato, Aristotle, and other thinkers, from before Socrates to St. Augustine, on such topics as: the nature of the physical universe, the nature of knowledge, the concept of God, soul and body, the foundations of morality, the Greek and Christian ideas of love. Mr. Albritton, Mr. Furth

2. Introduction to the Philosophy of Religion. Lecture, three hours; discussion section, one hour. An introductory study of such topics as the nature and grounds of religious belief, the relation between religion and ethics, the nature and existence of God, the problem of evil, and what can be learned from religious experience. Mr. Adams, Mrs. Adams

3. Personal and Social Ideals. Lecture, three hours; discussion section, one hour. A study of various conceptions of human perfection and social utopias. Readings will be chosen from such authors as Freud, Thomas More, Marx, B.F. Skinner and Sartre. Mr. Hill

4. Philosophical Analysis of Contemporary Moral Issues. Lecture, three hours; discussion section, one hour. A critical study of principles and arguments advanced in discussion of current moral issues. Possible topics: revolutionary violence, rules of warfare, sexual morality, the right of privacy, punishment, nuclear warfare and deterrence, abortion and mercykilling, experimentation with human subjects, rights of women, the drug culture. Mr. Kavka, Mr. Quinn, Mr. Wasserstrom

5A. Philosophy in Literature. Lecture, three hours; discussion section, one hour. A philosophical inquiry into such themes as freedom, responsibility, guilt, love, self-knowledge and self-deception, death and the meaning of life, by examination of great literary works in the Western tradition. Mr. Morris

5B. Recurring Philosophical Themes in Black Literature. Lecture, three hours; discussion section, one hour. Analysis of some main themes in Afro-American political writings; for example, assimilation, cultural nationalism, and separatism in the writings of Booker T. Washington, Frederick Douglass, W.E.B. du Bois, and others.

6. Historical Introduction to Moral and Political Philosophy. Lecture, three hours; discussion section, one hour. A study of some classic works in moral and political philosophy. Questions that may be discussed include: What is justice? Why be moral? Why obey the law? Which form of government is best? How much personal freedom should be allowed in society? Mr. Hill, Mr. Kavka

7. Introduction to the Philosophy of Mind. Lecture, three hours; discussion section, one hour. An introductory study of philosophical issues about the nature of the mind and its relation to the body, including some of the following: materialism, functionalism, behaviorism, determinism and free will, the nature of psychological knowledge. Mr. Burge

8. Introduction to the Philosophy of Science. Lecture, three hours; discussion section, one hour. An introduction to philosophical questions about the nature of science, drawing examples from specific scientific theories and controversies that can be understood without much mathematical or technical background. What role do observation and explanation play in building and evaluating scientific theories? How should we view the relation between science and common sense?

9. Principles of Critical Reasoning. The course concerns the nature of arguments: how to analyze them and assess the soundness of the reasoning they represent. Common fallacies that often occur in arguments will be discussed in light of what counts as a good deductive or inductive inference. Other topics to be discussed include the use of language in argumentation to arouse emotions as contrasted with conveying thoughts, the logic of scientific experiments and hypothesis-testing in general, and some general ideas about probability and its application in making normative decisions, e.g. betting. Mr. Kaplan

10. Virtues and Vices. Lecture, three hours; discussion section, one hour. A study of the traditional theory of the virtues and vices, and an inquiry into its truth. Readings in Aristotle, Aquinas, and contemporary authors; and the discussion of concepts such as courage, wisdom and justice. Should we accept the traditional list of the virtues and vices, or should it be revised? Mrs. Foot

21. Skepticism and Rationality. Lecture, three hours; discussion section, one hour. Can we know anything with certainty? How can we justify any of our beliefs? An introduction to the study of these and related questions, through the works of some great philosophers of the modern period, such as Descartes, Leibniz, Berkeley, or Hume. Mr. Donnellan, Mr. Furth, Mr. Yost

22. Introduction to Ethical Theory. Lecture, three hours; discussion section, one hour. A systematic introduction to ethical theory, including discussion of egoism, utilitarianism, justice, responsibility, the meaning of ethical terms, relativism, etc. Recommended or required for many upper division courses in Group III. Mr. Hill, Mr. Kavka, Mr. Quinn

31. Logic, First Course. Lecture, three hours; discussion section, one hour. Recommended for students who plan to pursue more advanced studies in logic. The elements of symbolic logic, sentential and quantificational; forms of reasoning and structure of language. Mr. Burge, Mr. Kalish, Mr. Kaplan

32. Logic, Second Course. Lecture, three hours; discussion section, one hour. Prerequisite: course 31, preferably in the preceding quarter. Symbolic logic: extension of the systematic development of course 31. Quantifiers, identity, definite descriptions. Mr. Burge, Mr. Kalish, Mr. Kaplan

Upper Division Courses

GROUP I

101A. Plato—Earlier Dialogues. (Formerly numbered M101A.) Lecture, three hours; discussion section, one hour. A study of selected topics in the early and middle dialogues of Plato. Mr. Furth

101B. Plato—Later Dialogues. (Formerly numbered M101B.) Lecture, three hours, discussion section, one hour. Prerequisite: Philosophy 101A. A study of selected topics in the middle and later dialogues of Plato. Mr. Furth, Mr. Quinn

102. Aristotle. Lecture, three hours; discussion section, one hour. A study of selected works of Aristotle. Mr. Furth

104. Topics in Islamic Philosophy. Lecture, three hours; discussion section, one hour. Prerequisite: one course (4 units) in philosophy or consent of the instructor. The development of Muslim philosophy in its great age (from Kindo to Averroes, 850 to 1200), considered in connection with Muslim theology and Mysticism.

105. Medieval Philosophy from Augustine to Maimonides. Lecture, four hours. Prerequisite: one course in philosophy or consent of the instructor. The development of early medieval philosophy within the framework of Judeo-Christian theology and its assimilation and criticism of the Greek philosophical heritage. Focus on the problem of universals, the existence and nature of God, the problem of evil, and the doctrines of the Trinity and atonement. Selected writings from Augustine through Maimonides, read in English translation. Mrs. Adams

106. Later Medieval Philosophy. Lecture, four hours. Prerequisite: one course in philosophy or consent of the instructor (course 105 is not required). Metaphysics, theory of knowledge, and theology of Aquinas, Duns Scotus, and Ockham, with less full discussion of other authors from the 13th through early 15th centuries. Selected texts read in English translation. Mrs. Adams

107. Topics in Medieval Philosophy. Lecture, four hours. Prerequisite: one course in philosophy; 105 or 106 recommended. The study of the philosophy and theology of some one medieval philosopher such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham; or the study of a single area such as logic or theory of knowledge in several medieval philosophers. Consult the department for topic to be treated in a given quarter. May be repeated for credit with consent of instructor. Mrs. Adams

109. Descartes. Lecture, four hours. Prerequisites: Philosophy 21 or two courses in philosophy or consent of instructor. A study of the works of Descartes with emphasis on the *Meditations*. Such issues as the problems of scepticism, the foundations of knowledge, the existence of God, the relation between mind and body will be discussed. Enrollment will be limited to 30 students when offered concurrently with 209. Mr. Yost

110. Spinoza. Lecture, three hours; discussion, one hour. Prerequisites: course 21 or consent of the instructor. A study of the philosophy of Spinoza. May be concurrently scheduled with course 210, in which case there will be a weekly discussion meeting for undergraduates only, and fewer readings and shorter papers will be required of undergraduates than off graduates. Enrollment is limited to 30 students when offered concurrently. Mr. Adams

111. Leibniz. Lecture, three hours; discussion section, one hour. Prerequisite: course 21 or consent of the instructor. A study of the philosophy of Leibniz. May be concurrently scheduled with course 211, in which case there will be a weekly discussion meeting for undergraduates only, and fewer read-

ings and shorter papers will be required of undergraduates than of graduates. Enrollment is limited to 30 students when offered concurrently.
Mr. Adams

112. Locke and Berkeley. Lecture, four hours. Prerequisite: one course in philosophy or consent of the instructor. A study of the philosophies of Locke and Berkeley; the emphasis may sometimes vary from one figure to the other. May be offered concurrently with course 212. Mr. Donnellan

114. Hume. Lecture, four hours. Prerequisite: one course in philosophy or consent of the instructor. Selected topics from the metaphysical, epistemological and ethical writings of Hume. May be offered concurrently with course 214, in which case enrollment in course will be limited to 40.
Mr. Donnellan

115. Kant. Lecture, three hours; discussion section, one hour. Prerequisite: course 21 or 22 or consent of the instructor. A study of Kant's views on related topics in theory of knowledge, ethics, and politics.
Mr. Hill

116. Nineteenth Century Philosophy. Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Selected topics in nineteenth century thought.

117. Late 19th and Early 20th Century Philosophy. Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Selected topics in the work of one or more of the following philosophers: Bolzano, Frege, Husserl, Meinong, the early Russell and Wittgenstein. Mr. Burge

GROUP II

125. Introduction to Modern Logic. Lecture, three hours; discussion section, one hour. Open to lower division students with consent of the instructor. A survey of elementary topics in sentential logic, axiomatic foundations of arithmetic, calculus of classes and relations, elementary theory of probability, modal logic. Mr. Kalish

126A. Philosophy of Science. Lecture, three hours; discussion section, one hour. Prerequisite: course 31 or course 125. An analysis of explanation, confirmation, and theory in the sciences.

126B. Philosophy of Science. Lecture, three hours; discussion section, one hour. Prerequisite: course 126A or consent of the instructor. Certain philosophical problems regarding the content of the sciences.

126C. Philosophy of Science: Social Sciences. Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor. A discussion of topics in the philosophy of social science; e.g., the methods of the social sciences in relation to the physical sciences; value-bias in social inquiry; concept formation; theory construction; explanation and predication; the nature of social laws.

127A. Philosophy of Language. Lecture, four hours. Prerequisite: course 31 or consent of the instructor. Syntax, semantics, pragmatics. The semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indirect discourse, indexical terms, semantical paradoxes. May be repeated for credit with the consent of the instructor.
Mr. Burge, Mr. Church, Mr. Kaplan

127B. Philosophy of Language. Lecture, four hours. Prerequisites: course 32 or consent of the instructor. Course 127A is not a prerequisite for course 127B. Selected topics similar to those considered in course 127A will be discussed but at a more advanced and technical level.
Mr. Church, Mr. Kaplan

128A. Philosophy of Mathematics. Lecture, four hours. Prerequisite: course 31, 32, and preferably one additional course in logic. The philosophy of mathematics; logicism of Frege and Russell, arithmetic reduced to logic; ramified type theory and impredicative definition (Russell, Poincare, the early Weyl). Mr. Church

128B. Philosophy of Mathematics. Lecture, four hours. Prerequisite: course 128A or consent of the instructor. Intuitionism of Brouwer, Heyting, and the later Weyl; proof theory of Hilbert.
Mr. Church

129. Philosophy of Psychology. Lecture, three hours; discussion section, one hour. Prerequisite: one 4-unit course in Psychology and one course in Philosophy. Selected philosophical issues arising from psychological theories. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of the theory of syntax; behaviorism, functionalism and alternatives; physiology and psychology. Mr. Burge

133. Logic, Third Course. Lecture, four hours. Prerequisite: course 32. Topics in logic and semantics; formal theories, definitions, alternative theories of descriptions. Mr. Kalish, Mr. Kaplan

134. Introduction to Set Theory. Lecture, four hours. Prerequisite: course 32, or upper division standing in mathematics and consent of the instructor. Introduction to axiomatic set theory; sets, natural numbers, relations, functions, cardinality, infinity. Mr. Kalish

135. Introduction to Metamathematics. Lecture, four hours. Prerequisite: course 32; 134 recommended. Models, satisfaction, truth, definability; logical truth and logical consequence; consistency and completeness.
Mr. Church, Mr. Kalish, Mr. Kaplan

136. Modal Logic. Lecture, four hours. Prerequisite: course 32; 133 or 135 recommended. The logic of necessity and possibility. Various formulations of the syntax and semantics of such logics. The problem of interpreting quantified modal logic, deontic, and other non-extensional logics. Mr. Kaplan

GROUP III

150. Society and Morals. Lecture, three hours; discussion section, one hour. Prerequisite: course 22 or consent of the instructor. A critical study of principles and arguments advanced in discussion of current moral and social issues. The topics will be similar to those of course 4, but familiarity with some basic philosophical concepts and methods will be presupposed. May be repeated for credit with the consent of the instructor.
Mr. Hill, Mr. Kavka

151A-151B. History of Ethics. Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or the consent of the instructor. Course 151A is not a prerequisite for 151B.
151A. Selected classics in earlier ethical theories.
151B. Selected classics in later ethical theories.
Mr. Hill, Mr. Kavka, Mr. Quinn

153A. Topics in Ethical Theory: Normative Ethics. Lecture, four hours. Prerequisite: course 22 or consent of instructor. A study of selected topics in normative ethical theory. Topics may include various conceptions of the criteria of right action, human rights, virtues and vices, principles of culpability and praise-worthiness. Mr. Hill, Mr. Kavka

153B. Topics in Ethical Theory: Metaethics. Lecture, three hours. Prerequisite: course 22 or consent of the instructor. A study of selected problems in metaethics ethical theory. Topics may include the analysis of moral language and the justification of moral beliefs. Mrs. Foot, Mr. Quinn

154. Moral Issues and the Professions. Lecture, three hours; discussion section, one hour. Prerequisite: consent of the instructor, course 22 recommended but not required. A philosophical examination of specific moral issues, with special attention to problems which arise in medicine, law, engineering, business, and other professions. Critical analysis of principles presupposed in alternative answers, and discussions of the relevance of moral theories to the resolution of the problems. Discussion and individual research is stressed. Restricted enrollment: 20. Philosophy 154 cannot be taken in fulfillment of major requirements in Philosophy. Either Philosophy 154 or Philosophy 150 can be taken: credit will not be given for both. The Staff

155. Medical Ethics. An examination of the philosophical issues raised by problems of medical ethics such as abortion, euthanasia, and medical experimentation. Mrs. Foot

156. Topics in Political Philosophy. Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor; course 22 is advised. Analysis of some basic concepts in political theory. May be repeated for credit with the consent of the instructor.
Mr. Hill, Mr. Kavka

157. History of Political Philosophy. Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor; course 22 is advised. Selected classics in the history of political philosophy.
Mr. Hill, Mr. Kavka

161. Topics in Aesthetic Theory. Lecture, three hours: discussion section, one hour. Prerequisites: one course in philosophy or consent of the instructor. Philosophical theories about the nature and importance of art and art criticism, aesthetic experience, and aesthetic values. May be repeated for credit with the consent of the instructor.
Mr. Quinn

166. Introduction to Legal Philosophy. Prerequisite: one course in philosophy or consent of the instructor. An examination, through the study of recent philosophical writings, of such topics as: the nature of law, the relationship of law and morals, legal reasoning, punishment, and the obligation to obey the law. Mr. Morris, Mr. Wasserstrom

GROUP IV

170. Philosophy of Mind. Lecture, three hours; discussion section, one hour. Prerequisite: two relevant courses in philosophy or consent of the instructor. An analysis of various problems concerning the nature of mind and mental phenomena, such as the relation between the mind and the body, and our knowledge of other minds.
Mr. Donnellan

172. Philosophy of Language. Lecture, three hours; discussion section, one hour. Prerequisite: two relevant courses in philosophy or linguistics, or consent of the instructor. Analysis of the concepts of meaning, reference and truth in natural languages; syntactic and semantic descriptions of natural languages; theory of speech acts. Mr. Donnellan

174. Contemporary Philosophy. Lecture, three hours; discussion section, one hour. Prerequisite: two lower division courses in philosophy or one upper division course in philosophy or one course in logic or consent of the instructor. Analysis of the views of several recent philosophers.
Mr. Donnellan

175. Topics in Philosophy of Religion. Lecture, three hours; discussion section, one hour. Prerequisite: course 21 or 22 or consent of the instructor. An intensive investigation of one or two topics or works in the philosophy of religion, such as the attributes of God, arguments for or against the existence of God, or the relation between religion and ethics. Consult the department for topic to be treated in a given quarter. May be repeated for credit with the consent of the instructor.
Mr. Adams, Mrs. Adams, Mr. Albritton

177A. Existentialism. Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. Analysis of the methods, problems and views of some of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, Marcel, and Camus. Possible topics: metaphysical foundations, nature of mind, freedom, problem of the self, other people, ethics, existential psychoanalysis.

177B. Historical Studies in Existentialism. Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy or consent of the instructor. A study of the central philosophical texts of one of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, or Camus. The course will focus primarily on explication and interpretation of the texts.

NOTE: For key to symbols, see page 74

178. Phenomenology. Lecture three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor. Introduction to the phenomenological method of approaching philosophical problems via the works of some of the following: Brentano, Husserl, Heidegger, Scheler, Sartre, Merleau-Ponty, Ricoeur. Topics fall in the areas of ontology, epistemology, and particularly philosophy of mind.

182. Elements of Metaphysics. Lecture, three hours; discussion section, one hour. Prerequisite: course 21 or consent of the instructor. Study of basic metaphysical questions; nature of the physical world, of minds, and of universals; and the answers provided by alternative systems, e.g., phenomenalism; materialism, dualism. Mr. Adams, Mr. Yost

183. Theory of Knowledge. Lecture, four hours. Prerequisite: course 21 or consent of the instructor. An analysis of the concept of empirical knowledge. Mr. Yost

184. Topics in Metaphysics. Lecture, four hours. Prerequisite: course 21 or consent of the instructor. An intensive investigation of one or two topics or works in metaphysics, such as: personal identity, the nature of dispositions, possibility and necessity, universals and particulars, causality. Consult the department for topics to be treated in a given quarter. May be repeated for credit with the consent of the instructor.
Mr. Adams, Mr. Albritton, Mr. Donnellan

185. Space and Time. Lecture, three hours; discussion section, one hour. Prerequisite: two courses in philosophy or consent of the instructor. An analysis of philosophical problems concerning the nature of space and time, including traditional puzzles as well as questions raised by modern science.

186. Topics in the Theory of Knowledge. Lecture, four hours. Prerequisite: course 182 or 183 or consent of the instructor. An intensive investigation of one or two selected topics or works in the theory of knowledge, such as: a priori knowledge, the problem of induction, memory, knowledge as justified true belief. Consult the department for topics to be treated in a given quarter. May be repeated for credit with the consent of the instructor.
Mr. Albritton, Mr. Yost

188. Philosophy of Perception. Lecture, four hours. Prerequisite: two courses in philosophy or consent of the instructor. A critical study of the main philosophical theories of perception and the arguments used to establish them. Mr. Yost

NO GROUP

190. Third World Political Thought. Lecture, three hours; discussion section, one hour. The political philosophy of various third world thinkers. The topics chosen may vary from year to year, but typically will be chosen from the following: Franz Fanon, Singhar and Cesaire's "Negritude," W.E.B. du Bois' Pan-Africanism, Che and Mao.

191. Mysticism. Lecture, three hours; discussion section, one hour. Prerequisite: one course in philosophy. A study of writings of mystics, concentrating on the phenomenology of mystical experience, epistemological problems connected with such experiences, and the relevance of such experiences for certain systems of ethics and metaphysics. Mrs. Adams

192. Philosophical Analysis of Issues in Women's Liberation. Lecture, four hours. Prerequisite: one course in Philosophy or consent of instructor. A critical study of concepts and principles which arise in the discussion of women's rights and liberation. Topics may include economic and educational equality, preferential treatment, abortion, sex roles, sexual morality, marriage, love, friendship.

193. Christian Ethical Thought. Lecture, three hours; discussion section, one hour. Reading of selected classic and contemporary authors in the Christian ethical tradition, with philosophical analysis and assessment of their views on morality and the religious life. Mr. Adams

195. 19th and 20th Century Religious Thought. Lecture, three hours; discussion section, one hour. Modern Religious Thought. A philosophical approach to Western religious thought of the last two hundred years, through study of selected works by such authors as Kant, Schleiermacher, Kierkegaard, Buber, Camus, and Tillich.
Mr. Adams

196. Undergraduate Seminar in Philosophy. Lecture, three hours; discussion, one hour. Prerequisite: consent of the instructor. Variable Topics; Consult Schedule of Classes or Department Announcements for current topic. May be repeated for credit with the consent of the instructor.
The Staff

199. Special Studies. (½ to 2 courses) Prerequisite: consent of the instructor. As many as eight units of this course can be used for the philosophy major, but the course cannot be substituted for a course in one of the four groups on the basis of similarity of subject matter. The Staff

Graduate Courses

NO GROUP

200A-200B-200C. Seminar for First Year Graduate Students. Prerequisite: open only to first-year graduate students in philosophy. Selected topics in metaphysics and epistemology, history of philosophy, and ethics. Required for all first-year graduate students. The Staff

GROUP I

201. Plato. Prerequisite: consent of the instructor. A study of the later dialogues.

202. Aristotle. Prerequisite: undergraduate preparation in the history of Greek philosophy. Analysis of major problems in Aristotle's philosophy based on the reading, exposition and critical discussion of relevant texts in English translation. Mr. Furth

203. Seminar: History of Ancient Philosophy. (Formerly numbered 251A.) Prerequisite: consent of the instructor. Selected problems and philosophers. May be repeated for credit with the consent of the instructor. Mr. Furth

206. Topics in Medieval Philosophy. Lecture/discussion, four hours. Prerequisite: consent of the instructor. The study of the philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham; or the study of a single area such as logic or theory of knowledge in several medieval philosophers. Consult the department for topic to be treated in a given quarter. May be repeated for credit with the consent of the instructor.
Mrs. Adams

207. Seminar: History of Medieval and Renaissance Philosophy. (Formerly numbered 251B.) Prerequisite: consent of the instructor. Selected problems and philosophers. May be repeated for credit with the consent of the instructor. Mrs. Adams

208. Hobbes. (Formerly numbered 203.) Prerequisite: consent of the instructor. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. Mr. Kavka

209. Descartes. Prerequisite: consent of the instructor. A study of the works of Descartes with emphasis on the *Meditations*. Such issues as the problem of scepticism, the foundations of knowledge, the existence of God, the relation between mind and body will be discussed. Concurrent scheduling with 109. Mr. Yost

210. Spinoza. Prerequisite: consent of the instructor. Selected topics in the philosophy of Spinoza. May be concurrently scheduled with course 110, in which case there will be a two hour biweekly discussion meeting for graduates only, and additional readings and a longer term paper will be required of graduates. Mr. Adams

211. Leibniz. Prerequisite: consent of the instructor. Selected topics in the philosophy of Leibniz. May be concurrently scheduled with course 111, in which case there will be a two hour biweekly discussion meeting for graduates only, and additional readings and a longer term paper will be required of graduates. Mr. Adams

212. Locke and Berkeley. Prerequisite: consent of the instructor. Selected topics in the philosophy of Locke and Berkeley. May be offered concurrently with course 112. May be repeated for credit with the consent of the instructor.
Mr. Donnellan, Mr. Hills

214. Hume. Prerequisite: consent of the instructor. Selected topics in the philosophy of Hume. May be offered concurrently with course 114. May be repeated for credit with the consent of the instructor.
Mr. Donnellan

215. Kant. (Formerly numbered 207.) Prerequisite: consent of the instructor. An intensive study of selected writings of Immanuel Kant. Mr. Hill

216. Nineteenth Century Philosophy. (Formerly numbered 211.) Prerequisite: consent of the instructor. Topics in nineteenth century philosophy. May be repeated for credit with the consent of the instructor. The Staff

219. Seminar: History of Modern Philosophy. (Formerly numbered 251C.) Prerequisite: consent of the instructor. Selected problems and philosophers. May be repeated for credit with the consent of the instructor. The Staff

GROUP II

221A. Topics in Set Theory. Prerequisites: Mathematics 112A or consent of the instructor. Sets, relations, functions, partial and total orderings; well-orderings. Ordinal and cardinal arithmetic, finiteness and infinity, the continuum hypothesis, inaccessible numbers. Formalization of set theory: Zermelo-Fraenkel; von Neumann-Gödel Theory. May be repeated for credit with the consent of the instructor. Mr. Kalish

221B. Non-Neumannian Set Theory. Prerequisites: course 221A or consent of the instructor. Standard (so-called Z-F) set theory relies on a principle of limitations of size as a means of avoiding antinomy. As this principle was first formulated explicitly as an axiom of set theory by von Neumann, set theories in which it fails may appropriately be spoken of as non-Neumannian. In this course, possibilities in regard to non-Neumannian set theories will be explored; proposed axiomatizations and relative consistency proofs based on the assumed consistency of Z-F set theory or of Z-F set theory plus a strong axiom of infinity. Mr. Church

222A-222B-222C. Gödel Theory.

222A. Prerequisites: several courses in logic, preferably including course 135. First in a series of three courses leading up to Gödel's incompleteness theorem and Tarski's definition of truth.

222B. Prerequisite: course 222A. Second-order arithmatic. Second in series of three courses leading up to Gödel's incompleteness theorem and Tarski's definition of truth.

222C. Prerequisites: courses 222A and 222B. Gödel numbering and Gödel theory. Final course in the Gödel Theory series. Mr. Church

224. Philosophy of Physics. Prerequisite: consent of the instructor. Selected philosophical topics related to physical theory, depending on interests and background of the participants. Might include: space and time; observation in quantum mechanics; foundations of statistical mechanics. May be repeated for credit with the consent of the instructor.

225. Probability and Inductive Logic. Prerequisite: course 134 or Mathematics 112A-112B or consent of the instructor.

226. Topics in Mathematical Logic. Prerequisite: consent of the instructor. Content will vary from quarter to quarter. Consult the department for topic to be treated in a given quarter. May be repeated for credit with the consent of the instructor.
Mr. Kalish, Mr. Kaplan

227. Philosophy of Social Science. Prerequisite: consent of the instructor. An examination of philosophical problems concerning concepts and methods used in the social sciences. Topics considered may include: the relation between social processes and individual psychology, the logic of explanation in the social sciences, determinism and spontaneity in history, the interpretation of cultures radically different from one's own. Students with a primary interest, and advanced preparation, in a social science are encouraged to enroll. May be repeated for credit with the consent of the instructor. The Staff

230. Seminar: Logic. (Formerly numbered 261.) Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor. Mr. Church, Mr. Kaplan

231. Seminar: Intensional Logic. (Formerly numbered 260.) Prerequisite: consent of the instructor. Topics may include the logic of sense and denotation, modal logic, the logic of demonstratives, epistemic logic, the intensional logic of *Principia Mathematica*, possible worlds semantics. May be repeated for credit with the consent of the instructor. Mr. Church, Mr. Kaplan

232. Philosophy of Science. Prerequisite: consent of the instructor. Selected topics in the philosophy of science. May be repeated for credit with the consent of the instructor.

233. Seminar: Philosophy of Physics. (Formerly numbered 263.) Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor. The Staff

GROUP III

241. Topics in Political Philosophy. (Formerly numbered 236.) Prerequisites: courses 150, 156, or 157; or any two courses in philosophy; or consent of the instructor. An examination of one or more topics in political philosophy; e.g., justice, democracy, human rights, political obligation, alienation. May be repeated for credit with the consent of the instructor.

245. Seminar: History of Ethics. (Formerly numbered 270.) Prerequisite: consent of the instructor. Selected topics. May be repeated for credit with the consent of the instructor. Mr. Hill

246. Seminar: Ethical Theory. (Formerly numbered 271.) Prerequisite: consent of the instructor. Selected topics. Content will vary from quarter to quarter. May be repeated for credit with the consent of the instructor. Mr. Hill, Mr. Kavka, Mr. Quinn

247. Seminar: Political Theory. (Formerly numbered 272.) Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor. Mr. Boxill, Mr. Kavka

248. Problems in Moral Philosophy. (Formerly numbered 273.) Prerequisite: consent of the instructor. An intensive study of some leading current problems in moral philosophy. May be repeated for credit with the consent of the instructor. Mrs. Foot

255. Seminar: Aesthetic Theory. (Formerly numbered 277.) Prerequisite: consent of the instructor. Selected topics. May be repeated for credit with the consent of the instructor. Mr. Quinn

M256. Topics in Legal Philosophy. (Same as Law M256.) Prerequisite: consent of the instructor. An examination of topics such as the concept of law, the nature of justice, problems of punishments, legal reasoning, and the obligation to obey the law. For the specific topic to be examined in any particular offering of the course consult the instructor. The course may be repeated for credit with the consent of the instructor. Mr. Morris, Mr. Wasserstrom

M257. Seminar: Philosophy of Law. (Same as Law M307.) Prerequisite: consent of the instructor. Selected topics in the philosophy of law. May be repeated for credit with the consent of the instructor. Mr. Morris, Mr. Wasserstrom

GROUP IV

275. Human Action. (Formerly numbered 241.) Prerequisites: two upper division philosophy courses or consent of the instructor. An examination of theories, concepts and problems concerning human actions. Topics might include; analysis of intentional actions; determinism and freedom; the nature of explanations of intentional actions. May be repeated for credit with the consent of the instructor. Mr. Albritton, Mr. Donnellan, Mr. Kavka

280. 20th Century Continental Philosophy. Prerequisite: consent of the instructor. Selected topics in 20th century continental European philosophy. May be repeated for credit with the consent of the instructor.

281. Seminar: Philosophy of Mind. Prerequisite: consent of instructor. May be repeated for credit with the consent of the instructor. Mr. Burge

282. Seminar: Metaphysics. Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor.

283. Seminar: Theory of Knowledge. Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor. Mr. Donnellan

284. Seminar: Philosophy of Perception. Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor.

285. Philosophy of Psychoanalysis. Prerequisite: consent of instructor. An examination of topics such as the nature and validity of psychoanalytic explanations and interpretations, psychoanalysis and language, metapsychological concepts such as the unconscious, the ego, id, superego, defense mechanisms, and the psychoanalytic conception of human nature. Mr. Morris

286. Philosophy of Psychology. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of theory of syntax; behaviorism, functionalism and alternatives; physiology and psychology. Mr. Burge

287. Seminar: Philosophy of Language. Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor. Mr. Burge, Mr. Donnellan, Mr. Furth

288. Seminar: Wittgenstein. Prerequisite: consent of the instructor. Mr. Albritton

289. Seminar: Philosophy of Religion. Prerequisite: consent of the instructor. May be repeated for credit with the consent of the instructor. Mr. Adams, Mrs. Adams, Mr. Albritton

Professional Course

495. Teaching of College Philosophy. (½ to 1 course) Prerequisite: consent of the instructor. Seminars, workshops, and apprentice teaching. Selected topics including evaluation scales, various teaching strategies and their effects, and other topics in college teaching. May be repeated for credit. Graded only on a satisfactory/unsatisfactory basis. The Staff

Individual Study and Research

The courses in the 500 series do not apply toward the course requirement for the master's degree.

596A-596B. Directed Individual Studies. (½ to 2 courses) Any properly qualified graduate student who wishes to pursue a problem through reading or advanced study may do so if his proposed project is acceptable to a member of the staff. May be repeated for credit. Course 596A offered only on a graded basis; 596B only on a satisfactory/unsatisfactory basis. The Staff

599. Research for Doctoral Dissertation. (½ to 2 courses) Prerequisite: advancement to candidacy for the doctoral degree. May be repeated for credit. Offered on a satisfactory/unsatisfactory basis only. The Staff

PHYSICS

(Department Office, 3174 Knudsen Hall)

Ernest S. Abers, Ph.D., *Professor of Physics.*
Rubin Braunstein, Ph.D., *Professor of Physics.*
Nina Byers, Ph.D., *Professor of Physics.*
Marvin Chester, Ph.D., *Professor of Physics.*
W. Gilbert Clark, Ph.D., *Professor of Physics.*
John M. Cornwall, Ph.D., *Professor of Physics.*
John Dawson, Ph.D., *Professor of Physics.*
Robert J. Finkelstein, Ph.D., *Professor of Physics.*
A. Theodore Forrester, Ph.D., *Professor of Physics and Engineering.*
Burton Fried, Ph.D., *Professor of Physics.*
Christian Fronsdal, Ph.D., *Professor of Physics.*
Roy P. Haddock, Ph.D., *Professor of Physics.*
Theodore Holstein, Ph.D., *Professor of Physics.*
George J. Igo, Ph.D., *Professor of Physics.*
[17]Charles Kennel, Ph.D., *Professor of Physics.*
[17]Leon Knopoff, Ph.D., *Professor of Physics and Geophysics and Earth and Space Sciences.*
Steven A. Moszkowski, Ph.D., *Professor of Physics.*
Bernard M. K. Nefkens, Ph.D., *Professor of Physics.*
Richard E. Norton, Ph.D., *Professor of Physics.*
Raymond L. Orbach, Ph.D., *Professor of Physics.*
Philip A. Pincus, Ph.D., *Professor of Physics.*
J. Reginald Richardson, Ph.D., *Professor of Physics.*
Isadore Rudnick, Ph.D., *Professor of Physics.*
J. J. Sakurai, Ph.D., *Professor of Physics.*
Robert A. Satten, Ph.D., *Professor of Physics.*
David S. Saxon, Ph.D., *Professor of Physics.*
Peter Schlein, Ph.D., *Professor of Physics.*
Julian Schwinger, Ph.D., *Professor of Physics.*
William E. Slater, Ph.D., *Professor of Physics.*
Donald H. Stork, Ph.D., *Professor of Physics.*
Harold K. Ticho, Ph.D., *Professor of Physics.*
Alfred Y. Wong, Ph.D., *Professor of Physics.*
Chun Wa Wong, Ph.D., *Professor of Physics.*
Eugene Wong, Ph.D., *Professor of Physics.*
Byron T. Wright, Ph.D., *Professor of Physics.*
Alfredo Baños, Jr., Dr.Eng., Ph.D., *Emeritus Professor of Physics.*
Hans E. Bommell, Ph.D., *Emeritus Professor of Physics.*
Joseph Kaplan, Ph.D., Sc.D., L.H.D., *Emeritus Professor of Physics.*
Kenneth R. MacKenzie, Ph.D., *Emeritus Professor of Physics.*
Norman A. Watson, Ph.D., *Emeritus Professor of Physics.*
Charles D. Buchanan, Ph.D., *Associate Professor of Physics.*
Paul M. Chaikin, Ph.D., *Associate Professor of Physics.*
Ferdinard V. Coroniti, Ph.D., *Associate Professor of Physics and Astronomy.*
Seth J. Putterman, Ph.D., *Associate Professor of Physics.*
Reiner Stenzel, Ph.D., *Associate Professor of Physics.*
Charles A. Whitten, Jr. Ph.D., *Associate Professor of Physics.*
Claude Bernard, Ph.D., *Assistant Professor of Physics.*
Gary A. Williams, Ph.D., *Assistant Professor of Physics.*

•

S. Merton Burkhard, M.S., *Lecturer in Physics.*

Preparation for the Major in Physics

Required: Physics 8A-8E; Chemistry 11A-11B-11BL and 11C required; Chemistry 11CL is recommended but not required; Mathematics 31A-31B-31C, 32A-32B-32C.

The Major in Physics†

†A mimeographed brochure giving more detailed information than is contained in this bulletin is obtainable from the Office of Undergraduate Affairs, Department of Physics.

The following courses are required: Physics 105A, 105B, 110A, 110B, 112A, 115A, 115B, 131A, three courses from the Physics 180 series; three additional upper division physics lecture courses selected from Physics 108, 112B, 114, 122, 123, 124, 126, 131B and 140. An upper division course in Mathematics may be substituted for Physics 131B *upon approval of an adviser.* A "C" average is required in the above courses. A reading knowledge of Russian, German or French is recommended. This major leads to the Bachelor of Science degree. Junior transfer students should preferably have completed 1) a two year calculus-analytic geometry sequence or equivalent and 2) the calculus based physics course at their previous college, but in no case should less than 3 semesters or 4 quarters of the mathematics and 1 year of the physics sequence be completed before transferring to UCLA. At least C grades in all mathematics and physics courses taken are required.

Students preparing for graduate school should take additional courses in physics and mathematics. Physics 122, 123, 124, 126, 131B, and 140 are recommended.

The Major in General Physics

This major leads to the degree "B.A. in General Physics." It is intended to provide the necessary flexibility for those students who are interested in fields which can benefit from a strong background of knowledge of physics. Those students who intend to continue work in the Ph.D. in physics are advised to work for the B.S. in physics as described under the "Major in Physics." The course requirements for the B.A. in General Physics are as follows: Physics 105A, 110A, 110B, 112A, 115A, 131A, one course from the 180 series, two upper division physics electives (excluding 185, and 199), and five upper division courses in no more than two departments other than physics. A "C" average in the upper division physics courses is required.

Teaching Credentials

Students may earn credentials for teaching physical sciences and other subjects in California elementary and secondary schools. Some majors are more advantageous than others for professional preparation. Completion of the Teacher Credential Program in the Teacher Education Laboratory is required. Consult with the Graduate School of Education (201 Moore Hall) for information.

Requirements for the Degree of Master of Science †

†A brochure giving additional information of interest to graduate students in physics is obtainable from the Office of Graduate Affairs, Department of Physics.

Prescribed Courses. The University requires a total of nine courses for the M.S. degree. The Physics Department requires that a minimum of six of the nine be graduate courses in physics of which the student must pass any four of the five fundamental courses: 231A, 220, 210A, 215A, and 221A. The remaining three courses may be satisfied by upper division or graduate courses, not necessarily in physics, which are acceptable to the Physics Department. No more than two of the three courses may be chosen from Physics 596 or seminar courses. Physics 597 and Physics 598 are not acceptable courses for the M.S. degree.

Comprehensive Examination. A passing grade on a written comprehensive examination is required. It is required that it be taken during the first year by UCLA graduates in physics or not later than the fourth quarter of residence by other students. This examination is given twice a year in the Fall and Spring Quarters.

Although this Department operates under the "comprehensive examination plan," rather than the "thesis plan," arrangements generally can be made for a student to write a master's thesis, provided he/she has a particularly interesting research problem, and provided some professor is willing to undertake the guidance of his/her work. In this case the student must petition the Departmental Committee of Graduate Advisers for permission to pursue the "thesis plan." The comprehensive examination requirement is waived if the petition is approved.

Scholarship Requirements. A B average is required in physics as well as an overall B average in all courses taken in graduate status.

The Master of Arts, Teaching (M.A.T.) Degree

This degree leads to qualification for teaching credentials at the secondary school or junior college level. The program consists of at least five graduate physics courses, four of which are chosen from 231A, 220, 215A, 210A, or 221A; five additional graduate or upper division courses in physics and education; and a special physics teaching laboratory, Physics 370. For those who have not completed credential requirements, the five additional courses will include Education 100 or 112, 312, 315, and 330 (supervised teaching at the secondary or junior college level). In addition, the student must pass a comprehensive physics examination. A brochure which describes the program is available on request to the Department of Physics.

Requirements for the Degree of Doctor of Philosophy †

For the general requirements see the Graduate Division. The qualifying examinations for candidates for the Ph.D. degree in physics include (1) a written comprehensive examination; (2) the final written examinations in each of the courses 220, 210B, 221A, 215A, and 231A; (3) a comprehensive departmental oral examination; and (4) a qualifying oral examination in the student's chosen field conducted by a committee appointed by the Graduate Council upon nomination by the Department Chairman. The same committee guides the candidate's research, approves his dissertation, and conducts a final examination.

The list of required courses is currently under review. Students entering the graduate program during 1979-80 should consult an advisor concerning changed requirements.

Normal Progress for Graduate Students. The normal schedule of progress toward the Ph.D. degree is as follows: the written comprehensive examination should be taken by the fourth quarter in residence at UCLA; examinations in the five fundamental courses should be completed no later than the end of the fifth quarter; a specialized course of study should begin during the second year; the comprehensive oral examination should be completed no later than the eighth quarter, and the oral qualifying examination (advancement to candidacy) no later than the end of the eleventh quarter; the dissertation and final oral examination should be finished during the fourth and fifth years.

Lower Division Courses

Physics 1Q, Contemporary Physics, is intended for entering freshmen physics majors, and will normally be taken in the first quarter of residence. There are no course prerequisites. Although it is not a required course or a part of or prerequisite to any general physics sequence of courses, it serves a purpose which general introductory courses do not fulfill adequately, if at all, namely to indicate the nature of current research problems in physics.

Physics 8A-8E form a sequence of courses in general physics for majors in physics. All or part of the sequence is also required or recommended as first choice for major students in: astronomy, atmospheric sciences, chemistry, engineering, geology, mathematics, and certain interdepartmental fields of concentration. Physics 8A-8E covers (at a slower pace) the material formerly covered in 7A-7D.

Physics 8AH-8DH is an honors sequence intended for students with an outstanding record in high school science courses and a deep interest in physics. This sequence covers the same material as the Physics 8A-8D sequence but in greater depth.

The Department desires to take into account prior preparation in physics. Students who feel their background would permit acceleration may be exempted from courses 8A-8E, by taking the final examination with a class at the end of any quarter. These will serve as placement examinations. Qualified students are urged to discuss such possibilities with their advisers.

Physics 3A-3B-3C form a one-year sequence of courses in general physics (with laboratory) primarily for students in the biological and health sciences but open to any student who meets the prerequisites. In this sequence only algebra and trigonometry are used in providing a mathematical description of physical phenomena: calculus is not used.

Physics 6A-6B-6C form a one-year sequence of courses in basic physics for students in the biological and health sciences. However, unlike Physics 3A-3B-3C, calculus is used throughout and satisfactory completion of basic calculus courses is a prerequisite for admission to this sequence. Individual departments will, on an individual basis, advise students as to which physics sequence is required for each major. After an interim period, it is expected that all biology and bacteriology majors will be required to complete the physics 6A-6B-6C sequence.

Physics 10 is a one-quarter, non-laboratory course which surveys the whole field of physics. It is designed for the liberal arts student and satisfies in part the College of Letters and Science E requirement in the Physical Sciences for non-physical science majors. Any two or more courses from Physics 10, 3A, 6A, and 8A shall be limited to six units credit.

Lower Division Courses

1Q. Contemporary Physics. (½ course) Prerequisite: a major in physics. A review of current problems in physics with emphasis on those being studied in our research laboratories at UCLA. The significance of the problems and their historical context. (F)

3A. General Physics: Mechanics of Solids and Fluids. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: three years of high school mathematics including trigonometry, or two years of high school mathematics and a one-term college course in mathematics with trigonometry included in the group of courses; or the equivalent courses. Physics 3A is not open for credit to students who have credit for Physics 8A or the equivalent. The fundamentals of classical mechanics: Newton's Laws; conservation of momentum, angular momentum, energy; Kepler's Laws; dynamics of systems of particles; fluid mechanics. (F,W)

3B. General Physics: Heat, Sound and Electricity and Magnetism. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 3A or equivalent. Temperature, heat and the laws of thermodynamics. Introduction to wave motion, resonance. Sound and acoustics. Electric and magnetic fields. Electric power. Elements of DC and AC circuits. (W,Sp)

3C. General Physics: Light, Relativity, and Modern Physics. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 3B or equivalent. Light, optical instruments. Introduction to relativity. The electron and the atom. Matter waves. Nuclear and particle physics. (F,Sp)

6A. Physics for Life Science Majors: Mechanics and Wave Motion. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: Mathematics 3A, 3B and 3C or the equivalent. Mathematics 3C may be taken concurrently. (F,W)

6B. Physics for Life Science Majors: Electricity and Magnetism. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: Physics 6A. (W,Sp)

6C. Physics for Life Science Majors: Light and Modern Physics. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 6B. (F,W)

8A. General Physics: Mechanics of Solids. (Formerly numbered 7A.) Lecture and demonstration, four hours; discussion, one hour. Prerequisites: high school physics or chemistry, preferably both; Mathematics 31A completed and 31B concurrent with Physics 8A; or equivalent courses. (F,W,Sp)

8AH. General Physics: Mechanics of Solids-Honors Sequence. Lecture and demonstration, four hours; discussion, one hour. This course, intended for students with an outstanding record in high school science courses and a deep interest in physics, covers the same material as Physics 8A but in greater depth. Prerequisites: Mathematics 31A (or preferably 31AH) completed and 31B (or preferably 31BH) concurrent with Physics 8AH; or

equivalent courses. Enrollment in Physics 8AH rather than 8A is left to the judgment of the student. In case of doubt, consult the instructor scheduled to give the course.

8B. General Physics: Vibration, Wave Motion, Sound, Fluids, Heat, and Kinetic Theory. (Formerly numbered 7C.) Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8A; Mathematics 31B completed and 31C concurrent with Physics 8B; or equivalent courses. (F,W,Sp)

8BH. General Physics: Vibration, Wave Motion, Sound, Fluids, Heat, and Kinetic Theory-Honors Sequence. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. This course covers the same material as 8B but in greater depth. Prerequisites: course 8AH, or course 8A with a grade of A, or the recommendation of the 8A instructor; Mathematics 31B (or preferably 31BH) completed and 31C (or preferably 31CH) concurrent with 8BH; or equivalent courses. (Sp)

8C. General Physics: Electricity and Magnetism. (Formerly numbered 7B.) Lecture and demonstration, four hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8B; Mathematics 31A completed and 32A concurrent with Physics 8C. (F,W,Sp)

8CH. General Physics: Electricity and Magnetism—Honors Sequence. Lecture and demonstration, four hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8BH, or course 8B with a grade of A, or the recommendation of the 8B instructor; Mathematics 31C (or preferably 31CH) completed and 32A (or preferably 32AH) concurrent with Physics 8CH; or consent of the instructor. (F)

8D. General Physics: Electromagnetic Waves, Light, and Relativity. (Formerly numbered 7D.) Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8C; Mathematics 32A completed and 32B concurrent with Physics 8D; or equivalent courses. (F,W,Sp)

8DH. General Physics: Electromagnetic Waves, Light, and Relativity—Honors Sequence. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. This course covers the same material as 8D but in greater depth. Prerequisites: course 8CH, or course 8C with a grade of A, or the recommendation of the 8C instructor; Mathematics 32A (or preferably 32AH) completed and 32B (or preferably 32BH) concurrent with 8DH; or the consent of the instructor. (W)

8E. General Physics: Modern Physics. Lecture and demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8D; Mathematics 32B completed and 32C concurrent with Physics 8E; or equivalent courses. (F,W,Sp)

10. Physics. Lecture and demonstration, three hours; quiz and discussion, one hour. No special mathematical preparation is required beyond that necessary for admission to the University with Freshman standing. This course satisfies in part the College of Letters and Science requirements in the physical sciences for non-physical science majors. Topics will be selected from: Planetary motion, Newton's Laws, gravitation, electricity and magnetism, wave motion, light, sound and heat, relativity, quantum mechanics, atoms, and subatomic particles. As time permits, the development of physical ideas will be placed in their cultural and historical perspective. (F,W,Sp)

11. Modern Physics for Non-Science Majors. Prerequisite: course 10. A sequel to course 10. Lecture and demonstration, three hours; quiz and discussion one hour. Topics will be selected from: the concept of energy, quantum theory, nuclear physics, relativity.

Upper Division Courses

Prerequisite for all upper division courses: Physics 8A 8E; Mathematics 31A-31B-31C, 32A-32B, and (except for Physics 105A and 116) 32C; or consent of the instructor. Students must complete one quarter of upper division physics before enrolling in the 180 laboratory series.

105A. Analytic Mechanics. Newtonian mechanics and conservation laws, gravitational potentials, calculus of variations, Lagrangian and Hamiltonian mechanics, central force motion, linear oscillations.

105B. Analytic Mechanics. Prerequisite: course 105A. Relativity with four-vectors, non-intertial reference frames, dynamics of rigid bodies, coupled oscillators, normal modes of oscillation, vibrating strings, and wave propagation.

108. Optical Physics. Prerequisite: course 110B. Interaction of light with matter; dispersion theory, oscillator strength, line widths, molecular scattering. Coherence theory, Kirchhoff formulation of diffraction theory, crystal optics, optical rotation, electro and magneto optical effects. Additional topics of fundamental or current interest.

110A. Electricity and Magnetism. Prerequisite: course 131A. Electrostatics and magnetostatics.

110B. Electricity and Magnetism. Prerequisite: course 110A. Faraday's law and Maxwell's equations. Propagation of electromagnetic radiation. Multipole radiation and radiation from an accelerated charge. The special theory of relativity.

112A. Thermodynamics. Fundamentals of thermodynamics including the first, second, and third laws. The statistical mechanical point of view and its relation to thermodynamics. Some simple applications of the foregoing.

114. Mechanics of Wave Motion and Sound. Vibrating systems and wave propagation in gases, liquids and solids including elements of hydrodynamics and elasticity. Applications in ultrasonics, low temperature physics, solid state physics, architectural acoustics.

115A. Elementary Quantum Mechanics. Prerequisite: course 131A and 105B (the latter may be taken concurrently). The classical background, basic ideas and methods of quantum mechanics.

115B. Elementary Quantum Mechanics. Prerequisite: course 115A. Development of the methods and concepts of quantum mechanics.

115C. Elementary Quantum Mechanics. Prerequisite: course 115B. Further development in the methods and concepts of quantum mechanics.

116. Electronics. Three hours of lecture and three hours of laboratory. Alternating current circuits, vacuum tube characteristics and parameters, transistor characteristics and parameters, amplifiers, oscillators, non-linear tube and transistor circuits.

M122. Plasma Physics. Engineering 110B or Physics 110A. Senior level introductory course to physics of plasmas and ionized gases and fundamentals of controlled fusion. Particle motion in magnetic fields; fluid behavior, plasma waves; resistivity and transport; equilibrium and stability; kinetic effects. Illustrative laboratory experiments will be discussed.

123. Atomic Structure. (Formerly numbered 113.) Prerequisite: course 115B. The theory of atomic structure. Interaction of radiation with matter.

124. Nuclear Physics. Prerequisite: course 115A. Nuclear charge, mass, radius, spin, and moments; nuclear models; nuclear forces; alpha, beta, and gamma emission.

126. Elementary Particle Physics. Prerequisite: course 115B. Experimental determination of the properties of elementary particle states. Relativistic kinematics and phase space; angular momentum and isotopic spin formalism; elastic and inelastic scattering; invariance principles and conservation laws; strong, electromagnetic, and weak interactions. Survey of important experiments.

131A. Mathematical Methods of Physics. Matrix algebra and eigenvalue problems, vector differential operators and curvilinear coordinates, ordinary and partial differential equations, special functions, Sturm-Liouville Problem, Fourier series and integrals.

131B. Mathematical Methods of Physics. Prerequisite: course 131A. Green's functions and boundary value problems, complex variables and selected topics from: Tensors, Laplace transforms, probability theory, perturbation theory, approximation techniques.

140. Introduction to Solid State Physics. Prerequisite: course 115B or equivalent. Introduction to the basic theoretical concepts of solid state physics with applications. Crystal symmetry; cohesive energy; diffraction of electron, neutron, and electromagnetic waves in a lattice; the reciprocal lattice; phonons and their interactions; free electron theory of metals; energy bands.

***14 180A. Nuclear Physics Laboratory.**

***14180B. Physical Optics and Spectroscopy Laboratory.**

***14180C. Solid State Physics Laboratory.**

***14180D. Acoustics Laboratory.**

***14180E. Plasma Physics Laboratory.**

***14180F. Elementary Particle Physics Laboratory.**

***4185. Foundations of Physics.** Prerequisite: senior standing in physics or consent of the instructor. The historical development and philosophical sources of classical and modern physics.

199. Special Studies in Physics. (½ to 1 course) May be repeated, but not more than three courses may be applied toward the bachelor's degree.

Graduate Courses

210A. Electromagnetic Theory. Boundary value problems in electrostatics and magnetostatics. Multipole expansions; dielectrics and macroscopic media. Maxwell's equations and conservation laws. Wave guides and resonators; simple radiating systems.

210B. Electromagnetic Theory. The electromagnetic potentials and the Hertz vectors. Cylindrical waves. Spherical waves. The Debye potentials. Multipole radiation. Classical relativistic electrodynamics. Radiation from moving charges.

***4213A. Advanced Atomic Structure.** Group representation theory. Angular momentum and coupling schemes. Interaction of radiation with matter.

***4213B. Advanced Atomic Structure.** The n-j symbols, continuous groups, fractional parentage coefficients, n electron systems.

***4213C. Molecular Structure.** Application of group theory to vibrational and electronic states of molecules. Molecular orbital theory. Raman effect. Angular momentum and coupling in molecules.

***4214A. Advanced Acoustics.** Propagation of waves in elastic and fluid media. Reflection, refraction, diffraction, and scattering of waves in fluids. Attenuation mechanisms in fluids.

***4214B. Advanced Acoustics.** Propagation in nonhomogeneous fluids and in moving fluids. Radiation pressure, acoustic streaming, and attenuation in large amplitude sound fields. Propagation of sound in liquid helium. Mechanisms resulting in attenuation for elastic waves in solids.

215A. Statistical Physics. Thermodynamics and statistical mechanics with applications.

215B. Nonequilibrium Statistical Mechanics. Probability theory, Markov Processes, equations of change, BBGKY hierarchy and its consequences, Boltzmann equation, Chapman-Enskog method, transport coefficients, fluctuation-dissipation theorems, density matrix, H-theorems.

215C. Quantum Statistical Mechanics and the Many Body Problem. Classical Methods for interacting systems; quantum field theory techniques in statistical mechanics; Green's-function approach; the Coulomb gas; the imperfect Bose gas; electron-phonon interaction; superconductivity; phase transitions; theory of Fermi liquid.

NOTE: For key to symbols, see page 74

220. Foundations of Classical and Quantum Mechanics. (Formerly numbered 220A.) An integrated presentation of the foundations of classical and quantum mechanics.

221A. Quantum Mechanics with Applications. Prerequisite: course 220 or consent of the instructor. Quantum Mechanics with applications. Rotations and other symmetry operations, perturbation theory, scattering theory.

221B. Quantum Mechanics with Applications. Prerequisite: course 221A. Formal theory of collision processes. Introduction to relativistic quantum mechanics.

221C. Quantum Mechanics. Continuation of nonrelativistic quantum mechanics.

222A-222B-222C. Plasma Physics. Properties of a Coulomb gas, with and without a magnetic field: equilibrium, oscillations, instabilities, fluctuations, collective phenomena, transport properties, and radiation. Description via single-particle orbit theory, magnetohydrodynamics, and kinetic equations of various types.

***4223. Advanced Classical Mechanics.** (Formerly numbered 220B.) Prerequisite: course 220. Topics such as nonlinear mechanics, ergodic theory, mechanics of continuous media.

224. Introduction to the Strong Interaction. Evidence concerning the strong interaction, particularly as exemplified in nucleon-nucleon and pion-nucleon systems. Isospin, the scattering matrix, the density matrix and polarization, the properties of pions, the one pion exchange potential, phase shift analysis.

225A. Advanced Nuclear Physics. An advanced course in the structure of complex nuclei, nuclear models, and nuclear reactions. Normally preceded by course 224.

225B. Advanced Nuclear Physics. Nuclear beta decay, neutrino experiments, parity violation, conserved vector current theory, interaction between nucleons and the electromagnetic field.

226A-226B. Elementary Particle Physics. Prerequisites: courses 221A, 221B, 224, concurrent enrollment in 230 recommended. Relativistic kinematics and phase space. Survey of elementary particle masses and lifetimes. Quantum number determination. Relativistic S-matrix. C, P, and T invariance. Weak interaction theory; decay rate and cross section calculations. Continuous symmetries and guage theories. Electromagnetic structure of hadrons. Deep inelastic lepton scattering, SU (3); the quark model. Charm and higher symmetries; e^+e^- annihilations. Theory and phenomenology of high-energy hadron-hadron collisions.

230A-230B-230C. Relativistic Quantum Theory. Quantum electrodynamics, general quantum field theory, S-matrix theory.

231A. Methods of Mathematical Physics. Students may not receive credit for both Physics 231A and Mathematics 266A. Linear operators, review of functions of a complex variable, integral transforms, partial differential equations.

231B. Methods of Mathematical Physics. Students may not receive credit for both Physics 231B and Mathematics 266B. Ordinary differential equations, partial differential equations, and integral equations. Calculus of variations.

231C. Methods of Mathematical Physics. Students may not receive credit for both Physics 231C and Mathematics 266C. Perturbation theory. Singular integral equations. Numerical methods.

***4232A-232B. Relativity.** The special and general theories with applications to elementary particles and astrophysics.

232C. Special Topics in General Relativity.

233. Introduction to High Energy Astrophysics. Introductory lectures on modern high energy astrophysics. High energy radiation processes. Neutron stars. Pulsars. X-ray sources. Black holes. Supermassive rotators and Quasars.

235. Group Theory and Quantum Mechanics. Prerequisite: course 221A. Group representation theory and applications to the quantum mechanics of atoms, molecules, and solids.

241A. Solid State Physics. Prerequisites: courses 215A, 221A and 140. Symmetry, free electrons, electrons in a periodic potential, experimental measurement of band structure and Fermi surface parameters, cohesive energy, lattice vibrations, thermal properties.

241B. Solid State Physics. Prerequisite: course 241A. Transport theory with applications, electron-electron interactions.

241C. Solid State Physics. Prerequisites: course 241B. Semiconductors, magnetism, phase transitions, superconductivity.

242A-242B. Advanced Solid State Theory. Prerequisites: courses 241A-241B-241C (may be taken concurrently). Many body methods in solid state physics.

260. Seminar-Problems in Plasma Physics.

261. Seminar in Special Problems in Theoretical Physics.

262. Seminar in Physics of the Solid State.

264. Seminar in Advanced Physical Acoustics.

266. Seminar in Propagation of Waves in Fluids.

268. Seminar in Spectroscopy.

269A. Seminar in Nuclear Physics.

269B. Seminar in Elementary Particle Physics.

***4284. Advanced Laboratory in Acoustics and Cryogenics.** Selected advanced experiments in acoustics and cryogenics designed to train the student in the techniques and instrumentation used in acoustic research and low temperature physics.

290. Research Tutorial in Plasma Physics. (½ or 1 course) Seminars and discussion by staff and students, directed toward problems of current research interest in the plasma physics group, both experimental and theoretical. Each graduate student doing research in plasma physics will be required to take three quarters of Physics 290, ordinarily during his second or third year. May be repeated for credit.

291. Research Tutorial in Elementary Particle Theory. (½ or 1 course) Prerequisite: courses 226A, 230A, and 230B. Seminars and discussion by staff, postdoctoral fellows, and graduate students enrolled in this course. Each graduate student doing research in elementary particle theory is required to take this course, ordinarily in his second or third year of study. May be repeated for credit.

292. Research Tutorial in Spectroscopy, Low Temperature, and Solid State Physics. (½ or 1 course) Seminars and discussion by staff and students on problems of current research interest in spectroscopy, low temperature, and solid state physics. Each graduate student doing research in these fields is required to take this course, ordinarily during his second or third year. May be repeated for credit.

295. Research Tutorial in Solid Earth Physics. (½ or 1 course) Seminars and discussions in solid earth physics. Each physics graduate student doing research in solid-earth physics is required to take this course, or Physics 292 if appropriate, ordinarily in his second or third year of study. May be repeated for credit.

298. Research Tutorial in Experimental Elementary Particle Physics. (½ or 1 course) Seminars and discussions by staff and students on current problems in experimental elementary particle physics. Each graduate student doing research in this field is required to take this course students, ordinarily during his second or third year. May be repeated for credit. Enrollment limited to six students.

299. Research Tutorial in Nuclear Physics. (½ or 1 course) Seminars and discussions in nuclear physics by staff and students, in both experiment and theory. Each graduate student doing research in nuclear physics is required to take this course, ordinarily during his second or third year. May be repeated for credit.

Professional Course in Method

370. The Teaching of Physics. Prerequisite: consent of the instructor. A study of the physics laboratory experiments and demonstrations available today for secondary school and community college physics courses. This course is part of the Master of Arts, Teaching (M.A.T.) program, but is open to other interested students also.

Individual Study and Research

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be Graded S/U.

598. Directed Individual Studies. (½ to 2 courses)

597. Preparation for Master's Comprehensive Examinations and Doctoral Qualifying Examinations.

598. Master's Thesis Research and Writing.

599. Doctoral Research and Writing. (2 to 3 courses)

PHYSIOLOGY

(Department Office, 53-247 Center for the Health Sciences)

Francisco J. Bezanilla, Ph.D., *Professor of Neuroscience in Physiology.*
Allan J. Brady, Ph.D., *Professor of Physiology.*
Jennifer S. Buchwald, Ph.D., *Professor of Physiology.*
Michael H. Chase, Ph.D., *Professor of Physiology in Residence.*
Sergio Ciani, Ph.D., *Professor of Physiology.*
Jared M. Diamond, Ph.D., *Professor of Physiology.*
George Eisenman, M.D., *Professor of Physiology.*
Alan D. Grinnell, Ph.D., *Professor of Physiology and Biology.*
Morton I. Grossman, M.D., Ph.D., *Professor of Physiology and Medicine.*
Susumu Hagiwara, M.D., Ph.D., *Professor of Physiology and Dr. Eleanor I. Leslie Professor of Neuroscience.*
Glenn A. Langer, M.D., *Castera Professor of Cardiology in Physiology and Medicine (Vice Chairman of the Department).*
Wilfried F.H.M. Mommaerts, Ph.D., *Professor of Physiology and Medicine (Chairman of the Department).*
Gordon Ross, M.D., *Professor of Physiology and Medicine.*
Ralph R. Sonnenschein, M.D., Ph.D., *Professor of Physiology.*
John Mc D. Tormey, M.D., *Professor of Physiology.*
Bernice M. Wenzel, Ph.D., *Professor of Physiology and Psychiatry.*
Ernest M. Wright, D.Sc., *Professor of Physiology.*
Earl Homsher, Ph.D., *Associate Professor of Physiology.*
Arthur Peskoff, Ph.D., *Adjunct Associate Professor of Physiology and Biomathematics.*
Brian Whipp, Ph.D., *Associate Professor of Physiology and Medicine.*
Joy Frank, Ph.D., *Adjunct Assistant Professor of Physiology.*
Sally Krasne, Ph.D., *Assistant Professor of Physiology.*
Michael S. Letinsky, Ph.D., *Assistant Professor of Physiology.*
Julio Vergara, Ph.D., *Assistant Professor of Physiology.*

•

Hiroharu Noda, M.D., Ph.D., *Adjunct Professor of Anatomy and Physiology.*
William D. Odell, M.D., Ph.D., *Professor of Medicine and Physiology in Residence.*
Daniel H. Simmons, M.D., Ph.D., *Professor of Medicine and Physiology.*
Maria W. Seraydarian, Ph.D., *Professor of Nursing.*

•

Mary A.B. Brazier, Ph.D., D.Sc., *Emeritus Professor of Anatomy and Physiology in Residence.*
Charles Code, M.D., Ph.D., *Emeritus Professor of Medicine and Physiology in Residence.*
John Field, Ph.D., *Emeritus Professor of Medical History and Physiology.*
Victor E. Hall, M.D., *Emeritus Professor of Physiology.*
Douglas Junge, Ph.D., *Associate Professor of Oral Biology and Physiology.*

Donald B. Lindsley, Ph.D., *Emeritus Professor of Psychology and Physiology.*
Eduardo H. Rubinstein, M.D., Ph.D., *Professor of Anesthesiology and Physiology in Residence.*
Oscar U. Scremin, M.D., *Lecturer in Physiology.*
Jesse O. Washington, D.V.M., *Lecturer in Physiology.*

Admission to Graduate Status

Candidates for admission to graduate status in the Department of Physiology must conform to the general admission requirements set by the Graduate Division and have received the bachelor's degree in a biological or physical science or in the premedical curriculum. Candidates must also submit to the Department the scores achieved on the Graduate Record Examination (both the Aptitude Test and the Advanced Test). In general, at the time of admission, students must have completed courses in mathematics through calculus (equivalent to Mathematics 31A-31B-31C) and Physical Chemistry. Ideal course preparation for graduate study in the Department should also include 12 quarter units of physics, 16 quarter units of chemistry (including quantitative analysis, and organic chemistry), and 16 quarter units of biology or zoology (including comparative vertebrate anatomy) and 4-8 quarter units of basic electrical circuit theory. In certain cases, at the discretion of the Department, students lacking some of this preparation but with a strong background in areas pertinent to physiology may be admitted to graduate status, provided that essential deficiencies are removed by appropriate courses within a specified time after admission.

Master of Science Degree

Students entering graduate study in the Department of Physiology will normally be expected to pursue the Ph.D. degree only. Exceptional cases may be considered for the Master of Science Degree. In those cases, candidates for the M.S. degree must meet the general requirements set by the Graduate Division for this degree. See the Graduate Division.

Requirements for the Doctor's Degree

General University Requirements. Candidates for the doctorate in physiology must conform to the general requirements set by the Graduate Division for this degree. See the Graduate Division.

Departmental Requirements. Course requirements ordinarily are: (1) Physiology 201; (2) Physiology 205; (3) Physiology 208; (4) Physiology 213, 214, 215; (5) Physiology 230A-230B-230C; (6) Biological Chemistry 101A-101B-101C or Chemistry 153 (Biochemistry); (7) Biology 154; (8) Introduction to APL Programming.

At the completion of the first year of study students will normally take the Department Written Exam at which time the student will be 1) recommended for continuation of his studies toward the Ph.D. degree, 2) recommended for further remedial study or 3) terminated. Near the completion of the second year of study the student may elect to take a Departmental Oral Exam (optional) or to waive this exam and proceed directly to the University Qualifying Oral Examination (mandatory) administered by the student's graduate committee.

The student should begin his research work as soon as he has completed his basic program and selected a sponsor.

Foreign Language Requirement. No foreign languages are required for the completion of the Ph.D. or M.S. degree. The time usually ascribed to language studies will be devoted to a more detailed preparation in physical sciences and mathematics.

Student's Responsibilities. Prospective candidates for the doctor's degree are responsible for completion of all technical requirements for this degree. Careful study should be made of the requirements set by the Graduate Division (see the Graduate Division).

Upper Division Courses

100. Elements of Human Physiology. (1½ courses) Prerequisite: enrollment in School of Dentistry or consent of the instructor. Required course for first-year dental students. Lectures, laboratories, and demonstration-discussions concerning functional activities of the living body in terms of both cellular and systemic functions. Examples will be presented, where possible, on the basis of information relevant to oral function. Mr. Homsher and the Staff

101. Neuromuscular and Cardiovascular Physiology. (1¾ courses) Prerequisites: Basic courses in chemistry, physics, and biology, at least one year each; organic chemistry; histology; gross anatomy, human or comparative. Primarily for first year medical students, but open to others with consent of the instructor. Lectures, laboratory and conferences. An analysis of the electrical properties of muscle and nerve, the contractility of muscle and the heart, and the cardiovascular system and its regulation. Mr. Sonnenschein and the Staff

102. Renal, Respiratory and Gastrointestinal Physiology. (1½ courses) Prerequisites: same as for course 101. Primarily for first year medical students but open to other students with consent of the instructor, Lectures, laboratory and conferences. A continuation of course 101, dealing with respiration, and the distribution of water, electrolytes and metobolites by the renal and gastrointestinal systems, and the special physiology of certain organs. Mr. Sonnenschein and the Staff

M103A-103B. Basic Neurology. (Same as Anatomy M103A-103B.) Two four-hour sessions and one three-hour session per week of the last three weeks of the winter quarter; two two-hour sessions and two three-hour sessions per week in the spring quarter. Prerequisite: Medical school status or consent of instructor. Lectures, conferences, demonstrations and laboratory procedures necessary to an understanding of the function of the human nervous system. "In Progress" grading.

105N. Human Physiology. Prerequisite: enrollment in the School of Nursing or consent of the instructor. Required course for third year nursing students. Lecture and discussion emphasizing a correlative approach to anatomy and physiology of the human body. Ms. Seraydarian

199. Special Studies. (¼ to 2 courses) Prerequisite: consent of the instructor. Special studies in physiology, including either reading assignments or laboratory work or both, designed for appropriate training of each student who registers in this course. The Staff

Graduate Courses

200. Transport Across Biological Membranes. Prerequisite: consent of instructor. An introduction to the transport ions, non-electrolytes and water across plasma membranes of single cells and epithelia. Lectures will include such topics as membrane structure, the passive permeability of membranes to ions and non-electrolytes, active transport of sugars and amino acids, active ion transport, and the mechanisms of water transport. Experimental work will involve the transport of ions across single cell membranes and epithelia using radioactive tracer and electro physiological techniques. Mr. Wright

201. Mathematics Applied to Problems in Physiology. Prerequisite: calculus. Linear differential equations. Laplace transform. Series solutions of differential equations. Boundary-value problems, orthogonal functions, Fourier series. Partial differential equations. Applications to biochemical kinetics, electric potential distribution in cells, diffusion of O_2, one-dimensional cable equation for axon, etc. Mr. Peskoff

202. Permeability of Biological Membranes to Ions. (1½ course) Prerequisites: Chemistry 113B and 113C or the equivalent, or consent of the instructor. Topics include: ion permeation mechanisms, ion distribution, and physical basis of ion discrimination across cell membranes. Mr. Diamond

205. Physical Chemistry of Membrane and Cellular Systems. Prerequisite: consent of the instructor. Survey of the principles of equilibrium and non-equilibrium thermodynamics, electrostatics and fluid mechanics, and their application to problems of electrochemistry, ionic process in solutions, elecgrode kinetics and transport in membranes. Mr. Ciani

207. Neurophysiology. Prerequisite: consent of the instructor. Seminar and laboratory course designed to acquaint the student with behavioral techniques and concepts relevant to research problems encountered in modern neurophysiology, and to consider means of integrating them with neurophysiological methods. The Staff

208. Biophysics of Membrane Transport. (1½ courses) (Formerly numbered 200.) Prerequisites: Physical Chemistry (equivalent of Physiology 205 or Chemistry 110A-110B), Differential equiations (may be taken concurrently, equivalent of Physiology 201 or Mathematics 32C) or consent of instructor. Studies of transport mechanisms in simple model membrane systems are used as a basis for understanding mechanisms of ion and non-electrolyte permeation, excitability and gating phenomena in biological membranes. The significance of such physical variables as membrane surface charges, surface dipoles, dielectric constant and viscosity for transport phenomena are discussed in detail. Mr. Ciani, Ms. Krasne

210A-210B-210C. Basic Foundation in Endocrinology. (½ course each) Prerequisites: courses 101, 102; Biological Chemistry 101A, 101B, and 101C or consent of the instructor. A consideration of recent advances in endocrinology. Biosynthesis, secretion, transport, action, metabolism and excretion of each of the hormones. Major emphasis on basic concepts of endocrine physiology with lesser emphasis on pathophysiology. Mr. Odell and the Staff

211A-211B-211C. Basic Foundation in Endocrinology. (½ course each) Prerequisite: same as for courses 201A-201B-210C. In-depth seminar-lecture series on Endocrinology. Physiology 211 is a continuation of the Physiology 210 series, 210 and 211 are given on alternate years and the two courses do not have to be taken in sequence. Mr. Odell and the Staff

212A-212B-212C. Critical Topics in Physiology. (¼ to 2 courses) Prerequisite: consent of the instructor. Advanced treatment of critical topics in physiology by staff and guest lecturers for graduate and postdoctoral students in the biomedical sciences. The Staff

213. Methods in Cell Physiology. (1½ courses) Prerequisite: consent of instructor. The lectures and laboratory will deal with the integrated circuits and other solid-state devices employed in modern instruments, so that the students will learn to design and build many of the simpler circuits often required in their research. The emphasis will be on the particular circuits used in electrophysiology, RC analysis, and an introduction to cable theory. The Staff

214. Cell Physiology: Transport and Electron Properties. (½ to 1½ courses) Prerequisite: course 213 or consent of instructor. Introductory concepts of transport across cell membranes, models of permeation mechanisms, linear cable properties of cells and non linear conductance changes in excitation and impulse conduction. Mr. Bezanilla

215. Cell Physiology: Cellular Interaction. (1½ courses) Prerequisites: courses 213, 214. Synaptic transmission mechanisms and potential generation in the special senses receptors.

221. Graduate Commentary: Excitation and Contraction. (¾ course) Prerequisites: same as for course 101. For graduate students. An advanced supplementation of the topics being presented in course 101. Mr. Brady and Staff

222. Graduate Commentary: Renal, Respiratory and Gastrointestinal Physiology. (½ course) Prerequisite: course 101. For graduate students. An advanced supplementation of the topics being presented in course 102. The Staff

NOTE: For ke to s mbols, see e 74

223. Graduate Commentary: Physiology of the Nervous System. (½ course) Prerequisites: same as for course *101*; consent of the instructor. For graduate students. An advanced supplementation of the topics being presented in basic neurology. Ms. Buchwald

225. Molecular Aspects of Ion Permeation through Peptide Channels. Prerequisite: prior consent of the instructor; Physiology 208 (Biophysics of Membrane Transport) unless waived. Advanced course for students well-grounded in fundamentals of membrane permeation. Covers the most recent theoretical and experimental state of the art for the molecular details of ion permeation in the well-characterized peptide channel of gramicidin as well as relevant observations in biological channels. 10 hours of reading are expected for every 2 hours of lecture. Mr. Eisenman

226. Bilayer Membranes. Prerequisite: consent of the instructor. Advanced lectures and laboratory demonstrating physical and chemical principles that underlie the behavior of lipid bilayer membranes, both artificial and natural. The Staff

227. Theoretical Problems in Membrane Permeation. (½ course) Prerequisite: consent of the instructor. Tutorial directed to specific theoretical problems of interest to the student. Mr. Ciani

228. Epithelia: Structure and Function. (½ course) Prerequisite: consent of instructor. Lectures and seminars on the physiology of epithelia cells with particular emphasis on membrane transport. Mr. Wright

229. Research Topics in Neurobiology. (½ course) Prerequisite: consent of instructor. Discussion of current literature covering research problems in neurobiology. Graded S/U. Mr. Letinsky

230A-230B-230C. Selected Topics in Organ Physiology. (1 to 2 courses) Prerequisite: consent of the instructor. Macroscopic, microscopic and ultrastructural correlates of tissue and organ function. Advanced onsideration of special topics in the physiology of the cardiovascular and gastrointestinal systems, as well as the respiratory, renal and central nervous systems. In Progress Grading. The Staff

251A-251B-251C. Seminar in Physiology. (¼ course each) Prerequisite: consent of the instructor. Review and discussion of current physiological literature, research in progress, and special topics. The Staff

301. The Use of Laboratory Animals in Research. (½ course) Prerequisite: consent of instructor. An introductory course of graduate students in the medical and biological sciences, covering principles and practical problems in the handling and use of common laboratory animal species. Mr. Washington

Individual Study and Research

596. Directed Individual Study or Research. (½ to 3 courses) Prerequisite: consent of the instructor. The Staff

597. Preparation for the Doctoral Qualifying Examination or the Master's Comprehensive Examination. (½ to 3 courses) Prerequisite: consent of the instructor. The Staff

598. Thesis Research for Master's Candidates. (½ to 3 courses) Prerequisite: consent of the instructor. The Staff

599. Dissertation Research for Ph.D. Candidates. (½ to 3 courses) Prerequisite: consent of the instructor. The Staff

PLANETARY AND SPACE SCIENCE

(See Geophysics and Space Physics)

PLANT SCIENCE

(See Department of Biology Sciences)

POLITICAL SCIENCE

(Department Office 4289 Bunche Hall)

Hans H. Baerwald, Ph.D., *Professor of Political Science.*
Richard D. Baum, Ph.D., *Professor of Political Science.*
Irving Bernstein, Ph.D., *Professor of Political Science.*
John C. Bollens, Ph.D., *Professor of Political Science.*
David T. Cattell, Ph.D., *Professor of Political Science.*
James S. Coleman, Ph.D., *Professor of Political Science.*
[4]Mattei Dogan, Docteur és Lettres, *Professor of Political Science.*
Ernest A. Engelbert, M.P.A., Ph.D., *Professor of Political Science.*
Leonard Freedman, Ph.D., *Professor of Political Science.*
Robert C. Fried, Ph.D., *Professor of Political Science.*
Edward Gonzalez, Ph.D., *Professor of Political Science.*
Robert Jervis, Ph.D., *Professor of Political Science.*
Malcolm H. Kerr, Ph.D., *Professor of Political Science.*
Roman Kolkowicz, Ph.D., *Professor of Political Science.*
Andrzej Korbonski, Ph.D., *Professor of Political Science (Chairman of the Department).*
Michael F. Lofchie, Ph.D., *Professor of Political Science.*
Dwaine Marvick, Ph.D., *Professor of Political Science.*
Charles R. Nixon, Ph.D., *Professor of Political Science.*
David C. Rapoport, Ph.D., *Professor of Political Science.*
John C. Ries, Ph.D., *Professor of Political Science.*
David O. Sears, Ph.D., *Professor of Political Science and Psychology.*
John R. Sisson, Ph.D., *Professor of Political Science.*
Richard L. Sklar, Ph.D., *Professor of Political Science.*
Ezra N. Suleiman, Ph.D., *Professor of Political Science.*
David O. Wilkinson, Ph.D., *Professor of Political Science.*
David A. Wilson, Ph.D., *Professor of Political Science.*
Charles E. Young, Ph.D., *Professor of Political Science.*
Winston W. Crouch, Ph.D., *Emeritus Professor of Political Science.*
David G. Farrelly, Ph.D., *Emeritus Professor of Political Science.*
J. A. C. Grant, Ph.D., LL.D., *Emeritus Professor of Political Science.*
Foster H. Sherwood, Ph.D., LL.D., *Emeritus Professor of Political Science.*
H. Arthur Steiner, Ph.D., *Emeritus Professor of Political Science.*
Richard E. Ashcraft, Ph.D., *Associate Professor of Political Science.*
L. Blair Campbell, Ph.D., *Associate Professor of Political Science.*
Robert S. Gerstein, LL.B., Ph.D., *Associate Professor of Political Science.*
Foster H. Sherwood, Ph.D., *Emeritus Professor of Political Science.*
Douglas S. Hobbs, Ph.D., *Associate Professor of Political Science.*
Stephen D. Krasner, Ph.D., *Associate Professor of Political Science.*
Karen J. Orren, Ph.D., *Associate Professor of Political Science.*
Susan Kaufman Purcell, Ph.D., *Associate Professor of Political Science.*
Duane E. Smith, Ph.D., *Associate Professor of Political Science.*
Leo M. Snowiss, Ph.D., *Associate Professor of Political Science.*
Steven L. Spiegel, Ph.D., *Associate Professor of Political Science.*
E. Victor Wolfenstein, Ph.D., *Associate Professor of Political Science.*
Ciro Zoppo, Ph.D., *Associate Professor of Political Science.*
Thad A. Brown, Ph.D., *Assistant Professor of Political Science.*
Paul Jabber, Ph.D., *Assistant Professor of Political Science.*
John R. Petrocik, Ph.D., *Assistant Professor of Political Science.*
Raymond A. Rocco, Ph.D., *Assistant Professor of Political Science.*
Stephen L. Skowronek, Ph.D., *Assistant Professor of Political Science.*
Arthur A. Stein, Ph.D., *Assistant Professor of Political Science.*

•

James G. Fisk, B.S., *Adjunct Professor of Political Science.*
Pierre-Michel Fontaine, Ph.D., *Acting Associate Professor of Political Science.*
Marvin Hoffenberg, M.A., *Professor of Political Science in Residence.*
Laura M. Lake, Ph.D., *Adjunct Assistant Professor of Political Science.*
Robert C. Welsh, M.A., *Acting Assistant Professor Political Science.*

Goals of the Undergraduate Program in Political Science

The undergraduate program aims to provide an understanding of basic political processes and institutions as these operate in different national and cultural contexts, of the interaction between national states, of the changing character of the relations between citizens and governments, and of the values and criteria by which the quality of political life is judged. This program may be individually focused to serve the needs of the liberal arts major, the student seeking preparation for graduate work in Political Science, Public Administration, Law, and other professional fields, and the student preparing for specialized roles in political and public organizations.

Inquiries about the program and any possible recent changes should be addressed to the Undergraduate Counselor, Department of Political Science.

Preparation for the Major

Two lower division courses (8 units): Political Science 1; and Political Science 2, 3, 4, or 6. These courses must be taken for a letter grade.

The Major

Requirements I. For those students *who had less than 84 quarter units at the beginning of the fall quarter 1975* the following requirements apply (all other students, see Requirements II below).

Ten upper division political science courses (for a total of 40 units) numbered from 102 to 199 must be taken for a letter grade. The student is also required to complete 4 upper division courses (for a total of 16 units) in one or more of the following social sciences: Anthropology, Communication Studies (only 160), Economics, Geography, History, Management (only 150, 180, 190A-190B), Psychology (except 115, 116, 117), Sociology. These courses must also be taken for a letter grade. In addition to requirements for graduation prescribed by the College of Letters and Science, the student is expected to maintain a 2.0 overall grade point average in all upper division political science courses. Upper division political science courses are organized into six fields: (I) Political Theory, (II) International Relations, (III) Politics, (IV) Comparative Government, (V) Public Law, and (VI) Public Administration and Local Government.

In fulfilling the requirement of 10 upper division political science courses, the student must satisfy the following: A *concentration* in one field by completing at least four upper division courses in that field. It is recommended that one of these courses be an Undergraduate Seminar, 197A – F. (See field concentration requirements below).

A *distribution* of two courses in each of two other fields (4 courses).

Political Science 110, Introduction to Political Theory, is required of all political science majors. The Political Science 110 requirement may be met by taking two quarters of the Political Science 111 series. Political Science 110 may count for either the concentration or the distribution requirement.

One additional elective course in political science to comprise the total of ten.

Field Concentration Requirements. Specific requirements for field concentration are as follows:

(I) *Political Theory;* Political Science 110 and 3 additional courses in Field I.

(II) *International Relations:* Political Science 2 and any 4 upper division courses in Field II. Four units from 175A-175B may be counted as one of the 4 courses in Field II. Only one of the defense studies courses – 138A, 138B, and 138C – may be counted toward field concentration requirement.

(III) *Politics:* Any four courses in Field III. Political Science 182A may also be counted toward concentration in this field.

(IV) *Comparative Government:* Political Science 168 and any 3 additional courses in Field IV. Political Science 115, 188A or 188B – but not more than one of them – may also be counted toward concentration in this field. Political Science 3 is recommended as the second lower division course.

(V) *Public Law:* Political Science 170 or 171 and any 3 additional courses in Field V. Political Science 171

is a prerequisite for Political Science 172A or 172B. Political Science 117 or 187 – but not more than one of them – may also be counted toward concentration in this field.

(VI) *Public Administration and Local Government:* Any 4 courses in Field VI. Political Science 138C, 173 or 174 – but not more than one of them – may also be counted toward concentration in this field.

Note: No course may be counted toward both concentration and distribution requirements.

Also, courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than 3 of these courses may be applied toward the major.

Political Science 198 and 199 may not apply to fulfill either the concentration or distribution requirement.

Requirements II. Those students *who had more than 84 quarter units at the beginning of the fall quarter 1975* are required to complete nine upper division political science courses (for a total of 36 units) numbered from 100 to 199 for a letter grade. In addition the student is required to complete 4 upper division social sciences (for a total of 16 units) as outlined in Requirements I. These courses must also be taken for a letter grade.

Each political science major will be required to complete successfully Political Science 110, *Introduction to Political Theory.* Each major must also concentrate in one field by successfully completing at least three (3) upper division courses in that field. These courses count toward satisfaction of the requirement for nine upper division courses in the department. (See below for special field concentration requirements.) In addition the student must satisfy a distribution requirement by successfully completing at least one (1) course in each of three (3) other fields. Political Science 110 counts as one course in Political Theory (Field I) for either the concentration or the distribution requirement. Political Science 197 and 199 are not applicable to fulfillment of either the concentration or the distribution requirement. Only one of the defense studies courses – 138A, 138B, and 138C – may be counted toward field distribution requirements.

Specific requirements for *field concentration* are as follows: (I) *Political Theory:* Political Science 110 and any 2 additional courses in Field I: (II) *International Relations:* Political Science 2 and any 3 courses in Field II. Four units from 175A-175B may be counted as one of the three courses in Field II: (III) *Politics:* Any 3 courses in Field III. Political Science 182A may also be counted toward concentration in this field; (IV) *Comparative Government:* Political Science 168 and any 2 additional courses in Field IV. Political Science 115, 188A, or 188B – but not more than one of them – may also be counted toward concentration in this field; (V) *Public Law:* Political Science 170 or 171 and any 2 additional courses in Field V. Political Science 117 or 187 – but not more than one of them – may also be counted toward concentration in this field; (VI) *Public Administration and Local Government:* Any 3 courses in Field VI. Political Science 138C, 173, or 174 – but not more than one of them – may also be counted toward concentration in this field.

Courses 119, 139, 149, 169, 179, and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.

No course may be counted toward both concentration and distribution requirements.

Undergraduate Seminars

Each quarter the department will offer a series of seminars, limited to 20 students, offered in each field and open to students studying under either Requirements I or II. The prerequisites will be two upper division courses in the field in which the seminar is offered, a 3.25 average at the upper division level in political science or discretion of the instructor.

The courses will be numbered: 197A-Theory, 197B-International Relations, 197C-Politics, 197D-Comparative Government, 197E-Public Law and 197F-Public Administration and Local Government.

These courses may count for either the concentration or distribution requirement and students who qualify are encouraged to take them.

The Honors Program

Qualifications. Completion of an undergradue seminar; a 3.40 grade-point average at the upper division level in political science; eligibility for College of Letters and Science honors status.

The Program. Students wishing to qualify for graduation with Departmental Honors must maintain a 3.40 grade point average in upper division political science and complete the following: (1) A one-year seminar (Political Science 198A, 198B, 198C). The first quarter of the seminar, Political Science 198A, is a general seminar on political science and involves research. The second and third quarters, P.S. 198B and 198C, are devoted to writing a senior thesis under the direction of a faculty member. The honors thesis will be read by the respective field committees and judged for its quality and graded as to high honors, honors, pass, no pass, which is equivalent to A,B,C,F on the grade scale. (2) Eight upper division courses, excluding the courses 119, 139, 149, 169, 179 and 189 distributed as follows: Political Science 110, three courses in one field and four additional courses, two in each of two other fields. These eight courses plus the one-year seminar will comprise the eleven upper division courses required for Honors in Political Science. (3) Four upper division courses in the social sciences other than political science.

Note: Those students who are studying under Requirements II may take two courses from the 197A-F Undergraduate Seminars series for Honors credit. The instructor will designate whether the student's work in the course qualifies for Honors.

Related Curricula

For the curricula in international relations and public service, see the College of Letters and Science.

The Graduate Program

The Department offers M.A. and Ph.D. degrees in political science. There is no Master of Public Administration program offered at this time. Students should obtain a detailed description of the graduate program from the graduate counselor, Department of Political Science, 4256 Bunche Hall.

In addition to the requirements of the Graduate Division described in this announcement, the Department requires three letters of recommendation, GRE score (Aptitute Test only) or Law School aptitude scores. Applications for admissions and fellowships are obtained from the UCLA Graduate Admissions office. The deadline for receipt of all materials pertaining to admissions or fellowships is December 31.

Graduate Fields of Study

Six fields of study are offered to graduate students in the Political Science Department: Political Theory, International Relations, Politics, Comparative Government, Public Law, Public Administration.

The Department offers three types of graduate courses in each of the six fields of study: (1) the 200 through 219 series of general courses; (2) the 220 through 240 series of specialized substantive courses; (3) the 250 through 270 series of seminars. Seminars will ordinarily be taken by advanced graduate students.

Except for teaching assistants, all graduate students will normally take three courses per quarter prior to their completion of the Ph.D. requirements. In some circumstances, and with the approval of the Graduate Adviser, the minimum two course load (8 units) may be taken.

The M.A. Program

The Department normally operates under Plan II (a written examination in one field and an oral examination covering three fields), although Plan II (thesis) may be followed in rare cases with the approval of the Graduate Studies Committee.

Course Requirements. A student must take a minimum of five graduate courses in Political Science at UCLA distributed among three fields of study, and four other courses (normally in the social sciences or related areas) to fulfill the M.A. course requirements. Lower division courses may not be used for credit. The course P.S. 596 will not normally be counted toward the five graduate course requirement for the M.A. The course P.S. 597 cannot be used for credit for any of the course requirements for either the M.A. or the Ph.D.

For information concerning the transferring of credit for graduate work completed at another university or another campus of the University of California, students should consult the department's graduate information booklet.

M.A. Examination. By the end of the fourth quarter of graduate study, the M.A. candidate will take a written examination in one of the six fields of Political Science, plus an oral examination covering his/her knowledge of political science in three fields. Prior to taking the M.A. examination, students should have completed a graduate course in three fields of political science. For the purposes of satisfying one of the three fields for the M.A. oral examination, any two courses from the 203 A-B-C series may be counted as one field.

The oral examining committee will evaluate the student's entire record, including performance on the M.A. written and oral examinations, evaluations of course work taken, and recommend one of the following: (1) that the student receive the M.A. degree and be encouraged to proceed toward the Ph.D.; (2) that the student receive the M.A. degree (when all departmental and University requirements are met) and that his/her status as a graduate student in the Department be thereafter terminated; (3) that the student not be awarded the M.A. degree and that his/her status as a graduate student in the Department be terminated at the end of the current quarter.

M.A. Thesis Plan. Students wishing to write an M.A. thesis (Plan 1) instead of taking the M.A. comprehensive examinations (Plan II) may do so by selecting a faculty committee to supervise the thesis. This committee must consist of three faculty members, two from Political Science and one from another UCLA department, and must be approved by the Graduate Studies Committee. The thesis must be submitted to and approved by the thesis committee prior to the end of the third quarter of residence. Students opting for the thesis plan will not normally be recommended for continuation in the departmental Ph.D. program. If they wish to continue for the Ph.D., they must take the M.A. comprehensive examination, and be given approval at that time to continue for the Ph.D.

The Ph.D. Program

An M.A. or its equivalent is a prerequisite for admission to the Ph.D. program. Students entering UCLA with an M.A. in political science from another university must pass the M.A. written and oral examinations prior to the end of their third quarter in residence before being accepted as a Ph.D. candidate in the department.

Course Requirements. Before taking the Ph.D. preliminary examination sequence, a student must have completed satisfactorily the basic graduate courses in four fields (three writen examination fields and one writeoff field). Each Political Science field committee will specify the courses the student must take as basic preparation for the preliminary examination in its field. In addition to these basic courses, a Ph.D. candidate must satisfy a two-quarter research requirement in each of two fields in political science. This research requirement is defined by each individual field.

NOTE: For key to symbols, see page 74

The P.S. 203A-B-C sequence may be used in the Ph.D. evaluation sequence for the write-off field only.

Foreign Language or Research Methodology Requirement. For the Ph.D. graudate students must fulfill one of the following requirements: (1) demonstration of advanced proficiency in one foreign language. Ordinarily advanced proficiency is demonstrated by passing the E.T.S. examination with a minimum score of 650. In languages for which the E.T.S. examination is not offered, or in other exceptional instances, students should consult with the Graduate Adviser; (2) demonstration of advanced proficiency in a research methodology. Such methods include statistics, and computer language and technology.

Students are expected to have completed this requirement prior to taking the Ph.D. preliminary examinations, and must complete it before they can be advanced to candidacy for the Ph.D.

Ph.D. Preliminary Examinations. Within two years after passing the M.A. examinations, the student will take the Ph.D. comprehensive examinations in three fields. These will consist of a written examination in three fields, or in the field in which the M.A. written examination has been taken, a research paper may be substituted for the Ph.D. written examination in that field. Students choosing to write a research paper must submit a precis of the research paper to the appropriate field committee at least one quarter prior to their taking the Ph.D. preliminary examinations. The Ph.D. examinations are given twice a year, in November and in May. Students must complete all three examinations (or two examinations and a research paper) during a single examination period. No student will be allowed to proceed to the University oral examination until he/she has successfully passed the examinations in three fields.

Outside or Special Fields. One of the student's four fields may be outside the Department of Political Science. In consultation with the student's advisor, the instructor with whom he/she wishes to do the work outside the Department, and the Graduate Adviser, a student can submit a written proposal to have work done in a field outside the Department counted as partial fulfillment of the Department's Ph.D. requirements. The outside field may be counted as one of the three Ph.D. written examination fields or as the write-off field.

Ph.D. Oral Examination. Within two quarters of passing the Department's Ph.D. preliminary written examinations, students must take the University oral examination. If the student successfully passes the oral examination (and has fulfilled the foreign language requirement), he/she will then be advanced to candidacy for the Ph.D., and will be eligible to receive the C. Phil degree. Approval of a written dissertation by the student's doctoral committee constitutes the final requirement for the Ph.D. degree in political science. Students are expected to complete the Ph.D. program in political science, including acceptance of the dissertation, within 5 and ¼ years from the time of their admission to graduate status at UCLA.

Lower Division Courses

1. Introduction to American Government. Lecture, three hours; discussion, one hour. An introduction to the principles and problems of government with particular emphasis on national government in the United States. This course fulfills the requirement of American History and Institutions, and is required of all students majoring in political science. The Staff

2. World Politics. Lecture, three hours; discussion, one hour. There are no prerequisites for this course. An introduction to problems of world politics. This course is required of all students concentrating in Field II and may be used to fulfill one of the two requirements for the Preparation for the Major. Mr. Jervis, Mr. Wilkinson

3. Introduction to Comparative Government. Lecture, three hours; discussion, one hour. Prerequisite: course 1. A comparative study of constitutional principles, governmental institutions, and political processes in selected contemporary states, with emphasis on the major European governments. This course may be used to fulfill one of the two course requirements for the Preparation for the Major. The Staff

4A-4Z. Current Problems in Political Science. Prerequisite: Successful completion of or concurrent enrollment in Political Science 1 and consent of the instructor. Proseminars will be offered each quarter dealing with selected political problems. Topics will be announced during the preceding quarter. Enrollment will be limited. Preference will be given to declared freshman majors. This course may be used to fulfill one of the two course requirements for the Preparation for the Major. The Staff

6. Introduction to Quantitative Research. Prerequisite: one previous course in political science, e.g. Political Science 1, 2, or 3. An introduction to the collection and analysis of political data. The course emphasizes the application of statistical reasoning to the study of relationships among political variables. Students use the computer as an aid in analyzing data from various fields of political science, among them comparative politics, international relations, American politics, and public administration. Will serve as a prerequisite for Political Science 102, 103, and 104A. This course may be used to fulfill one of the two course requirements for the Preparation for the Major. The Staff

Upper Division Courses

Prerequisite for all upper division courses: upper division standing or consent of instructor.

UNGROUPED

102. The Statistical Analysis of Political Data. Prerequisite: course 6. An introduction to statistical inference. Topics will include measures of central tendency, elementary probability theory, common probability distributions, least-squares and maximum likelihood estimation, confidence intervals and statistical tests, comparison of means, the analysis of variance, and multiple regression and correlation. Statistical techniques and topics will be illustrated with applications to a variety of political data. May be concurrently scheduled with Political Science 204. The Staff

M103. Economic Models of the Political Process. (Same as Economics M135.) (Formerly numbered Political Science 103.) Prerequisites: Economics 101A and a basic course in Political Science and junior-senior status. This seminar is jointly offered by the Economics and Political Science Departments, and permission of the instructor is required. The course examines conceptions and applications of two different processes of political interaction, the cooperative (as in public choice) and the conflictual (as in warfare, making use of economic models of choice and equilibrium. The Staff

104A-104B. Introduction to Survey Research. Prerequisite: course 6 for undergraduates or course 203C for graduates. Course 104A is prerequisite to course 104B. A two-quarter course in the fundamentals of survey research as a method. The first quarter will cover sampling theory and methods, the writing of questions, questionnaire construction, and interviewing. In addition, students will be introduced to attitudes, attitude measurement, and attitude change. Students will participate in the formulation of a research problem. The second quarter will involve conducting a survey. Students will be responsible for developing a survey questionnaire, designing a sample, collecting interviews, maintaining quality control, and coding the interviews for machine tabulation. The final requirement for the course is that the student perform a computer-aided analysis of some part of the data and submit a written report of that research. Both quarters must be taken to receive credit. The Staff

FIELD I. POLITICAL THEORY

110. Introduction to Political Theory. (Formerly numbered 101.) Lecture, three hours; discussion, one hour. An exposition and analysis of selected political theorists and concepts from Plato to the present. This course is required of all majors and *must be taken no later than the junior year.* The Staff

111A. History of Political Thought: Ancient and Medieval Political Theory. An exposition and critical analysis of the major political philosophers and schools from Plato to Machiavelli. The Staff

111B. History of Political Thought: Early Modern Political Theory. An exposition and critical analysis of the major political philosophers and schools from Hobbes to Bentham. Mr. Ashcraft

111C. History of Political Thought: Late Modern and Contemporary Political Theory. An exposition and critical analysis of the major political philosophers and schools from Hegel to the present. Mr. Ashcraft, Mr. Wolfenstein

112. Nature of the State. A systematic analysis of modern concepts and problems of political association. The Staff

113. Problems in Twentieth Century Political Theory. A study and interpretation of theorists who have focused their analyses on the social and political problems of the twentieth century. Mr. Rocco

114A-114B. American Political Thought. Prerequisite: 114A or consent of instructor is prerequisite to 114B.

114A. An exposition and critical analysis of American political thinkers from the Puritan period to 1865.

114B. An exposition and critical analysis of American political thinkers from 1865 to the present. Mr. Smith

115. Theories of Political Change. Prerequisite: course 110 or consent of the instructor. A critical examination of theories of political change, the relation of political change to changes in economic and social systems, and the relevance of such theories for the experience of both western and nonwestern societies. This course may be counted in either Field I or IV. Mr. Lofchie, Mr. Nixon

116. Marxism. A critical analysis of the origins, nature, and development of Marxist political theory. Mr. Ashcraft, Mr. Wolfenstein

117. Jurisprudence. Development of law and legal systems; consideration of fundamental legal concepts; contributions and influence of modern schools of legal philosophy in relation to law and government. This course may be counted in either Field I or V. Mr. Gerstein

119A-119Z. Special Studies in Political Theory. Prerequisites: course 110, one additional course in Field I, and consent of the instructor. Intensive examination of one or more special problems appropriate to political theory. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major. The Staff

FIELD II. INTERNATIONAL RELATIONS

120. Foreign Relations of the United States. Lecture, three hours; discussion, one hour. A survey of the factors and forces entering into the formation and implementation of American foreign policy, with special emphasis on contemporary problems. Mr. Jabber, Mr. Spiegel, Mr. Stein

121. Studies in Formulation of American Foreign Policy. A study of the formation of American foreign policy with respect to individual cases. Specific topics will be announced in the Schedule of Classes each quarter. The Staff

123. International Organization and Administration. A general survey of the institutions, political and administrative, of international organization, with emphasis on the United Nations. The Staff

124. International Political Economy. A study of the political aspects of international economic issues. Mr. Krasner

126. Peace and War. Theory and research on the causes of war and the conditions of peace. Mr. Wilkinson

127. The Atlantic Area in World Politics. A contemporary survey of the foreign policies of the North Atlantic countries and of cooperative efforts to attain political, economic, and military coordination on a regional basis. Mr. Zoppo

128. The Soviet Sphere in World Politics. A contemporary survey of the foreign policies and aspirations of the Soviet Union and other states in the Soviet bloc; analysis of content and effects of Communist doctrine affecting relations between the Soviet and democratic spheres.
Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

131. Latin American International Relations. The major problems of Latin-American international relations and organization in recent decades.
Mr. Gonzalez, Ms. Purcell

132A-132B. International Relations of the Middle East. Prerequisite: course 132A is prerequisite to 132B, or consent of instructor for 132B.

132A. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, the Arab-Israeli problem, and the Persian Gulf area.

132B. Role of the Great Powers in the Middle East, with emphasis on American, Soviet and West European policies since 1945. Mr. Jabber

135. International Relations of China. The relations of China with its neighbors and the other powers, with emphasis on contemporary interests and policies of China vis-a-vis the United States and the Soviet Union. Mr. Baum

136. International Relations of Japan. The foreign policies of Japan, and the interests and policies of other countries, particularly the United States, as they relate to Japan. Mr. Baerwald

137. International Relations Theory. An examination of various theoretical approaches to international relations and their application to a number of historical cases and contemporary problems.
Mr. Krasner, Mr. Stein

138A-138B-138C. Defense Studies.

138A. Defense Strategy and Policies. Analysis of national and international security problems in the nuclear era, with special emphasis on the United States. Mr. Jervis

138B. The Conduct of Modern War. A study of recent and contemporary wars with special emphasis on political and strategic problems.
The Staff

138C. Military Policy and Organization. A study of the institutional and policy framework in the national military field. This course may be counted in either Field II or IV. Mr. Ries

139A-139Z. Special Studies in International Relations. Prerequisite: Two courses in Field II, or course 2 and one course in Field II, and consent of the instructor. Intensive examination of one or more special problems appropriate to international relations. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.
The Staff

FIELD III. POLITICS

M140. Political Psychology. (Same as Psychology M138.) Prerequisite: Psychology 10. Examination of political behavior, political socialization, personality and politics, racial conflict, and the psychological analysis of public opinion on these issues. Mr. Sears

141. Public Opinion and Voting Behavior. Lecture, three hours; discussion, one hour. A study of the character and formation of political attitudes and public opinion. The role of public opinion in elections, the relationship of political attitudes to the vote decision, and the influence of public opinion on public policy formulation will be emphasized.
Mr. Brown, Mr. Petrocik

142. The Politics of Interest Groups. A systematic investigation of the role of political interest groups in the governmental process, with attention directed to the internal organization, leadership, and politics of such groups; to the goals and functions of various types of groups, and to the strategy and tactics of influence.
Ms. Orren, Mr. Skowronek

143. Legislative Politics. A study of those factors which affect the character of the legislative process and the capacity of representative institutions to govern in contemporary society.
Mr. Marvick, Mr. Snowiss

144. The American Presidency. A study of the nature and problems of presidential leadership, emphasizing the impact of the bureacracy, congress, public opinion, interest groups, and the party system upon the presidency and national policy-making.
Ms. Orren, Mr. Skowronek, Mr. Snowiss

145. Political Parties. The organization and activities of political parties in the United States. Attention is focused upon the historical development of the parties, the nature of party change, campaign functions and the electoral role of the parties, membership problems and party activists, political finance, and policy formulation practices.
Mr. Brown, Mr. Marvick, Mr. Petrocik

146. Political Behavior Analysis. Prerequisite: course 141. The use of quantitative methods in the study of political behavior, especially in relation to voting patterns, political participation, and techniques of political action.
Mr. Brown, Mr. Marvick, Mr. Petrocik

147. Minority Group Politics. Lecture, three hours; discussion, one hour. Prerequisites: course 1, plus one of the following: one additional 140-level course; or one upper-division course on race or ethnicity from History, Psychology, or Sociology; or consent of the instructor. A systematic evaluation of the functioning of the American polity, related to problems of race and ethnicity. Topics include: leadership, organization, ideology, conventional versus unconventional political behavior, inter-minority relations, co-optation, symbolism, and repression. Mr. Rocco

149A-149Z. Special Studies in Politics. Prerequisites: Two courses in Field III and consent of the instructor. Intensive examination of one or more special problems appropriate to politics. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major. The Staff

See also course 182A.

FIELD IV. COMPARATIVE GOVERNMENT

152. British Government. The government and politics of the United Kingdom; the British constitution, parliament, parties and elections, foreign policies, administrative problems, and local governments. The Staff

153. Governments of Western Europe. The constitutional and political structure and development of France and other states of continental Western Europe, with particular attention to contemporary problems. Mr. Dogan, Mr. Suleiman

154. Governments of Central Europe. The constitutional and political structure and development of Germany and other Central European states, with particular attention to contemporary problems.
The Staff

156. The Government of the Soviet Union. An intensive study of the political and institutional organization of the Soviet Union and its component parts, with special attention to contemporary political issues, as well as party and governmental structures.
Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

157. Governments of Eastern Europe. A study of the political and governmental organization of the Communist countries of Eastern and Central Europe (exclusive of the U.S.S.R.) with special reference to the institutions, practices and ideologies including interregional relations. Mr. Korbonski

159. Chinese Government and Politics. Organization and structure of Chinese government with particular attention to the policies, doctrines, and institutions of Chinese Communism; political problems of contemporary China. Mr. Baum

160. Japanese Government and Politics. The structure and operation of the contemporary Japanese political system, with special attention to domestic political forces and problems. Mr. Baerwald

161. Government and Politics in Southeast Asia. The institutional and political processes and problems of states in Southeast Asia (Burma, Thailand, Malaya, Laos, Cambodia, Vietnam, Indonesia, and the Philippines). The Staff

162. Government and Politics in South Asia. The political experiences and institutions of the Indian subcontinent since 1947, with particular attention to the Republic of India, but also with reference to Pakistan and Ceylon. Mr. Sisson

163A. Government and Politics in Latin America. (Formerly numbered 168A.) A comparative study of governmental and political development, organization and practices in the states of Middle America. Mr. Gonzalez, Ms. Purcell

163B. Government and Politics in Latin America. (Formerly numbered 168B.) A comparative study of governmental and political development, organization and practices in the states of South America.
Mr. Gonzalez, Ms. Purcell

164. Government and Politics in the Middle East. A comparative study of government in the Arab States, Turkey, Israel and Iran.
Mr. Jabber, Mr. Kerr

165. Government and Politics in North Africa. A comparative study of the government and politics of the North African states, including the relationship between political development, political organization and social structure. Mr. Kerr

166A-166B-166C. Government and Politics in Sub-Saharan Africa. Patterns of political change in Africa south of the Sahara with special reference to nationalism, nation-building and the problems of development. (Course is offered in three parts.)

166A. Western Africa.

166B. Eastern Africa.

166C. Southern Africa. Mr. Lofchie, Mr. Sklar

167. Ideology and Development in World Politics. A comparative study of the major modes of political and economic development in the world today. Relations between industrial and non-industrial societies are examined in light of the current debate about imperialism. Mr. Sklar

168L. Comparative Political Analysis. Lecture. Prerequisites: two courses in Field IV, or Political Science 3 and one course in Field IV. Major approaches to the study of comparative politics. Concepts and methodology of comparative analysis. 168L or 168S is required of all students concentrating in Field IV. This course will be conducted as a lecture course. *Either* 168L *or* 168S can be taken for credit: credit will not be given for both.
The Staff

168S. Comparative Political Analysis. Seminar. Prerequisite: two courses in Field IV, or Political Science 3 and one course in Field IV. Consent of instructor. Major approaches to the study of comparative politics. Concepts and methodology of comparative analysis. Either 168L or 168S is required of all students concentrating in Field IV. This course will be conducted as a seminar. *Either* 168L *or* 168S can be taken for credit: credit will not be given for both. The Staff

NOTE: For key to symbols, see page 74

169A-169Z. Special Studies in Comparative Government. Prerequisites: Two courses in Field IV, or course 3 and one course in Field IV, and consent of the instructor. Intensive examination of one or more special problems appropriate to comparative government. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.
The Staff

See also Courses 115, 188A, 188B.

FIELD V. PUBLIC LAW

170. The Anglo-American Legal System. Lecture, four hours; discussion, one hour. Evolution of the English common law courts and their legal system, with emphasis on the development of the basic concepts of law which were received from that system in the United States, and remain relevant today. Either this course or Political Science 171 is required of all students concentrating in Field V.
Mr. Gerstein

171. The Supreme Court. Lecture, four hours, discussion, one hour. The history, procedures, and role of the Supreme Court in its legal-constitutional and political aspects. Emphasis will be given to the current and recent activities of the Court. Decisions of the Court, historical and current commentaries, and judicial biography will be utilized. Either this course or Political Science 170 is required of all students concentrating in Field V.
Mr. Gerstein, Mr. Hobbs

172A. American Constitutional Law. Prerequisite: course 171. Constitutional questions concerning the separation of powers, federalism, and the relationship between government and property.
Mr. Gerstein, Mr. Hobbs

172B. American Constitutional Law. Prerequisite: course 171. The protection of civil and political rights and liberties under the Constitution.
Mr. Gerstein, Mr. Hobbs

173. Government and Business. The nature of the corporation; the regulation of competition; government promotion of economic interests; regulation of industries clothed with a public interest; government ownership and operation. This course may be counted in either Field V or VI.
Mr. Bernstein, Ms. Orren

174. Government and Labor. The labor force and the nature of the trade union; regulation of labor relations; programs to encourage full employment and to mitigate unemployment; protective labor legislation. This course may be counted in either Field V or VI. Mr. Bernstein

175A-175B. International Law. A study of the nature and place of international law in the conduct of international relations. 175A and 175B may be offered in consecutive terms or simultaneously. If offered consecutively, 175A is prerequisite to 175B, and a student may take 175A alone for four units credit. If they are offered simultaneously, a student must take both courses for 8 units. A maximum of 4 units (1 course) may be counted in Field II.
The Staff

179A-179Z. Special Studies in Public Law. Prerequisites: course 170 or 171, one additional course in Field V, any special requirements, and consent of the instructor. Intensive examination of one or more special problems appropriate to public law. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major. The Staff

See also Courses 117, and 187.

FIELD VI. PUBLIC ADMINISTRATION AND LOCAL GOVERNMENT

180. State and Local Government. A study of state political systems, including their administrative and local sub-systems; intergovernmental relationships; and their policy outputs, with specific attention being given to California. Mr. Bollens

181. Introduction to Public Administration. An introduction to the study of the processes and structures designed to convert citizen demands and public decisions into collective action and achievement. Particular attention is devoted to the capacity of American administrative systems to respond effectively to citizen expectations within the restraints of due process. Mr. Fried

182A. Metropolitan Area Government and Politics. An overview of the political and social organization, decision-making processes, policy problems, and conflicts of metropolitan areas and their central cities and suburbs. Attention is also given to the impact on these areas of the national and state political systems and racial, ethnic, and protest movements. This course may be counted in either Field III or VI. Mr. Bollens

182B. City Government and Politics. Prerequisite: course 182A or consent of the instructor. Intensive analysis of contemporary urban governance in the United States. Emphasis is given to such student participatory activities as field-work, research, and gaming of urban politics and policy problems.
Mr. Bollens

183. Administration of International Agencies and Programs. An examination of the administrative patterns and practices of the United Nations agencies and overseas development programs, including distinctive characteristics of organization and management selection of personnel, and methods of financing. The Staff

185. Public Personnel Administration. The process of formulating and administering public personnel policies; concepts and principles utilized in selected governmental personnel systems. Focus will be primarily upon governmental systems in the United States (national, state, local, foreign service, military) but also comparisons will be made with selected other governmental systems. The Staff

186. National Policy and Administration. A study of the major policies and programs of the national government and their administration as illustrated in such areas as national defense, social welfare, agriculture, etc. Particular attention will be paid to the role of the President and other administrators in formulating public policy and in maintaining a responsible bureaucracy.
Mr. Engelbert, Mr. Fried

187. Law and Administration. Legal controls of administration action. Substantive and procedural limits on administrative discretion imposed by legislation, executive and judicial agencies and the sources of legal powers of administrative bodies within these limits. This course may be counted in either Field V or VI. The Staff

188A. Comparative Public Administration. An analysis of bureaucratic structures and function in the United States, other industrialized, and less developed countries, primarily at the national level. Special attention is paid to methods of comparative analysis and the utility of various models. This course may be counted in either Field IV or VI.
Mr. Fried, Mr. Suleiman

188B. Comparative Urban Government. A cross-cultural examination of the forms and processes of urban government. Particular attention will be paid to the role of urbanization in political development. This course may be counted in either Field IV or VI.
Mr. Fried

189A-189Z. Special Studies in Public Administration. Prerequisites: Two courses in Field VI and consent of the instructor. Intensive examination of one or more special problems appropriate to public administration. Sections will be offered on a regular basis with topics announced in the preceding quarter. Courses 119, 139, 149, 169, 179 and 189 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.
The Staff

190. Theories of Organization. Prerequisite: courses 181 or 186. An examination of the theoretical frameworks for studying public and private bureaucracies, with emphasis upon ideologies, values, behavioral patterns, and concepts of organization. Mr. Engelbert

191. Urban and Regional Planning and Development. A comparative study of governmental policies, procedures, and agencies involved in the planning and development of urban and regional communities and areas.
Mr. Engelbert, Mr. Hoffenberg

See also Courses 138C, 173, and 174.

UNGROUPED

197A-197F. Seminars for Majors. Prerequisites: major in political science and upper division standing; a 3.25 grade-point average at the upper division level in political science courses; and two upper division courses in the field in which the seminar is offered. These courses may count for distribution or concentration requirements.

197A. Political Theory. May be concurrently scheduled with Political Science 198B, section 1.

197B. International Relations. May be concurrently scheduled with Political Science 197B, section 2.

197C. Politics. May be concurrently scheduled with Political Science 224E.

197D. Comparative Government. May be concurrently scheduled with Political Science 250J.

197E. Public Law.

197F. Public Administration and Local Government. Seminars may be offered concurrently with various graduate courses. May be concurrently scheduled with Political Science 218B-218C.
The Staff

198A-198B-198C. Honors Seminar and Thesis. Prerequisites: one course in the 197 series; a 3.40 grade-point average at the upper division level in political science courses; eligibility for College of Letters and Science Honors status. Political Science 198A is prerequisite for 198B, and Political Science 198B is prerequisite for 198C.

Political Science 198A-198B-198C is a one-year honors seminar and thesis-writing sequence. Students entering 198A are expected to have some experience in writing research papers, and to have in mind a research topic suitable for treatment at length and in depth.

During the first quarter (198A) students will define their research topic, select a suitable research method, determine appropriate sources of information, prepare a research proposal, find a thesis director, begin their research, and submit progress reports or preliminary drafts.

Class sessions in 198A will emphasize critical and constructive discussions of students' topics, methods, and problems in research, as well as general consideration of political science research topics and methods of current or continuing interest. Students will also meet privately with the instructor to discuss the progress of their research. The second and third quarters (198B-198C) are devoted to writing an honors thesis under the direction of a faculty member. The honors thesis will be read by the appropriate field committee and graded High Honors, Honors, or No Honors.
The Staff

199. Readings in Political Science. (½ to 1 course) Prerequisites: upper division standing, overall grade-point average of 3.0, consent of the instructor and approval by the Chairman of the Department. May be repeated for a total of four full courses. Individual study. See additional information in statement of requirements for the major in political science. The Staff

Graduate Courses

GENERAL

203. Introduction to Political Inquiry.

203A. Problems of Scientific Inquiry and Normative Discourse.

203B. Major Conceptual Frameworks and Approaches to Political Science.

Normally, 203A or its equivalent will be taken prior to 203B.

203C. Quantitative Research Methods in Political Science. May be concurrently scheduled with Political Science 197C, sec. 1.

An introduction to the analysis of political data. The relationships among theory, concepts, measurements, and inference will be stressed. The nature of measurement will be discussed and there will be an introduction to scaling, index construction, and the measurement of political variables. The student will become familiar with such ideas as: variables, relationships, association and correlation, controls and causal ordering. Students will be introduced to basic techniques of data collection and analysis. They will also engage in computer-aided interpretation of political data. The Staff

204. Quantitative Applications. A survey of quantitative research techniques and their application to the study of political phenomena. May be concurrently scheduled with Political Science 102. Mr. Marvick, Mr. Petrocik

211. Political Theory. An analysis of the central problems of political inquiry and their relation to political philosophy. The Staff

212. International Relations. An examination of contemporary theories and methodologies in international relations, with applications to contemporary international politics. Mr. Jervis

213. American Foreign Policy. An examination of major contemporary problems. The Staff

214A-214B. Survey Courses in American Politics. Students taking MA or Ph.D. examinations in the Politics field will ordinarily have completed these courses before the examination sequence.

214A. Political Parties and the Electoral Process.

214B. American Political Institutions. Mr. Brown, Mr. Marvick, Mr. Petrocik

215A-215B. Comparative Government. Prerequisites: course 215A or consent of instructor is prerequisite for 215B. Approaches to the study of comparative politics and problems of comparative political analysis. The Staff

216. Public Law. A systematic analysis of the scope and nature of public law, with particular attention given to its materials and methods as illustrated in concepts and doctrines drawn from various of its subject fields. May be concurrently scheduled with Political Science 197E. The Staff

218A. Public Administration and Democratic Government. An analysis of the nature and scope of public administration and its role in modern political systems. May be concurrently scheduled with Political Science 197F, sec. 2. Mr. Engelbert

218B. Approaches to Organizational Analysis. Analysis of several of the major conceptual alternatives for the study of organizations, with emphasis given to public administrative organizations. Among the topics covered are structural-functional and systemic approaches to organization, rational-choice models, and social psychological analyses. Each alternative is critically evaluated for its strengths and weaknesses as a guide to understanding organizational analysis. May be concurrently scheduled with Political Science 197F, sec. 1. The Staff

218C. The Administrative System. A behavioral analysis of the processes of public administrative structures in the American political system. Emphasis on the possibilities for and limits on rational decision-making and program innovation and on the problems of maintaining public responsibility. May be concurrently scheduled with Political Science 197E, section 2. The Staff

SUBSTANTIVE COURSES

221. Selected Texts in Political Theory. A critical examination of major texts in political theory with particular attention to their philosophic system, their relations to the contemporary political and intellectual currents, and the importance of the system for present-day political analysis. May be concurrently scheduled with Political Science 197C. The Staff

222. Selected Topics in Political Theory. A critical examination of a major problem in political theory. May be concurrently scheduled with Political Science 197A, sec. 1. The Staff

224A-224K. Studies in Politics.

224A. Polity and Economy. An analysis of the theoretical and practical relationships between economic organization and governmental institutions. Study will include the development and political implications of the market system, banking and finance, corporate enterprise, and organized labor. Ms. Orren

224B. Political Recruitment. A critical evaluation of the literature concerned with the backgrounds of public men, and with the screening and sponsoring mechanisms affecting their careers and political perspectives. May be concurrently scheduled with 197C. Mr. Marvick

224C. Politics and Society. The application of selected classical and contemporary sociological theories to politics. May be concurrently scheduled with Political Science 197C. The Staff

224D. Group Theories of Politics. Critical appraisal of "group theory" approaches to the study of political decision-making, with special attention to empirical research problems and findings. Ms. Orren

224E. Legislative Behavior. The analysis of the major approaches to the study of representative institutions, with special emphasis upon the assumptions, concepts, methods, and theoretical implications associated with each approach. May be concurrently scheduled with Political Science 197C, sec. 1. Mr. Marvick, Mr. Snowiss

224F. Executive Politics and the Presidency. An analysis of executive organization and leadership with emphasis on the American Presidency. Special attention to theories of organization and personality and the relationship between the executive and other institutions and groups. May be concurrently scheduled with course 197C. Mr. Snowiss

M224G. Political Psychology. (Same as Psychology M228.) Prerequisites: course 140 or 141, or 214A, or 224H, or Psychology 220A, or consent of the instructor. A survey of psychological approaches to political analysis; topics include personality, small group analysis, experimental social-psychology, and cognitive psychology. Mr. Sears

224H. Mass Attitudes and Behavior. Prerequisite: course 141 or 214A or consent of instructor. An analysis of the development and change of political attitudes in mass publics, and their relationship to voting, protest and violence. May be concurrently scheduled with Political Science 197B, Section 2. Mr. Brown, Mr. Petrocik

224I. Political Parties. A critical examination of the literature on party systems and organization. Special attention will be given to political functions, electoral campaigns, and party cadres. Mr. Marvick, Mr. Petrocik

228A. Personnel and Human Relations. An analysis of the policies, processes, organizations, and interrelationships involved in manning the public services. The Staff

228B. Public Planning, Programming, and Budgeting. Public budgeting processes within a political and organizational framework. Special emphasis on the Federal program-budgeting system and the interplay between contemporary bureaucratic and decision theory of rational allocation of resources. May be concurrently scheduled with Political Science 197F, sec. 3. Mr. Hoffenberg, Mr. Ries

228C. Political and Administrative Aspects of Planning. A study of the political constraints on and support for effective planning. To be explored are the relationships between planning performance on the one hand, and forms of government, distribution of power, political culture, law and social structure on the other. Mr. Engelbert, Mr. Fried

228D. The National Administrative System. An examination of the formulation and implementation of policy at the federal level. The consequences of administrative performance for American political and social life will be explored. Mr. Engelbert

228E. State Administrative Systems. An analysis of state administrative systems, their local sub-systems, and their outputs. May be concurrently scheduled with Political Science 197F. Mr. Fried

M229. Urban Government. (Same as Architecture and Urban Planning M205C.) An analysis of the policies, processes, interrelations, and organization of governments in heavily populated areas. May be concurrently scheduled with Political Science 197F. Mr. Bollens

230. Comparative Development Administration. An analysis of the administration of development programs and the development of administrative institutions, with special attention to ecology. Comparisons are made both between countries and within countries. Mr. Fried, Mr. Sisson

231A-231D. Studies in International Relations.

231A. Contemporary Problems in United States Foreign Policy. An intensive analysis of the policy-formulation process and the substance of selected contemporary problems in foreign policy. Political and institutional factors affecting foreign policies will be stressed along with the analysis of policy options. May be concurrently scheduled with Political Science 197B. The Staff

231B. National and International Defense Problems. This course analyzes various national security problems in both their military-technical and political dimensions. It seeks to develop in some depth issues likely to be raised in Political Science 138A, which, however, is not a prerequisite. May be concurrently scheduled with Political Science 197B. The Staff

231C. International Law and Organization. This course emphasizes the role of law and organization in the conduct of contemporary international politics. International organization is considered as an integral process within the contemporary international legal system whose characteristics are explored in depth. The Staff

231D. International Relations Theory. An introduction to contemporary problems in international relations theory. May be concurrently scheduled with Political Science 197B. Mr. Stein, Mr. Wilkinson

235. Selected Topics in Comparative Politics. (Formerly numbered 225.) A critical examination of a major problem in comparative politics. The Staff

236A-236B. The Foundations of Representative Government. An analysis of the factors affecting the development and functions of representative institutions in the United States, Europe, and selected political systems of Africa, Asia, and Latin America. Comparative Government or Politics field credit.

236A. An introduction to the literature on the development of elective institutions and their performance. The course takes an interdisciplinary approach, emphasizing historical as well as contemporary cases and modes of analysis.

236B. Prerequisite, either 236A or consent of the instructors. A research seminar devoted to the analysis of particular problems and countries. Mr. Sisson, Mr. Snowiss

238A-238D. Studies in Public Law.

238A. Evolution of Anglo-American Law Books. Surviving early records. Case reporting, from the year books to the modern reports. Legal treatises

NOTE: For key to symbols, see page 74

from Glanvill to today. Statutes and how to find them. The language of the law. Although emphasis will be placed upon American materials the entire English speaking world will be covered. May be concurrently scheduled with Political Science 197E. Mr. Gerstein

238B. Making of the Constitution. An examination of the development of constitutional law during selected periods of American history, such as Founding, the Marshall and Taney eras, and the New Deal. The focus will be on both judicial and non-judicial materials. Mr. Hobbs

238C. The Bill of Rights and the States. An examination of the problems surrounding the application to the states of Amendments 1-9. Mr. Hobbs

238D. Current Problems in Public Law. A discussion of selected contemporary problems in jurisprudence, the judicial process, judicial behavior, and legal controls on social conduct. May be concurrently scheduled with Political Science 197E. Mr. Gerstein

Graduate Seminars

Prerequisite for all graduate seminars: advance consent of instructors.

250A-250L. Seminars in Regional and Area Political Studies.

250A. Latin-American Studies. Mr. Gonzalez, Ms. Purcell

250B. Russian and Slavic Studies. May be concurrently scheduled with Political Science 197C. Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

250C. Chinese and East Asian Studies. May be concurrently scheduled with Political Science 197D. Mr. Baum

250D. Japanese and Western Pacific Studies. May be concurrently scheduled with Political Science 197D. Mr. Baerwald

250E. Seminar in African Studies. May be concurrently scheduled with Political Science 197D. Mr. Lofchie, Mr. Sklar

250F. Middle Eastern Studies. May be concurrently scheduled with Political Science 197D, sec. 5. Mr. Jabber, Mr. Kerr

250G. Commonwealth Studies. The Staff

250H. Seminar in Western European Studies. May be concurrently scheduled with Political Science 197D. Mr. Suleiman

250J. Southeast Asian Studies. May be concurrently scheduled with Political Science 197D, sec. 4. The Staff

250K. North African Studies. Mr. Kerr

250L. South Asian Studies. Mr. Sisson

252. Seminar in Public Law. May be concurrently scheduled with Political Science 197E. The Staff

253. Seminar in International Relations. May be concurrently scheduled with Political Science 197B, section 2. The Staff

254. Seminar in Public Administration. May be concurrently scheduled with Political Science 197F. Mr. Engelbert, Mr. Hoffenberg

256A-256B. Seminar in Comparative Government. Prerequisite: course 256A is prerequisite to 256B. The Staff

257. Seminar in Political Theory. A multiple-term course. Grade to be given only upon completion of 257A and 257B. Mr. Ashcraft

259. Seminar in Political and Electoral Problems. Prerequisite: two graduate courses in Politics. The Staff

262. Seminar in Municipal Government. May be concurrently scheduled with Political Science 197F. Mr. Bollens

271. Seminar in Political Change. An interdisciplinary seminar directed toward the analysis of political change. To be offered by members of the Department of Political Science. May be concurrently scheduled with Political Science 197D. The Staff

280A-280B. Advanced Practicum in Administrative Research. Prerequisite: At least five courses (20 units) at the graduate and upper division level in political science and consent of the instructor. An advanced laboratory/seminar in applied research over a two-quarter sequence on public agency operational and service delivery problems. The seminar will provide an integrated case-study approach to task-force studies dealing with such problems as: legislative and policy issues in mandated and non-mandated public functions; program and management organization; budget and finance performance measures; information systems; evaluation of outcomes; political impact analysis; and related problems in administrative decision-making. The Staff

495. Teaching Political Science. A workshop in teaching techniques, including evaluation of each student's own performance as a Teaching Assistant. Normally to be taken by all new Teaching Assistants in the first quarter of their assistantships; may be taken by students only in a quarter in which they are Teaching Assistants; cannot be used to fulfill M.A. or Ph.D. course requirements. Graded Satisfactory/Unsatisfactory. The Staff

501. Cooperative Program. (½ to 2 courses) Prerequisites: Approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 1 course) A letter grade (A, B, C, D, or F) will be assigned by the professor supervising the study or research. May apply toward the minimum course requirement for the master's degree, and it ordinarily may be used for this requirement only once.

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examinations for the Ph.D. (½ to 2 courses) This course is ordinarily taken only during the quarter in which the student is being examined. A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the Department on the basis of the student's performance in the examination(s).

598. Research for and Preparation of the Master's Thesis. (½ to 2 courses) A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the professor supervising the master's thesis. (This course will rarely be taken in the Department because students normally receive their master's degree under the Comprehensive Examination Plan.)

599. Research for and Preparation of the Doctoral Dissertation. (½ to 2 courses) A grade of Satisfactory (S) or Unsatisfactory (U) will be assigned by the professor supervising the dissertation.

There is no restriction on the number of times an individual student may enroll in any of the 590 series courses.

PSYCHIATRY AND BIOBEHAVIORAL SCIENCES

(Department Educational Activities Office, B7-349 NPI)

T. George Bidder, M.D., *Professor of Psychiatry in Residence.*
Norman Q. Brill, M.D., *Emeritus Professor of Psychiatry.*
[16]W. Jann Brown, M.D., *Professor of Pathology and Psychiatry.*
[16]Nathaniel A. Buchwald, Ph.D., *Professor of Biobehavioral Sciences and Anatomy in Residence.*
Dennis P. Cantwell, M.D., *Professor of Psychiatry.*
Ching-Piao Chien, M.D., *Professor of Psychiatry in Residence.*
Kenneth M. Colby, M.D., *Professor of Psychiatry.*
Robert H. Coombs, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Sociology).*
Joseph W. Cullen, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Public Health).*
[16]Jean S. deVellis, Ph.D., *Professor of Anatomy and Biobehavioral Sciences.*
[16]Wilfrid J. Dixon, Ph.D., *Professor of Biomathematics, Public Health, and Biobehavioral Sciences.*
Robert B. Edgerton, Ph.D., *Professor of Biobehavioral Sciences and Anthropology in Residence.*
Bernice T. Eiduson, Ph.D., *Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
[16]Samuel Eiduson, Ph.D., *Professor of Biobehavioral Sciences and Biological Chemistry in Residence.*
Richard K. Eyman, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Psychology).*
Barbara Fish, M.D., *Professor of Psychiatry.*
Arvan L. Fluharty, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Biological Chemistry).*
Steven R. Forness, Ed.D., *Professor of Biobehavioral Sciences (Special Education) in Residence.*
[16]Joaquin M. Fuster, M.D., *Professor of Psychiatry in Residence.*
Rosslyn Gaines, Ph.D., *Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Gary C. Galbraith, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Medical Psychology).*
Ronald G. Gallimore, Ph.D., *Professor of Biobehavioral Sciences (Psychology) in Residence.*
[16]John Garcia, Ph.D., *Professor of Psychology and Biobehavioral Sciences.*
Harold Garfinkel, Ph.D., *Professor of Sociology and Biobehavioral Sciences.*
Walter R. Goldschmidt, Ph.D., *Professor of Anthropology and Biobehavioral Sciences.*
Milton Greenblatt, M.D., *Professor of Psychiatry in Residence.*
Herbert J. Grossman, M.D., *Professor of Psychiatry in Residence.*
Donald Guthrie, Ph.D., *Adjunct Professor of Biostatistics and Biobehavioral Sciences.*
[16]John Hanley, M.D., *Professor of Psychiatry in Residence.*
Christoph M. Heinicke, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Medical Psychology).*
Frank M. Hewett, Ph.D., *Professor of Education and Biobehavioral Sciences.*
[16]Chester D. Hull, Ph.D., *Professor of Biobehavioral Sciences (Neurophysiology) in Residence.*
Lissy F. Jarvik, Ph.D., M.D., *Professor of Psychiatry.*
Murray E. Jarvik, M.D., Ph.D., *Professor of Psychiatry and Pharmacology.*
Harry J. Jerison, Ph.D., *Professor of Biobehavioral Sciences and Psychology in Residence.*
John G. Kennedy, Ph.D., *Professor of Anthropology and Biobehavioral Sciences in Residence.*
Hayato Kihara, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Biological Chemistry).*
Lewis L. Langness, Ph.D., *Professor of Biobehavioral Sciences and Anthropology in Residence.*
Robert P. Liberman, M.D., *Professor of Psychiatry in Residence.*
[16]Horace W. Magoun, Ph.D., *Emeritus Professor of Anatomy and Biobehavioral Sciences.*
[16]James T. Marsh, Ph.D., *Professor of Biobehavioral Sciences (Medical Psychology).*
[16]David S. Maxwell, Ph.D., *Professor of Anatomy and Biobehavioral Sciences.*
Philip R.A. May, M.D., *Professor of Psychiatry in Residence.*
[16]Michael T. McGuire, M.D., *Professor of Psychiatry.*
Ivan N. Mensh, Ph.D., *Professor of Biobehavioral Sciences (Medical Psychology).*
Milton H. Miller, M.D., *Professor of Psychiatry.*
William H. Oldendorf, M.D., *Professor of Neurology and Psychiatry in Residence.*
[16]Edward M. Ornitz, M.D., *Professor of Psychiatry in Residence.*
Morris J. Paulson, Ph.D., *Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Robert O. Pasnau, M.D., *Professor of Psychiatry in Residence.*
[16]Michel Philippart, M.D., *Adjunct Professor of Psychiatry, Pediatrics and Neurology.*
[16]George J. Popjak, M.D., *Professor of Psychiatry and Biological Chemistry.*
Douglass R. Price-Williams, Ph.D., *Professor of Biobehavioral Sciences and Anthropology in Residence.*
Richard H. Rahe, M.D., *Adjunct Professor of Psychiatry.*
Fredrick C. Redlich, M.D., *Professor of Psychiatry in Residence.*
Edward R. Ritvo, M.D., *Professor of Psychiatry in Residence.*
[16]Robert T. Rubin, M.D., *Professor of Psychiatry in Residence.*
George Saslow, M.D., *Professor of Psychiatry in Residence.*
[16]Richard J. Schain, M.D., *Professor of Pediatrics, Neurology, and Psychiatry.*
[16]Arnold B. Scheibel, M.D., *Professor of Anatomy and Psychiatry.*
Donald A. Schwartz, M.D., *Adjunct Professor of Psychiatry.*
[16]Eustace A. Serafetinides, M.D., Ph.D., *Professor of Psychiatry in Residence.*
David Shapiro, Ph.D., *Professor of Biobehavioral Sciences and Psychology.*
Edwin S. Shneidman, Ph.D., *Professor of Biobehavioral Sciences in Residence.*
Arthur B. Silverstein, Ph.D., *Adjunct Professor of Biobehavioral Sciences (Medical Psychology).*
James Q. Simmons, M.D., *Professor of Psychiatry in Residence.*
S. Stefan Soltysik, M.D., Ph.D., *Professor of Biobehavioral Sciences (Neurophysiology) in Residence.*

Robert S. Sparkes, M.D., *Professor of Medicine, Pediatrics, and Psychiatry.*
[16]Maurice B. Sterman, Ph.D., *Professor of Anatomy and Biobehavioral Sciences in Residence.*
Robert J. Stoller, M.D., *Professor of Psychiatry.*
Manuel Straker, M.D., *Professor of Psychiatry in Residence.*
Frank F. Tallman, M.D., *Emeritus Professor of Psychiatry.*
George Tarjan, M.D., *Professor of Psychiatry.*
Charles W. Tidd, M.D., *Emeritus Professor of Psychiatry.*
Jaime R. Villablanca, M.D., *Professor of Biobehavioral Sciences (Neurophysiology) in Residence.*
[16]Richard D. Walter, M.D., *Professor of Neurology and Psychiatry.*
[16]Bernice M. Wenzel, Ph.D., *Professor of Physiology and Biobehavioral Sciences.*
[16]Louis Jolyon West, M.D., *Professor of Psychiatry (Chairman of the Department).*
[16]Charles D. Woody, M.D., *Professor of Psychiatry in Residence.*
Ralph E. Worden, M.D., *Adjunct Professor of Psychiatry.*
Joe Yamamoto, M.D., *Professor of Psychiatry in Residence.*
[16]Arthur Yuwiler, Ph.D., *Professor of Biobehavioral Sciences (Biological Chemistry) in Residence.*
Anthony M. Adinolfi, Ph.D., *Associate Professor of Anatomy and Biobehavioral Sciences.*
Linda J. Beckman, Ph.D., *Adjunct Associate Professor of Biobehavioral Sciences (Medical Psychology).*
Ethel M. Bonn, M.D., *Adjunct Associate Professor of Psychiatry.*
Alexander B. Caldwell, Ph.D., *Adjunct Associate Professor of Biobehavioral Sciences (Medical Psychology).*
Dennis P. Cantwell, M.D., *Associate Professor of Psychiatry.*
Stephen D. Cederbaum, M.D., *Associate Professor of Psychiatry and Pediatrics in Residence.*
Barbara F. Crandall, M.D., *Associate Professor of Pediatrics and Psychiatry in Residence.*
Milton S. David, Ph.D., M.D., *Adjunct Associate Professor of Psychiatry.*
Herbert H. Eveloff, M.D., *Adjunct Associate Professor of Psychiatry.*
[16]Edward Geller, Ph.D., *Associate Professor of Biobehavioral Sciences (Biological Chemistry) in Residence.*
Joshua S. Golden, M.D., *Associate Professor of Psychiatry in Residence.*
Irene T. Goldenberg, Ed.D., *Adjunct Associate Professor of Biobehavioral Sciences (Educational Psychology).*
Roderic Gorney, M.D., *Adjunct Associate Professor of Psychiatry.*
Frederick Gottlieb, M.D., *Adjunct Associate Professor of Psychiatry.*
Jean C. Holroyd, Ph.D., *Adjunct Associate Professor of Biobehavioral Sciences (Medical Psychology).*
Joseph R. Jedrychowski, D.D.S., *Associate Professor of Dentistry, Pediatrics, and Biobehavioral Sciences.*
Sheldon H. Kardener, M.D., *Adjunct Associate Professor of Psychiatry.*
Marvin Karno, M.D., *Associate Professor of Psychiatry in Residence.*
[16]Henry Lesse, M.D., *Associate Professor of Psychiatry in Residence.*
Edward H. Liston, M.D., *Adjunct Associate Professor of Psychiatry.*
Lars B. Lofgren, M.D., *Adjunct Associate Professor of Psychiatry.*
Gayle G. Marsh, Ph.D., *Adjunct Associate Professor of Biobehavioral Sciences (Medical Psychology).*
Jim Mintz, Ph.D., *Associate Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Armando Morales, D.S.W., *Adjunct Associate Professor of Biobehavioral Sciences (Social Work).*
Kazuo Nihira, Ph.D., *Associate Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Gloria J. Powell, M.D., *Associate Professor of Psychiatry in Residence.*
Kiki V. Roe, Ph.D., *Adjunct Associate Professor of Biobehavioral Sciences (Medical Psychology).*
Alexander C. Rosen, Ph.D., *Associate Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Paul F. Slawson, M.D., *Adjunct Associate Professor of Psychiatry.*
Mary Anne Spence, Ph.D., *Associate Professor of Biobehavioral Sciences and Biomathematics in Residence.*
Peter E. Tanguay, M.D., *Associate Professor of Psychiatry in Residence.*
Shih Y. Tsai, M.D., *Adjunct Associate Professor of Psychiatry.*
Alexander J. Tymchuk, Ph.D., *Associate Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
J. Thomas Ungerleider, M.D., *Associate Professor of Psychiatry in Residence.*
Mario Valente, M.D., *Adjunct Associate Professor of Psychiatry.*
Theodore Van Putten, M.D., *Adjunct Associate Professor of Psychiatry.*
Joel Yager, M.D., *Associate Professor of Psychiatry in Residence.*
Lawrence R. Allman, Ph.D., *Adjunct Assistant Professor of Biobehavioral Sciences (Medical Psychology).*
Michal Artal, M.D., *Adjunct Assistant Professor of Psychiatry.*
Daniel B. Auerbach, M.D., *Adjunct Assistant Professor of Psychiatry.*
Christiane A. Baltaxe, Ph.D., *Assistant Professor of Biobehavioral Sciences (Linguistics) in Residence.*
Albert L. N. Blodgett, M.D., *Adjunct Assistant Professor of Psychiatry.*
Alan Brovar, M.D., *Adjunct Assistant Professor of Psychiatry.*
Murray A. Brown, M.D., *Adjunct Assistant Professor of Psychiatry.*
[16]Warren S. Brown, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
James A. Bush, D.S.W., *Adjunct Assistant Professor of Biobehavioral Sciences (Social Work).*
Tracy L. Cogbill, M.D., *Adjunct Assistant Professor of Psychiatry.*
Kenneth F. Crumley, M.D., *Assistant Professor of Psychiatry in Residence.*
Fawzy I. Fawzy, M.D., *Assistant Professor of Psychiatry in Residence.*
Yvonne B. Ferguson, M.D., *Assistant Professor of Psychiatry in Residence.*
Edward J. Fik, M.D., *Adjunct Assistant Professor of Psychiatry.*
Frederick D. Frankel, Ph.D., *Adjunct Assistant Professor of Biobehavioral Sciences (Medical Psychology).*
Betty Jo Freeman, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Claude T. H. Friedmann, M.D., *Assistant Professor of Psychiatry in Residence.*
Steve J. Funderburk, M.D., *Assistant Professor of Psychiatry in Residence.*
Robert H. Gerner, M.D., *Assistant Professor of Psychiatry in Residence.*
Lawrence F. Gosenfeld, D.O., *Assistant Professor of Psychiatry in Residence.*
Donald F. Haggerty, Ph.D., *Assistant Professor of Biobehavioral Sciences (Biological Chemistry) in Residence.*
James L. Hawkins, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology).*
Richard L. Heinrich, M.D., *Adjunct Assistant Professor of Psychiatry.*
Robert S. Hoffman, M.D., *Assistant Professor of Psychiatry in Residence.*
Gabrielle M. Hosey, M.D., *Adjunct Assistant Professor of Psychiatry.*
Kay Jamison, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Promila R. Kakkar, M.D., *Assistant Professor of Psychiatry in Residence.*
James S. Ketchum, M.D., *Assistant Professor of Psychiatry in Residence.*
Lewis M. King, Ph.D., *Assistant Professor of Biobehavioral Sciences (Psychology) in Residence.*
Ramzi Z. Kiriakos, M.D., *Assistant Professor of Psychiatry in Residence.*
Robert W. Krasnow, M.D., *Adjunct Assistant Professor of Psychiatry.*
Ford H. Kuramoto, D.S.W., *Adjunct Assistant Professor of Biobehavioral Sciences (Social Work).*
Melvin R. Lansky, M.D., *Adjunct Assistant Professor of Psychiatry.*
Ira M. Lesser, M.D., *Assistant Professor of Psychiatry in Residence.*
Michael S. Levine, Ph.D., *Assistant Professor of Biobehavioral Sciences (Neuroanatomy) in Residence.*
Walter Ling, M.D., *Adjunct Assistant Professor of Psychiatry.*
Fred Loya, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Stephen R. Marder, M.D., *Assistant Professor of Psychiatry in Residence.*
Charles P. McCreary, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Richard J. Metzner, M.D., *Adjunct Assistant Professor of Psychiatry.*
William H. Miller, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Paul R. Munford, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Marjorie Newman, M.D., *Adjunct Assistant Professor of Psychiatry.*
Keith Neuchterlein, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Leonora K. Petty, M.D., *Assistant Professor of Psychiatry in Residence.*
Kenneth S. Pope, Ph.D., *Assistant Professor of Biobehavioral Sciences in Residence.*
Alan G. Robertson, M.D., *Assistant Professor of Psychiatry in Residence.*
Andrew T. Russell, M.D., *Assistant Professor of Psychiatry in Residence.*
Jeffrey A. Schaeffer, Ph.D., *Adjunct Assistant Professor of Biobehavioral Sciences.*
Joseph R. Sicignano, M.D., *Adjunct Assistant Professor of Psychiatry.*
Jerome M. Siegel, Ph.D., *Assistant Professor of Biobehavioral Sciences (Psychology) in Residence.*
Marian Sigman, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
James Spar, M.D., *Acting Assistant Professor of Psychiatry.*
Gordon D. Strauss, M.D., *Assistant Professor of Psychiatry in Residence.*
Michael A. Strober, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Roland C. Summit, M.D., *Adjunct Assistant Professor of Psychiatry.*
Miriam Tasini, M.D., *Assistant Professor of Psychiatry in Residence.*
Jeffrey L. Trop, M.D., *Adjunct Assistant Professor of Psychiatry.*
Jimmie L. Turner, Ph.D., *Assistant Professor of Biobehavioral Sciences (Anthropology) in Residence.*
Raymond A. Ulmer, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Thomas S. Weisner, Ph.D., *Assistant Professor of Biobehavioral Sciences and Anthropology in Residence.*
David K. Wellisch, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*
Clay C. Whitehead, M.D., *Adjunct Assistant Professor of Psychiatry.*
Jeffrey N. Wilkins, M.D., *Assistant Professor of Psychiatry in Residence.*
Gail E. Wyatt, Ph.D., *Assistant Professor of Biobehavioral Sciences (Medical Psychology) in Residence.*

•

Janice E. Abarbanel, M.A., *Associate.*
George Y. Abe, M.D., *Assistant Clinical Professor of Psychiatry.*
Allan S. Abrams, M.D., *Assistant Clinical Professor of Psychiatry.*
Mathis Abrams, M.D., *Assistant Clinical Professor of Psychiatry.*
Barnett Addis, Ph.D., *Academic Administrator.*
Philip B. Alexander, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard P. Alexander, M.D., *Assistant Clinical Professor of Psychiatry.*
Nancy H. Allen, M.P.H., *Associate in Health Education.*
Jose M. Amador, M.D., *Assistant Clinical Professor of Psychiatry.*
Linda Andron, M.S.W., *Lecturer in Social Work.*
Gerald J. Aronson, M.D., *Assistant Clinical Professor of Psychiatry.*
Eric D. Auerbach, M.D., *Assistant Clinical Professor of Psychiatry.*
Bernard W. Bail, M.D., *Assistant Clinical Professor of Psychiatry.*
Lailee B. Bakhtiar, M.D., *Associate Clinical Professor of Psychiatry.*
Alina M. Barakonski, M.D., *Assistant Clinical Professor of Psychiatry.*
Cyril Barnert, M.D., *Assistant Clinical Professor of Psychiatry.*
Norman I. Barr, M.D., *Assistant Clinical Professor of Psychiatry.*
Barbara A. Bass, M.S.W., *Lecturer in Social Work.*
Diane J. Bass, M.S.W., *Lecturer in Social Work.*
Curt G. Batiste, M.D., *Assistant Clinical Professor of Psychiatry.*
William Baumzweiger-Bauer, M.D., *Assistant Clinical Professor of Psychiatry.*
Bryce R. Bednar, M.D., *Assistant Clinical Professor of Psychiatry.*
Arnold R. Beisser, M.D., *Clinical Professor of Psychiatry.*
Fay F. Benbrook, M.D., *Assistant Clinical Professor of Psychiatry.*
Carole L. Bender, M.S.W., *Lecturer in Social Work.*
David J. Bender, M.D., *Associate Clinical Professor of Psychiatry.*
Irving Berent, M.D., *Assistant Clinical Professor of Psychiatry.*
Samuel M. Berger, M.D., *Assistant Clinical Professor of Psychiatry.*
Sidney H. Bergman, M.D., *Assistant Clinical Professor of Psychiatry.*
Irving H. Berkovitz, M.D., *Associate Clinical Professor of Psychiatry.*
Basil G. Bernstein, M.D., *Assistant Clinical Professor of Psychiatry.*
Patrick T. Bezdek, M.D., *Assistant Clinical Professor of Psychiatry.*
Stephen S. Bindman, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Seymour E. Bird, M.D., *Assistant Clinical Professor of Psychiatry.*
Samuel Black, M.D., *Assistant Clinical Professor of Psychiatry.*
Stephen M. Blain, D.D.S., *Lecturer in Biobehavioral Sciences (Dentistry).*
Mara Blakis, M.D., *Assistant Clinical Professor of Psychiatry.*
Joe D. Blanton, M.D., *Assistant Clinical Professor of Psychiatry.*
Herbert Blaufarb, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Alfred Bloch, M.D., *Assistant Clinical Professor of Psychiatry.*
Sheldon F. Bloch, M.D., *Assistant Clinical Professor of Psychiatry.*
Stanley H. Block, M.D., *Assistant Clinical Professor of Psychiatry.*
Darrell W. Bolen, M.D., *Assistant Clinical Professor of Psychiatry.*
Daniel B. Borenstein, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert Borodkin, M.D., *Assistant Clinical Professor of Psychiatry.*
Antonio Bottino, M.D., *Assistant Clinical Professor of Psychiatry.*
William H. Boyd, M.D., *Assistant Clinical Professor of Psychiatry.*
Walter Brackelmanns, M.D., *Assistant Clinical Professor of Psychiatry.*

Bernard S. Brandchaft, M.D., *Assistant Clinical Professor of Psychiatry.*
Harry R. Brickman, M.D., *Clinical Professor of Psychiatry.*
Jody Brkich, M.D., *Assistant Clinical Professor of Psychiatry.*
Thomas M. Brod, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert H. Brofman, M.D., *Assistant Clinical Professor of Psychiatry.*
Philip R. Bronner, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert E. Brooks, M.D., *Assistant Clinical Professor of Psychiatry.*
Marvin D. Brown, M.S.W., *Lecturer in Social Work.*
Saul L. Brown, M.D., *Clinical Professor of Psychiatry.*
James S. Brust, M.D., *Assistant Clinical Professor of Psychiatry.*
Helene Buerger, M.D., *Assistant Clinical Professor of Psychiatry.*
Frances L. Burger, M.D., *Assistant Clinical Professor of Psychiatry.*
Bret O. Burquest, M.D., *Assistant Clinical Professor of Psychiatry.*
Jane C. Burroughs, M.S.W., *Lecturer in Social Work.*
Juan Bustamente, M.D., *Assistant Clinical Professor of Psychiatry.*
Edwin D. Caine, M.D., *Assistant Clinical Professor of Psychiatry.*
J. Alfred Cannon, M.D., *Lecturer in Psychiatry.*
Paul A. Cantalupo, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert A. Caper, M.D., *Assistant Clinical Professor of Psychiatry.*
Howard Caplan, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert E. Caraway, M.D., *Assistant Clinical Professor of Psychiatry.*
Maury T. Carlin, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Dwight L. Carlson, M.D., *Assistant Clinical Professor of Psychiatry.*
Ira M. Carson, M.D., *Associate Clinical Professor of Psychiatry.*
Elaine G. Caruth, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Vorokiat Charuvastra, M.D., *Assistant Clinical Professor of Psychiatry.*
Mary F. Christianson, M.D., *Assistant Clinical Professor of Psychiatry.*
Thomas K. Ciesla, M.D., *Assistant Clinical Professor of Psychiatry.*
Martin L. Cohen, M.D., *Assistant Clinical Professor of Psychiatry.*
Sidney Cohen, M.D., *Clinical Professor of Psychiatry.*
Alexander Comfort, M.B., D.Sc., *Lecturer in Psychiatry.*
Allan R. Compton, M.D., *Assistant Clinical Professor of Psychiatry.*
Jay P. Consolver, M.D., *Assistant Clinical Professor of Psychiatry.*
Alfred E. Coodley, M.D., *Associate Clinical Professor of Psychiatry.*
Beatrice M. Cooper, M.S., *Associate in Social Services.*
Robert J. Cooper, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald H. Cooper, J.D., *Lecturer in Legal Psychiatry.*
Norman B. Cousins, M.A., *Senior Lecturer in Medical Humanities.*
Ned N. Cowan, M.D., *Assistant Clinical Professor of Psychiatry.*
Bradley Daigle, M.D., *Assistant Clinical Professor of Psychiatry.*
L. Jeannette Davis, D.S.W., *Associate in Social Work.*
Carole L. Deets, M.S., *Associate in Medical Health Planning.*
Russell Denea, M.D., *Assistant Clinical Professor of Psychiatry.*
William H. Dewhurst, M.D., *Assistant Clinical Professor of Psychiatry.*
Michael J. Diamond, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences.*
S. Mark Doran, M.D., *Associate Clinical Professor of Psychiatry.*
Daniel Dorman, M.D., *Assistant Clinical Professor of Psychiatry.*
Franklin Drucker, M.D., *Assistant Clinical Professor of Psychiatry.*
Jorge N. Dubin, M.D., *Assistant Clinical Professor of Psychiatry.*
Michael J. Durfee, M.D., *Assistant Clinical Professor of Psychiatry.*
Rudolf Ekstein, Ph.D., *Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Robert J. Elstad, M.D., *Assistant Clinical Professor of Psychiatry.*
Ward H. Emory, M.D., *Assistant Clinical Professor of Psychiatry.*
Harold B. Enns, M.D., *Assistant Clinical Professor of Psychiatry.*
Ted D. Evans, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).* Jose R. Ezquerra, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert A. Faguet, M.D., *Assistant Clinical Professor of Psychiatry.*
Beverly Feinstein, M.D., *Assistant Clinical Professor of Psychiatry.*
Bernard Feldman, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Juanita L. Ferjo, M.A., *Demonstration Teacher.*
Martin G. Field, M.D., *Assistant Clinical Professor of Psychiatry.*
Sidney Fine, M.D., *Assistant Clinical Professor of Psychiatry.*
Thomas M. Finkelor, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert T. Fintzy, M.D., *Assistant Clinical Professor of Psychiatry.*
Gregory J. Firman, M.D., *Assistant Clinical Professor of Psychiatry.*
Craig Fischer, M.D., *Assistant Clinical Professor of Psychiatry.*
Duke D. Fisher, M.D., *Assistant Clinical Professor of Psychiatry.*
Rebecca S. Flaharty, M.A., *Demonstration Teacher.*
Virginia Flanagan, M.D., *Assistant Clinical Professor of Psychiatry.*
William R. Flynn, M.D., *Associate Clinical Professor of Psychiatry.*
Vernelle Fox, M.D., *Assistant Clinical Professor of Psychiatry.*
Elliott Foxman, M.D., *Assistant Clinical Professor of Psychiatry.*
Ira Frank, M.D., *Assistant Clinical Professor of Psychiatry.*
Barry Friedman, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard Friedman, M.D., *Assistant Clinical Professor of Psychiatry.*
Claire R. Friend, M.D., *Assistant Clinical Professor of Psychiatry.*
Florence Frisch, M.S.W., *Lecturer in Social Work.*
Susan Fukushima, M.D., *Assistant Clinical Professor of Psychiatry.*
Marielle C. Fuller, *Lecturer in Psychiatry.*
Ivan R. Gabor, M.D., *Assistant Clinical Professor of Psychiatry.*
Jack Gaines, M.D., *Assistant Clinical Professor of Psychiatry.*
Phyllis Gainsborough, M.S., *Demonstration Teacher.*
Leonard A. Gale, M.D., *Assistant Clinical Professor of Psychiatry.*
Elizabeth Galton, M.D., *Assistant Clinical Professor of Psychiatry.*
Charlotte B. Gelb, M.S.W., *Associate in Social Work.*
Arnold L. Gilberg, M.D., *Assistant Professor of Psychiatry.*
Leonard H. Gilman, M.D., *Assistant Clinical Professor of Psychiatry.*
Jean S. Gitelson, B.S., *Associate in Psychology.*
David E. Glass, M.D., *Assistant Clinical Professor of Psychiatry.*
Trevor D. Glenn, M.D., *Assistant Clinical Professor of Psychiatry.*
Howard N. Glick, M.D., *Assistant Clinical Professor of Psychiatry.*
Stuart Glickman, M.D., *Assistant Clinical Professor of Psychiatry.*
Irvin D. Godofsky, M.D., *Assistant Clinical Professor of Psychiatry.*
Sidney Gold, M.D., *Assistant Clinical Professor of Psychiatry.*
Lee M. Goldfine, M.D., *Assistant Clinical Professor of Psychiatry.*
Hymen C. Goldman, Ed.D., *Assistant Clinical Professor of Biobehavioral Sciences (Educational Psychology).*
Stephen R. Goldsmith, M.D., *Assistant Clinical Professor of Psychiatry.*
William Goldsmith, M.D., *Assistant Clinical Professor of Psychiatry.*
Bertram Goldstein, M.D., *Assistant Clinical Professor of Psychiatry.*
Orest Gorchynski, M.D., *Assistant Clinical Professor of Psychiatry.*
Michael O. Gordon, M.D., *Assistant Clinical Professor of Psychiatry.*
David I. Gottlieb, M.D., *Assistant Clinical Professor of Psychiatry.*
Mary Lou Gottlieb, M.S.W., *Lecturer in Social Work.*
Roger L. Gould, M.D., *Associate Clinical Professor of Psychiatry.*
Herbert Gray, M.D., *Assistant Clinical Professor of Psychiatry.*
Jacquelyn K. Green, M.D., *Assistant Clinical Professor of Psychiatry.*
Ralph R. Greenson, M.D., *Clinical Professor of Psychiatry.*
Ronald J. Griffith, M.D., *Assistant Clinical Professor of Psychiatry.*
Michael Gross, M.D., *Assistant Clinical Professor of Psychiatry.*
Zoltan Gross, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Carl M. Grossman, M.D., *Assistant Clinical Professor of Psychiatry.*
James S. Grotstein, M.D., *Associate Clinical Professor of Psychiatry.*
Peter B. Gruenberg, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert D. Gruener, M.D., *Assistant Clinical Professor of Psychiatry.*
Aaron H. Haas, M.D., *Assistant Clinical Professor of Psychiatry.*
Neil B. Haas, M.D., *Assistant Clinical Professor of Psychiatry.*
William J. Hansen, M.D., *Assistant Clinical Professor of Psychiatry.*
Carl A. Hanssen, M.D., *Assistant Clinical Professor of Psychiatry.*
Elliot A. Harris, M.D., *Assistant Clinical Professor of Psychiatry.*
Hiawatha Harris, M.D., *Assistant Clinical Professor of Psychiatry.*
Lynn S. Harris, M.S.W., *Lecturer in Social Work.*
Norman B. Hartstein, M.D., *Assistant Clinical Professor of Psychiatry.*
Arthur A. Haynes, M.D., *Assistant Clinical Professor of Psychiatry.*
John W. Hedenberg, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Jarvin R. Heiman, M.D., *Assistant Clinical Professor of Psychiatry.*
Anna G. Heinrich, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Bernard S. Hellinger, M.D., *Assistant Clinical Professor of Psychiatry.*
Thomas L. Henley, M.D., *Assistant Clinical Professor of Psychiatry.*
James S. Henning, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Shelby M. Hicks, M.D., *Assistant Clinical Professor of Psychiatry.*
Ruth Hochberg, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
John I. Hochman, M.D., *Assistant Clinical Professor of Psychiatry.*
Joshua A. Hoffs, M.D., *Assistant Clinical Professor of Psychiatry.*
Malcolm J. Hoffs, M.D., *Assistant Clinical Professor of Psychiatry.*
Emanuel M. Honig, M.D., *Assistant Clinical Professor of Psychiatry.*
James N. Hood, M.D., *Assistant Clinical Professor of Psychiatry.*
Klaus D. Hoppe, M.D., *Associate Clinical Professor of Psychiatry.*
Simon Horenstein, M.D., *Assistant Clinical Professor of Psychiatry.*
William S. Horowitz, M.D., *Assistant Clinical Professor of Psychiatry.*
Sita Huff, M.D., *Assistant Clinical Professor of Psychiatry.*
James E. Hughes, M.D., *Assistant Clinical Professor of Psychiatry.*
Isadore E. Hurwitz, M.D., *Assistant Clinical Professor of Psychiatry.*
Jeffrey I. Hutter, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Harrington V. Ingham, M.D., *Associate Clinical Professor of Psychiatry.*
Dennis T. Jaffe, Ph.D., *Associate in Sociology.*
Robert L. James, M.D., *Assistant Clinical Professor of Psychiatry.*
Joan E. Johnson, M.S.W., *Lecturer in Social Work.*
Richard G. Johnson, M.D., *Assistant Clinical Professor of Psychiatry.*
Harry B. Jones, M.D., *Assistant Clinical Professor of Psychiatry.*
Martha B. Jura, Ph.D., *Associate in Psychology.*
George J. Kalman, M.D., *Assistant Clinical Professor of Psychiatry.*
Harriet Kaplan, M.D., *Assistant Clinical Professor of Psychiatry.*
Jerome Karasic, M.D., *Assistant Clinical Professor of Psychiatry.*
Ernest B. Katz, M.D., *Assistant Clinical Professor of Psychiatry.*
Charles V. Keeran, M.S.W., *Lecturer in Mental Hospital Administration.*
Timothy W. Keller, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard E. Kettler, M.D., *Assistant Clinical Professor of Psychiatry.*
Gary W. Kielhofner, M.A., *Associate in Occupational Therapy.*
Wellesley R. Kime, M.D., *Assistant Clinical Professor of Psychiatry.*
Martha Kirkpatrick, M.D., *Associate Clinical Professor of Psychiatry.*
Leslie M. Kirshenbaum, M.D., *Assistant Clinical Professor of Psychiatry.*
Marvin A. Klemes, M.D., *Assistant Clinical Professor of Psychiatry.*
Stephen S. Klevens, M.D., *Assistant Clinical Professor of Psychiatry.*
George L. Kline, M.D., *Assistant Clinical Professor of Psychiatry.*
Peter L. Klein, M.D., *Assistant Clinical Professor of Psychiatry.*
Steven T. Knee, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald Koegler, M.D., *Associate Clinical Professor of Psychiatry.*
Werner T. Koenig, M.D., *Assistant Clinical Professor of Psychiatry.*
Marilyn F. Kritzer, M.S.W., *Associate in Social Work.*
Joseph L. Krofcheck, M.D., *Assistant Clinical Professor of Psychiatry.*
Boyd M. Krout, M.D., *Assistant Clinical Professor of Psychiatry.*

Ethel E. Lampl, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Jerome R. Lance, M.D., *Assistant Clinical Professor of Psychiatry.*
Charles B. Larkin, M.D., *Assistant Clinical Professor of Psychiatry.*
Sandra M. Lauterbach, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald M. Lawrence, M.D., *Assistant Clinical Professor of Psychiatry.*
Maimon Leavitt, M.D., *Assistant Clinical Professor of Psychiatry.*
Doryann M. Lebe, M.D., *Assistant Clinical Professor of Psychiatry.*
Allen H. Lefstin, M.D., *Assistant Clinical Professor of Psychiatry.*
James Lehman, M.D., *Assistant Clinical Professor of Psychiatry.*
Tzuen-jen Lei, Ph.D., *Specialist.*
Stanley J. Leiken, M.D., *Associate Clinical Professor of Psychiatry.*
John Leonard, M.D., *Assistant Clinical Professor of Psychiatry.*
Jean-Louis LeRenard, M.D., *Assistant Clinical Professor of Psychiatry.*
Stuart A. Lerner, M.D., *Assistant Clinical Professor of Psychiatry.*
Vallabhaneni K. Meenakshi, M.D., *Assistant Clinical Professor of Psychiatry.*
Seymour E. Leventer, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Lionel B. Levin, M.D., *Assistant Clinical Professor of Psychiatry.*
Eugene A. Levitt, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
William H. Levy, M.D., *Assistant Clinical Professor of Psychiatry.*
Barry S. Liebèrman, M.D., *Assistant Clinical Professor of Psychiatry.*
Henry Lihn, M.D., *Associate Clinical Professor of Psychiatry.*
Myron Lind, M.D., *Assistant Clinical Professor of Psychiatry.*
Carol A. Lindberg, M.D., *Assistant Clinical Professor of Psychiatry.*
Barbara E. Linden, M.A., *Demonstration Teacher.*
Richard L. Lindenbaum, M.D., *Assistant Clinical Professor of Psychiatry.*
John A. Lindon, M.D., *Associate Clinical Professor of Psychiatry.*
Cathie-Ann Lippman, M.D., *Assistant Clinical Professor of Psychiatry.*
Leslie P. Lipson, M.D., *Assistant Clinical Professor of Psychiatry.*
Terry D. Lipton, M.D., *Assistant Clinical Professor of Psychiatry.*
Ange J. Lobue, M.D., *Assistant Clinical Professor of Psychiatry.*
Donald F. Lomas, M.S.W., *Associate in Social Work.*
Leonard M. Loren, M.D., *Assistant Clinical Professor of Psychiatry.*
Isle W. Lowenstam, M.D., *Assistant Clinical Professor of Psychiatry.*
Leslie M. Luczy, M.D., *Assistant Clinical Professor of Psychiatry.*
John T. Lundgren, M.D., *Assistant Clinical Professor of Psychiatry.*
Noel Lustig, M.D., *Associate Clinical Professor of Psychiatry.*
Maria T. Lymberis, M.D., *Assistant Clinical Professor of Psychiatry.*
Montie Magree, M.D., *Assistant Clinical Professor of Psychiatry.*
Arthur Malin, M.D., *Lecturer in Psychiatry.*
Michael D. Malkin, M.D., *Assistant Clinical Professor of Psychiatry.*
Gabriel O. Manasse, M.D., *Assistant Clinical Professor of Psychiatry.*
Melvin Mandel, M.D., *Associate Clinical Professor of Psychiatry.*
Michael G. Mandel, M.D., *Assistant Clinical Professor of Psychiatry.*
Myrtle Mandiberg, M.A., *Associate in Psychology.*
Ronald A. Mann, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Eric H. Marcus, M.D., *Assistant Clinical Professor of Psychiatry.*
Stephen S. Marmer, M.D., *Assistant Clinical Professor of Psychiatry.*
Jerry P. Martin, M.D., *Assistant Clinical Professor of Psychiatry.*
Carl E. Marusak, M.D., *Assistant Clinical Professor of Psychiatry.*
Harold E. Mavritte, M.D., *Assistant Clinical Professor of Psychiatry.*
Donald L. Mayhew, Ph.D., *Demonstration Teacher.*
Maria Mayoral, M.D., *Assistant Clinical Professor of Psychiatry.*
Tracey McCarley, M.D., *Lecturer in Psychiatry.*
John Q. McClure, M.D., *Assistant Clinical Professor of Psychiatry.*
Mehl McDowell, M.D., *Associate Clinical Professor of Psychiatry.*
Vallabhaneni K. Meenakshi, M.D., *Assistant Clinical Professor of Psychiatry.*
King M. Mendelsohn, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard W. Merel, M.D., *Assistant Clinical Professor of Psychiatry.*
Miriam A. Meyer, M.S.W., *Lecturer in Social Work.*
Beth E. Meyerowitz, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Elva R. Mezquita, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard Migel, M.D., *Assistant Clinical Professor of Psychiatry.*
Samuel I. Miles, M.D., *Assistant Clinical Professor of Psychiatry.*
Franklin C. Milgrim, M.D., *Assistant Clinical Professor of Psychiatry.*
Curtis R. Miller, M.A., *Specialist.*
Nancy B. Miller, M.S.W., Ph.D., *Lecturer in Social Work.*
Ronald S. Mintz, M.D., *Associate Clinical Professor of Psychiatry.*
Thomas Mintz, M.D., *Assistant Clinical Professor of Psychiatry.*
Henry G. Moeller, M.D., *Assistant Clinical Professor of Psychiatry.*
J. Victor Monke, M.D., *Associate Clinical Professor of Psychiatry.*
Clinton Y. Montgomery, M.D., *Assistant Clinical Professor of Psychiatry.*
Francisco F. Morales, M.D., *Assistant Clinical Professor of Psychiatry.*
Gerald M. Motis, M.D., *Assistant Clinical Professor of Psychiatry.*
Helga M. Muller, M.A., *Specialist.*
Martin C. Nadler, M.D., *Assistant Clinical Professor of Psychiatry.*
Leonard Neff, M.D., *Assistant Clinical Professor of Psychiatry.*
Edward C. Nelson, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences.*
Gerald A. Nemeth, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard G. Ness, M.D., *Assistant Clinical Professor of Psychiatry.*
Lawrence E. Newman, M.D., *Assistant Clinical Professor of Psychiatry.*
Natalie R. Newman, M.A., *Demonstration Teacher.*
Geoffrey Newstadt, M.D., *Assistant Clinical Professor of Psychiatry.*
Saul Niedorf, M.D., *Assistant Clinical Professor of Psychiatry.*
Hindy Nobler, M.S.W., *Lecturer in Social Work.*
Walter Nowers, M.D., *Assistant Clinical Professor of Psychiatry.*
Ralph M. Obler, M.D., *Associate Clinical Professor of Psychiatry.*
Anita M. O'Connor, B.A., *Demonstration Teacher.*
Garrett J. O'Connor, M.D., *Associate Clinical Professor of Psychiatry.*
Robert L. Oldham, M.D., *Assistant Clinical Professor of Psychiatry.*
Andrew Ollstein, M.D., *Assistant Clinical Professor of Psychiatry.*
Edwin J. Olsen, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald H. Onkin, M.D., *Assistant Clinical Professor of Psychiatry.*
Mark F. Orfirer, M.D., *Assistant Clinical Professor of Psychiatry.*
Allen Pack, M.D., *Assistant Clinical Professor of Psychiatry.*
Regina Pally, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard C. Palmer, M.D., *Assistant Clinical Professor of Psychiatry.*
Rachel Pape, M.D., *Assistant Clinical Professor of Psychiatry.*
Frank A. Parodi, M.D., *Assistant Clinical Professor of Psychiatry.*
Zane E. Parzen, M.D., *Assistant Clinical Professor of Psychiatry.*
Lyndell Paul, M.S.W., *Associate in Social Work.*
David J. Paster, M.D., *Assistant Clinical Professor of Psychiatry.*
Stephanie L. Pearlstein, M.S.S., *Associate in Social Work.*
R. James Perkins, M.D., *Assistant Clinical Professor of Psychiatry.*
Jona A. Perlmutter, M.D., *Assistant Clinical Professor of Psychiatry.*
Doris Perna, M.D., *Assistant Clinical Professor of Psychiatry.*
Earl P. Petrus, M.D., *Assistant Clinical Professor of Psychiatry.*
Bruce F. Picken, M.D., *Assistant Clinical Professor of Psychiatry.*
Anderson W. Pollard, M.S.W., *Associate in Social Work.*
Thedore Polos, M.D., *Assistant Clinical Professor of Psychiatry.*
Thomas E. Preston, M.D., *Assistant Clinical Professor of Psychiatry.*
Joseph Profita, M.D., *Assistant Clinical Professor of Psychiatry.*
Paul R. Purchard, M.D., *Assistant Clinical Professor of Psychiatry.*
Louis I. Quitt, M.D., *Assistant Clinical Professor of Psychiatry.*
Leo Rangell, M.D., *Clinical Professor of Psychiatry.*
Pearl Rapp, M.S.W., *Lecturer in Social Work.*
Samuel Rapport, M.D., *Associate Clinical Professor of Psychiatry.*
Beatrice Rasof, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
John M. Ravin, M.D., *Assistant Clinical Professor of Psychiatry.*
Don F. Rendinell, M.D., *Assistant Clinical Professor of Psychiatry.*
Theodore Rich, M.D., *Assistant Clinical Professor of Psychiatry.*
Howard M. Richer, Ph.D., *Demonstration Teacher.*
V. Ellen Richey, M.A., *Demonstration Teacher.*
Ronald E. Rickler, M.D., *Assistant Clinical Professor of Psychiatry.*
John J. Riddle, M.D., *Assistant Clinical Professor of Psychiatry.*
Jean K. Ritvo, M.D., *Assistant Clinical Professor of Psychiatry.*
Charlotte Robertson, M.D., *Assistant Clinical Professor of Psychiatry.*
Henry E. Robinson, M.D., *Assistant Clinical Professor of Psychiatry.*
Burton W. Rockliff, M.D., *Assistant Clinical Professor of Psychiatry.*
Neil F. Rocklin, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
F. Robert Rodman, M.D., *Assistant Clinical Professor of Psychiatry.*
Burton Roger, M.D., *Assistant Clinical Professor of Psychiatry.*
Rita R. Rogers, M.D., *Clinical Professor of Psychiatry.*
Hilda S. Rollman-Branch, M.D., *Clinical Professor of Psychiatry.*
James P. Rosenblum, M.D., *Assistant Clinical Professor of Psychiatry.*
Richard J. Rosenthal, M.D., *Assistant Clinical Professor of Psychiatry.*
Craig A. Ross, M.D., *Assistant Clinical Professor of Psychiatry.*
Nancy L. Rosser, M.D., *Assistant Clinical Professor of Psychiatry.*
Judith B. Rothman, M.S.W., *Associate in Social Work.*
Jerome Rowitch, M.D., *Assistant Clinical Professor of Psychiatry.*
R. Ronald Roy, M.D., *Assistant Clinical Professor of Psychiatry.*
Gerald Rozansky, M.D., *Assistant Clinical Professor of Psychiatry.*
Alan S. Ruttenberg, M.D., *Assistant Clinical Professor of Psychiatry.*
S. K. Rudra Sabaratnam, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald D. Sager, M.D., *Assistant Clinical Professor of Psychiatry.*
Barbara R. Salkin, M.S.W., *Lecturer in Social Work.*
Olga Samuel, M.S.W., *Lecturer in Social Work.*
David G. Sanders, M.D., *Assistant Clinical Professor of Psychiatry.*
David S. Sanders, M.D., *Associate Clinical Professor of Psychiatry.*
R. Wyman Sanders, M.D., *Associate Clinical Professor of Psychiatry.*
James H. Satterfield, M.D., *Associate Clinical Professor of Psychiatry.*
C. Scott Saunders, M.D., *Assistant Clinical Professor of Psychiatry.*
Irwin Savodnik, M.D., *Assistant Clinical Professor of Psychiatry.*
Ellen E. Schapiro, M.D., *Assistant Clinical Professor of Psychiatry.*
Douglas R. Schiebel, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Bella F. Schimmel, M.D., *Assistant Clinical Professor of Psychiatry.*
C. Herbert Schiro, M.D., *Assistant Clinical Professor of Psychiatry.*
Theodore L. Schoenberger, M.D., *Assistant Clinical Professor of Psychiatry.*
Ernest H. Schrieber, M.D., *Assistant Clinical Professor of Psychiatry.*
Irwin M. Schultz, M.D., *Assistant Clinical Professor of Psychiatry.*
Lois L. Schwartz, M.D., *Assistant Clinical Professor of Psychiatry.*
Ronald M. Schwartz, M.D., *Assistant Clinical Professor of Psychiatry.*
James T. Scott, M.D., *Assistant Clinical Professor of Psychiatry.*
John R. Sealy, M.D., *Assistant Clinical Professor of Psychiatry.*
Lazarus Secunda, M.D., *Assistant Clinical Professor of Psychiatry.*
Thomas T. Seeley, M.D., *Assistant Clinical Professor of Psychiatry.*
Catherine Z. Seligman, M.S.W., *Lecturer in Social Welfare.*
Daniel R. Shackman, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert A. Shain, M.D., *Assistant Clinical Professor of Psychiatry.*
Morton Shane, M.D., *Assistant Clinical Professor of Psychiatry.*
Joseph A.E. Shannon, M.D., *Assistant Clinical Professor of Psychiatry.*
Allen J. Sherrow, M.D., *Assistant Clinical Professor of Psychiatry.*
Lee W. Shershow, M.D., *Assistant Clinical Professor of Psychiatry.*
Alexander A. Shester, M.D., *Assistant Clinical Professor of Psychiatry.*
Elizabeth Shima, M.S.W., *Lecturer in Social Welfare.*

NOTE: For key to symbols, see page 74

Jerald I. Simon, M.D., *Assistant Clinical Professor of Psychiatry.*
Priscilla A. Slagle, M.D., *Assistant Clinical Professor of Psychiatry.*
Sidney Small, M.D., *Assistant Clinical Professor of Psychiatry.*
Barbara L. Smith, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Arthur J. Smukler, M.D., *Assistant Clinical Professor of Psychiatry.*
Homa M. Snibbe, Ph.D., *Specialist.*
David N. Soghor, M.D., *Assistant Clinical Professor of Psychiatry.*
Doris S. Soghor, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert A. Solow, M.D., *Associate Clinical Professor of Psychiatry.*
Leon I. Sones, M.D., *Assistant Clinical Professor of Psychiatry.*
Arthur D. Sorosky, M.D., *Associate Clinical Professor of Psychiatry.*
Maryellen Sparkes, M.S., *Specialist.*
Robert J. Speaker, M.D., *Assistant Clinical Professor of Psychiatry.*
Jane L. Stecher, M.S.W., *Lecturer in Social Work.*
Richard H. Steip, M.D., *Assistant Clinical Professor of Psychiatry.*
Janna M. Stern, M.D., *Assistant Clinical Professor of Psychiatry.*
Judith M. Stock, M.S.W., *Lecturer in Social Work.*
Donald Stolar, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
Charles B. Stone, M.D., *Assistant Clinical Professor of Psychiatry.*
Larry H. Strassmann, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
John M. Suarez, M.D., *Associate Clinical Professor of Psychiatry.*
Norman D. Tabachnick, M.D., *Clinical Professor of Psychiatry.*
Munjig J. Takakjian, M.D., *Assistant Clinical Professor of Psychiatry.*
Gerald Tarlow, Ph.D., *Lecturer in Psychiatry.*
Sherry Terzian, M.S., *Associate Specialist.*
David A. Thiele, M.D., *Assistant Clinical Professor of Psychiatry.*
Oscar W. Thomsen, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert L. Thornton, M.A., *Demonstration Teacher.*
John T. Tokar, M.D., *Assistant Clinical Professor of Psychiatry.*
Samuel E. Trueblood, M.D., *Assistant Clinical Professor of Psychiatry.*
Bertha B. Unger, M.A., *Lecturer in Nursing.*
Carl Utsinger, M.D., *Assistant Clinical Professor of Psychiatry.*
Heiman Van Dam, M.D., *Assistant Clinical Professor of Psychiatry.*
Kato Van Leeuwen, M.D., *Assistant Clinical Professor of Psychiatry.*
Frederick Vaquer, M.D., *Assistant Clinical Professor of Psychiatry.*
Sheila T. Vaughn, Ed.D., *Demonstration Teacher.*
John O. Viesselman, M.D., *Assistant Clinical Professor of Psychiatry.*
Charles W. Wahl, M.D., *Clinical Professor of Psychiatry.*
Patricia G. Waldron, M.D., *Assistant Clinical Professor of Psychiatry.*
Ruth A. Waldron, M.S.S., *Lecturer in Social Work.*
Leon Wallace, M.D., *Assistant Clinical Professor of Psychiatry.*
Howard F. Wallach, M.D., *Assistant Clinical Professor of Psychiatry.*
Donald E. Wallens, M.D., *Assistant Clinical Professor of Psychiatry.*
Ruth P. Walter, M.D., *Assistant Clinical Professor of Psychiatry.*
Lawrence H. Warick, M.D., *Assistant Clinical Professor of Psychiatry.*
Bruce R. Watkins, Ph.D., *Assistant Clinical Professor of Biobehavioral Sciences (Medical Psychology).*
George J. Wayne, M.D., *Clinical Professor of Psychiatry.*
I. Hyman Weiland, M.D., *Associate Clinical Professor of Psychiatry.*
Allen B. Weiner, M.D., *Assistant Clinical Professor of Psychiatry.*
Lillian L. Weitzner, M.S.W., *Associate in Social Work.*
Melvyn R. Werbach, M.D., *Assistant Clinical Professor of Psychiatry.*
Joel J. West, M.D., *Assistant Clinical Professor of Psychiatry.*
Nancy L. Weston, M.A., *Associate in Counseling.*
Harold E. Whiteley, M.D., *Assistant Clinical Professor of Psychiatry.*
Martin E. Widzer, M.D., *Assistant Clinical Professor of Psychiatry.*
Joyce Will, M.S.W., *Associate in Social Work.*
Miriam Williams, M.D., *Assistant Clinical Professor of Psychiatry.*
Samuel L. Wilson, M.D., *Assistant Clinical Professor of Psychiatry.*
Stephen J. Wilson, M.D., *Assistant Clinical Professor of Psychiatry.*
Gerald Windler, M.D., *Assistant Clinical Professor of Psychiatry.*
William J. Winslade, Ph.D., J.D., *Lecturer in Psychiatry.*
Robert A. Winston, M.D., *Assistant Clinical Professor of Psychiatry.*
Byron J. Wittlin, M.D., *Assistant Clinical Professor of Psychiatry.*
Burton N. Wixen, M.D., *Associate Clinical Professor of Psychiatry.*
Loren D. Woodson, M.D., *Assistant Clinical Professor of Psychiatry.*
Roy Worthen, M.D., *Assistant Clinical Professor of Psychiatry.*
Robert Zaitlin, M.D., *Assistant Clinical Professor of Psychiatry.*
Justine Zirgulis, M.D., *Assistant Clinical Professor of Psychiatry.*

Program

The Department of Psychiatry and Biobehavioral Sciences offers interdisciplinary courses related to the mental health professions of the biobehavioral sciences in addition to its programs for psychiatry interns and residents and for medical students (courses for medical students are listed in the School of Medicine Announcement and the School of Medicine Handbook of Clinical Courses).

A Developmental Disabilities Immersion Program is co-sponsored by the Departments of Psychology and Psychiatry and Biobehavioral Sciences and by the Office of Experimental Education Programs. Each year thirty juniors and seniors are selected for the program, hich runs during the winter and spring quarters. Students participate in courses and research at Lanterman State Hospital (formerly Pacific State Hospital), a facility for mentally retarded citizens in Pomona, and do related fieldwork while living together at the nearby UCLA Experimental Learning Center. During each of the two quarters up to twenty units of course work related to the theme of developmental disabilities are offered. Most of the courses are in the Psychiatry/Psychology M180-181 series, but courses from other departments (such as Biology) may supplement these offerings. Many of the courses fulfill Psychology undergraduate major requirements. Students interested in the program should contact the Office of Experimental Education Programs or the Psychology Advising Office.

Information on clinical practicums which are offered in conjunction with other educational institutions and UCLA departments may be obtained from the Department's Educational Activities Office. The following courses are open to qualified students.

Upper Division Courses

M112. A Laboratory for Naturalistic Observations: Developing Skills and Techniques. (Same as Anthropology M176 and Psychology M155.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Group and individual projects will be included. Some of the uses of observations and their implications for research in the social sciences will also be discussed.
Mr. Gallimore, Mr. Weisner

M180A. Contemporary Problems in Mental Retardation. (Same as Psychology M180A.) Prerequisites: Psychology 10, 41, and 127 or 130, and enrollment in Immersion Program. Presentation of the concepts, issues and research techniques in the area of mental retardation. Biological, psychological and community questions concerning the causes and treatment of developmental disabilities as well as systems for the care and training of retarded individuals will be explored. Lectures, directed reading and discussion. To be taken concurrently with Fieldwork in Contemporary Problems in Mental Retardation. The Staff

M180B. Contemporary Issues in Mental Retardation. (Same as Psychology M180B.) Prerequisites: Psychology M180A and enrollment in Immersion Program. Psycho-educational issues in mental retardation, relating literature to ongoing field experiences through lectures, discussions, media and 6 student papers. Mr. Baker

M181A-181B. Fieldwork in Contemporary Problems in Mental Retardation. (Same as Psycholoby M181A-181B.) Prerequisite: concurrent enrollment in Psychology M180A-180B. Fieldwork experience to be taken concurrently with Contemporary Problems in Mental Retardation. The Staff

M182A. Advanced Statistical Methods in Mental Retardation. (Same as Psychology M182A.) Prerequisite: Psychology 41 and enrollment in Immersion Program. Introduction of statistical method and design in experimentation principles of statistical inference and appropriate testing methods. An introduction to the use of computers and various software packages is presented. Mr. Guthrie

M182B. Advanced Design and Statistics. (Same as Psychology M182B.) Prerequisite: Psychology M182A. Continuation of Psychology M182A.
Mr. Eyman

M182C. Perception. (Same as Psychology M182C.) Prerequisite: enrollment in Immersion Program. Human information processing, both physical and psychological with special emphasis on pathologies in the mentally retarded. Mr. Galbraith

M182D. Current Issues in Mental Retardation. (Same as Psychology M182D.) Prerequisite: enrollment in Immersion Program. Advanced topics in mental retardation. May be repeated for credit with permission of instructor. The Staff

199. Special Studies in Psychiatry. (½ to 1 course) Prerequisite: consent of instructor and Department Chairman. Consent is based on a written proposal outlining the course of study. The proposal is to be structured by instructor and student at time of initial enrollment. Additional information and course proposal forms are available in the Educational Activities Office, B7-349 NPI. The Staff

Graduate Courses

200. Colloquium on Biobehavioral Sciences. (¼ course) Prerequisite: consent of instructor. The colloquium establishes a vehicle for continuing education on recent advances in various scientific fields relevant to behavior in its biobehavioral and biosocial contexts. It provides a forum for pertinent interdisciplinary discussion. Speakers present information from their area of competence and express their ideas on the relevance of this material to the broader issues of behavior.
Mr. West, Mr. Yager

M201A-201B-201C. The Functional Organization of Behavior. (Same as Neuroscience M201A-201B-201C.) Prerequisites: consent of instructor; admission to M201B requires completion of M201A; admission to M201C requires completion of M201A-201B. The course is divided into three quarters. The Fall Quarter focuses on species characteristic behaviors and features of behavioral organization primarily in nonhuman primates and man. The Winter Quarter focuses on behavioral organization and its relationship to survival and reproduction. Special emphasis is placed on the effect of changing ecological parameters and resulting alterations in behavioral organization. The Spring Quarter relates the content of the previous two quarters to psychopathological behavior in humans and nonhuman primates.
Mr. Eiduson, Mr. McGuire

204A-204B-204C. Psychiatric Theory and Practice. (¼ course each) Prerequisite: consent of instructor. The theory of psychoanalytic psychotherapeutic technique is discussed. Comparative grids of the classifical analytic, Kleinian, and Eriksonian theories are demonstrated in segment A. Segments B and C concentrate on historical Freudian theory compared to current daily clinical practice and theory. The Staff

205. Advanced Psychiatric Theory Seminar. (¼ course) Prerequisite: consent of instructor. Seminar and discussion on topics of current psychiatric interests led by leaders of local psychiatric community. Mr. Gorney

207. Hypnosis Seminar. (½ course) Prerequisite: training in psychotherapy, education in psychodynamics and psychopathology, and consent of instructor. Experiential seminar with guided reading and training in inductions, anesthesia, age

regression, imagery techniques, distortion of time and space, therapeutic applications (including direct symptom removal, behavioral methods and hypnoanalysis), and training patients for self-hypnosis. Emphasis is on developing skill for application in clinical practice. Graded S/U. Ms. Holroyd

208A-208B. Neuropsychology: Assessment of Brain Damage. (½ course each) Prerequisite: graduate or post-graduate standing and consent of instructor. The aim of the course is to introduce and review neuropsychological concepts, including functional neuroanatomical systems of the brain, localizing signs of organic brain damage, analytic and synthetic activities of the brain, and neuropsychological test instruments.
Mr. Marsh, Ms. Marsh

209A-209B-209C. Behavior Therapy Practicum. (½ course each) Prerequisite: consent of instructor. Course provides clinical supervision and experimental learning of skills needed to do effective behavior therapy. Emphasis is on practical, clinical techniques and on measuring therapeutic progress by specifying goals, observing, and recording behavior change. Mr. Munford and the Staff

M222. Transcultural Psychiatry. (Same as Anthropology M244.) Prerequisite: consent of instructor. Consideration of psychiatric topics in cross-cultural perspective, such as studies of drug use, defiance, suicide, homicide, behavioral disorders, "culture specific" syndromes, non-Western psychiatries, and the question of "sick" societies.
Mr. Kennedy

223. MMPI Seminar. (¼ course) Prerequisite: consent of instructor. Topics covered include: 1) basic scales, 2) a theory of the Minnesota Multiphasic Personality Inventory (MMPI) (and psychopathology in general) based on two-factor conditioning and physiologic substrata, and 3) code types and their transference and treatment indications. Mr. Caldwell

224. Seminar on Aging and Psychopathology. (½ course) Prerequisite: consent of instructor. The format will be a combination of patient interviews and case discussions. Students will review and discuss pertinent literature in gerontology and geriatrics, including psychology, sociology, clinical medicine, pharmacology, neurology, and psychiatry. The course will include a survey of psychopathology as seen among the aged, including a discussion of OBS, affective disorders and schizophrenia spectrum disorders. Ms. Jarvik, Mr. Straker

225. Diagnostic Evaluation of Psychopathology. (¼ course) Prerequisite: consent of instructor. The course focuses on recent empirical and methodological advances in clinical psychiatric diagnosis. Lecture presentations and discussion will center on the major syndromes of psychopathology in adolescence and adulthood, their distinguishing symptomatology, course and etiologic correlates, and methods for obtaining reliable judgments of a patient's current psychiatric status. Mr. Strober

226. Childhood Schizophrenia Research Seminar. (¼ course) Prerequisite: consent of instructor. Current research in the causes and behavioral manifestations of childhood schizophrenia. Discussion on diagnosis and etiology of childhood schizophrenia will be included.
Mr. Frankel, Mr. Tanguay

227. Electroencephalography (EEG) in Psychiatry. (½ course) Prerequisite: consent of instructor. A survey of EEG and evoked potential (EP) methods and research into human mental function, with particular attention to EEG and EP correlates of various psychiatric disorders of adults and children. Mr. W. Brown

228. Behavioral Medicine. (½ course) Prerequisite: consent of instructor. Review of behavioral science knowledge and techniques relevant to the understanding of physical health and illness and discussion of the application of this knowledge and these techniques to prevention, diagnosis, treatment and rehabilitation. Integration of behavioral and biomedical approaches is stressed.
Mr. McCreary, Mr. Munford, Mr. Shapiro

231. Mexican Americans and Mental Health. (½ course) Prerequisite: consent of instructor. Course will highlight mental health needs of Mexican Americans through seminars dealing with: historical comparison of psychiatry in Mexico and United States, an analysis of the various theoretical perspectives regarding bio-psycho-social behavior; distinguishing psychodynamic from cultural factors in the treatment of the Mexican-American patient; mental health impact of the criminal justice system and urban disorder. Mr. Morales

232A-232B-232C. Human Sexual Dysfunction. (½ course each) Prerequisite: consent of instructor. One year training and research course in the direct behavioral treatment of human sexual dysfunction. A combination of didactic material and supervised experience. Mr. Golden

233. Alcoholism and Drug Abuse Among Women. Prerequisite: consent of instructor. Discussion of the psychosocial aspects of abuse of alcohol and other drugs among women. Topics will include etiology, prevention, treatment, hormonal influences, and the role of the family. Emphasis will be placed upon current theoretical perspectives and research findings. Ms. Beckman

234A-234B-234C. Affective Disorders. (¼ course each) Prerequisites: graduate standing and consent of instructor. Seminar will cover general topics related to the primary affective disorders (depression, manic depressive illness) including diagnosis, pharmacology, epidemiology, psychology, phenomenology, biology, and treatment.
Ms. Jamison

M235. A Laboratory for Naturalistic Observations: Developing Skills and Techniques. (Same as Anthropology M260.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Some of the uses of observations and their implications for research in the social sciences will also be discussed. Students will be expected to integrate observational work into their current research interests. Mr. Gallimore, Mr. Weisner

236A-236B-236C. Psychology Interns' Seminar. (¼ course each) Prerequisite: consent of instructor. Current topics in clinical psychology. The initial quarter of the seminar focuses on the psychodiagnostic and clinical study of schizophrenic disorder. Clinical and research literature on schizophrenia and concepts from cognitive developmental psychology are reviewed and integrated in a conceptual model of object representations and their structural impairment in psychosis. Case presentations illustrate how this formulation serves to discriminate levels of psychopathology and the extent of cognitive disruption in schizophrenia. In subsequent quarters, the group will select additional topics for discussion pertaining to psychopathology, diagnostic evaluation and modalities of treatment. Ms. Holroyd, Mr. Strober

M239. Psychopharmacology. (Same as Pharmacology M239.) Prerequisite: consent of instructor. A presentation of the effects of drugs upon behavior with special attention to drugs used in psychiatry and drug seeking behavior. Physiological and biochemical mechanisms underlying such actions will be analyzed. Reports on relevant current research will be made. Mr. Jarvik

240ABC. Assessment and Treatment of Afro-American Families. (¾ course each) Prerequisites: graduate standing and consent of instructor. The course aids mental health professionals and trainees in the evaluation and treatment of Afro-American families in terms of their cultural milieu, historical background and economic status. Didactic presentations by instructors and invited guests form the basis for a supervised evaluation and case management with an Afro-American child and family. Ms. Bass, Ms. Powell, Ms. Wyatt

241A-241B-241C. Observation of Group Psychotherapy. (½ course each) Prerequisite: consent of instructor. Principles of adult psychotherapy will be explored through observation of an ongoing group, lectures and discussion. Major theoretical emphasis will be on humanistic-group dynamic approaches. Mr. Rosen

242A-242B-242C. Child Psychotherapy Seminar. (¼ course each) (Formerly numbered 242.) Prerequisites: current experience with psychoanalytically-oriented child psychotherapy and consent of instructor. Videotaped sessions of treatment of a child and family will provide a framework for discussing such topics as: diagnostic assessment, the beginning of treatment, the overdetermined nature of the symptom, transference phenomenon related to parental conflict, initial recovery of psychological reactions to past events, factors enhancing further working relationships with child and family and various other technical issues including the handling of terminations. Student presentations will be encouraged in order to amplify clinical and theoretical issues.
Mr. Heinicke

243A-243B-243C. Mental Retardation Interdisciplinary Core Curriculum. (¼ course each) Prerequisite: consent of instructor. A survey series on major topic areas of mental retardation covering epidemiology, nosology, assessment, health care delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in an interdisciplinary framework as generic information independent of discipline.
Mr. Cantwell, Mr. Tymchuk

244. Computers in Mental Retardation Research. Prerequisite: consent of instructor. An introduction to the basic nature of digital computer systems, with emphasis on their impact on society. The course is directed toward providing the student with a broad general understanding of applications and limitations of computers. Specific examples are drawn from clinical, research, and administrative applications within the Mental Retardation and Child Psychiatry Program.
Mr. Guthrie, Mr. Hull

M246. Psychological Aspects of Mental Retardation. (Same as Psychology M246.) Prerequisite: consent of instructor. Discussion of the psychological aspects of mental retardation to include: classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems).
Mr. Tymchuk

247A-247B-247C. Neurophysiological and Neuropsychological Bases of Mental Retardation and Human Development. (¼ course each) Prerequisite: graduate standing and consent of instructor. Involves discussion of advances in neurophysiology and neuropsychology with particular reference to modern developmental studies. Faculty members or advanced students present results of their research work in the context of available literature; intense discussion occurs during and after presentation.
Mr. Levine, Mr. Soltysik

248. Research Rounds in Mental Retardation and Developmental Disabilities. (¼ course) Prerequisite: consent of instructor. Monthly session will consist of presentation of a patient and discussion of research approaches relevant to that patient. Staff members from various disciplines and invited speakers will participate. Mr. de Vellis

249A-249B. Language Disorders of Childhood. (¾ course each) Prerequisite: consent of instructor. Course reviews language disabilities in children, their relationship to normal maturational patterns and to other aspects of behavior, the critical period hypothesis, universals of language development, environmental factors affecting language acquisition, neural mechanisms underlying speech and language, diagnostic methods, and approaches to remedial language training. Ms. Baltaxe

NOTE: For key to symbols, see page 74

250. Introduction to the Principles and Techniques of Mammalian-Cell Culture. (½ course) Prerequisite: graduate or medical student status and consent of the instructor. This course provides a background in the physiology and biochemistry of mammalian cells through lecture and selected readings in the classical field. Designed to be taken concurrently with 251. Mr. Haggerty

251. Laboratory Exercises in the Techniques of Mammalian-Cell Culture. Prerequisite: graduate or medical student status and consent of the instructor. This course provides a working knowledge of the physiology and biochemistry of mammalian cells in culture through laboratory exercises involving the propagation and manipulation of differentiated and undifferentiated continuous mammalian-cell lines. Designed to be taken concurrently with 250. Mr. Haggerty

252. Clinical Child Psychiatry. (¼ course) Prerequisite: consent of instructor. Weekly seminars covering the basic clinical aspects of child psychiatry. Assigned readings are presented by students and used as a basis for discussion of a particular topic. Topics covered include interviewing of parents and children, diagnosis in child psychiatry, and the clinical child psychiatric syndrome. Mr. Cantwell

253. Seminar: Child Development. (¼ course) Prerequisite: consent of instructor. The seminar is divided into three sections: theories of development, systems of child development, and chronological aspects of child development. Presentation of assigned readings by the student plays a major role in each of the seminar sessions. Mr. Cantwell

M254. Counseling Families of Handicapped Children. (½ course) (Same as Social Welfare M242.) Prerequisite: consent of instructor. Techniques and issues in counseling families through evaluation, feedback, and treatment. Social and psychological stresses on family unit, professional's reactions, community resources, and issues of genetic counseling, placement, and developmental crises. Ms. Gottlieb, Ms. Shima

M255. Comparative Psychopathology. (Same as Psychology M285.) Prerequisite: some background in psychopathology, comparative psychology, zoology or comparative genetics and consent of instructor. This course will explore those animal models of psychopathology most relevant to human clinical problems (i.e., schizophrenia, depression, phobias, anxiety states, drug abuses, aggression, sexual dysfunction, etc.). The interaction or convergence of social, biological, and environmental processes in determining these states will be emphasized. The relevance of the model to the understanding of homologous human conditions will be analyzed. Mr. Garcia

256. Basic Clinical Child Psychopathology. (¼ course) Prerequisite: consent of instructor. Weekly seminars covering the basic clinical aspects of child psychopathology. Readings will be provided for a basis of discussion on topics including interviewing of parents and children, diagnosis, and related syndromes. Mr. Cantwell

257A-257B-257C. Diagnostics and Therapeutics of Language Disabilities. (¾ course each) Prerequisite: consent of instructor. This course is directed toward the language specialist seeking training in the developmental disabilities of language. The course includes training in diagnostic techniques and therapy approaches. Linguistic disabilities are placed within the framework of total behavior. The clinical practicum includes individual case supervision, a review of the pertinent literature, and a discussion of research topics. Students are required to complete a clinical research project in psycho- and neurolinguistics. Ms. Baltaxe

259. Legal and Ethical Issues in Developmental Disabilities. (¾ course) Prerequisite: consent of instructor. Discussion of current laws in mental retardation/developmental disabilities, philosophies, ethics, ethical codes, issues, how to resolve them, videotape, discussion of cases. Mr. Tymchuk

M261. Seminar on Law, Medicine and Human Values. (¾ course) (Same as Law M533; formerly numbered M261A-261B.) Prerequisite: consent of instructor. The seminar will deal with legal, philosophical and psychological issues arising in the context of the doctor-patient relationship. Emphasis will be placed upon an analysis of the value conflicts underlying and manifested in medical practices and legal policies. Course material will be taken from legal, medical, and philosophical literature, legislation, case law, and medical case histories. Mr. Winslade

M262. Law and Psychiatry. (¾ course) (Same as Law M325.) Prerequisite: consent of instructor. Introduction to the ethical and legal implications of the orientation, premises, functioning, and potential contributions of psychiatry. Review of the practical and theoretical aspects of collaboration between law and psychiatry. Mr. Winslade

263. Biologic Psychiatry. (½ course) Prerequisite: consent of instructor. This course will discuss the correlation of neuro-anatomy, neuro-physiology, and neuro-chemistry with behavioral disorders and pharmacologic therapy. The course is designed to give an appreciation of the central nervous system as an organ that regulates the internal milieu of the body, interacts with the external environment and continuously modulates the internal-external interface. Current mechanisms of brain function and theories of how disease and drugs disrupt its functions will be explored. Mr. Ervin

264A-264B-264C. Biofeedback and Biobehavioral Medicine. (½ course each) Prerequisite: consent of instructor. Course explores biofeedback and related behavioral techniques and their application to various clinical disorders (hypertension, pain and anxiety, asthma, headache, sexual dysfunction, neuro-muscular rehabilitation, etc.). Clinical experience with patients may be possible. In-progress grading. Mr. Shapiro

M265. Mind and Brain in Evolution. (½ course) (Same as Psychology M211.) Prerequisite: consent of instructor. This course reviews the fossil evidence on the organic evolution of the brain and the implications of that evidence for the evolution of mind and intelligence. Quantitative approaches are emphasized. Although some implications for cognitive psychology and individual differences are considered, the evolutionary analysis is "above the species level." Mr. Jerison

266. Psychophysiology Seminar. (¼ course) Prerequisite: consent of instructor. Seminar presentations and discussions of research in psychophysiology. Possible topics include basic research on biofeedback and self-regulation of physiological processes, clinical research on applications of biofeedback to psychophysiological disorders, autonomic-central nervous system interactions, and the study of consciousness. Mr. Shapiro

267. Program Evaluation Laboratory. Prerequisite: consent of instructor. Directed individual program evaluation research experience at the graduate level. Skills in program evaluation will be taught, emphasizing field setting and practice. Some of the uses of evaluation material will be discussed, also their implications for program development in health care systems. Mr. Keller, Mr. May

268. Program Evaluation Research Conference. (1/8 course) Prerequisite: consent of instructor. A multi-disciplinary program evaluation group focuses on specific program evaluation projects in the planning stage and at intervals during the process of the project. The emphasis is on design of program evaluation research relevant to a particular program and on techniques and procedures to ensure that the evaluation is successfully carried out. Mr. Keller

269. Changing Patterns in Family Organization. (¼ course) Prerequisite: consent of instructor. The emphasis will be on modern family groupings in terms of trends in marriage and other arrangements. Some historical and archaeological perspectives will be included. Mr. Cantwell

270. Experimental Primatology. Prerequisite: consent of instructor. Examination of methodological and conceptual issues in the study of primate social behavior. Hypothesis formulation, data collection techniques and ways of analyzing data are examined. Attention is focused on aggression, communication and psychosexual development. Mr. Ervin

271. Ethology of Motivation and Conditioning. (¾ course) Prerequisite: graduate standing and consent of instructor. Basic facts and concepts of motivation and learning in animals will be presented in the framework of ethological and neurophysiological approach. Classical and instrumental conditioning procedures will be discussed with particular attention to the motivational variables. Mr. Soltysik

M272. Culture and Personality. (Same as Anthropology M269K.) Prerequisite: consent of instructor. The course will deal with theories of the relationship of personality to the context of cultural life; cultural aspects of individual growth and development and methodological problems in the study of cultural effects of individual character and personality. May be repeated for credit. Mr. Kennedy, Mr. Langness

273. Growth Control, Transformation, and Malignancy in Mammalian Cells in Culture. (¾ course) Evaluation of currently available cultured mammalian-cell types as experimental models to study growth control in normal, nonmalignant cells *in vivo* and to analyze the cytosocial, biochemical and cytophysiologic differences between normal and transformed and/or malignant cells in culture. Mr. Haggerty

274. Neurophysiology and Behavior. (¾ course) Prerequisites: graduate standing and consent of instructor. The course will provide an analysis of strategies and approaches used to study behavior of mammalian organisms. Special emphasis will be placed on recent developments in electrophysiological recording techniques in behaving animals and how such developments relate to classical concepts of brain function. Mr. Hull, Mr. Levine

275A-275B. Sociobiology Seminar. (½ course each) Prerequisite: consent of instructor. The course is designed to review in detail sociobiological theory as it applies to adult bonding behavior: kin-selection theory, reciprocal altruism theory, mate selection theory, and bond strategy theory. Bonds are viewed primarily from a biological rather than a psychological perspective. In-progress grading. Mr. McGuire

276. Consultation to Sex Education Programs in the Elementary School. (½ course) Prerequisite: graduate standing and consent of instructor. This seminar will focus on issues of consultation program development and evaluation of sex education for elementary school children and parents. It will offer participants the opportunity to observe behavior of and interact with normal children within the school setting. Ms. Meyer, Ms. Wyatt

277. From Research to Practice: Biobehavorial Contributions. (½ course) Prerequisite: consent of instructor. An overview of biobehavioral research as it is currently translated into therapeutic and preventive practice across disciplines. S/U grading. Mr. Serafetinides

298. Current Topics in the Biobehavioral Sciences. (½ to 1 course) Prerequisite: consent of instructor. Current issues in the biobehavioral sciences will be offered on a selective basis depending upon instructor interest and topical relevancy of problems. See Schedule of Classes for topics and instructors. May be repeated for credit. The Staff

Professional Courses

400A-400B. Introduction to Human Behavior. (¾ course each) Prerequisite: graduate student in a behavioral science program and consent of instructor. Application of theories and findings of the behavioral sciences to the health professions.
Ms. Jarvik

403. Individual Case Supervision. (¼ to 1 course) Prerequisite: consent of instructor and Department Chairman. One-to-one supervision of individual therapy cases. Includes analyses of patient data, supervision of ongoing treatment, informal didactic sessions on personality theory, and applications to patient management. Consent is based on a written proposal to be structured by instructor and student prior to enrollment. Additional information and proposal forms are available in the Educational Activities Office, B7-349 NPI. The Staff

404. Group Therapy. (¼ course) Prerequisite: consent of instructor. Section 1: Gestalt. Experiential and didactic seminar in Gestalt therapy and other humanistic group models. Case consultations are included when relevant. The Staff

Section 2: Dynamic Experience. This group experience has as its primary goal the attainment of significant usable insight by the trainee into his/her personality and attitudes so that his/her emotional conflicts will not interfere with his/her functioning as an effective group therapist. Will provide insights into how groups affect people and people affect groups — to help groups function more efficiently. The Staff

413. Community Meeting (2-West). (¼ course) Prerequisite: assignment to Ward 2-West and consent of instructor. One hour course is devoted to individual experience in leading a large group of all patients and staff. Leadership is by rotation. A half-hour process didactic session follows.
Mr. Robertson

414. Emergency Treatment Attending Rounds. (¼ course) Prerequisite: assignment to Emergency Treatment Unit and consent of instructor. Cases seen in the emergency room during the preceding night are reviewed by a consultant and the Emergency Treatment staff. Assessment techniques, methods of intervention and alternate modes of treatment are explored. Mr. Slawson

415. Emergency Treatment Case Conference. (¼ course) Prerequisite: assignment to Emergency Treatment Unit and consent of instructor. Selected cases are presented by a resident, staff member or trainee to a consultant who reviews the diagnostic considerations and discusses implications for treatment and disposition. Trainees are expected to familiarize themselves with the disorder or personality type exemplified by their patient. They should be prepared to review the relevant literature and to cite recent contributions so as to form a basis for enlightened discussion. Mr. Slawson

416. Treatment Planning Meetings. (¼ course) Prerequisite: consent of instructor. The course focuses on treatment and management problems posed by inpatient psychiatry. Clinical psychopathology, treatment plans and interdisciplinary skills are discussed. The emphasis is on formulating accurate diagnostic assessments and planning effective treatment programs utilizing the therapeutic methods of the milieu (somatic therapies, behavioral techniques, family therapy, group process, individual and dyadic treatment, etc.).

Section 1: 2-West — Mr. Robertson
Section 2: 2-South — Mr. Gerner
Section 3: A-South — Mr. Strober
Section 4: A-West — The Staff

424. Ward Milieu Meeting. (¼ course) Prerequisite: consent of instructor. Milieu course meetings are designed to explore experientially and didactically the multiple aspects of group process on a psychiatric inpatient ward.

Section 1: A-South — Mr. Strober
Section 2: A-West — The Staff
Section 3: 2-West — Mr. Robertson

425. Child Pre-Admission, Admission and Disposition Conference. (¼ course) Prerequisite: consent of instructor. Child pre-admission is the case study of child and family prior to inpatient admission. Course deals with 1) interview techniques, 2) suitability for admission, and 3) goals for hospitalization. Admission and disposition includes presentation of problem cases, usually with combined physical and intellectual defects, for interdisciplinary problem solving.

Section 1: A-South — Mr. Strober
Section 2: A-West — Mr. Yager
Section 3: 4-West — Ms. Petty
Section 5: 6-West — Mr. Russell

426. Psychology Interns' Psychosomatic Liaison Case Conference. Prerequisite: consent of instructor. Psychology interns' case conference of psychosomatic aspects of physical illness. Cases will be discussed with regard to management issues, psychotherapy issues, methods of psychodiagnosis, counter transference and relevant literature. In addition, participants will receive individual supervision on a weekly basis. Mr. Wellisch

429. Child Outpatient Team. (¼ course) Prerequisite: consent of instructor. Weekly team meetings to coordinate the clinical activities of the trainees in the Child Outpatient Department. Discussion of literature and theories related to selected cases.

Section 1: First Year Child Fellows. — Mr. Cantwell
Section 2: Second Year Child Fellows. — Mr. Simmons, Mr. Tanguay, Mr. Tarjan
Section 3: Second Year Resident. — Mr. Yager
Section 4: Second Year Residence. — Mr. Yager
Section 5: Second Year Resident. — Mr. Ritvo
Section 6: UAF Trainees. — Mr. Tymchuk

445. Family Therapy Seminar for Clinicians. (½ course) Prerequisite: prior clinical responsibility and treatment experience with individuals or families and consent of instructor. Conceptual and practical issues of family development and treatment are presented in the seminars. The emphasis is on structural family therapy. Alternative models may be reviewed during the year. Videotape is used extensively. Case supervision will be available. Participants must be treating one or more families.
Mr. Gottlieb

446. Structural Family Therapy. (¼ course) Prerequisite: prior clinical experience in family therapy and consent of instructor. Intensive focus is on structural family treatment. Direct clinical experience is the primary mode of learning, with the student presenting videotape material for discussion and observing experienced clinicians' videotapes critically. The seminar/discussion format is used extensively. Mr. Gottlieb

462A-462B-462C. Advanced Mental Health Consultation. Prerequisite: consent of instructor. This course provides knowledge of children in schools through: 1) field experience; 2) a didactic program; 3) group supervision. Each trainee chooses a local elementary or junior high school as the site of field experience in consultation. Supervision focuses on assessing the needs of the school and initiating the consultation. Seminars consider theories of consultation, systems theory as applied to the schools, the organization of the school systems, the professional roles represented in the school (e.g., teachers, counselors, principals, etc.) and their special problems. In-Progress grading.
Mr. Cantwell

463. Psychosocial Aspects of Oncology. (¼ course) Prerequisite: clinical involvement with oncology patient and consent of instructor. Discussion of oncology cases. Clinical case conference of psychiatric care of oncology patients. Discussion includes reference to relevant literature. Presented in an interdisciplinary framework for health care professionals. Mr. Fawzy

471. Mental Retardation and Child Psychiatry Special Problems Conference. Prerequisite: consent of instructor. Each month one clinical subdivision of the Mental Retardation and Child Psychiatry Program presents a major clinical problem. Senior faculty discussants preside. The presenting trainees are expected to cover the pertinent literature and to assemble the critical elements of information on the case or problem at hand.
Mental Retardation and Child Psychiatry Staff

M472A-472B-472C. Nursing Care of the Developmentally Disabled. (Same as Nursing M410A-401B-410C.) Prerequisite: enrollment in the Master's Program in School of Nursing. Study of the handicapping conditions of childhood and their effects upon the child and his/her family. This course combines didactic material and supervised clinical experience. Focus is on prevention, systematic assessment, planning, implementation and evaluation of nursing care. During the final quarter the student participates in the assessment, planning and delivery of health care to the developmentally disabled in the community. Ms. Savino

474. Training in Meditation: The Relaxation Response. (¼ course) Prerequisite: consent of instructor. Review of the literature and research on meditation. Explanation of meditation techniques and training sessions to become proficient in practicing meditation: the relaxation response.
Ms. Marsh

475. Developmental Disabilities Clinic. Prerequisite: consent of instructor. Follow up clinic for children with development disabilities. Services and teaching involve genetic counseling, educational and behavioral assessment, school consultation and family child guidance.
Mr. Funderburk and the Staff

477A-477B. Advanced Family Therapy Seminar for Clinicians. (½ course each) Prerequisite: consent of instructor. Alternative and derivative models to structural family therapy are critically reviewed by the seminar group; e.g., family sculpting, network therapy, various communication models, issues of cotherapy, etc. Problem cases may be presented by the enrollees, including ethical dilemmas in family therapy. This course is required for first-year fellows and is an elective for experienced clinicians.
Ms. Goldenberg, Mr. Gottlieb

478. Clinical Genetics Rounds. Prerequisite: medical graduate and consent of instructor. A weekly clinical rounds on patients seen on the wards during the preceding week. House staff and others involved in clinical work may attend. Usually an indepth discussion of the medical and genetic aspects of one or more disorders is presented.
Ms. Crandall

479. Genetics Clinic Presentation. Prerequisite: consent of instructor. A weekly clinical teaching session on the patients seen in the preceding Genetics Clinic. An indepth discussion on the genetics of each disorder follows.
Ms. Crandall and the Genetics Staff

480. Analysis of Human Chromosome Studies. (¼ course) Prerequisite: consent of instructor. Chromosome karyotypes prepared in the cytogenetics laboratory during the preceding week are presented and discussed with reference to clinical findings. Teaching includes the interpretation of abnormal karyotypes and the technical aspects of routine and special chromosome stains.
Mr. Sparkes

481. Chromatography Review. Prerequisite: premedical course or biochemistry and consent of instructor. A weekly session in which amino acid chromatography carried out during the preceding week is presented. Teaching concerns the interpretation of abnormal chromatograms together with the technical aspects of the tests used.
Mr. Cederbaum

NOTE: For key to symbols, see page 74

482A-482B-482C. Psychology Intern's Group Process. (¼ course each) Prerequisite: consent of instructor. The purpose of this course is to teach the students about group processes and dynamics. The course will involve an active learning experience whereby students study their own group interactions in order to examine group process variables such as: styles of leadership, verbal and nonverbal methods of communication, the development of trust, self-disclosure, and the effects on group process of stereotypes about ethnic and masculine-feminine characteristics of people. Ms. Holroyd

483. Group Therapy Seminar: Psychology Internship. (¾ course) Prerequisite: consent of instructor. Students either act as group therapists or observe through one-way mirror other students doing group therapy. Emphasis is on "here and now" transference phenomena in the group. This is followed by seminar type supervision of the whole group. Ms. Holroyd

485. Medical Genetics Seminars. Prerequisite: introductory course and consent of instructor. A weekly lecture series intended for those interested in genetics or in the specific topic to be presented. Speakers are invited for their expertise or research in some special area related to genetics and may be from UCLA or elsewhere. Discussion and questions from the audience are encouraged. Genetics Staff

486. Behavioral Analysis of Autism. (½ course) Prerequisite: consent of instructor. Seminar on the role of operant techniques in the assessment, treatment and understanding problems of autism and mental retardation. Mr. Frankel, Ms. Freeman

488. Law Student Consultation Project. (¼ course) Prerequisite: consent of instructor. Consultation to UCLA Law School to teach law students to be sensitive to the broader human problems of their clients and to help them to develop some specific interviewing skills. Mr. McCreary

489. Assertion Training Seminar. (¼ course) Prerequisite: consent of instructor. An introduction to theory, techniques and research in the area of assertion training. Seminar is a workshop to learn basic techniques and how to teach them to clients. Ms. Gelb

596P. Individual Studies in Psychiatry. (½ to 2 courses) Prerequisite: consent of instructor and Department Chairman. Consent is based on a written proposal outlining the course of study. The proposal is to be structured by instructor and student at time of initial enrollment. Directed individual research and study in psychiatry at the graduate level. Additional information and course proposal forms are available in the Educational Activities Office, B7-349 NPI. The Staff

PSYCHOLOGY

(Department Office, 1283 Franz Hall)

Bruce L. Baker, Ph.D., *Professor of Psychology.*
Peter M. Bentler, Ph.D., *Professor of Psychology.*
Robert A. Bjork, Ph.D., *Professor of Psychology.*
William E. Broen, Jr., Ph.D., *Professor of Psychology.*
[16]Edward C. Carterette, Ph.D., *Professor of Psychology.*
Richard Centers, Ph.D., *Professor of Psychology.*
James C. Coleman, Ph.D., *Professor of Psychology and Education.*
Barry E. Collins, Ph.D., *Professor of Psychology.*
Andrew L. Comrey, Ph.D., *Professor of Psychology.*
[16]Gaylord D. Ellison, Ph.D., *Professor of Psychology.*
Seymour Feshbach, Ph.D., *Professor of Psychology (Chairman of the Department).*
Morton P. Friedman, Ph.D., *Professor of Psychology (Vice Chairman of Undergraduate Affairs).*
John Garcia, Ph.D., *Professor of Psychology and Psychiatry.*
Harold B. Gerard, Ph.D., *Professor of Psychology.*
Michael J. Goldstein, Ph.D., *Professor of Psychology.*
Patricia M. Greenfield, Ph.D., *Professor of Psychology.*
John P. Houston, Ph.D., *Professor of Psychology.*
Wendell E. Jeffrey, Ph.D., *Professor of Psychology.*
F. Nowell Jones, Ph.D., *Professor of Psychology.*
Harold H. Kelley, Ph.D., *Professor of Psychology.*
[16]Franklin B. Krasne, Ph.D., *Professor of Psychology.*
[16]John C. Liebeskind, Ph.D., *Professor of Psychology.*
O. Ivar Lovaas, Ph.D., Litt.D., *Professor of Psychology.*
Millard C. Madsen, Ph.D., *Professor of Psychology.*
Irving Maltzman, Ph.D., *Professor of Psychology.*
Albert Mehrabian, Ph.D., *Professor of Psychology.*
Charles Y. Nakamura, Ph.D., *Professor of Psychology.*
[16]Donald Novin, Ph.D., *Professor of Psychology.*
Amado M. Padilla, Ph.D., *Professor of Psychology.*
Allen Parducci, Ph.D., *Professor of Psychology.*
Bertram H. Raven, Ph.D., *Professor of Psychology.*
Eliot H. Rodnick, Ph.D., *Professor of Psychology.*
David O. Sears, Ph.D., *Professor of Psychology and Political Science.*
Joseph G. Sheehan, Ph.D., *Professor of Psychology.*
Gerald H. Shure, Ph.D., *Professor of Psychology and Sociology.*
James P. Thomas, Ph.D., *Professor of Psychology (Vice Chairman of Graduate Affairs).*
Bernard Weiner, Ph.D., *Professor of Psychology.*
S. Carolyn Fisher, Ph.D., *Emeritus Professor of Psychology.*
Joseph A. Gengerelli, Ph.D., *Emeritus Professor of Psychology.*
Milton E. Hahn, Ph.D., *Emeritus Professor of Psychology.*
George F.J. Lehner, Ph.D., *Emeritus Professor of Psychology.*
Donald B. Lindsley, Ph.D., Sc.D., *Emeritus Professor of Psychology and Physiology.*
Laurence A. Petran, Ph.D., F.A.G.O., *Emeritus Professor of Music and Psychology.*
Jessie L. Rhulman, Ed.D., *Emeritus Professor of Psychology.*
John P. Seward, Ph.D., *Emeritus Professor of Psychology.*
Marion A. Wenger, Ph.D., *Emeritus Professor of Psychology.*
Howard S. Adelman, Ph.D., *Associate Professor of Psychology and Lecturer in Education.*
Richard P. Barthol, Ph.D., *Associate Professor of Psychology.*
[16]Jackson Beatty, Ph.D., *Associate Professor of Psychology.*
Elizabeth L. Bjork, Ph.D., *Associate Professor of Psychology.*
[16]Larry L. Butcher, Ph.D., *Associate Professor of Psychology.*
Jacqueline D. Goodchilds, Ph.D., *Adjunct Associate Professor of Psychology and Associate Research Psychologist.*
Gerald M. Goodman, Ph.D., *Associate Professor of Psychology.*
Barbara A. Henker, Ph.D., *Associate Professor of Psychology.*
Eric W. Holman, Ph.D., *Associate Professor of Psychology.*
Marion Jacobs, Ph.D., *Adjunct Associate Professor of Psychology.*
Donald G. MacKay, Ph.D., *Associate Professor of Psychology.*
Dennis J. McGinty, Ph.D., *Adjunct Associate Professor of Psychology and Associate Research Anatomist.*
George E. Mount, Ph.D., *Associate Professor of Psychology.*
Thomas D. Wickens, Ph.D., *Associate Professor of Psychology.*
J. Arthur Woodward, Ph.D., *Associate Professor of Psychology.*
Paul R. Abramson, Ph.D., *Assistant Professor of Psychology.*
Arthur P. Arnold, Ph.D., *Assistant Professor of Psychology.*
Andrew Christensen, Ph.D., *Assistant Professor of Psychology.*
Braddie B. Dooley, Ph.D., *Adjunct Assistant Professor of Psychology.*
Halford H. Fairchild, Ph.D., *Assistant Professor of Psychology.*
Patrice L. French, Ph.D., *Assistant Professor of Psychology.*
Barbara A. Gutek, Ph.D., *Assistant Professor of Psychology.*
Constance L. Hammen, Ph.D., *Assistant Professor of Psychology.*
Anna G. Heinrich, Ph.D., *Adjunct Assistant Professor of Psychology.*
Manuel Leon, Ph.D., *Assistant Professor of Psychology.*
Sigrid R. McPherson, Ph.D., *Adjunct Assistant Professor of Psychology and Medical Psychology and Assistant Research Psychologist.*
Hector F. Myers, Ph.D., *Assistant Professor of Psychology.*
L. Anne Peplau, Ph.D., *Assistant Professor of Psychology.*
Nancy L. Rader, Ph.D., *Assistant Professor of Psychology.*
Perry W. Thorndyke, Ph.D., *Adjunct Assistant Professor of Psychology.*

•

Armand A. Alkire, Ph.D., *Associate Clinical Professor of Psychology.*
Dorothy V. Anderson, Ph.D., *Associate Clinical Professor of Psychology and Medical Psychology.*
Joseph A. Angelo, Ph.D., *Associate Clinical Professor of Psychology.*
Tora K. Bikson, Ph.D., *Lecturer in Psychology.*
Charles M. Bowdlear, Ph.D., *Associate Clinical Professor of Psychology.*
David E. Bresler, Ph.D., *Adjunct Assistant Professor of Psychology and Anesthesiology.*
Marcelline M. Burns, Ph.D., *Assistant Research Psychologist in Psychology and Engineering.*
Matthew W. Buttiglieri, Ph.D., *Clinial Professor of Psychology.*
Jeremiah P. Collins, Ph.D., *Lecturer in Psychology and Assistant Research Psychologist in Medical Psychology.*
Edward M. Cummings, Ph.D., *Lecturer in Psychology.*
William E. Davis, Ph.D., *Associate Clinical Professor of Psychology.*
Darrell C. Dearmore, M.A., *Lecturer in Psychology.*
Gary Faltico, Ph.D., *Associate Clinical Professor of Psychology.*
Norma D. Feshbach, Ph.D., *Professor of Education and Psychology.*
Louis F. Friedman, Ph.D., *Lecturer in Psychology.*
Pamela C. Freundl, Ph.D., *Lecturer in Psychology.*
Rosslyn Gaines, Ph.D., *Professor of Medical Psychology and Psychology in Residence.*
Ralph E. Geiselman, Ph.D., *Lecturer in Psychology.*
Beverly Golden, Ph.D., *Associate Clinical Professor of Psychology.*
Thomas C. Greening, Ph.D., *Lecturer in Psychology.*
Robert L. Gunn, Ph.D., *Associate Clinical Professor of Psychology.*
William S. Hansen, Ph.D., *Assistant Professor of Psychology in Residence.*
Richard W. Hanson, Ph.D., *Assistant Clinical Professor of Psychology.*
Barbara Hayes-Roth, Ph.D., *Adjunct Assistant Professor of Psychology.*
Morris K. Holland, Ph.D., *Lecturer in Psychology.*
George J. Huba, Jr., Ph.D., *Lecturer in Psychology and Assistant Research Psychologist.*
Harrington V. Ingham, M.D., *Senior Physician Diplomate in Student Health Service and Associate Clinical Professor of Psychiatry and Psychology.*
Harry J. Jerison, Ph.D., *Professor of Medical Psychology and Psychology in Residence.*
Paula B. Johnson, Ph.D., *Assistant Research Psychologist.*
Renee L. Kaplan, Ph.D., *Associate Clinical Professor of Psychology.*
George G. Katz, Ph.D., *Associate Clinical Professor of Psychology.*
Adam T. Kohler, Ph.D., *Assistant Clinical Professor of Psychology.*
John R. Levee, Ph.D., *Associate Clinical Professor of Psychology.*
John H. Lyman, Ph.D., *Professor of Engineering and Psychology.*
Charles D. McCarthy, Ph.D., *Associate Clinical Professor of Psychology.*
Dennis McGinty, Ph.D., *Adjunct Associate Professor of Psychology.*
William H. McGlothlin, Ph.D., *Professor of Psychology in Residence and Research Psychologist in Psychiatry.*
John W. McKelligott, Ph.D., *Associate Clinical Professor of Psychology.*
Wilbur E. Morley, Ph.D., *Lecturer in Psychology.*
Herbert A. Moskowitz, Ph.D., *Associate Research Psychologist.*
Leslie Navran, Ph.D., *Clinical Professor of Psychology.*
Francis N. Newton, Ph.D., *Assistant Research Anthropologist.*
Robert A. Niemann, Ph.D., *Assistant Research Engineer.*
Philip Oderberg, Ph.D., *Lecturer in Psychology.*
Kenneth R. Pfeiffer, Ph.D., *Lecturer in Psychology and Engineering.*
Frank Risch, Ph.D., *Clinical Professor of Psychology.*
John W. Rohrbaugh, Ph.D., *Assistant Research Psychologist.*
Bruce D. Rubenstein, Ph.D., *Associate Clinical Professor of Psychology.*
Rene A. Ruiz, Ph.D., *Visiting Research Psychologist.*
Julia A. Saslow, Ph.D., *Assistant Clinical Professor of Psychology.*
Barbara N. Schaeffer, Ph.D., *Associate Clinical Professor of Psychology.*
George F. Seacat, Ph.D., *Clinical Professor of Psychology.*
Harold J. Segel, Ph.D., *Associate Clinical Professor of Psychology.*
David Shapiro, Ph.D., *Professor of Medical Psychology and Psychology.*
Satanand Sharma, Ph.D., *Assistant Research Psychologist in Psychology and Engineering.*
Edwin S. Shneidman, Ph.D., *Professor of Psychology, Sociology, and Thanatology in Residence.*
Margaret T. Singer, Ph.D., *Lecturer in Psychology.*
Manuel J. Smith, Ph.D., *Assistant Clinical Professor of Psychology.*
Zanwill Sperber, Ph.D., *Lecturer in Psychology.*
Kathryn L. West, Ph.D., *Assistant Research Psychologist.*
Joseph A. Wingard, Ph.D., *Lecturer in Psychology and Assistant Research Psychologist.*
Allen T. Yates, Ph.D., *Assistant Research Psychologist.*
Kenneth Ziedman, Ph.D., *Assistant Research Psychologist in Psychology and Engineering.*

Training in Psychology at UCLA emphasizes the idea of Psychology as a biosocial laboratory science. To meet the diverse needs of students, there are three different major curricula: the Psychology Major, the Quantitative Psychology Major and the Psychobiology Major.

Students should note that all courses required for these majors (which include lower division courses and major courses), must be taken for a letter grade.

The Pre-Psychology Major:

While students are completing the lower division preparation courses for one of the majors listed above, they should be enrolled as Pre-Psychology Majors. Students may enroll in this pre-major at the Psychology Undergraduate Advising Office, Franz Hall 1531. Students must complete the preparation courses according to the rules set down in the major before they can enroll in that major. When students have completed the preparation courses for the major, they must petition to enter that major at the Psychology Undergraduate Advising Office.

The Psychology Major

PLEASE NOTE: Students must complete all pre-major courses with a 2.0 grade point average and petition for change of major by the time they attain 135 units. Students entering UCLA as freshmen can easily complete the nine preparation courses within 135 units. Transfer students who have a number of these preparation courses left to complete will have a more difficult time meeting this requirement. All transfer students must see a counselor in the Psychology Advising Office.

Required Lower Division Courses for the Psychology Major. Broad training in general science is required for the major in Psychology. The required lower division courses are as follows: Anthropology 11; Biology 2 or Biology 5 and 7; Chemistry 2 or 11A; Mathematics 2 and 4A or 3A-B or 31A-B; Physics 10 or 3A or 6A or 8A; Philosophy 1, 3, 7, 8 or 21; Psychology 10; Psychology 41 or Mathematics 50A, (Psychology 41 recommended). Students must complete all pre-major courses with a 2.0 grade point average and petition for change of major status by the time they attain 135 units.

It should be noted that the above are the minimum requirements in preparing for the major. More advanced courses in science and statistics would provide stronger preparation for the major.

Required Upper Division Major Courses. Admission to the major and to certain of the courses listed below is limited to students who have completed all of the above preparation courses with a 2.0 grade point average by the time they attain 135 units. See the section above entitled "The Pre-Psychology Major" for the procedures to follow to enroll in the Psychology Major. (1) All of the following content core courses: Psychology 110, 115, 120, 125, 135; (2) Psychology 100 (3) One of the following laboratory and field research courses: 111, 116, 121, 126, 132B, 136A, 136B, 143, M155, 170B, 174, 176, 180A-180B; (4) An additional three upper division elective courses (12 units) in Psychology. PLEASE NOTE: For 1979-80 only the following applies to students who have partially completed the laboratory requirement: (1) Psychology majors who have completed 111, 121, or 143 may take any of the other laboratory courses on the above list to complete the laboratory requirement. (2) Psychology majors who have completed laboratory courses other than 111, 121 or 143, must take Psychology 100 to complete the laboratory requirement.

The Quantitative Psychology Major:

This major is an alternative to the Psychology Major. It provides students with basic training in both quantitative skills and in Psychology. Quantitative and computer skills are important in all fields of Psychology and are a very positive aspect in the student's preparation for a career in Psychology or related fields.

Required Lower Division Courses for the Quantitative Psychology Major. The following courses must be completed with a 2.0 grade point average: Biology 2 or Biology 5 and 7, Chemistry 2 or 11A; Engineering 10S (recommended), or Engineering 10C, or Engineering 10F; Mathematics 31A-31B-31C, 32A-32B-32C; Physics 10, or 3A or 6A or 8A; Psychology 10.

It should be noted that the above are minimum requirements in preparing for the major. More advanced courses in science would provide stronger preparation for the major.

Required Upper Division Quantitative Psychology Major Courses. (Admission to the Quantitative Psychology Major is limited to the students who have completed the above preparation courses with a 2.0 grade-point average. See the section above entitled "The Prepsychology Major" for the procedures to follow to enroll in the Quantitative Psychology Major.) (1) One of the following sets of courses: Public Health 160A-160B or Mathematics 150A-150B or Mathematics 152A-152B or Engineering 193A-193B; (2) All of the following courses: Psychology 110, 115, 120, 125, 135; (3) Seven additional upper division courses in Quantitative Psychology, Mathematics, Biostatistics, Computer Science, and Systems Science. Two of these courses must emphasize research methodology in Psychology.

Particular courses for the last requirement will depend on a student's needs and interests. Students will consult their adviser for prior approval of courses to meet these requirements. See the Psychology Advising Office for details.

The Psychobiology Major:

This major is an alternative to the Psychology major and is designed for students who plan to go on to postgraduate work in psychobiology or the health sciences.

Required Lower Division Courses for the Psychobiology Major. The following courses must be completed with a 2.0 in EACH course: Biology 5 and 7; Chemistry 11A-11B/BL-11C/CL, 21, 23, 25 (or 21, 22, 24); Mathematics 3A-3B-3C or 31A-31B-31C; Philosophy 1, 3, 7, 8 or 21; Physics 6A-6B-6C or 3A-3B-3C; Psychology 10; Psychology 41 or Mathematics 50A (Psychology 41 recommended).

Required Upper Division Psychobiology Major Courses. Admission to the Psychobiology Major is limited to students who have completed the above preparation courses with a 2.0 in *each* course. See the section above entitled "The Pre-Psychology Major" for the procedures to follow to enroll in the Psychobiology Major. (1) All of the following courses: Biology 129 or Psychology 118A; Psychology 100, 110, 115, 116, 120; (2) One of the following courses: Psychology 125, 127, 130, 135; (3) Four courses from the following list with the noted conditions: Psychology 117 (only *1* section may be used); Biology 107, 112, 113, 114, 115 (no more than *1* from this group); Psychology 118B, 118C, 118D, Biology 105, 110, 111, 119, 120, 122, M132, 134, 135, 137, 138, 139, 144, 145A-B-C, 153, 158, 166, 168, 169, 171, 172A-B, 173, 177, 179, Kinesiology 140, Chemistry 152 and Psychology M153.

Preparation for Graduate Work in Psychology

Although requirements for admission to graduate programs in Psychology in most universities will be satisfied by the above major requirements, students should realize that both admission to graduate work and progress toward the degree will be impeded in certain areas of Psychology if additional preparation is not obtained at the undergraduate level. For this reason, students who plan to do graduate work in psychology are advised to take additional work in methodology and statistics, and to take advantage of the many advanced undergraduate courses in specific fields offered both by the Psychology Department and related departments.

Students should plan to give some time to the acquisition of a reading knowledge of one or two foreign languages which might be required for the Ph.D. The Department no longer requires a foreign language except in the area of Measurement/Psychometrics; but at some other universities one or two foreign languages are required.

Consult the Psychology Undergraduate Advising Office, Franz Hall 1531, for information concerning graduate programs at other institutions; consult the Graduate Admissions Assistant, Franz Hall 1283, for information concerning the graduate program at UCLA.

Honors Program in Psychology

The Psychology Honors Program is intended to provide exceptional students with an opportunity in the junior or senior year for advanced research and study under the tutorial guidance of a member of the faculty. (For information on College Honors, see *Honors Program*, College of Letters and Science.) Honors students participate in an Honors Seminar and work toward the completion of a formal bachelor's thesis. Students whose theses are judged acceptable by the Honors Committee are awarded the degree with Honors or Highest Honors in Psychology. Interested students should consult the Psychology Undergraduate Advising Office early in their educational planning for further information and application forms.

Developmental Disabilities Immersion Program

The Developmental Disabilities Immersion Program is co-sponsored by the Departments of Psychology and Psychiatry, and by the Office of Experimental Educational Programs. Each year thirty undergraduates are selected for the program, which runs during the winter and spring quarters. Students participate in courses and research at Lanterman State Hospital (formerly Pacific State Hospital), a facility for mentally retarded citizens in Pomona, and do related field work while living together at the UCLA Experiental Learning Center nearby.

During each of the two quarters, up to twenty units of course work related to the theme of developmental disabilities are offered by nine UCLA psychiatry and psychology faculty from Lanterman State Hospital, or from the main campus. Most of the courses are in the Psychology/Psychiatry M180-181 series; courses from other departments (such as biology) may supplement these offerings. Many of the courses fulfill Psychology undergraduate major requirements.

Student individualized research projects are part of the immersion experience. Each student teams up with a research sponsor (one of the participating faculty or other Lanterman State staff members) and designs a project commensurate with the student's interests and level of research experience. Many research projects tie in to ongoing research activities at the hospital. Final project reports are published in *Pacific State Archives*, the annual journal of student research.

To supplement their academic activities, students spend eleven hours a week working with the developmentally disabled by assisting teachers in the special education classes in nearby public schools or by helping supervise at sheltered workshops. They have the opportunity to lead classes, to produce lesson plans, to devise learning activities, and to work individually with clients.

Group living intensifies the learning experience and presents increased opportunities for the development of interpersonal skills. The residential format accommodates the many extra program activities (workshops, guest lectures, etc.) related to the organizational theme of mental retardation.

Students interested in the program should contact the Psychology Advising Office or the Office of Experimental Educational Programs, 50 Dodd Hall. Freshmen are not eligible, and sophomores will be admitted only under exceptional circumstances. Applicants need not be psychology majors.

Graduate Program

The Department offers the Ph.D. degree, and the student may obtain the M.A. degree en route to the Ph.D. The Department does not admit candidates for the M.A. degree only. (See Requirements for the M.A. and Ph.D. Degrees below.) For the Ph.D. degree, all students are required to obtain thorough grounding in research methodology and psychological theory. Major specialized training is available in such areas of psychology as clinical, developmental, cognitive (human perception, performance and engineering psychology, memory, verbal learning, language, and thought), learning and behavior, measurement and psychometrics, personality, physiological and social psychology. Further training is available in community psychology, industrial, and psychopathology.

Admission to the Graduate Program

In addition to meeting the general graduate requirements (for information on University requirements for admission to graduate status, see In Graduate Status), students must be admitted to the Department by a selection committee within the Department. Graduate enrollment is limited and candidates will be chosen on the following bases: (1) prior scholastic performance; (2) ratings and recommendations by professors and other individuals; (3) autobiographical material; (4) scores on the Graduate Record Examination

NOTE: For key to symbols, see page 74

(verbal, quantitative, and advanced test in Psychology) and on the Miller Analogies Test. Application materials may be obtained by writing to the Department of Psychology, Admissions Committee, University of California, Los Angeles, California 90024. The completed departmental forms, transcripts, and test scores must be received by December 30 for consideration for the following fall quarter. Graduate students are admitted only once a year in the fall. Normally, all applicants will have had an undergraduate major in psychology, but outstanding students who have majored in other areas will be fully considered. Late applications are rarely considered.

Requirements for the M.A. and Ph.D. Degrees

All students should obtain from the departmental office a statement of the graduate requirements in psychology.

During their first year all entering graduate students must take certain core courses and otherwise prepare themselves for comprehensive examinations in a number of specified areas. Evaluation of the students' total performance during the first year or first four quarters will determine whether they will be permitted to continue their studies toward the Ph.D. degree. A student entering graduate work with an M.A. degree or advanced graduate standing from another university will not automatically be exempted from any part of the graduate program. The student may petition to substitute prior course work for departmental requirements; an examination may be required.

M.A. Degree. The Department does not admit candidates for the M.A. degree only, and the M.A. degree is not required of candidates for the Ph.D. degree; however, graduate students preparing for the Ph.D. normally qualify and apply for the M.A. degree after satisfactory completion of seven required courses in the core program, and two electives. The Department follows the Comprehensive Examination plan. (See Thesis or Comprehensive Examination.) A thesis is not required for the M.A. degree.

Ph.D. Degree. Eligibility for an oral qualifying examination and advancement to candidacy requires prior qualification in the departmental core courses; qualification in comprehensive examinations in areas of the candidate's specialization; and, for students in Measurement/Psychometrics, the passing of a reading comprehensive examination in one approved foreign language or a substitute program of courses in research methods. The oral qualifying examination is administered by a committee of not less than five persons, three from the Department and two from other departments. Each student must complete a satisfactory doctoral dissertation approved by an adviser and other members of the doctoral committee, after which the student must pass a final oral examination on the dissertation and its implications.

Fellowships, Scholarships, Assistantships, and Stipends

The Department of Psychology has a variety of stipends available. These include teaching and research assistantships, departmental traineeships, and several University fellowships. Financial aids and work-study awards are also available through the Financial Aids Office.

Lower Division Courses

10. Introductory Psychology. A general introduction including the topics of learning, perception, thinking, intelligence and personality.
Mr. Friedman, Mr. Holland, Mr. Houston.

15. Introductory Psychobiology. A survey of genetic, evolutionary, physiological, pharmacological and experiential factors affecting behavior. Using the comparative approach where appropriate, the relevance of biological mechanisms to an understanding of man and his interaction with his environment will be emphasized. Not intended for Psychology majors. The Physiological Staff

41. Psychological Statistics. Prerequisites: Mathematics 2A-2B, or 3A, or 11A. Basic statistical procedures and their application to research and practice in various areas of psychology.
Mr. Comrey, Mr. Mount, Mr. Wickens

95. Lower Division Seminars. Prerequisite: course 10. Open only to Freshmen and Sophomores. Intensive analysis in seminar situations of selected topics of current psychological interest. See the Schedule of Classes for current topics and instructors. May be repeated more than once for credit. The Staff

Upper division Courses

The following courses have only Psychology 10 as the prerequisite plus the prerequisites listed with each course: 127, 130, 132A, 132B, 134, 135, 137A, 137B, 137C, 138, 139, 148, 149, 170A, 184A-184B. For special topics courses such as 195, prerequisites will depend upon the nature of the course. The prerequisites to other upper division courses are all courses listed under the *Prepsychology Major.*

100. Research Methods in Psychology. Prerequisites: courses 10, 41. Introduction to research methods and critical analysis in psychology. Lecture and Lab topics will include: experimental and non-experimental research methods, statistical design and analysis as applied to a broad range of basic and applied research issues.
Ms. Bjork, Mr. Friedman, Mr. Thomas

102. History and Systems of Psychology. Prerequisite: senior standing or consent of the instructor. An historical and systematic analysis of psychological thought and points of view. Mr. Jones

110. Fundamentals of Learning. Prerequisite: course 41. Experimental findings on animal and human conditioning; retention and transfer of training; the relation of learning and motivation. The course is intended to provide an empirical basis for theory and research in this area.
Mr. Bjork, Mr. Garcia, Mr. Holman

111. Learning Laboratory. Prerequisite: course 41. Prerequisite or concurrent; course 110. Laboratory experience with techniques in the study of learning especially with animals. Mr. Holman

*1 **112A. Human Learning.** Prerequisite: course 110. Acquisition, retention, and transfer of verbal and nonverbal human learning.

112B. Theories of Learning. Prerequisite: course 110. Critical discussion of the major theories in the light of experimental evidence. Mr. Padilla

*1 **112C. Thinking.** Prerequisite: course 110. An analysis of experimental studies of problem solving, reasoning, insight, concept formation, and related topics.

*1 **112E. Current Topics in Learning.** Prerequisite: course 110. A study of related issues in the psychology of learning. Topics will vary with the interests of the instructor and the class. May be repeated for credit with permission of the instructor.
The Learning Staff

115. Physiological Psychology. Prerequisite: Biology 2 and Psychology 41. For nonpsychology majors, Biology 1A, 1B and consent of the instructor. Integrative activities, receptor and effector processes in relation to neuromuscular structure and function. Facts, problems and methods.
The Physiological Staff

116. Physiological Psychology Laboratory. Prerequisite: course 41. Prerequisite or concurrent: course 115. Laboratory experience with various topics in physiological psychology.
Mr. Dearmore.

117. Seminar in Psychobiology. Prerequisite: course 115. Advanced topics in brain and behavior. May be repeated for credit with permission of instructor. Only one section of 117 may be applied as an elective on the Psychobiology major.
Mr. Beatty, Mr. Krasne, Mr. Liebeskind

118A. Comparative Psychobiology. Prerequisite: course 115. A survey of the determinants of species-specific behavior including genetic influences and learning. Mr. Arnold, Mr. Garcia

118B. Behavioral Pharmacology. Prerequisite: course 115. Experimental and theoretical treatment of drug-behavior relationships. Particular emphasis on behavior and pharmacological mechanisms of drug action and drug interaction with neuronal function; drugs as tools to investigate various behavior processes such as mood, aggression, learning and motivation, experimental studies of addiction. Mr. Ellison

*1 **118C. Psychophysiology of Motivation.** Prerequisite: course 115. The basic psychophysiology, including brain and endocrine mechanism, involved in the control of motivation. Discussion of homeostatic drives such as hunger and thirst and nonhomeostatic drives such as reproductive behavior will be emphasized. Mr. Novin

118D. Experimental Neuropsychology. Prerequisite: course 115. Studies the experimental analysis of higher brain functions. Special emphasis on attention, memory, perception and language.
Mr. Beatty

118E. Current Topics in Physiological Psychology. Prerequisite: course 115 or permission of instructor. Advanced topics of current interest in physiological psychology will be presented in depth. The emphasis will be in bringing students to a point where they can appreciate and evaluate current research papers on the topics covered. The course may be repeated for credit.
The Physiological Staff

120. Perception. Prerequisite: course 41. Methods and approaches to the study of perception. Experimental results, theoretical interpretations, and demonstrations.
Mr. Jones, Ms. Rader, Mr. Thomas

121. Perception Laboratory. Prerequisite: course 41. Prerequisite or concurrent: course 120. Laboratory experience with various topics in perception. Ms. Bjork, Mr. Bjork, Mr. Jones

*1 **122. Language and Communication.** Prerequisite: course 41 or consent of the instructor. A survey of language behavior, communication and speech perception, including acquisition, sequential structure, and semantic aspects. Recent developments in linguistics, theory of information transfer, analysis and synthesis of speech. Social communication. Aphasia and speech pathology. Animal communication. Mr. Carterette

123. Psycholinguistics. A survey of current theory and research in psycholinguistics: the description of language in generative grammars; the acquisition of language by children; experiments on speech recognition, production and comprehension; errors in speech perception and production; speech physiology and pathology. Mr. MacKay

124. Current Topics in Perception. Prerequisite: course 120. Advanced consideration of special topics in perception. May be repeated for credit with consent of the instructor. Mr. MacKay

125. Personality. Prerequisite: course 41. A survey of the major topics in the field of personality, including personality theory, personality assessment, and the physiological, behavioral and cultural role of perception, learning and motivation in personality. Mr. Abramson

*1 **126. Personality Laboratory.** Prerequisite: course 41. Prerequisite or concurrently with special permission: course 125. Laboratory experience with various topics in personality.

127. Abnormal Psychology. Study of the dynamics and prevention of abnormal behavior, including neuroses, psychoses, character disorders, psychosomatic reactions and other abnormal personality patterns.
Mr. Baker, Mr. Christensen, Ms. Hammen

*1 **129A. Personality Measurement.** Prerequisite: course 125. The rationale, methods and content of studies dealing with the problems of describing persons in terms of a limited set of dimensions. Detailed consideration of research literature dealing with a few representative personality dimensions. Mr. Mehrabian

129B. Personality Dynamics. Prerequisite: course 125. Detailed conceptual examination of one or two areas of personality in which the main and interactive effects of personality and situational variables have been investigated. Personality as related to the study of psychological processes, particularly motivation. Includes an examination of current research literature. Mr. Weiner

***1129C. Personality and Cognition.** Prerequisite: course 125. Theoretical and experimental analyses of cognitive processes such as imagery, attention, language and memory and their implication for theories of personality. Mr. Weiner

129D. Special Topics in Personality. Prerequisite: course 125. Study of selected topics in the psychology of personality. Topics will vary with the interests of instructor and class. May be repeated for credit by consent of instructor.
Personality Staff

130. Developmental Psychology. An elaboration of the developmental aspects of physical, mental, social, and emotional growth from birth to adolescence. Ms. Greenfield, Mr. Leon, Mr. Madsen

131A-131B. Fieldwork in Child Psychopathology. Prerequisites: course 133B or equivalent; course 170A or equivalent; experience with problem children, or consent of instructor. This course is designed to give undergraduate psychology students an opportunity to apply their knowledge in working with problem children including autistic, retarded, and school or behavior problem children. Experiences given in a variety of community agencies. There will be two four-hour sessions per week.
The Staff

132A. Learning Disabilities. (1 to 1¼ courses) Prerequisite: upper division standing. Exploration of different orientations to persons with learning problems, emphasizing assessment and intervention approaches and the psychological impact of such approaches. Topics include the interaction of learner and environment, the socio-political nature of the classroom, the psychological impact of schooling, grades, and evaluations, process vs. goal focus in learning. The course may be taken for 4 or 5 units. The 5th unit is devoted to practicum experiences involving the Fernald School. All students planning to enroll subsequently in Psychology 132B must take the 5th unit option. Where possible, it is recommended that the course be taken on a passed/not passed basis. Mr. Adelman

132B. Learning Disabilities Laboratory. Prerequisites: 5 units of course 132A and consent of instructor. Participation in special activities at the Fernald School is made available to University students to further explore by means of a laboratory experience the topics and issues discussed in 132A. The emphasis is on experiencing and evaluating the psychological and educational impact of research, training and service programs on learners, teachers, etc. Since a limited number of students can be accommodated, clarification of available alternatives and agreements regarding participations will be worked out during the fifth unit experience in Psychology 132A. A commitment of eight and a half hours per week is expected (1 1/2 hour meeting plus 7 hours of activity). Where possible it is recommended that the course be taken on a passed/not passed basis. Fernald Staff

132C. Learning Disabilities Advanced Laboratory. Prerequisites: courses 132A and 132B plus consent of instructor. A personalized laboratory participation experience designed to allow the advanced student to explore relevant topics in depth.
Fernald Staff

***1133A. Adolescence.** Prerequisite: course 130 and upper division standing. The physical, psychological and social development of the adolescent.

***1133B. Exceptional Children.** Prerequisite: course 130. Study of the issues and research problems in the areas of mental retardation, giftedness, learning disorders, emotional disorders and childhood psychosis. The Staff

133C. Psychological Development in the Adult Years. Prerequisite: course 130 or consent of the instructor. Theory and research on changes in motivation, aptitudes and abilities as related to genetics, age, sex and socio-cultural variables.
Mr. Jones

***1133D. Psychological Development of the Minority Child.** Prerequisites: courses 127, 130, upper division Psychology standing and consent of the instructor. An examination of the theoretical issues and research problems relating to the development of minority children. Topics will include intelligence, identity, survival skills, family structure and community development. The Staff

133E. Current Issues in Developmental Psychology. Prerequisite: course 130 and upper division Psychology standing. A critical examination of current issues in developmental psychology. The specific issues of concern will vary depending on the interests of the class and instructor. May be repeated with permission of the instructor.
Mr. Leon, Mr. Madsen

***1134. Psychology and Education.** Prerequisites: course 130. Application of principles of cognitive development, learning and perception to educational problems; topics will include general instructional issues, psychology of reading and mathematics, exceptional children, early childhood education, and education of the disadvantaged.
Mr. Jeffrey

135. Social Psychology. Prerequisite: course 41. The interrelationships between the individual and his social environment. Social influences upon motivation, perception and behavior. The development and change of attitudes and opinions. Psychological analysis of small groups, social stratification and mass phenomena.
Mr. Collins, Ms. Peplau, Mr. Raven

136A. Social Psychology Laboratory. Prerequisite: course 41. Prerequisite or concurrent: course 135. Laboratory experience with such topics as small group behavior, attitude measurement, and interpersonal influence.
Ms. Gutek, Mr. Kelley, Mr. Shure

136B. Survey Methods in Psychology. Prerequisite: course 135. The nature of attitudes and opinions, and their measurement by means of attitude scales and public opinion surveys. Class projects and fieldwork. Concurrently scheduled with Psychology 223. Mr. Centers, Ms. Gutek

137A. Group Behavior. Prerequisite: course 135. Psychology of interdependence, group membership, leadership, and social influence. Mr. Kelley

137B. Attitude Formation and Change. Prerequisite: course 135. Effects of propaganda, personal influence, socialization and social structure on private attitudes and public opinion. Mr. Collins

137D. Special Topics in Social Psychology. Prerequisite: course 135. Study of selected topics in social psychology. May be repeated for credit with permission of the instructor.
Ms. Peplau, Mr. Raven, Mr. Shure

M137E. Work Behavior of Women and Men. (Same as Women's Studies M137E.) Prerequisites: Psychology 10 or Women's Studies 100 and junior or senior standing. Examination of work behavior of men, and especially women. Covers such topics as antecedents of career choice, job finding, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction and interdependence of work and family roles. Ms. Gutek

137F. Interpersonal Relations. Prerequisites: course 135, consent of instructor. A study of the psychological facts, principles, problems and theories concerned with interactions and relationships between persons. Focus is upon such phenomena as interpersonal attraction, exchange, aggression, conflict, control, power relations, and the initiation, development and dissolution of relationships.
Mr. Centers

M138. Political Psychology. (Same as Political Science M140.) Prerequisite: course 10. Examination of political behavior, political socialization, personality and politics, racial conflict, and the psychological analysis of public opinion on these issues. Mr. Sears

139. Psychology of Social Issues. Prerequisite: course 10. An analysis of the contribution of current psychological theory and research to the understanding of selected historical, social and political problems. Mr. Fairchild

142. Advanced Statistical Methods in Psychology. Prerequisite: course 41. Chi square, special correlation methods, multiple regression, non-parametric methods, analysis of variance, reliability and validity. Mr. Nihira

143. Foundations of Psychological Investigation. Prerequisite: course 41. Outline and examination of concepts associated with psychological investigation and the interpretation of results. Readings, discussions and reports, individual and class projects.
Mr. Mount

144. Psychological Tests and Evaluation. Prerequisite: course 41. Further study of the principles of measurement, stressing basic concepts. Application to problems of test construction, administration and interpretation. Mr. Broen

148. Personnel and Industrial Psychology. Introduction to the applications of psychology in industry and business. Mr. Barthol

***1149. Problems in Human Relations.** Understanding human relations problems and developing skills in interpersonal relations. Topics include the effective use of human resources; group management and leadership skills; interviewing, counseling, and conference techniques. Mr. Barthol

***1150. Mathematical Models in Psychology.** Prerequisites: Mathematics 3C or 31C, Engineering 10, or consent of the instructor. Review of theoretical models and the experimental evidence for these models in various areas of Psychology. Topics will include: mathematical computer models of learning, perception, cognition and personality. Recommended for Quantitative Psychology Majors.
Mr. Holman, Mr. Wickens

***1151. Computer Applications in Psychology.** Prerequisite: Engineering 10 and consent of the instructor. Topics will include hardware and software computer problems in the deisgn, control, and analysis of experiments; programming problems arising in the evaluation of models of psychological processes of the various content areas such as learning, perception, social, personality, and clinical. Recommended for Quantitative Psychology Majors.
Mr. Carterette

M153. Principles of Biotechnology. (Same as Engineering M107A.) Prerequisite: third quarter sophomore or higher standing. The principles of biological science are developed in an engineering context. An emphasis is placed on how physiological, psychological, and sociological factors affect the integration of man into environmental, informational and managerial systems by engineering means. Mr. Lyman

***1M155. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.** (Same as Anthropology M176 and Psychiatry M112.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings will be taught, emphasizing field training and practice in observing behavior. Group and individual projects will be included. Some of the uses of observations and their implications for research in the social sciences will also be discussed.
Mr. Gallimore, Mr. Turner, Mr. Weisner

162. The Psychological Approaches of Henry Murray; The Study of Biography. Prerequisite: consent of the instructor. The study of lives and the personality theory of Henry Murray, touching upon autobiographical writings and biographical materials; and personality as a dynamic system of growth and change. Creative, proactive, normal and supernormal aspects of personality; the roles of values in the study of personality, society and culture. Mr. Shneidman

NOTE: For key to symbols, see page 74

M163. Death and Suicide: Psychological and Sociological Aspects. (Same as Sociology M158.) The definition and taxonomy of death; the new permissiveness and taboos relating to death; the romanticization of death; the role of the individual in his own demise; the modes of death; development of ideas of death through the life span; ways in which ideas of death influence the conduct of lives; the impact of dying on the social structure surrounding the individual; preventive, interventive and postventive practices in relation to death and suicide; partial death; megadeath; lethality; the psychological autopsy; the death of institutions and cultures. Junior standing required. This course is offered on both a passed/not passed and letter grade basis. However, the instructor prefers that students selected the passed/not passed option.
Mr. Shneidman

M165. The Psychology of Sex Differences. (Same as Women's Studies M165.) This course considers psychological literature relevant to understanding contemporary sex differences. Some topics included are sex-role development and role conflict, physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and the impact of gender on social interaction. Ms. Peplau

***1168. Environmental Psychology.** Prerequisites: course 41 and 125. A research-oriented course which surveys theoretical and methodological issues which comprise the area of environmental psychology. Discussion of basic dimensions of emotional response to physical and social environments, measurement of information of rate of situations, and personality variables that are relevant to environmental theory. Residential, therapeutic, work and recreational environments will be considered within a unified framework.
Mr. Mehrabian

170A. Behavior Modification. Prerequisite: upper division standing. Applied behavior theory; a study of the application of principles derived from learning theory, especially modelling and reinforcement, to behavior problems of retarded and autistic children, adult psychotic disorders, reading disorders, etc. Lectures, discussions and demonstrations.
Mr. Lovaas

170B. Fieldwork in Behavior Modification. Prerequisites: course 170A. Psychology Junior or Senior Major standing and permission of instructor. Advanced discussion and fieldwork in Applied Behavior Theory; especially to problems of retarded and autistic children, adult psychotic disorders, etc. Two hours discussion and eight hours fieldwork per week. May be repeated once for credit.
Mr. Lovaas

174. Interpersonal Process Analysis. Prerequisites: course 41, 127, and Junior and Senior Psychology Major standing. An introduction to the conceptual tools for analyzing interpersonal structures and functions in goal-oriented human interaction such as psychotherapy, persuasion, courtship, etc. Class sessions will integrate small group exercises with lecture and discussion. Additional laboratory work to be arranged. Mr. Goodman

***1175. Community Psychology.** Prerequisites: Junior or Senior Psychology Major standing and consent of the instructor. The application of psychological principles to the understanding and solution of community problems. Topics will include community development, community mental health problems, drugs, racism, and rehabilitation of prisoners. The Staff

176. Experimental Community Psychology. Prerequisites: course 127 and consent of the instructor. Examination and experimental application of concepts drawn from interpersonal and community psychology for understanding the behavior of individuals in structured social systems (communities, schools, mental hospitals, prisons, etc.).
Mr. Myers

177. Counseling Relationships. Prerequisite: Junior or Senior Psychology major standing or consent of the instructor with the following prerequisites: courses 10, 41, 127, and junior or senior standing. The course examines conceptual and empirical foundations of psychological counseling and compares alternative models of counseling processes. Emphasis is on counseling approaches in community mental health areas such as drug abuse, suicide prevention, and crisis intervention.
Ms. Henker and the Staff

178. Human Motivation. Prerequisite: upper division standing required. Examination of current theories of human motivation, the experimental findings supporting the theories, and their applied value. Motivation in the classroom will be emphasized, particularly the effects of success and failure on performance. Other topics include stress, conflict, frustration, and perceptions of control.
Mr. Weiner

M180A. Contemporary Problems in Mental Retardation. (Same as Psychiatry M180A.) Prerequisites: Psychology 10, 41, and 127 or 130, and enrollment in Immersion Program. Presentation of the concepts, issues and research techniques in the area of mental retardation. Biological, psychological and community questions concerning the causes and treatment of development disabilities as well as systems for the care and training of retarded individuals will be explored. Lectures, directed reading and discussion. To to taken concurrently with Fieldwork in Contemporary Problems in Mental Retardation. Mr. Fluharty and the Staff

M180B. Contemporary Issues in Mental Retardation. (Same as Psychiatry M180B.) Prerequisites: Psychology M180A and enrollment in Immersion Program. Psycho-educational issues in mental retardation, relating literature to ongoing field experiences through lectures, discussion, media and 6 student papers. Mr. Baker

M181A-181B. Fieldwork in Contemporary Problems in Mental Retardation. (Same as Psychiatry M181A-181B.) Prerequisite: concurrent enrollment in Psychology M180A-180B. Fieldwork experience to be taken concurrently with Contemporary Problems in Mental Retardation.
Mr. Fluharty and the Staff

M182A. Advanced Statistical Methods in Mental Retardation. (Same as Psychiatry M182A.) Prerequisites: Psychology 41 and enrollment in Immersion Program. Introduction of Statistical method and design in experimentation principles of statistical inference and appropriate testing methods. An introduction to the use of computers and various software packages is presented. Mr. Guthrie

M182B. Advanced Design and Statistics. (Same as Psychiatry M182B.) Prerequisite: Psychology M182A. Continuation of Psychology M182A.
Mr. Eyman

M182C. Perception. (Same as Psychiatry M182C.) Prerequisite: enrollment in Immersion Program. Human information processing, both physical and psychological with special emphasis on pathologies in the mentally retarded. Mr. Galbraith

M182D. Current Issues in Mental Retardation. (Same as Psychiatry M182D.) Prerequisite: enrollment in Immersion Program. Advanced topics in mental retardation. May be repeated for credit with permission of instructor. The Staff

184A. Communication Disorders. Prerequisite: junior or senior standing. A clinical approach to speech problems with emphasis on stuttering and neurological disorders and their treatment.
Mr. Sheehan

***1184B. Laboratory in Communication Disorders.** Prerequisite: consent of the instructor. Discussion, observation and supervised small group experience with stuttering and related problems in Psychology Speech Clinic. Mr. Sheehan

190A-190B-190C. Honors Course. Prerequisite: acceptance by departmental Honors Committee. Opportunity for the development and analysis of creative ideas through conceptual or experimental research and their implementation by experimental research. Information and applications may be obtained from the Psychology Undergraduate Advising Office. (For further information, see Honors Program in Psychology.) Mr. Mount

195. Current Issues in Psychology. Prerequisite: Junior or Senior Psychology Major standing. Some sections may require permission of instructor. A study of selected current topics of psychological interest. See Schedule of Classes for topics and instructors to be offered each quarter. This course may be repeated for credit, and may apply as elective units on the Psychology major. This course may not apply as an elective on the Psychobiology major. The Staff

199. Directed Individual Research and Study. Prerequisites: senior Psychology Major standing or junior Psychology Major standing with at least a 3.0 grade point average in the major, consent of the instructor and the Vice Chairman for Undergraduate Affairs. To be arranged with individual faculty members. Consent is based on a written proposal outlining the proposed course of study. Students should consult the Psychology Undergraduate Advising Office, Franz Hall 1531A, for further information and approval forms. Note the following regulations concerning 199 courses: A student may take only one 4 unit 199 course in Psychology per quarter. Only 4 units of 199 may be applied toward the Psychology Major elective course requirement. Only one Psychology 199 course may be taken for a letter grade: additional Psychology 199 courses may be taken in the Department.
The Staff

Graduate Courses

200A. Animal Learning and Behavior. This course will focus on basic principles and characteristics of learning and behavior, including Pavlovian conditioning, instrumental learning and species specific behavior. The Learning and Behavior Staff

200B. Human Learning and Behavior. Topics to be covered include human learning and conditioning and the application of learning principles in the etiology and treatment of a variety of socially significant problems. Special emphasis will be placed on systematic desensitization of anxiety states, behavior modification programs for schizophrenic children and adults, behavioral pharmacology, control of autonomic behavior, among others.
The Learning and Behavior Staff

204C-204D. Seminar in Critical Problems in Learning. May be taken independently and in any order. Critical problems will be drawn from such as the following:

204C. Psychophysiology of Attention and Learning. The study of research and theories concerned with the psychophysiology of attention and learning primarily in humans. Concepts and areas covered include the orienting reflex, dominant focus, classical conditioning, and their implications for the psychophysiology of sychopathology and psychotherapy. Mr. Maltzman

*1204D. Theories of Learning. Prerequisite: Psychology 200A or equivalent. Critical discussion of the major theories in learning and their current status. Mr. Padilla

***1205A-205B. Physiological Correlates of Behavior.** Prerequisite: course 115 or equivalent and consent of the instructor. The physiological substrate of behavior and the neural and endocrine mechanisms which underlie psychological phenomena and behavior. New concepts of structural and functional organization in the nervous system and the ways these relate to behavioral and neurological dysfunction. The Physiological Staff

***1206. Psychophysiology of Brain Function.** Modern concepts of the functional organization of the brain with particular reference to psychological phenomena and behavior. Recent advances in neurophysiology and electroencephalography bearing on perception, attention, drive, sleep-wakefulness, levels of consciousness etc. Some emphasis on pathology of behavior resulting from brain injury.

207A-207B-207C. Seminar in Physiological Psychology. Prerequisite: course 115 or the equivalent. Mr. Butcher, Mr. Ellison, Mr. Krasne

***1208. Seminar in Comparative Psychobiology.** Mr. Arnold

***1209. Laboratory Methods in Physiological Psychology.** Prerequisite: consent of the instructor. Surgical skills, bioelectric instrumentation and experimental techniques, data analysis and interpretation. Mr. Krasne

***1210. Comparative Psychobiology.** Prerequisite: course 115 or equivalent or consent of instructor. A survey of the determinants of species-specific behavior including genetic influences and learning. Mr. Arnold

***1M211. Mind and Brain in Evolution. (½ course)** (Formerly numbered M265. Same as Psychiatry M265.) Prerequisite: consent of the instructor. This course reviews the fossil evidence on the organic evolution of the brain and the implications of that evidence for the evolution of mind and intelligence. Quantitative approaches are emphasized. Although some implications for cognitive psychology and individual differences are considered, the evolutionary analysis is "above the species level". Mr. Jerison

212. Evaluation of Research Literature in Physiological Psychology. (¼ course) Prerequisite: course 205 or consent of instructor. Papers of current interest will be presented by members of the seminar and their significance and methodology discussed and criticized in depth. Course may be repeated for credit. Physiological Staff

218A-218B*1-218C. Advanced Industrial Psychology. Selection and training of employees, factors influencing efficiency of work. Mr. Barthol

219. Special Problems in Industrial Psychology. Mr. Barthol

220A-220B. Social Psychology. Prerequisite: course 135 or equivalent. An intensive consideration of the concepts, theories, and major problems in social psychology. The Social Staff

221. Seminar in Attitude Formation and Change. Prerequisite: courses 220, 227, or consent of the instructor. Social psychological research and theories on opinions and attitudes. Effects of mass communication, social factors in assimilation of information and influence. Mr. Gerard

222A-222B. Seminar in Group Behavior. Prerequisite: courses 220, 227, or consent of the instructor. Special topics in interpersonal relations and group dynamics. Power control, structure and organization, group functioning. Mr. Kelley, Mr. Raven

223. Survey Research in Psychology. A critical review of the theory and practice of large-scale sampling, measurement, and analysis of beliefs, attitudes, and other psychological variables. Concurrently scheduled with Psychology 136B. Ms. Gutek

224. Experimental Methods in Social Psychology. Prerequisite: courses 220, 227, or consent of the instructor. A critical review of laboratory techniques and problems of experimental control and measurement encountered in research on social psychological phenomena. Mr. Collins

225. Seminar: Critical Problems in Social Psychology. Prerequisite: courses 220, 227, or consent of the instructor. May be repeated for credit with consent of the instructor. Ms. Gutek, Mr. Gerard, Ms. Peplau

***1M228. Seminar in Political Psychology.** (Same as Political Science M224G.) Prerequisite: course 220 or consent of the instructor. Examination of political behavior, political socialization, personality and politics, racial conflict, and the analysis of public opinion on these issues. Mr. Sears

***1229A-229B. Issues in the Social Development of the Minority Child.** Prerequisite: consent of instructor and graduate status. A critical evaluation and integration of existing research on the social psychological development of the minority child. The two-quarter seminar will focus on the socialization of cognitive and personality style, with the goal of empirically clarifying the issues raised in this area of developmental study. Mr. Myers

232. Experimental Research on Human Sexual Behavior. (Formerly numbered 298.) Prerequisite: graduate standing. This course has been designed to teach students how to carry out research on human sexual behavior. The contents will include theory construction, scale development, physiological and endocrinological implications, radio-immunoassay (measuring hormones in blood sample), ethical issues, methodological and statistical considerations, the measurement of sexual arousal, fantasy, and sexual dysfunction therapy. The format will be discussion oriented, with emphasis placed on operationalizing predictions concerning human sexual functioning. Mr. Abramson

***1233. Seminar in Environmental Psychology.** Prerequisite: courses 250A, 250B and 235. Critical review of work in environmental psychology designed to identify basic dimensions for the analysis of man-environment relationships. The framework of analysis uses human emotional responses to environments as intervening variables linking specific stimulus qualities to a variety of approach-avoidance behaviors. Individual differences and drug induced states as these relate to the emotional response dimensions are employed to explain within-individual differences in response to the same environment over time or between-individual differences to the same situation. Review of literature relating information rate from environments to arousal and preferences for those environments. Mr. Mehrabian

***1234. Personality and Cognition.** A critical analysis of unified cognitive theories of personality combined with a consideration of relevent empirical literature. The work of such theorists as Kelly, Piaget, and Bruner will be considered along with experimental work in the areas of category theory, imagery, and meaning. Mr. Mehrabian

235. Personality. A survey of cognitive, analytic, and learning theory approaches to the study of personality. Emphasis will be on the intensive exploration of selected concepts and related research. The Personality Staff

***1236. Personality Theories.** A survey of the theoretical views of Freud, Jung, Adler, Rank, and various modern writers, including Allport, Lewin, Murray and Murphy.

238. Seminar in Mental Measurements. Mr. Woodward

M239. Experimental Research in Personality. (Same as Education M215.) Course will focus upon the perceived causes of success and failure, the antecedent conditions that give rise to various causal ascriptions, and the consequences of attributions on affect, expectancy, interpersonal evaluation, and overt action. Mr. Welner

240. Developmental Psychology. A consideration of the special problems of the control and measurement of the behavior of children as well as the young of other organisms with emphasis on providing basic research relevent to both clinical and research work with children. Ms. Greenfield, Mr. Jeffrey

242A-242E. Seminar in Development Psychology. Prerequisite: course 240 or equivalent and consent of the instructor. These seminars may be taken in any order or they may be repeated for credit.

242A. Perceptual Development. Ms. Rader

242B. Cognitive Development. Ms. Greenfield, Mr. Jeffrey

242C. Socialization. Mr. Madsen

*1242D. Behavior Genetics.

242E. Cognitive Factors in Learning Disorders. Mr. Adelman

***1243A-*1243B. Seminar in Practical and Societal Issues in Developmental Psychology.** Prerequisites: course 240 or equivalent and consent of instructor. Concerns socialization processes in human development and implication for social-political, educational, research issues, values and societal change. Credit and grade to be given only upon completion of 243B. Mr. Nakamura

244. Critical Problems in Developmental Psychology. Prerequisites: course 240 or equivalent, and consent of the instructor. The course will be concerned with current problems and will vary from time to time depending upon the interest of the class and instructor. May be repeated for credit with consent of the instructor. Ms. Henker, Mr. Jeffrey, Mr. Padilla

***1M245. Personality Development and Motivation in Education.** (Same as Education M217C.) Personality development and environmental conditions which form motivational patterns; self-concept, moral behavior, aggression; creativity, sex differences, empathy, research and personality theory bearing on motivational problems in school settings and curricula development. Ms. Feshbach

***1M246. Psychological Aspects of Mental Retardation.** (Same as Psychiatry M246.) Prerequisites: consent of instructor. Discussion of the psychological aspects of mental retardation to include: classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems). The Staff

247A-247B. Theory and Methods of Computing in the Behavioral Sciences.

*1247A. Acquisition and analysis of data, on-line analysis of behavior and control of experiments in the diverse content areas of psychology, e.g., perception, social, clinical, personality, and physiological. Mr. Carterette

*1247B. Prerequisite: course 247A or consent of instructor. Topics in human problem solving, information processing, automata, language cognition, and problems arising in computer simulation of behavior Each student will undertake a substantial project of his own. Mr. Carterette

249. Evaluation Research. Prerequisites: courses 250A-250B. Introduction to evaluation research in psychology, with emphasis on clinical, community, and social psychology applications. Survey includes policy and strategy issues, design of evaluative studies, data analysis, and utilization of findings. Mr. Woodward

250A. Advanced Psychological Statistics. Review of fundamental concepts. Basic statistical techniques as applied to the design and interpretation of experimental and observational research. Mr. Woodward

250B. Advanced Psychological Statistics. Advanced experimental design and planning of investigations. Mr. Woodward

251A-251B-251C. Research Methods. Students will design and conduct original research projects under the supervision of the instructor in charge. It is anticipated that many students will complete their project in two quarters. Normally three quarters will be allowed. The Staff

252. Multivariate Analysis. Prerequisites: courses 250A-250B. Introduction to the analysis of data having multiple dependent measures. Topics include multivariate distributions, principal components analysis, multiple regression, canonical correlation, discriminant analysis, and the multivariate analysis of variance. Example applications are drawn from a variety of psychological areas of research including clinical, cognitive, physiological, and social. Computer implementation includes APL and standard statistical packages. Mr. Woodward

253. Factor Analysis. Theory and practice of factor analysis in psychological research. Methods of fac-

NOTE: For key to symbols, see page 74

tor exaction and rotation. Applications of computers to computations in factor analysis. Mr. Comrey

254. Seminar in Psychological Scaling. Theory of measurement, law of comparative judgment, methods of unidimensional scaling, multidimensional scaling and related topics of current interest. Mr. Holman

255. Quantitative Aspects of Assessment. Fundamental assumptions and equations of test theory. Current problems in assessment. Mr. Woodward

256. Seminar in Critical Problems in Psychological Measurement. Critical examination of issues in the major approaches to psychological measurement; relation in psychological methods and data to a general theory of measurement. Mr. Mount

257. Multivariate Analysis with Latent Variables. Prerequisite: consent of instructor. Introduction to models and methods for the analysis of data hypotesized to be generated by unmeasured latent variables, including latent-variable analogues of traditional methods in multivariate analysis. Causal modeling: theory-testing via the analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factor analytic models. Structural equation models including path and simultaneous equation models. Parameter estimation, hypothesis-testing and other statistical issues. Computer implementation. Applications. Mr. Bentler

258. Special Problems in Psychological Statistics. Prerequisites: course 250A and 250B or consent of instructor. Special problems in psychological statistics and data analysis will be examined. Mr. Wickens

***[1]259. Quantitative Methods in Cognitive Psychology.** Prerequisites: course 250A and 250B or consent of instructor. This course will consider a number of nonstatistical mathematical methods and techniques commonly used in cognitive psychology. Topics to be covered include Markov chains, other stochastic processes, queueing theory, information theory, frequency analysis, etc. Mr. Wickens

260A-260B. Proseminar in Cognitive Psychology. A survey of current theories and research in cognitive psychology. Topics include sensory processes, perception, human learning and memory, psycholinguistics, judgment decision processes, thinking, and problem solving. The Cognitive Staff

***[1]261. Perception.** (Formerly numbered 211.) Prerequisites: course 260A or 260B, or consent of instructor. Concepts, theories, and research in the study of perception. Considers the questions: Why do things look, sound, smell, taste, or feel as they do? What is the nature of perceptual systems? How do these systems process information? Mr. Jones, Ms. Rader

262. Human Learning and Memory. (Formerly numbered 200B.) Prerequisites: course 260A or 260B, or consent of instructor. Contemporary theory and research in human verbal learning and memory; verbal and non-verbal learning and memory processes, the structure and organization of short- and long-term memory. Mr. Bjork

263. Psycholinguistics. (Formerly numbered 260A.) Prerequisites: course 260A or 260B, or consent of instructor. Contemporary theory and research in psycholinguisitcs: coding and decoding, psycholinguistic parameters of language learning, speech recognition and perception. Ms. French

***[1]264. Judgment and Decision Processes.** Prerequisites: course 260A or 260B, or consent of instructor. Contemporary theory and research in judgment and decision processes: psychophysical scaling, contextual effects on rating scales, models for the analysis of value decisions. Mr. Parducci

***[1]265. Thinking and Artificial Intelligence.** Prerequisites: course 260A or 260B, or consent of instructor. Contemporary theory and research in thinking and artificial intelligence: cognitive models of knowledge representation, comprehension of linguistic information, memory. Theory and data from psychology, artificial intelligence, and linguistics will be considered.

268A-268E. Seminar in Human Information Processing. Prerequisites: course 260A and 260B or consent of instructor. Topics will vary with the interests of the instructor. May be taken in any order and may be repeated for credit.

268A. Perception. Mr. Thomas

268B. Human Learning and Memory. Mr. Bjork

*[1]268C. Judgement and Decision Processes. Mr. Parducci

*[1]268D. Language and Thought. Mr. MacKay

*[1]268E. Human Performance. Mr. Beatty

***[1]269. Seminar in Cognitive Psychology.** Prerequisites: course 260A and 260B or consent of instructor. A discussion of problems in Cognitive Psychology that encompass more than a single subfield of the area. May be repeated for credit. The Cognitive Staff

270A-270B-270C. Foundations of Clinical Psychology. Prerequisites: Concurrent enrollment in Psychology 271A-271B-271C. Open only to graduate students in clinical Psychology and approved minors in clinical psychopathology.

270A. Analysis of phenomenological, theoretical and research issues regarding the etiology and mediating mechanisms in neurotic, affective, schizophrenic spectrum, and other personality disturbances. The Clinical Staff

270B. Principles and methods of psychological assessment and evaluation. The Clinical Staff

270C. Principles and methods of psychological intervention in individuals, families and community settings. The Clinical Staff

271A-271B-271C. Clinical Psychological Methods. (½ course each)

Prerequisites: Concurrent enrollment in Psychology 270A-270B-270C. Open only to graduate students in clinical psychology and approved minors in clinical psychopathology. Procedures in clinical psychology as applied in clinical and community settings. This course provides supervised exposure to the psychological attributes of psychopathology and the procedures for psychological assessment, intervention, and research with clinical populations. Experience will be closely coordinated with the course content in Psychology 270A-270B-270C. The Clinical Staff

272A-272F. Advanced Clinical Psychological Methods. Concurrent or previous enrollment in course 401 or 451, except with consent of instructor. May be taken independently and in any order.

***[1]272A. Behavior Modification with Children.** Prerequisites: course 271A-271B-271C or permission of instructor. This will be one course in the series of clinical intervention and assessment offerings for 2nd and 3rd year clinical students. It will cover behavior modification research and practice in clinic, school, institution and home settings. There will be 3 short, 1 long paper(s) and accompanying clinical demo. (And some field experience.) Mr. Baker

*[1]272B. Psychotherapy with Adults.

*[1]272C. Clinical Interventions for Psychological Problems of Children.

272D. Family Therapy and Family Dynamics. Mrs. McPherson

272E. Special Problems. Clinical Staff

272F. Advanced Clinical Psychological Methods: Behavior Modification with Adults. Prerequisites: graduate student in clinical psychology; 2nd year or above. The course will focus on current cognitive behavior modification principles and techniques. Major conceptual issues will be analyzed, and specific techniques will be demonstrated and practiced by students to cover a range of adult problems such as depression, stress and anxiety, anger management, assertion problems. Mr. Hammen

273. Interpersonal Communication Seminar. Prerequisite: course 282 or consent of the instructor. Each student will be supported in developing a design for studying help-oriented interchange in community and clinical settings. Initial focus will be measuring interpersonal deficit, response styles and training effects. Mr. Goodman

274A-274B. Group Therapy Dynamics. Mr. Sheehan

M275. Family Process: Psychological and Social Perspectives on the Family. (Same as Social Welfare M275.) This course reviews various theoretical perpectives applicable to the analysis of family structure and dynamics. Critical issues in the application of family constructs to clinical problems will receive particular attention. Mr. Cohen, Mr. Goldstein

276A-*[1]276B. Seminar: Children with Learning Disorders. Prerequisite: 225 or 226A or 227A and admission to a doctoral program. Mr. Adelman

277. Advanced Clinical Assessment. The course will cover projective techniques, clinical interpretation, case studies, the psychological test battery, psychopathology, and application of assessment to problems in psychotherapy. Mr. Sheehan

***[1]278. Seminar in Motivation, Conflict and Neurosis.** Mr. Feshbach

279. Seminar in Research in Psychopathology. Mr. Rodnick

***[1]281. Seminar in Behavior Therapy.** Mr. Lovass

282. Interpersonal Forms Analysis of Human Interaction Structures. Conceptual and experimental study of six response modalities common to psychotherapy and everyday interaction; questions, silences, advisement, interpretation, self-disclosure, and reflection. Lab work will be performed in conjunction with lecture and seminar sessions. Mr. Goodman

283. Psychopathology. A survey of the dominant psychological attributes of particular forms of psychopathology, including an analysis of the status of various theories concerned with the etiology and mediating mechanisms of personality, neurotic, schizophrenic spectrum, and affective disturbances. Mr. Rodnick

***[1]284. Seminar in Clinical Psychology and Communication.** (Formerly numbered 277.) Mr. Sheehan

***[1]M285. Comparative Psychopathology.** (Same as Psychiatry M255.) Prerequisites: Some background in psychopathology, comparative psychology, zoology or comparative genetics and consent of the instructor. This course will explore those animal models of psychopathology most relevant to human clinical problems (i.e., schizophrenia, depression, phobias, anxiety states, drug abuse, aggression, sexual dysfunction, etc.). The interaction or convergence of social, biological, and environmental processes in determining these states will be emphasized. The relevance of the model to the understanding of homologous human conditions will be analyzed. Mr. Ervin, Mr. Garcia, Ms. Jamison

286. Issues and Concepts of Clinical Psychology. Survey of major issues and alternatives in current practice. Emphasis on assessment and intervention, with consideration of historical, theoretical and research bases for current trends. Open to graduate students not majoring in clinical psychology. Mr. Broen

287. Critical Problems in Clinical Research Methodology. Prerequisites: courses 250A, 250B. Special problems of measurement and design in clinical research will be examined. Mr. Christensen

***[1]288. Seminar in Research in Personality. (¼ course)** Prerequisite: graduate student in Personality. This course is meant to cover current research, theory and professional issues within the area of personality. A brown bag format will be utilized to foster intellectual exchange and discus-

sion. *All* personality graduate students will be required to attend, they will make at least one presentation per quarter, and will participate in discussions with faculty and guest lectures. Personality Staff

290. History of Psychology. Philosophical and historical context of contemporary psychology. Major trends from the 19th century to contemporary issues will be considered. Mr. Maltzman

291. Principles of Behavioral Pharmacology. Prerequisite: consent of the instructor. Intensive analysis of drug, brain, and behavior relationships. Discussion of the nature and source of drugs, general aspects of pharmacology, neurotransmitters and basic neuropharmacology, principles of behavioral pharmacology, categories of psychopharmacological agents, and pharmacological approaches to the study of drug addiction, schizophrenia, and other behavioral processes, both normal and pathological. Mr. Butcher

293. Behavioral and Psychophysiological Problems of Alcoholism. Prerequisite: consent of instructor. Behavioral and psychophysiological characteristics of alcoholism will be reviewed along with theories concerning its etiology and treatment. Experimental approaches will be emphasized. Mr. Maltzman

298. Physiological Correlates of Behavior. Prerequisite: course 115 or equivalent and consent of the instructor. The physiological substrate of behavior and the neural and endocrine mechanisms which underlie psychological phenomena and behavior. New concepts of structural and functional organization in the nervous system and the ways these relate to behavioral and neurological dysfunction. The Staff

Professional Courses

300. Practicum in the Teaching of Psychology. Prerequisites: upper division Psychology major and consent of instructor. Training and supervised practicum for advanced undergraduates in the teaching of Psychology. Students will serve as junior teaching assistants, assist in the preparation of materials and the development of innovative programs. This course may be repeated once for credit, and is offered on a passed/not passed basis.

350. Fieldwork in Psychology. Prerequisite: sophomore pre-psychology or psychology major standing and permission of instructor. Fieldwork in applications of psychology. Students must spend two hours in a weekly seminar and six hours per week working in approved community settings. The Undergraduate Curriculum Development Office, 1531B Franz Hall, should be consulted for application forms and further information. P/NP grading only. May be repeated once for credit. Mr. Friedman

401. Field Work in Clinical Psychology. (1 or 2 courses) Prerequisite: courses 271A-271B-271C. Students on practicum assignments are required to register for this course each quarter. Exception with consent of Clinical Program Committee. The Clinical Staff

***1402. Field Work in Speech Pathology. (1 or 2 courses)** Prerequisite: consent of the instructor. Practical work in hospitals and clinics in diagnostic testing and psychotherapy with speech disorders. Mr. Sheehan

410A-410B*1410C. Clinical Teaching and Supervision. Prerequisites: completed Ph.D. comprehensive exams. Advanced to candidacy, or preparations for dissertation research actively underway. Permission of instructor and the Clinic Steering Committee. Study and practice of the knowledge, concepts and theories on teaching and supervision of applied clinical psychology. Mr. Jacobs, Mr. Nakamura

451. Internship in Clinical Psychology. (1 or 2 courses) Prerequisite: course 401. Open only to students who have passed departmental qualifying examination. May be repeated for credit. The Clinical Staff

454. Internship in Industrial Psychology. (½ to 1 course) Mr. Barthol

495. Presentation of Psychological Materials. Supervised practicum in undergraduate teaching. Students will serve as discussion section leaders in selected undergraduate courses.

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U. The Staff

Individual Study and Research

596. Directed Individual Research and Study in Psychology. (½ to 3 courses) One course required during second year of graduate study. One course in 596 or 599 required during each succeeding year of graduate study. (Terminal M.A. candidates are excused from these requirements.) The Staff

597. Individual Studies. (½ to 3 courses) Intended primarily for preparation for Ph.D. qualifying examinations. May be required by some area committees as prerequisite for taking qualifying examinations. The Staff

599. Research on Dissertation. (½ to 3 courses) Prerequisite: Satisfactory performance in qualifying examinations. One course required during each year following passing of qualifying examinations. The Staff

Psychology Clinic

The Psychology Clinic was established in 1949 in Franz Hall by the Department of Psychology as a training and research center in clinical psychology. It has specialized facilities for the investigation, assessment and treatment of a variety of psychological disabilities and adjustment problems of children, adolescents and adults of the greater Los Angeles community.

The Clinic provides a broad range of psychological services to clients including individual, group and family therapy, behavior modification procedures and consultation to agencies in the community. The concern of the clinic with systematic investigation leading to new knowledge and the improvement of clinical psychological procedures is in keeping with a primary function of a University-based clinic. The number and types of clients served are consonant with this goal. Apart from those investigations related directly to professional services to clients there are a number of research programs in the clinic which reflect the current interests of the staff, such as 1) communication patterns in the family constellation relevent to both the development and the amelioration of behavioral disturbance, 2) the development of innovative techniques of therapy and behavior modification which are effective in treating various psychological problems and, 3) exploration of new modes of delivering psychological services to currently unserved segments of the population.

Such service and research functions are basic to the professional education and training of clinical psychologists as an integral part of their graduate study in the Department of Psychology. The Clinic also provides training experiences to students of other mental health professions.

Fernald School

Fernald (formerly the Psychology Clinic School), a facility of the Department of Psychology, was established in 1921 as a research and training center focusing on learning problems.

The uniqueness of the facility lies in its lively experimental atmosphere, in its varied population, in the scope of its training, demonstration and research programs and in its interdisciplinary approaches in which the talents of teachers, clinical psychologists, and school counselors are integrated and brought to bear upon the student's learning difficulties. The facility's current focus is on those children with average or better intelligence who are functioning significantly below grade level in basic school skills and school achievement.

Fernald offers observation, classroom participation and intervention, research and other training opportunities to graduates and undergraduates in many fields, notably psychology and education. Fellowships are available for graduate students in psychology and education. Three courses focusing on learning disorders, Psychology 132A, lecture, 132B and 132C, laboratory, are specifically associated with the Fernald School programs. Psychology 132A provides an overview of the field of learning problems. Psychology 132B affords the University student the unique opportunity to observe and to participate under supervision in selected activities of the Fernald School. Psychology 132C allows further and more independent participation in working with learning problems.

Fernald's population includes approximately 65 students, enrolled in classroom programs, and an average of 80 children, adolescents and adults who are seen in individual and small group tutoring programs. In addition, a substantial number of individuals are seen for an initial assessment and consultation process. This process is designed to help them formulate an appropriate course of action in dealing with socio-emotional and academic concerns. The research activities, based on these populations, are directed toward an analysis of the processes mediating learning difficulties and toward an evaluation of the effectiveness of various psychological and educational programs.

Spanish Speaking Mental Health Research Center

The Spanish Speaking Mental Health Research Center (SSMHRC) was established in 1973 to conduct basic and applied research on the mental health needs of the Spanish-speaking population. Supported by the National Institute of Mental Health, the SSMHRC is one of only two centers in the United States to provide an interdisciplinary research environment for Hispanic mental health scholars, students, and professionals at the national level. The Center collects and disseminates scientific information through its Clearinghouse Division which publishes monographs, occasional papers, and bimonthly research bulletins. It also maintains a computer-based bibliographic storage and retrieval system to facilitate access to the literature in this field. The Center sponsors students in a wide variety of mental health disciplines, maintains close ties with community organizations, and promotes the increased representation of Hispanic professionals in mental health and social services.

PUBLIC HEALTH

(Department Office, 16-035 School of Public Health)

Abdelmonen A. Afifi, Ph.D., *Professor of Biostatistics and Biomathematics.*
Roslyn B. Alfin-Slater, Ph.D., *Professor of Nutrition and Biological Chemistry.*
Rolando Armijo, M.D., M.P.H., *Professor of Epidemiology in Residence.*
Lawrence R. Ash, Ph.D., *Professor of Public Health.*
A. Ralph Barr, Sc.D., *Professor of Public Health.*
Judith Blake, Ph.D., *Fred H. Bixby Professor of Population Policy and Sociology.*
Lester Breslow, M.D., M.P.H., *Professor of Public Health.*
Virginia A. Clark, Ph.D., *Professor of Biostatistics and Biomathematics.*
Irvin Cushner, M.D., M.P.H., *Professor of Obstetrics and Gynecology and Public Health.*
Roger Detels, M.D., M.S., *Professor of Epidemiology.*
Olive Jean Dunn, Ph.D., *Professor of Biostatistics and Biomathematics.*
Carl E. Hopkins, Ph.D., M.P.H., *Professor of Public Health.*
Derrick B. Jelliffe, M.D., D.T.M.&H., D.C.H., F.R.C.P., *Professor of Public Health and Pediatrics.*
Snehendu B. Kar, Ph.D., *Professor of Public Health.*
Alfred H. Katz, M.A., D.S.W., *Professor of Public Health and Social Welfare.*
Robert A. Mah, Ph.D., *Professor of Public Health.*

NOTE: For key to symbols, see page 74

Frank J. Massey, Jr., Ph.D., *Professor of Biostatistics and Biomathematics.*
Alfred K. Neumann, M.A., M.D., M.P.H., F.A.B.P.M., *Professor of Public Health.*
Edward L. Rada, Ph.D., *Professor of Economics in Public Health.*
Milton I. Roemer, M.D., M.P.H., *Professor of Public Health.*
John F. Schacher, Ph.D., *Professor of Public Health in Residence.*
Elizabeth Stern, M.D., *Professor of Public Health in Residence.*
Marian E. Swendseid, Ph.D., *Professor of Nutrition and Biological Chemistry.*
Paul R. Torrens, M.D., M.P.H., *Professor of Public Health.*
Daniel M. Wilner, Ph.D., *Professor of Public Health.*
Telford H. Work, M.D., M.P.H., D.T.M.&H., *Professor of Infectious and Tropical Diseases and Microbiology and Immunology.*
Ruth Boak, Ph.D., M.D., *Professor of Microbiology and Immunology, Pediatrics and Public Health Emeritus.*
John M. Chapman, M.D., M.P.H., *Professor of Epidemiology Emeritus.*
Gladys A. Emerson, Ph.D., *Professor of Nutrition Emeritus.*
Raymond J. Jessen, Ph.D., *Professor of Management and Public Health Emeritus.*
Edward B. Johns, Ed.D., *Professor of Health Education Emeritus.*
John F. Kessel, Ph.D., *Professor of Infectious Diseases Emeritus.*
John W. Knutson, D.D.S. Dr.P.H., *Professor of Preventive Dentistry and Public Health Emeritus.*
Florence C. McGucken, M.S., *Lecturer in Nutrition Retired.*
Frank F. Tallman, M.D., *Professor of Psychiatry and Public Health Emeritus.*
Emil Berkanovic, Ph.D., *Associate Professor of Public Health.*
Linda B. Bourque, Ph.D., *Associate Professor of Public Health.*
Potter C. Chang, Ph.D., *Associate Professor of Biostatistics.*
Michael S. Goldstein, Ph.D., *Associate Professor of Public Health and Sociology.*
Sheldon Greenfield, M.D., *Associate Professor of Medicine and Public Health.*
Raymond R. Neutra, M.D., C.M., M.P.H., Dr.P.H., *Associate Professor of Medicine and Public Health.*
Dennis D. Pointer, Ph.D., *Associate Professor of Public Health.*
Stuart O. Schweitzer, Ph.D., *Associate Professor of Public Health.*
William Shonick, Ph.D., *Associate Professor of Public Health.*
Richard E. Brown, Ph.D., *Assistant of Public Health in Residence.*
James M. Cameron, Ph.D., *Assistant Professor of Public Health.*
Shan Cretin, M.P.H., Ph.D., *Assistant Professor of Public Health.*
William G. Cumberland, Ph.D., *Assistant Professor of Biostatistics.*
Brian G. Danabar, Ph.D., *Assistant Professor of Public Health.*
Climis A. Davos, Ph.D., *Assistant Professor of Public Health.*
Ralph R. Frerichs, D.V.M., M.P.H., Dr.P.H., *Assistant Professor of Epidemiology in Residence.*
Isabelle F. Hunt, M.P.H., Dr.P.H., *Assistant Professor of Nutrition.*
Martin B. Ross, Dr.P.H., *Assistant Professor of Public Health.*
Susan Scrimshaw, Ph.D., *Assistant Professor of Public Health.*
Kenneth F. Siler, Ph.D., *Assistant Professor of Public Health in Residence.*
Gary H. Spivey, M.D., M.P.H., *Assistant Professor of Epidemiology.*
Jane Valentine, Ph.D., *Assistant Professor of Public Health.*
Barbara R. Visscher, M.D., Dr.P.H., *Assistant Professor of Epidemiology in Residence.*
William N. Washington, M.P.H., D.P.A., *Assistant Professor of Health Education.*

•

Lilla Aftergood, Ph.D., *Associate Research Biochemist.*
Nancy H. Allen, M.P.H., *Lecturer in Public Health.*
Fanny Rosenzuaig Armijo, M.D., M.P.H., *Lecturer in Public Health.*
Arnold R. Beisser, M.D., *Lecturer in Public Health and Associate Clinical Professor of Psychiatry.*
Donald W. Belcher, M.D., *Lecturer in Public Health.*
Stewart N. Blumenfeld, Dr.P.H., *Researcher and Lecturer in Public Health.*
Michael L. Bobrow, B.Arch., *Lecturer in Architecture and Urban Design and Public Health.*
Robert H. Brook, M.D., Sc.D., *Associate Professor of Medicine and Public Health.*
Harold V. Brown, M.P.H., Dr.P.H., *Lecturer in Public Health.*
Edith M. Carlisle, Ph.D., *Research Biochemist and Lecturer in Public Health.*
Wen-Ping Chang, M.D., M.P.H., D.M.Sc., *Lecturer in Public Health.*
Dia E. Chatty, M.D., M.P.H., *Assistant Reseacher in Public Health.*
Arthur W. Chung, M.D., *Adjunct Professor of Public Health.*
Davida Coady, M.D., M.P.H., *Adjunct Associate Professor of Public Health.*
Carl F. Coffelt, M.D., M.P.H., *Lecturer in Public Health.*
Anne H. Coulson, *Lecturer in Public Health.*
Joseph W. Cullen, Ph.D., *Adjunct Professor of Public Health.*
G.A. Dhopeshwarkar, Ph.D., *Research Biochemist of Nuclear Medicine and Radiation Biology and Adjunct Professor of Public Health.*
Wilfrid J. Dixon, Ph.D., *Professor of Biomathematics and Public Health.*
Robert M. Elashoff, Ph.D., *Professor of Biomathematics and Biostatistics.*
James E. Enstrom, Ph.D., *Assistant Researcher in Public Health.*
Arlene Fink, Ph.D., *Assistant Researcher in Public Health.*
Paul M. Fleiss, M.D., M.P.H., *Lecturer in Public Health.*
Jay W. Friedman, D.D.S., M.P.H., *Lecturer in Public Health.*
Bruce S. Gillis, M.D., M.P.H., *Adjunct Assistant Professor of Public Health.*
Robert D. Girard, L.L.B., *Lecturer in Public Health.*
Raymond D. Goodman, M.D., M.P.H., *Assistant Clinical Professor of Medicine and Adjunct Associate Professor of Public Health.*
Brian E. Henderson, M.D., *Adjunct Professor of Epidemiology.*
Arthur C. Hollister, Jr., M.D., M.P.H., *Lecturer in Public Health.*
E. F. Patrice Jelliffe, R.N., M.P.H., *Associate Researcher and Lecturer in Public Health.*
Robert I. Jennrich, Ph.D., *Professor of Mathematics, Biomathematics and Biostatistics.*
Olive G. Johnson, B.A., *Lecturer and Specialist in Health Records Systems.*
Michael R. Jones, Ph.D., *Assistant Researcher in Medicine and Lecturer in Public Health.*
Martine Jozan, M.D., Dr.P.H., *Assistant Researcher in Public Health.*
Joel D. Kopple, M.D., *Professor of Medicine and Public Health in Residence.*
Jacqueline B. Kosecoff, Ph.D., *Assistant Researcher in Medicine and Lecturer in Public Health.*
Joel W. Kovner, Dr.P.H., *Lecturer in Public Health.*
Kenneth E. Lee, M.S., *Lecturer in Public Health.*
Charles E. Lewis, M.D., Sc.D., *Professor of Medicine and Public Health.*
Harry M. Lieberman, M.D., M.P.H., *Lecturer in Public Health.*
Ronald L. Linder, Ph.D., *Lecturer in Public Health.*
Lawrence S. Linn, Ph.D., *Lecturer in Public Health.*
Irvin M. Lourie, M.D., M.P.H., M.S., *Lecturer in Public Health.*
Thomas Mack, M.D., M.P.H., *Adjunct Associate Professor of Epidemiology.*
Peter D. Magnus, M.D., M.P.H., *Lecturer in Public Health.*
Louis E. Mahoney, Jr., M.D., M.P.H., *Adjunct Associate Professor of Public Health.*
Ralph W. McKee, Ph.D., *Professor of Biological Chemistry and Public Health.*
James F. Mead, Ph.D., *Professor of Biological Chemistry and Public Health.*
Jean L. Mickey, Ph.D., *Lecturer in Biostatistics.*
Max Milner, Ph.D., *Lecturer in Public Health.*
Norma J. Murphy, M.S., *Assistant Field Program Supervisor in Public Health.*
Mohammad G. Mustafa, Ph.D., *Associate Professor of Medicine and Public Health in Residence.*
Charlotte G. Neumann, M.D., M.P.H., *Lecturer in Public Health and Pediatrics and Associate Researcher in Public Health.*
Joseph P. Newhouse, Ph.D., *Lecturer in Public Health.*
David D. Nicholas, M.D., M.P.H., *Researcher and Lecturer in Public Health.*
Edward J. O'Neill, M.D., M.P.H., *Adjunct Assistant Professor of Public Health.*
Bertha L. Paegel, M.D., M.P.H., *Lecturer in Public Health.*
Susan M. Preston-Martin, M.P.H., Ph.D., *Assistant Researcher and Adjunct Assistant Professor of Public Health.*
Stanton J. Price, L.L.B., *Lecturer in Public Health.*
George W. Prichard, J.D., M.D., M.P.H., *Lecturer in Public Health.*
Jose Quiroga, M.D., *Associate Researcher in Public Health.*
Ruth F. Richards, B.S., M.A., M.P.H., *Associate Field Program Supervisor and Lecturer in Public Health.*
Ruth J. Roemer, J.D., *Lecturer and Researcher in Public Health.*
Stanley N. Rokaw, M.D., *Researcher in Public Health and Clinical Professor of Medicine.*
Frederick T. Sai, M.B.B.S., D.T.M.&H., M.R.C.P., M.P.H., *Lecturer in Public Health.*
Jaime G. Salazar, Ph.D., *Assistant Researcher in Public Health.*
Simon A. Sayre, M.D., M.S.P.H., *Assistant Clinical Professor of Obstetrics and Gynecology and Lecturer in Public Health.*
Max H. Schoen, D.D.S., Dr.P.H., *Professor of Dentistry and Public Health.*
Bernard M. Siegel, M.D., *Assistant Clinical Professor of Medicine and Adjunct Assistant Professor of Public Health.*
Grant G. Slater, Ph.D., *Associate Research Biological Chemist in Public Health and Psychiatry.*
Forest Tennant, M.D., M.P.H., Dr.P.H., *Adjunct Assistant Professor of Epidemiology.*
Leo Tepper, M.D., M.P.H., *Lecturer in Public Health.*
J. Albert Torribio, M.S.S.W., M.S.W., *Lecturer in Health Education.*
William B. Ward, M.P.H., *Assistant Researcher in Public Health.*
John E. Ware, Ph.D., *Lecturer in Public Health.*
Lawrence G. Wayne, Ph.D., *Lecturer in Public Health.*
Paul F. Wehrle, M.D., *Lecturer in Epidemiology.*
Girma Wolde-Tsadik, Ph.D., *Adjunct Assistant Professor of Public Health.*
Paul Zukin, M.D., M.P.H., *Lecturer in Public Health.*
Jack Zusman, M.D., M.P.H., *Adjunct Professor of Public Health.*

Upper Division Courses

M12. Human Genetics and Reproduction. (Same as Anthropology M12.) Lecture, four hours. Survey for general student of normal and abnormal development, and basic principles. Topics include genetics, human reproduction, problems of pregnancy and its outcome, birth defects, prenatal diagnosis and genetic counseling. Emphasis on introducing facts for current discussions of 'New Genetics' and scientific and ethical questions regarding reproduction and development. The Staff

18. Principles of Healthful Living. (Formerly numbered 44.) Lecture, four hours. Analysis of health care issues as related to the health care consumer and the health care delivery system. Includes identification of health needs, and clarification of personal responsibilities for health. Ms. Richards

100A. Introduction to Biostatistics. (Formerly numbered 160A.) Lecture, three hours; laboratory/quiz, two hours. Prerequisites: upper division standing and course in biological or physical sciences. Students who have completed courses in statistics may enroll only with consent of instructor. Introduction to methods and concepts of statistical analysis. Sampling situations with special attention to those occurring in the biological sciences. Topics include: distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, sample size. Students may not receive credit for this course and Public Health 101A. The Staff

100B. Introduction to Biostatistics. (Formerly numbered 160B.) Lecture, three hours; laboratory/quiz, two hours. Prerequisites: course 100A or equivalent and consent of instructor. Introduction to analysis of variance, linear regression, and correlation analysis. Students may not receive credit for this course and course 101B. The Staff

100C. Introduction to Biostatistics. (Formerly numbered 160C.) Lecture, three hours; laboratory/quiz, two hours. Prerequisites: course 100B or equivalent and consent of instructor. Design of experiments, analysis of variance, multiple and polynomial regression analysis with biomedical applications. The Staff

100D. Introduction to Biostatistics. (Formerly numbered 160D.) Lecture, three hours; laboratory, two hours. Prerequisites: course 100B or equivalent and consent of instructor. Introduction to concepts of probability used in biomedical sciences. Enumeration statistics and non-parametric methods. Comparison of non-parametric with analogous parametric tests. Discussion of power and sample size. The Staff

101A. Basic Biostatistics. (Formerly numbered 163A.) Lecture, three hours; quiz, one hour. Prerequisites: Mathematics 31C or equivalent. Basic concepts of statistical analysis applied to biological sciences. Topics include random variables, sampling distributions, parameter estimator, statistical inference. Students may not receive credit for this course and Public Health 100A. The Staff

101B. Basic Biostatistics. (Formerly numbered 163B.) Lecture, three hours, quiz, one hour. Prerequisite: course 101A. Topics include elementary analysis of variance, simple linear regression and correlation, non-parametric methods, elements of sequential analysis. Students may not receive credit for this course and Public Health 100B. The Staff

102. Demography: Introduction to Demographic Materials and Methods. (Formerly numbered 161.) Lecture, three hours; laboratory, two hours. Prerequisite: course 100A. Sources of demographic information; description of human populations; calculation and interpretation of statistics used to measure and describe population growth, structure, geographic distribution, mortality, natality and migration. Ms. Mickey

110. Introduction to Medical Science. (Formerly numbered 101.) Lecture, four hours. Prerequisites: one course in chemistry or other natural science. One year sequence in biology, physiology or other

biological science recommended. An introduction to normal human physiology and disease processes. The Staff

111. Human Disease and Public Health. (Formerly numbered 104.) Lecture, three hours; discussion, three hours. Prerequisites: upper division standing and one course in biological or physical science. Study of the mechanisms underlying human diseases, disorders and defects including genetic, mental, social, environmental, infectious, nutritional and degenerative and their public health implications. Mr. Schacher

112. Principles of Epidemiology. (Formerly numbered 147.) Lecture, two hours; laboratory, four hours. Prerequisite: course 110 or 111. Introduction to epidemiology including factors governing health and disease in populations. The Staff

113. Infectious Diseases and Public Health. (Formerly numbered 150.) Lecture, three hours. Prerequisites: upper division standing and one course in biological or physical science. Infectious diseases of public health importance emphasizing modes of transmissions and control of etiologic agents. Mr. Schacher

114. Genetics and Public Health. (Formerly numbered 152.) Lecture, four hours. Prerequisites: courses M12 or Biology 134, course 100A, 112 and consent of instructor. Discussions of human medical and population genetics and focus on epidemiologic and public health aspects of genetic disorders. The Staff

M115. Disease Problems of Socio-Economic and Political Impact in Latin America. (Same as Latin American Studies M155; formerly numbered M155.) Lecture, six hours; discussion, six hours. Prerequisite: one upper division course in Latin American Studies Program. Social, economic, and political impact of important disease problems in Latin American countries. Mr. Work

130. Health Services Organization. (Formerly numbered 132.) Lecture, four hours. Prerequisites: four units of social sciences. Structure and function of American health care system; issues and forces shaping its future. Mr. Torrens

131. Structure and Function of Health Care Facilities. (Formerly numbered 133.) Lecture, two hours; discussion, two hours. Prerequisites: course 130 (may be taken concurrently) and consent of instructor. Introduction to structure, organization and function of health care facilities. Mr. Ross

132. Hospitals and their Management. (Formerly numbered 107.) Lecture, four hours. Prerequisite: one course in Social Sciences. Introduction to structure and organization of hospitals; hospital industry and its environment; managerial processes in hospitals, and major issues confronting hospital industry. Mr. Ross

134. Introduction to Comprehensive Health Planning. (Formerly numbered 136.) Lecture, four hours; field work, four hours. Prerequisites: one upper division course in microeconomics, statistics, calculus, or political science. Concepts underlying health planning, state of the art and some relevant literature. The Staff

M135. Organization of Medical Practice. (Same as Medicine M158; formerly numbered M158.) Lecture, two hours. Prerequisites: course 130 and graduate standing in Public Health, Medicine, or Nursing. Educatin and certification of medical practitioners. Organization of medical practice: solo, group, HMO. Doctor-patient relationships, medical ethics, economics, professional liability, health care evaluations. Mr. Goodman

137A. Health Problems and Programs in Africa. (½ course) Lecture, one hour; discussion, one hour. Prerequisites: any one of the following: course 101; History 125 (A, B, or C), 127 (A or B), 128 (A or B), 240N; Political Science 166 (A, B, or C), 250E; Anthropology 107 (A or B), 113, 208, 258, 269; Geography 112, 188, 189, 289. Consideration of traditional beliefs about illness and treatment, factors affecting health status in Africa, major health problems and some programs proposed as remedies. Mr. Blumenfeld, Mr. Nicholas

137B. African Health Sector Analysis Seminar. (½ course) Seminar, two hours. Prerequisites: any one of the following: course 101; History 125 (A, B, or C), 127 (A or B), 128 (A or B), 240N; Political Science 166 (A, B, or C), 250H; Anthropology 107 (A or B), 113, 208, 258, 260; Geography 112, 188, 189, 289; course 137A prior or concurrently. Approach is that of a multi-disciplinary team analyzing the health sector of a representative African country to determine needs and priorities for external aid. Mr. Blumenfeld, Mr. Nicholas

139. Quantitative Methods for Decision-making in Health Services. (Formerly numbered 109.) Lecture, four hours. Prerequisites: course 100A, 110, 130, and consent of instructor. Decision theory and use of statistics in decision-making. Decision theory includes: frameworks for decision-making and control, decision under uncertainty, utility theory, Bayes' theorem, and value of information. Statistical topics include: communicating with statistics, measures of association, regression, analysis of variance, and forecasting. Ms. Cretin

140A-140B. Health Record Science. (Formerly numbered 102A-102B.) Lecture, two hours; laboratory, three hours. Prerequisites: Biology 4A or equivalent and consent of instructor. A is required for B. Principles and theories of systems and techniques used for organization, analysis, and maintenance of records and reports are studied and evaluated according to their use in varied situations. Ms. Johnson

150. Environmental Health. (Formerly numbered 110.) Lecture, three hours, field work, one hour. Prerequisites: Chemistry 11A, Biology 4A, Mathematics 3A, Physics 3A or 6A. Broad coverage of environmental health with particular reference to water quality, air quality, noise, food, housing, radiation, vector control, toxicology, occupational health and safety and environmental management. Ms. Valentine

152. Biological Effects of Air Pollution. Lecture, three hours; discussion one hour. Prerequisites: Biology 4A and Chemistry 11A or equivalent and consent of instructor. Survey of biological effects and assessment methods of air contaminants present in urban, industrial and occupational environments. Mr. Mustafa

153. Public Health Microbiology. Lecture, three hours; laboratory, six hours. Prerequisites: Chemistry 24, Biology 4B or equivalent, and consent of instructor. Basic principles and laboratory procedures employed in the provision of sanitary elements to the community, including food and milk, water supply and waste disposal, soil and environmental effluents. Mr. Mah

154. Environmental Management. (Formerly numbered 145.) Lecture, four hours; discussion, one hour. Prerequisites: Economics 100, Political Science 142 or 143 or equivalent, and consent of instructor. Introduction to foundations and principles of environmental management, decision-making, and evaluation of environmental policies and programs. Mr. Davos

160. Principles of Food and Nutrition. (½ course) (Formerly numbered 111.) Lecture, two hours. Prerequisites: one course in biology, chemistry or physiology, and consent of instructor. Principles of nutrition and nutritional requirements for normal growth and development. Ms. Alfin-Slater

161. Nutrition and Health. (½ course) (Formerly numbered 193.) Lecture, two hours. Prerequisites: course 110 or 111 or equivalent, and consent of instructor. Basic and clinical nutrition theory and practice for students in health science curricula. Mr. Alfin–Slater, Mr. Jelliffe

162. Nutrition. (Formerly numbered 113.) Lecture, three hours. Prerequisites: organic chemistry, Biology 4B or equivalent. Metabolic aspects of carbohydrates, fats, proteins, vitamins and minerals. Dietary requirements, intake and absorption of nutrients. Ms. Hunt

163. Biologic Processes. (Formerly numbered 114A.) Lecture, three hours. Prerequisites: one year of organic chemistry, Biology 4B. Metabolism of carbohydrates, proteins and other nitrogen compounds, and lipids; role of hormones and enzymes in metabolism; physiological processes. Ms. Alfin–Slater,

164. Principles of Food Analysis. (½ course) (Formerly numbered 108.) Lecture, two hours; laboratory, three hours. Prerequisite: Chemistry 22. Theory and practice of quantitative methodology in the analysis of foods. Ms. Alfin–Slater

165. Clinical Nutrition Laboratory. (½ course) (Formerly numbered 118.) Discussion, one hour; laboratory, four hours. Prerequisites: course 164 or equivalent, one year organic chemistry, Biology 4B. Analytical procedures for determining the various constituents of blood and urine. The Staff

166A. Therapeutic Nutrition. (½ course) (Formerly numbered 120A.) Lecture, two hours. Prerequisites: courses 162, 163 or equivalent, and consent of instructor. Recent findings in the field of diet and disease and modifications made in normal diet for pathological conditions. Ms. Carlisle

166B. Therapeutic Nutrition. (½ course) (Formerly numbered 120B.) Lecture, two hours. Prerequisites: course 166A and consent of instructor. Recent findings in the field of diet and disease and modifications made in normal diet for pathological conditions. Ms. Carlisle

167. Biologic Processes: Psysiology and Nutrition. (Formerly numbered 114B.) Lecture, three hours. Prerequisites: course 163 and consent of instructor. Metabolism of lipids, carbohydrates and proteins; role of hormones and enzymes in metabolism; physiology processes occurring in various organs. Ms. Alfin–Slater

170. Family Health and Biosocial Development. Lecture, two hours; discussion, two hours. Prerequisites: Psychology 130 or Education 125 or Physiology 100 or equivalent, and consent of instructor. Biosocial factors related to normal human physical, intellectual and emotional growth and development from family and public health perspective. Mr. Katz

171. Child Health in the USA. Lecture, three and one-half hours; discussion, one-half hour. Prerequisites: course 170 and consent of instructor. Examination of health problems which afflict infants, children and adolescents in the USA and discussion of priorities, approaches, services and policies which exist or could be developed to deal with these problems. Ms. Neumann

172. Introduction to Reproductive Health. Lecture, two hours, discussion, two hours. Prerequisites: course 110 or equivalent and consent of instructor. Review of reproductive physiology, normal and abnormal pregnancy, family planning, male-specific and female-specific health problems including health care and psycho-social considerations. The Staff

173. Population, Ecology and Health. (Formerly numbered 115.) Lecture, four hours. Prerequisite: course 110. Introduction to major national and international aspects of current population issues. Particular attention paid to economic development, ecology, and policy conflicts as related to population growth and decline and family planning and health programs. Ms. Scrimshaw

174E. Health, Disease and Health Services in Latin America. (Formerly numbered 174.) Lecture, four hours. Prerequisites: one upper division course in Latin American Studies or course 110. Introduction to health, disease and health services in Latin America with emphasis on epidemiology, health administration, medical anthropology and nutrition. Ms. Scrimshaw

174H. Public Health in the People's Republic of China. (½ course) Lecture, two hours. Prerequisites: course 130 or equivalent or two upper

NOTE: For key to symbols, see page 74

division or graduate courses in social or behavioral sciences or medical sciences and consent of instructor. Historical overview of policies and implementation of public health in the People's Republic of China from 1949 to the present. Attention will be given to relevance for public health in other developing countries. Mr. Chung

175. Health Care Issues in International Perspective. (Formerly numbered 140.) Lecture, four hours. Prerequisites: course 130, another course in health administration, two upper division courses in social sciences. Analysis of crucial issues in health care; manpower policy, economic support, health facilities, patterns of health service delivery, regulation, planning and other aspects of health care systems are probed in the settings of European welfare states, developing nations, and socialist countries. Mr. Roemer

176. Human Sexuality and Sexual Health. (Formerly numbered 148.) Lecture, three hours; discussion, one hour. Prerequisites: two courses in behavioral and/or life sciences, and consent of instructor. Interdisciplinary review of sexual physiology and sexual behaviors is followed by consideration of pregnancy and its prevention, sexual dysfunction, and sex-transmitted disease. Psycho-social, cultural, political, and health care aspects are included. The Staff

178. Legal Aspects of Family Health. (½ course) Lecture, two hours. Prerequisites: course 170 and consent of instructor. Analysis and clarification of legal issues involving family health services, including family planning, sterilization, abortion, dental care for children, battered child laws, mental hospitalization, personnel and standards for care and implementation of sound health programs. Ms. Roemer

180. Introduction to Public Health. (Formerly numbered 100.) Lecture, four hours. Prerequisite: four units of life sciences. Principles of Public Health. Analysis of demographic, professional, organizational, fiscal, social, and research features. Covers health, mental health, environmental health and consumer protection fields. Mr. Wilner

181. Introduction to Social Research Methods in Health. (Formerly numbered M245A.) Lecture, four hours; assignments, eight hours. Prerequisites: course 100A or equivalent and consent of instructor. Basic methods and techniques in designing and conducting health research using variety of methods. Includes discussions of students' own research plans. The Staff

182. Behavioral Sciences and Health. (Formerly numbered 149.) Lecture, three hours. Prerequisite: one course in social sciences. Basic concepts in behavioral sciences pertinent to health and medical care; cultural and social class variations in health status; health team and community relations; community decision-making in public health. Mr. Berkanovic, Mr. Goldstein

183. Community Health Education. (Formerly numbered 141.) Lecture, two hours; discussion, two hours. Prerequisites: one course in social science and consent of instructor. Problems of social, economic, and cultural origin as they apply to sound community organization in the public health field. Examination of health education activities of professional, voluntary, and official health agencies and analysis of their interrelationships. Mr. Washington

184. Health and Consumer Economics. (Formerly numbered 143.) Lecture, three hours. Prerequisites: Economics 1 and 2, or 100. Upper division or graduate standing. Impact of health problems and costs on individual and family incomes and expenditures, including productivity and dependency. Mr. Rada

185. Economics of Health and Medical Care. (Formerly numbered 144.) Lecture, three hours. Prerequisites: Economics 1 and 2 or 100. Upper division or graduate standing. Demand, supply and price determinants in private and public sectors of health and medical care fields. Mr. Rada

186. The World's Population and Food. (Formerly numbered 142.) Lecture, three hours. Prerequisites: Economics 1 and 2, or 100. Upper division or graduate standing. World food sources; major food groups, human food requirements and consumption; food in developing economies; international movement of foods; interrelations of foods, population, and economic progress. Mr. Rada

187. Health Education for Teacher Credentials. (½ course) (Formerly numbered 138.) Lecture, two hours. Prerequisite: admission to the teacher education credential program. The teaching-learning process as applied to personal and community health. Content includes psychoactive drugs (alcohol, tobacco, and narcotics), human sexuality, and community health resources. Required for the California State Teaching Credential. Mr. Linder, Mr. Washington

188. Community Mental Health. (Formerly numbered 139.) Lecture, four hours. Prerequisites: one upper division course in Psychology, Sociology, or Anthropology and consent of instructor. Concepts of mental health, mental illness, prevention of mental disorders, mental health in public health programs. Public health aspects of control of mental disorders. Epidemiology, program planning and legal aspects of mental disorders. The Staff

189. Death, Suicide and Homicide: Public Health Perspective. (½ course) Lecture, two hours; field trips, outside readings and reports, one hour. Prerequisites: courses 110, 112, 182, or equivalent and consent of instructor. Identification and discussion of the role of public health in suicide and homicide prevention, thanatology and death and dying. Lectures will range from vital statistics to the role of the behavioral scientist in prevention intervention and postvention of suicide and homicide. Ms. Allen

199. Special Studies. (½ or 1 course) Prerequisite: senior standing; consent of the instructor and Department Chairman. Consent is based on a written proposal outlining the course of study. Individual guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Undergraduate or graduate students may enroll in only four units each academic period. Only four units may be counted toward the minimum course requirements for a master's degree. Offered on a letter graded basis. The Staff

Graduate Courses

200A-200B-200C. Biostatistics. (Formerly numbered 240A-240B-240C.) Lecture, three hours; discussion, one hour (200A only). Prerequisites: course 100C, Mathematics 31C, 152B or equivalent. With consent of instructor certain prerequisites may be taken concurrently or waived. Quantitative methods in public health, medicine and biological sciences; statistical theory and application to problems in design and analysis of medical experiments and surveys. The Staff

M201E. Special Topics: Statistical Methods for Categorical Data. (Same as Biomathematics M231.) Lecture, three hours; discussion, one hour. Prerequisites: course 100B or 101B, Mathematics 150C or 152B or equivalent and consent of instructor. Statistical techniques for the analysis of categorical data; discussion and illustration of their applications and limitations. The Staff

201F. Special Topics: Distribution Free Methods. (Formerly numbered 268B.) Lecture, three hours; discussion, one hour. Prerequisites: course 100D or 101B, Mathematics 150C or 152B, or consent of instructor. Theory and application of distribution free methods in biostatistics. The Staff

201G. Special Topics: Statistical Simulation Techniques. (Formerly numbered 268C.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 150C or 152B, a course in computer programming, course 100C, and consent of instructor. Techniques for simulating important statistical distributions with applications in biostatistics. The Staff

201H. Special Topics: Finite Population Sampling. (Formerly numbered 268D.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 150C or 152B or course 100D. Theory and methods for sampling finite populations and estimating population characteristics. The Staff

201J. Special Topics: Supplemental Topics. (Formerly numbered 268E.) Lecture, three hours; discussion, one hour. Prerequisites: course 100C and consent of instructor. Topics in Biostatistics not covered in other courses. The Staff

201K. Survival Distributions. (½ course) (Formerly numbered 226.) Lecture, two hours. Prerequisites: Mathematics 31C or equivalent, Mathematics 152B or 150C or equivalent. Analysis of survival distributions with non-censored and censored data. Ms. Clark

201L. Advanced Demography. (Formerly numbered 227.) Lecture, three hours. Prerequisite: course 102 or equivalent. Calculation of estimates of stable population parameters. Application of stable population concepts to the estimation of fertility rates in absence of vital registration data. Consequences of changes in vital rates. Implications for policy. Ms. Mickey

201M. Introduction to Statistical Methods for Biological Assays. (Formerly numbered 244A.) Lecture, four hours. Prerequisites: course 100C and Mathematics 150C or 152B. Topics include standard statistical procedures for the estimation of relative potency, density of microorganisms and density of radioactivity, models used for these procedures and statistical considerations for designing such assays. Mr. Chang

204E. Seminar in Biostatistics. (½ course) (Formerly numberd 269.) Discussion, two hours. Prerequisites: course 200B, two courses from Public 201E-201J series, and consent of instructor. Students present and discuss current developments of methodology and problems in applications of Biostatistics. The Staff

204F. Advanced Seminar in Biostatistics. (½ course) (Formerly numbered 267.) Discussion, two hours. Prerequisites: course 200C and consent of instructor. Students and faculty present and discuss current research in Biostatistics. May be repeated for credit. The Staff

M205A-205B-205C. Linear Statistical Models. (Same as Mathematics M279A-279B-279C; formerly numbered M241A- 241B-241C.) Lecture, three hours. Prerequisites: Mathematics 150C or 152B and course 100C, or equivalent. Topics include linear algebra, applied to linear statistical models, distribution of quadratic forms, the Guass-Markov theorem, fixed and random component models, balanced and unbalanced designs. Mr. Afifi, Mr. Chang

206A-206B. Multivariate Biostatistics. (Formerly numbered 242A-242B.) Lecture, three hours. Prerequisite: course M205A or equivalent. Multivariate analysis as used in biological and medical situations. Topics from component analysis, factor analysis, discriminant analysis, analysis of dispersion, canonical analysis. The Staff

207E. Advanced Topics—Stochastic Processes. (Formerly numbers 243A.) Lecture, three hours. Prerequisites: courses in upper division mathematics including statistics and probability. Stochastic processes applicable to medical and biological research. Ms. Dunn, Mr. Massey

207F. Advanced Topics—Mathematical Epidemiology. (Formerly numbered 243B.) Lecture, three hours. Prerequisites: course 207E or equivalent. Courses in upper division mathematics including statistics and probability. Mathematical theory of epidemiology with deterministic and stochastic models, and problems involved in applying the theory. Mr. Massey

207G. Advanced Topics—Statistical Genetics. (Formerly numbered 243C.) Lecture, three hours. Prerequisites: courses in upper division mathematics including statistics and probability. Introduction to statistical genetics. Ms. Dunn

207H. Statistical Methods for Research Biological Assays. (Formerly numbered 244B.) Lecture, four hours. Prerequisite: course 201M. Topics include statistical methods developed for research assays for which the standard procedures do not apply. Mr. Chang

M207J. Computational Statistics. (Same as Biomathematics M280 and Mathematics M280; formerly numbered M244C.) Lecture, three hours. Prerequisites: Mathematics 115 and 150C or equivalent. Introduction to theory and design of statistical programs; pivoting and other technologies used in stepwise regression, non-linear regression algorithms, algorithms for balanced and unbalanced analysis of variance including the mixed model, iterative rescaling and other methods for log-linear models. Mr. Jennrich

210. Principles of Infectious Disease Epidemiology. (Formerly numbered 204.) Lecture, three hours. Prerequisites: one year sequence of biology and chemistry, course 100A or equivalent, 112, and consent of instructor. Ascertainment of infection, transmission and epidemiological parameters rather than clinical and pathological aspects. Specific diseases discussed in depth to illustrate epidemiologic principles. Mr. Barr

211A. Advanced Epidemiology. (Formerly numbered 246A.) Lecture and discussion, four hours. Prerequisites: course 100B (may be taken concurrently), 110, 112, one year of biological sciences. Graduate standing and consent of instructor. Discussion of study designs, research methodology, problems of measurement and analytic techniques used in epidemiologic research. Mr. Detels and the Staff

211B. Advanced Epidemiology. (Formerly numbered 246B.) Lecture and discussion, four hours. Prerequisites: course 211A. Graduate standing and consent of instructor. Continuation of Public Health 211A; concentration on selection of appropriate research design, problems of measurement, and analytic techniques commonly used in epidemiologic studies. Mr. Detels and the Staff

212E. Epidemiology of Cardiovascular Disease. (Formerly numbered 205.) Lecture, two hours; discussion, two hours. Prerequisites: course 211A and consent of instructor. Epidemiology of cardivascular diseases: methods of study, implications for prevention and controversial issues as reported in current literature. The Staff

212F. Epidemiology of Perinatal Problems. (Formerly numbered 213.) Lecture, two hours; discussion, two hours. Prerequisites: course M12 or Biology 134, course 112, and consent of instructor. Considers distribution, determinants and significance of perinatal problems including fetal death, prematurity, genetic diseases, congenital malformations and mental retardation. The Staff

212G. Epidemiology of Neurologic Disease. (½ course) (Formerly numbered 215.) Lecture and discussion, two hours. Prerequisites: course 211B or equivalent and consent of instructor. Epidemiologic characteristics of selected chronic neurologic diseases with particular emphasis on etiology and possible control. Ms. Visschar

212H. Epidemiology of Arthropod-borne Disease. (Formerly numbered 267.) Lecture, four hours. Prerequisites: course 211B and graduate standing. Epidemiologic aspects of disease carried by arthropods, emphasizing life cycle and ecology of vectors as related to epidemiology of viral, rickettsial, bacterial, protozoal and helminthic diseases. Mr. Barr

213. Environmental Epidemiology. Lecture and discussion, four hours. Prerequisites: Chemistry 21, Physics 3C or equivalent, courses 100B, 112, graduate standing and consent of instructor. Methodologic problems and approaches of epidemiology for assessing the health impact of major types of environmental exposure. Mr. Spivey

214. Infectious and Tropical Disease Epidemiology. Lecture, three hours; discussion, three hours. Prerequisites: courses 100A, 112, 113 or equivalent, and consent of instructor. Epidemiology of major infectious and tropical diseases in developing countries including those with direct or contact mode of spread and those vector borne. Mr. Schacher, Mr. Work

215A. Epidemiology of Cancer. (Formerly numbered 200A.) Lecture and discussion, four hours. Prerequisites: courses 100A, 112, and consent of instructor. Etiological concepts and mechanisms. Pathogenesis, diagnosis and classification of neoplastic diseases. Epidemiologic principles and methods as applied to cancer. Classical studies in cancer epidemiology. Models of causal association. Ms. Stern

215B. Epidemiology of Cancer. (Formerly numbered 200B.) Lecture and discussion, four hours. Prerequisites: course 215A and consent of instructor. Environmental carcinogens; experimental and epidemiologic assessment of hazards. Occupational cancer. Cancer legislation and regulation. Application of models to planning cancer control and prevention strategies. Evaluation of screening programs, risk and benefit. Ms. Stern

216A. Ecology of Exotic Diseases. Lecture, two hours; discussion, six hours. Prerequisites: course 112, Bacteriology 101 and 103 or equivalent, and consent of instructor. Geographic pathology and behavioral causes of exotic diseases. Climatological, ecological and biological determinants of the distribution, exposure to and occurrence of exotic diseases. Mr. Work

216B. Viral Diseases of Man. Lecture, two hours; laboratory, six hours. Prerequisites: course 216A or equivalent and consent of instructor. Viral and rickettsial diseases of man. Natural history, epidemiology, diagnosis, control, and prevention of these diseases especially in tropical situations. Mr. Work

218A. Protozoal Diseases of Man. Lecture, four hours. Prerequisites: Bacteriology 101 or equivalent, or Biology 105 or equivalent, and consent of instructor. Comprehensive overview of systematics, morphology, biology, host-parasite relationships, public health problems and control of protozoa parasitic in man and animals. May be taken concurrently with 218B. Mr. Ash

218B. Protozoal Diseases of Man. (½ course) Laboratory, four hours. Prerequisite: course 218A (may be taken concurrently). Laboratory methods of diagnosis and microscopic recognition of protozoa parasitic in man and animals. Includes intestinal protozoa and organisms occurring in the blood and tissues of their hosts and pathology associated with these infections. Mr. Ash

219. Arthropods of Medical Importance. Lecture, two hours; laboratory, six hours. Prerequisites: Biology 105 or 107 or equivalent; Biology 181 or equivalent; Bacteriology 101 or equivalent. Biology and identification of mites and insects of public health importance involved in transmission and causation of human diseases. Mr. Barr

220A. Helminthic Diseases of Man. Lecture, four hours. Prerequisites: Bacteriology 101 or equivalent or Biology 105 or equivalent, and consent of instructor. Comprehensive overview of systematics, morphology, biology, host-parasite relationships, public health problems and control of the nematodes, trematodes and cestodes parasitic in man and animals. May be taken concurrently with 220B. Mr. Ash

220B. Helminthic Diseases of Man. (½ course) Laboratory, four hours. Prerequisite: course 220A (may be taken concurrently.) Diagnosis and practical microscopic recognition of the nematodes, trematodes and cestodes parasitic in man and animals. Pathology produced by these infections is also studied. Mr. Ash

221. Seminar in Epidemiology: Methodology. (½ course) (Formerly numbered 265.) Discussion, two hours. Prerequisites: course 211A or equivalent and consent of instructor. Review of current epidemiologic research contained in recent medical literature. May be repeated for credit. Offered on a Satisfactory (S)-Unsatisfactory (U) grade basis. The Staff

222. Seminar in Epidemiology: Infectious and Tropical Disease. (½ course) (Formerly numbered 266.) Discussion, two hours. Prerequisites: course 211A or equivalent and consent of instructor. Review of research on specific diseases of public health importance. May be repeated for credit. Offered on a Satisfactory (S)-Unsatisfactory (U) grade basis. The Staff

225. Research Methods in Cancer Epidemiology. (½ course) Lecture and discussion, two hours. Prerequisites: courses 100A, 112, 211A. Biologic, quantitative, philosophical and adminstrative considerations in epidemiologic cancer research. Hypothesis specification and choice of study design. Uses of descriptive epidemiology, cohort studies, case control studies. Clustering, screening and cancer control. Means of identifying subjects and controls. Design of instruments. Sources of bias and confounding. Mr. Mack

229. Advanced Seminar in Epidemiology. (½ course) Discussion, two hours. Prerequisites: course 211B and consent of instructor. Students and faculty present and discuss current research in Epidemiology. May be repeated for credit. Offered on a Satisfactory (S)-Unsatisfactory (U) grade basis. The Staff

232. Governmental Health Services and Trends. (Formerly numbered 202). Lecture, four hours. Prerequisites: course 130, two additional upper division social or behavioral sciences courses, and consent of instructor. Systematic analysis of the interface between organized programs of personal health services and governmental agencies at all jurisdictional levels. Study of changing relationships between traditional public health and newer medical care and quality-control functions. Mr. Shonick

235. Law, Social Change and Health Service Policy. (Formerly numbered 208.) Lecture, four hours. Prerequisites: course 130, two upper-division courses in political science or sociology or equivalent, and consent of instructor. Legal issues affecting policy formulation for environmental, preventive and curative health service programs are examined. Mr. Price

236. Quality Assessment and Assurance. Lecture, one and one-half hours; discussion one and one-half hours; conference, one hour. Prerequisites: courses 100A, 112, 130 and one additional course in health services or epidemiology, or equivalent, and consent of instructor. Fundamental issues in quality assessment, quality assurance, and the measurement of health status. Mr. Brook

238. Microeconomic Theory of the Health Sector. (Formerly numbered 203.) Lecture, four hours. Prerequisites: Economics 1, 2, course 100A or equivalent; 232; and consent of instructor. Microeconomic aspects of the health care system including health manpower substitution, choice of efficient modes of treatment, market efficiency and competition. Mr. Schweitzer

243. Issues in Health Planning. (Formerly numbered 281.) Discussion, three hours; field work, three hours. Prerequisites: course 181 or equivalent research course and 444B. In-depth presentation and analysis of current issues of importance to advanced students in health planning. The Staff

247. Research Topics in Health Economics. (Formerly numbered 207.) Seminar, four hours. Prerequisites: courses 130, 238, 446 or equivalent, and consent of instructor. Economic analysis of current health services issues. Critical examination of studies pertaining to health manpower, health care costs and controls, the diffusion of technology, and cost-benefit analysis of health programs. Mr. Schweitzer

250. Advanced Environmental Health. (Formerly numbered 210.) Lecture, four hours. Prerequisites: course 150 or equivalent and consent of instructor. Theoretical considerations and supporting data

NOTE: For key to symbols, see page 74

requisite for scientific establishment and justification of environmental health standards and requirements, with particular reference to related health factors. Ms. Valentine

251. Chemical Behavior of Aquatic Systems. (Formerly numbered 221.) Lecture, three hours. Prerequisites: Chemistry 11A, Mathematics 3A, course 150, and consent of instructor. Chemistry of ocean waters, rivers, ground waters and water treatment systems. Topics include thermodynamics of natural waters, acids and bases, carbon dioxide cycle, solubility reactions, oxidation and reduction, plus applied problems. Ms. Valentine

252. Microbiology of Water Quality. (Formerly numbered 222.) Lecture, three hours. Prerequisites: courses 150, 153, or equivalent. Basic concepts of eutrophication, indicator organisms, aquatic microbes; assessment of biological treatment practices in water reuse and/or purification. Mr. Mah

253A. Environmental Toxicology. (Formerly numbered 224A.) Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 153 Biological Chemistry 101A-101B, and consent of instructor. Essentials of toxicology, dose response, physical, chemical, or biological agents that adversely affect man and environmental quality. Mr. Mustafa

253B. Environmental Toxicology: Trace Contaminants. (Formerly numbered 224B.) Lecture, three hours, discussion, one hour. Prerequisite: course 253A. Essentials of toxicology in relation to trace contaminants. Mr. Mustafa

254. Environmental Decision Systems Analysis. (Formerly numbered 260.) Lecture, four hours; discussion, one hour. Prerequisites: course 154, 250, Mathematics 3C or equivalent, and consent of instructor. Techniques and models of systems analysis and concepts of general system theory as applied to comprehensive study, planning, evaluation, and management of environmental decision systems. Experimentation with relevant computer programs. Mr. Davos

255. Seminar in Environmental Health Sciences. (½ course) (Formerly numbered 274.) Lecture, two hours. Prerequisites: Biological Chemistry 101A-101B or equivalent, and consent of instructor. Emphasis on current biological, physical, and chemical sciences relating to environmental topics and review of research literature. Mr. Mah

256. Seminar in Health Effects of Environmental Contaminants (½ course) (Formerly numbered 275.) Discussion, two hours. Prerequisites: Biological Chemistry 101A-101B or equivalent, and consent of instructor. Emphasis on health effects of air, water, environmental pollutants on man and review of research literature. Mr. Mah

260E. Advanced Nutrition: Vitamins. (Formerly numbered 211A.) Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 101A-101C or equivalent, and consent of instructor. Comprehensive treatment of vitamin nutrition and metabolic-nutrient interactions. Ms. Swendseid

260F. Advanced Nutrition: Proteins. (Formerly numbered 211B.) Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 101A-101C or equivalent, and consent of instructor. Comprehensive treatment of protein nutrition and metabolic-nutrient interactions. Ms. Swendseid

260G. Advanced Nutrition: Lipids. (Formerly numbered 211C.) Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 101A-101C or equivalent, and consent of instructor. Comprehensive treatment of lipid nutrition and metabolic-nutrient interactions. Ms. Alfin-Slater

260H. Advanced Nutrition: Minerals. (½ course) (Formerly numbered 211D.) Lecture, two hours. Prerequisites: Biological Chemistry 101A-101C or equivalent, and consent of instructor. Comprehensive treatment of mineral nutrition and metabolic-nutrient interactions. Ms. Carlisle

261A. Laboratory Techniques in Environmental and Nutritional Science. (Formerly numbered 212A.) Lecture, two hours; laboratory, four hours. Prerequisites: Chemistry 24 or Biological Chemistry 101A (may be taken concurrently), course 165, and consent of instructor. Biochemical techniques and instrumentation used in Environmental and Nutritional Sciences. Ms. Valentine and the Staff

261B. Advanced Laboratory Techniques in Nutritional Science. (Formerly numbered 212B.) Lecture, two hours; laboratory, four hours. Prerequisites: course 261A and consent of instructor. Current biochemical methods emphasizing instrumentation. The Staff

262. Seminar in Nutrition. (½ course) (Formerly numbered 284.) Lecture, two hours. Prerequisites: course 162, 167, and one course in 260 series. Review of current literature in nutritional science. Emphasis on methodology and data evaluation. May be repeated for credit. Ms. Swendseid

263. Seminar in Public Health Nutrition. (½ course) (Formerly numbered 285.) Lecture, two hours. Prerequisites: course 162, 167, and one nutrition course in 200 series. Review of literature in selected areas of public health nutrition. The Staff

264E. Clinical Nutrition Problems. (½ course) Lecture, two hours. Prerequisites: Biological Chemistry 101 or 201; one or more 200 level Nutrition courses. Nutrition and nutrient-metabolic interactions in various disease states such as gastro-intestinal disorders, renal disease and liver disease.
Ms. Alfin–Slater, Mr. Kopple, Ms. Swendseid

264F. Clinical Nutrition Problems. (½ course) Lecture, two hours. Prerequisites: Biological Chemistry 101 or 201; one or more 200 level Nutrition courses. Nutrition and nutrient-metabolic interactions in various disease states such as cardiovascular disease, diabetes and obesity.
Ms. Alfin–Slater, Mr. Kopple, Ms. Swendseid

270. Seminar in Maternal and Child Nutrition. (Formerly numbered 273.) Lecture, two hours; discussion, two hours. Prerequisites: course 110, 161, 170 or equivalent, and consent of instructor. Nutrition of mothers, infants and children in countries at various levels of socio-economic development; measures for prevention and treatment of protein-calorie malnutrition; relationship between nutrition and mental development; impact of ecological, socio-economic and cultural factors on nutrition, nutrition education and service.
Mr. Jelliffe, Ms. Neumann

271. Medical Anthropology. (Formerly numbered 225.) Lecture, four hours. Prerequisites: course 110, 112, one upper division course in psychology, sociology, or anthropology or equivalent, and consent of instructor. Cross-cultural aspects of human behavior as they relate to perception, treatment, incidence and prevalence of disease and illness.
Ms. Scrimshaw

272. Seminar on Current Issues in Maternal and Child Health. (½ course) (Formerly numbered 270.) Discussion, two hours. Prerequisites: courses 171 and either 110 or 111. New knowledge and approaches in selected health and social problems of families, women of childbearing age and children including early development, day care and genetic counseling. Mr. Katz, Ms. Neumann

273. Qualitative Research Methodology. (Formerly numbered 217.) Discussion, three hours; laboratory, one hour. Prerequisites: courses 100A, 110, 130, 181 or equivalent, and consent of instructor. Intensive seminar-field course in qualitative research methodology. Emphasis placed on using qualitative methods and techniques in research and evaluation related to health care. Ms. Scrimshaw

M274A-274B. Population Policy and Fertility. (Same as Sociology M287A-287B; formerly numbered M287A-287B.) Lecture, three hours; discussion, one hour. Prerequisites: courses 102, 112, 173 or equivalent, graduate standing, and consent of instructor. Analysis of research concerning major issues in population policy with special emphasis on human fertility. Public Health M274A is prerequisite for M2748. Ms. Blake

M274C. Seminar in Population Policy and Fertility. (Same as Sociology M287C; formerly numbered M287C.) Discussion, one hour; seminar, three hours. Prerequisites: courses M274A-274B or equivalent, graduate standing, and consent of instructor. Review of current literature in population policy and fertility in conjunction with student research reports. May not be repeated for credit.
Ms. Blake

275. Human Lactation: Biological and Public Health Significance. (½ course) Lecture, two hours. Prerequisites: courses 112, 270 or equivalent, and consent of instructor. Biological and economic aspects of human lactation in industrialized and developing countries. Mr. Jelliffe

280. Change Determinants in Health Related Behavior. (Formerly numbered 233.) Lecture, four hours. Prerequisites: course 182, three courses from Psychology 135, 170A, Sociology 152, 154, or equivalent, and consent of instructor. Unified behavioral science approach to natural determinants of change, as foundation for planned change in health-related behavior at community, group and individual levels. The Staff

281. Advanced Social Research Methods in Health. (Formerly numbered 245B.) Lecture, two hours; laboratory, two hours. Prerequisites: courses 100B, 181, or equivalent, and consent of instructor. Problems of health survey design and data collection; measurement issues in data analysis and interpretation; use of computer for analysis of large-scale survey data using various statistical techniques. The Staff

282. Introduction to Program Evaluation. (Formerly numbered 236.) Lecture, two hours; discussion, two hours. Prerequisites: courses 100A, 181, or equivalent, and consent of instructor. Definitions and strategies for health program evaluation; selected applications of research design and measurement to interpret evaluative data.
Mr. Berkanovic

M283E. Sociocultural Aspects of Health and Illness: Social Epidemiology. (Same as Sociology M249A; formerly numbered M249A.) Lecture, two hours. Prerequisites: course 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on life styles and other socioenvironmental factors associated with disease and mortality. The Staff

M283F. Sociocultural Aspects of Health and Illness: Health Professions. (Same as Sociology M294B; formerly numbered M249B.) Lecture, three hours. Prerequisites: course 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Sociological examination of the concepts "health" and "illness" and role of various health professionals especially physicians. Attention given to meaning of professionalization and professional-client relationships within a range of organizational settings.
Mr. Goldstein

M283G. Sociocultural Aspects of Health and Illness: Health Behavior. (Same as Sociology M249C; formerly numbered M249C.) Seminar, two hours. Prerequisites: course 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick role behavior.
Mr. Berkanovic

284. Ecology of Mental Health. (Formerly numbered 238.) Lecture and discussion, two hours; reading and preparation of a serious research paper, four hours. Prerequisites: courses 100A, 112 or equivalent, 182 or equivalent, and consent of instructor. Analysis of occurrence and distribution of mental disorders in the community and the relationships to social structure. Problems of classification, definition, measurement in socio-psychiatric epidemiology, socio-cultural and social-psychological factors in mental disorders. The Staff

285. Community Problems in Mental Disorders. (Formerly numbered 252.) Lecture, three hours. Prerequisites: course 182, three upper division or graduate courses in psychology or sociology or equivalent, and consent of instructor. Intensive examination of the meaning of mental health, mental illness, and psychotherapy, both curative and preventive within a public health context. Implications for social policy and planning. Mr. Goldstein

286. Seminar in Behavioral Sciences and Health. (½ to 1 course) (Formerly numbered 283.) Lecture, two hours. Prerequisites: courses M283E-283F-283G or equivalent, and consent of instructor. Recent significant contributions of behavioral sciences to understanding health and illness, with selected and varying topics each quarter. May be repeated for credit. Mr. Wilner and the Staff

288. Current Problems in Health Education. (Formerly numbered 250.) Lecture, one hour; discussion, three hours. Prerequisites: courses 183, 280, and consent of instructor. Current problems and findings in health education content areas, such as, nutrition, mental health, family health, consumer health, safety, communicable and chronic diseases. Mr. Washington

290. Seminar in Community Health Education. ½ course) (Formerly numbered 261.) Discussion, two hours. Prerequisites: courses 288 and 481. In depth analysis of health education concepts as they relate to the professional practitioner. Mr. Washington

291. Advanced Topics in Health Survey Research Methods. Lecture, two hours; discussion, two hours. Prerequisites: one course from Political Science 104A-104B, Psychology 137C, Sociology 216A-216B, courses 181, 281 or equivalent, and consent of instructor. Special topics in health survey research methods. Design of special purpose surveys; recent interviewing techniques; diaries and memory aids; measurement error including response bias, social desirability, response validity; telephone interviewing; obtaining data on sensitive issues; ethics and confidentiality of survey research data. The Staff

400. Field Studies in Public Health. (½ or 1 course) Prerequisite: consent of instructor. Field observation and studies in selected community organizations for health promotion or medical care. Enrolled students must file field placement and program training documentation on form obtainable from Student Affairs Office. Not applicable to minimum course requirements for the M.S. degree. Only four units applicable to minimum total of 44 units required for the M.P.H. degree. The Staff

401. Statistical Methods in Medical Studies. (½ course) (Formerly numbered 409.) Lecture, two hours. Prerequisites: course 100C or 100D or Mathematics 152B or equivalent and graduate standing in Public Health or related field. Design and analysis of biomedical studies. Ms. Clark

410A. Management of Epidemiologic Data. (½ course) (Formerly numbered 412A.) Lecture, two hours. Prerequisites: course 100A, 112 (one may be taken concurrently with consent of instructor). Concepts, collection and management of data with particular emphasis on large scale data bases. Introduction to computer and appropriate selection and use of packaged programs. Ms. Coulson

410B. Management of Epidemiologic Data. (½ course) (Formerly numbered 412B.) Lecture, two hours. Prerequisites: course 410A or equivalent and consent of instructor. Development of special purpose programming and compiler languages for epidemiologic problems. Data management in large-scale studies in infectious and chronic diseases emphasized. Ms. Coulson

411. Research Resources in Epidemiology. (½ course) Lecture, one hour; discussion, one hour. Prerequisites: courses 100B, 211B, and consent of instructor. Instruction and practical experience in the use of varied bibliographic aids and sources of information, building of reference files, and presentation of research findings for publication. Ms. Coulson, Mr. Spivey

412. Preventive Medical Services in the Community. (½ course) (Formerly numbered 414.) Lecture, two hours. Prerequisites: courses 112, 130 or equivalent, and consent of instructor. Clinical preventive practices in the community including cardiovascular disease, dependency disorders, communicable diseases, maternal health, mental health, presymptomatic screening, personnel, licensure and financing. Mr. Tennant

413. Epidemiologic Aspects of Preventive Medicine. (½ course) (Formerly numbered 458.) Lecture and discussion, two hours. Prerequisites: graduate standing, courses 100A, 110, 112, or MD/RN degrees, and consent of instructor. Current technical, epidemiologic and programmatic aspects in preventive medicine. Mr. Breslow

430. Management of Medical Care Organizations and Programs. (Formerly numbered 415.) Lecture, four hours. Prerequisites: course 131 and consent of instructor. Application of organizational, economic and behavioral science concepts to understanding structure and functions of health care facilities and programs. Mr. Pointer

431. Managerial Processes in Health Service Organizations. (Formerly numbered 416.) Lecture, one hour; laboratory, three hours. Prerequisites: course 430 and consent of instructor. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, inter-group, system, and inter-organization. Unique features of health service organizations are stressed as applications are presented. Mr. Pointer, Mr. Ross

432. Integrative Seminar in Health Services Management. (Formerly numbered 417.) Discussion, four hours. Prerequisite: course 431. Resident and preceptors are responsible for presenting cases of actual administrative problems for solution by teams of students and faculty. Ms. Cretin, Mr. Pointer, Mr. Ross

433. Contemporary Issues in Health Services Management. (Formerly numbered 418.) Lecture, two hours; discussion, two hours. Prerequisite: course 431. Advanced study of contemporary intramural and extramural issues which affect management of health care facilities. Ms. Cretin, Mr. Pointer, Mr. Ross

434. Quantitative Methods in Health Services Management. (Formerly numbered 479.) Lecture, four hours. Prerequisite: course 139. Quantitative methods for managerial decision-making. Deterministic and stochastic analyses of problems in: resource allocation, inventory control, task sequencing, patient and facilities scheduling, demand forecasting, and cost-benefit analysis. Ms. Cretin

435. Manpower Management in Health Service. (Formerly numbered 436.) Lecture, two hours. Prerequisites: course 131 or equivalent, and consent of instructor. Introduction to personnel administration and labor relations as they apply to health care facilities. Mr. Pointer

436. Principles of Health Facility Financial Management. Lecture, four hours. Prerequisites: course 131 and one graduate level course in managerial finance/accounting or equivalent and consent of instructor. Application of financial management and accounting principles to health care facilities including unique financial characteristics of health care facilities, third party reimbursement, cost finding and rate setting, operational and capital budgeting, auditing and risk management. The Staff

437. The Legal Environment of Health Services Management. (½ course) Lecture, two hours. Prerequisites: course 131 or equivalent, and consent of instructor. General survey of legal aspects of health services management including: governance, agency, informed consent, medical malpractice, contracts, negligence, and case law relating to health facility operations. Mr. Girard

438. Issues and Problems of Local Health Administration. (½ course) (Formerly numbered 454.) Lecture, two hours. Prerequisites: courses 110, 130, another health services course, and consent of instructor. Analysis of organizational issues currently faced by local health departments in increasing scope and quality of services; exploration of administrative problems and inter-agency relationships. The Staff

439. Dental Care Administration. (½ course) Lecture, two hours. Prerequisites: courses 100A and 112 or equivalent (may be taken simultaneously) and consent of the instructor. In-depth examination of several specific dental care policy issues: Manpower, relationship of treatment to disease, national health program strategies, and evaluation mechanisms. Mr. Schoen

440A. Health Information Systems: Organization and Management. (Formerly numbered 402A.) Lecture, two hours; laboratory, three hours. Prerequisites: courses 140A-140B or equivalent, and consent of instructor. Principles of and systems relating to organization and management of a health facility's health information system. Ms. Johnson

440B. Health Information Systems: Organization and Management. (Formerly numbered 402B.) Lecture, two hours; laboratory, three hours. Prerequisites: course 440A or equivalent, and consent of instructor. Health and administrative research using clinical records. Principles of planning for routine and special studies. Individual investigation in methods of obtaining and processing data to meet needs of programs in institution and agency. Introduction to principles of medical auditing; analysis of medical and health services. Ms. Johnson

441A-441B. Health Record Systems. (½ course each) (Formerly numbered 444A-444B.) Lecture, two hours. Prerequisites: courses 100A, 112, 130, or equivalent, and consent of instructor. A is required for B. Advanced study of principles and criteria involved in planning, installing, and administering systems to record, process and retrieve data for records and reports in health and medical institutions and agencies. Ms. Johnson

442. Principles and Practices of Medical Care Audit. (½ course) (Formerly numbered 468.) Lecture, two hours. Prerequisites: courses 100A, 112, 130, or equivalent, and consent of instructor. Analysis of systems used in evaluating health care professional providers' performances in hospital and ambulatory settings. Health information systems and data available used for medical audits. Mr. Goodman, Ms. Johnson

443A. Small Area Planning for Resources for Personal Health Service—Theory. (½ course) (Formerly numbered 404A.) Lecture, two hours. Prerequisites: course 130, one additional course in health services and hospital administration or equivalent, and consent of instructor. Health planning theory, methods and experience with planning for personal health care resources for small geographic areas. Determining needs and estimating required utilization levels and health care resources. Survey of elements of different disciplines used in areawide health planning. Mr. Shonick

443B. Small Area Planning for Resources for Personal Health Service—Laboratory. (½ course) (Formerly numbered 404B.) Laboratory, two hours. Prerequisite: must be taken concurrently with course 443A. Projects and exercises designed to implement studies of health planning theory and methods. Mr. Shonick

444A. Information Processing for Health Planners. (Formerly numbered 407.) Lecture, four hours. Prerequisites: courses 100A or 101A, 134, and consent of instructor. Information theory presented as framework for understanding data analysis. Computer used to implement data analysis results with previously presented information systems concepts. Mr. Siler

444B. Applied Methodology in Health Planning. (Formerly numbered 406.) Lecture, three hours; field work, four hours. Prerequisites: courses 130 or equivalent, 443B, 444A, and consent of instructor.

NOTE: For key to symbols, see page 74

Demonstrating methodology of health planning by involving students in formulation of actual health plan for existing agency in Los Angeles area. The Staff

445A-445B-445C. Practicum in Health Planning. (Formerly numbered 403A-403B-403C.) Prerequisites: courses 443A-443B, 444A, and consent of instructor. Required of all MSPH Health Planning students. Preparation for and subsequent analysis of ten-week work experience undertaken during summer between first and second year. In progress grading is used. The Staff

446. Financing Health Care. (Formerly numbered 411.) Lecture, four hours. Prerequisites: Economics 1, 2 or equivalent, course 130, and consent of instructor. Patterns of health care financing by consumers, providers, third-party intermediaries; trends in health service use; expenditures, national health insurance, and international comparisons of health financing. Mr. Schweitzer

447. Health Insurance Principles and Programs. (Formerly numbered 453.) Lecture, four hours. Prerequisites: courses 130, 232, an additional health services and hospital administration course or equivalent, and consent of instructor. Examination of social, actuarial, and commercial assumptions underlying health insurance. Analysis of diversity of voluntary medical care insurance plans, under different sponsorships and with varied scopes of coverage and benefits and their implications for public and private medical care developments. Mr. Shonick

448. Evaluation of Health Services and Programs. (Formerly numbered 419.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: courses 100A, 130, 139 or equivalent, and consent of instructor. Analysis of methods and findings of current research and evaluation of personal health services and programs in variety of social contexts. Principles of decision analysis. Emphasis on measurement of outcomes of health service systems. Mr. Hopkins

450. Environmental Measurements. (Formerly numbered 460.) Lecture, two hours; laboratory, four hours. Prerequisites: courses 153 or 261A, 250. Instrumental methods for laboratory and field applications to assess quantity of environmental pollutants in air, food, and water, and to assess degree of exposure to such factors as noise and radiation. Mr. Mah, Ms. Valentine

454. Environmental Policy Decision-Making. (Formerly numbered 423.) Lecture, four hours; discussion, one hour. Prerequisite: course 254. Foundations, principles, and modeling of environmental policy decision-making. Critical analysis of normative and behavioral models of action choices for protection and enhancement of environmental health, and development of an alternative model. Mr. Davos

460. Principles of Public Health Nutrition. (Formerly numbered 445A.) Lecture, two hours; discussion, one hour; field trips, four and one-half hours. Prerequisites: courses 100A, 112, 130, 162, 167 (may be taken concurrently). Survey of methods, problems, and practices used by health agencies in dealing with community nutrition of population groups. Ms. Hunt

461. Nutritional Assessment: Dietary Surveys. (½ course) (Formerly numbered 421.) Lecture, one hour; discussion, three hours. Prerequisite: course 460. Collection and evaluation of nutrient intake data for the purpose of nutritional assessment of population groups. Ms. Hunt

462. Nutritional Assessment: Laboratory Assays. (½ course) (Formerly numbered 422.) Lecture, one hour; laboratory, three hours. Prerequisites: courses 162, 165, 167 or equivalent, and one course in 260 series. Biochemical methods for evaluating nutritional status of individuals or population groups. Techniques for measuring vitamins, minerals, lipids and proteins. Ms. Swendseid

463. Practicum in Public Health Nutrition. (Formerly numbered 445B.) Discussion, one hour; field research, 12 hours. Prerequisites: courses 400, 460 (may be taken concurrently). Analysis of Public Health nutrition problems. Delivery of community nutrition education. Ms. Hunt

470A. International Health Agencies and Programs. (Formerly numbered 456A.) Lecture, four hours. Prerequisites: three upper division or graduate courses in health science, social or behavioral science, and consent of instructor. Historical development and functions of international health organizations. Key problems and trends in international health. Bilateral programs, medical-religious missions, private foundations, and others disseminating information, money and services. Mr. Neumann

470B. Advanced Issues in International Health. (Formerly numbered 456B.) Lecture, two hours; discussion, two hours. Prerequisites: courses 173, 175, 270, 470A or 472 or 475. In-depth focus on major health care issues confronting recipient less-developed countries and donors of technical and financial assistance. Mr. Neumann

471A. Reproductive Health Services and Programs. (Formerly numbered 474A.) Lecture, two hours; discussion, two hours. Prerequisite: course 172 or equivalent. Examination of U.S. delivery system of pregnancy care, family planning, male-specific and female-specific health care including methods, facilities, personnel and funding. The Staff

471B. Current Issues in Reproductive Health. (Formerly numbered 474B.) Lecture, two hours; discussion, two hours. Prerequisite: course 471A. Critical review of current public health and socio-political problems in reproductive health. Emphasis on development of feasible solutions and strategies for achieving them. The Staff

472. Maternal and Child Health in Developing Areas. (Formerly numbered 473.) Lecture, four hours. Prerequisites: courses 270, 470A or equivalent, and consent of instructor. Major health problems of mothers and children in developing areas stressing causation, management and prevention. Particular reference to adapting programs to limited resources in cross-cultural milieux. Ms. Neumann

473. Handicapped Children: The Public Health Concern. (½ course) (Formerly numbered 431.) Lecture, two hours. Prerequisites: courses 110 or 111, 170 or equivalent and consent of instructor. Etiology, prevalence, social consequences and remedial programs for the major handicapping conditions in children. Emphasis on biological and social factors, current research and program developments. Mr. Katz

474. Self-Care and Self-Help in Community Health. Lecture, two hours; discussion, two hours. Prerequisites: courses 112, 130 and field work internship or equivalent, and consent of instructor. Review of background, principles, concepts, programs and research concerning the emerging field of self-care in health. Mr. Katz

475. Planning and Development of Family Health Programs. (Formerly numbered 405.) Lecture, two hours; discussion, two hours. Prerequisites: courses 100A, 170, 173, 181 or 470A, 270 or equivalent. Theory, guidelines, and team exercise for planning community health/family planning projects in the U.S.A. and in developing countries. Phases include: community needs identification; goal setting; budget and work plan development; funding; staffing; evaluation design; data and cost analysis; and project presentation. Mr. Neumann

476. Human Reproduction in Cross-Cultural Perspective. (Formerly numbered 470.) Lecture, two hours; discussion, two hours. Prerequisites: courses 112, 172, 173 or equivalent, and consent of instructor. Exploration of human behavior related to reproduction. Cross-cultural exploration of biological and behavioral factors with particular reference to human adaptation. Ms. Scrimshaw

477. Assessment of Family Nutrition. (Formerly numbered 471.) Lecture with discussion, four hours. Prerequisite: course 270. Assessment of nutritional status of families in developing countries with special reference to limited resources, terrain and cross-cultural considerations, stressing anthropometric methods and techniques. Mr. Jelliffe and the Staff

478. Anthropometric Nutritional Assessment. (½ course) Lecture, two hours. Prerequisites: courses 270 or 477 or equivalent and consent of instructor. Practicum in anthropometry illustrating how it is used in nutritional assessment. Data presentation and interpretation will be covered. There will be didactic sessions, readings, demonstrations and practical experience in clinical anthropometric techniques. Ms. Neumann

479. Nutrition Programs and Policies for Families in the Third World. Lecture, two hours; discussion, two hours. Prerequisites: course 472 or equivalent and consent of instructor. Programs and policies to improve the nutrition of families in Third World countries are considered with special reference to mothers and young children. Ms. Jelliffe

480. Health Education in Clinical Settings. (Formerly numbered 434.) Lecture, two hours; discussion, two hours. Prerequisites: courses 130, 183, 280, 282, and consent of instructor. Analysis of the role, methods, and techniques of health education pertaining to hospitals, clinics and patient education. Observation and discussion of clinical activities in the medical center in relation to the process of health education. Ms. Richards

481. Administrative Relationships in Health Education. (Formerly numbered 461.) Lecture, two hours; discussion, two hours. Prerequisites: courses 130, 183, 280, and consent of instructor. Study of administrative concepts; relationships and applicability to health education settings. Responsibility and authority for health education in organizations and other groups. Mr. Washington

482. Practicum in Health Education. (1 or 2 courses) (Formerly numbered 430.) Discussion, two hours; field, six or 18 hours. Prerequisites: courses 182, 280 and consent of instructor. Study of community and group-felt needs as reflected in behavior. Analysis of data for understanding, planning, implementing, and evaluating need-directed health education and medical care programs. Ms. Richards

485. Benefit-Cost Evaluation of Health Programs. (Formerly numbered 459.) Lecture, two hours; discussion, two hours. Prerequisites: courses 100A, 112, Economics 102 or equivalent, and consent of instructor. Cost-benefit and cost-effectiveness principles and techniques employed to evaluate public health progrms and projects. Mr. Rada

495. Teacher Preparation in Public Health. (½ course) Prerequisites: 18 units of cognate courses in area of specialization, and consent of Department Chairman. No applicable on minimum course requirements for a master's degree. Offered on Satisfactory (S)/Unsatisfactory (U) basis only. May be repeated for credit. The Staff

501. Cooperative Program. (½ to 2 courses) Prerequisites: Approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus instructor, Department Chairman and Graduate Dean. To record enrollment in courses taken under cooperative arrangements with neighboring institutions. No more than 8 units may be applied to the minimum total course requirements for a master's degree. No credit allowed toward the minimum five graduate course requirement for a master's degree. Offered on a Satisfactory (S)/Unsatisfactory (U) grade basis only. The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) Prerequisites: graduate standing, consent of the instructor. Individual guided studies under direct faculty supervision. May be repeated for credit; only 1 course (4 units) will count toward the minimum course requirements for the M.P.H.

and M.S. in Public Health degrees. Offered on a letter graded basis only. The Staff

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examination. (½ to 2 courses) Prerequisites: graduate standing, consent of the instructor. May be repeated for credit. May not be used to fulfill any course requirements for the master's or doctor's degrees. Offered on a Satisfactory (S)/Unsatisfactory (U) grade basis. The Staff

598. Master's Thesis Research. (½ to 2 courses) Prerequisite: consent of the instructor. May be repeated for credit. Only one course (4 units) will count toward the minimum total course requirement for the M.P.H. and M.S.P.H. degrees. No credit allowed toward the minimum five graduate course requirement. Offered on a Satisfactory (S)/Unsatisfactory (U) grade basis. The Staff

599. Doctoral Dissertation Research. (½ to 2 courses) Prerequisite: consent of the instructor. May be repeated for credit. May not be used to fulfill any course requirements for a degree. Offered on a Satisfactory (S)/Unsatisfactory (U) grade basis. The Staff

RADIOLOGICAL SCIENCES

(Department Office, BL-428 Center for the Health Sciences)

Leslie R. Bennett, M.D., *Professor of Radiological Sciences.*
John A. Campbell, M.D., *Professor of Radiological Sciences in Residence.*
J. Michael Criley, M.D., *Professor of Radiological Sciences in Residence.*
Richard H. Gold, M.D., *Professor of Radiological Sciences.*
Moses A. Greenfield, Ph.D., *Professor of Radiological Sciences.*
William N. Hanafee, M.D., *Professor of Radiological Sciences.*
DeLores E. Johnson, M.D., *Professor of Radiological Sciences in Residence.*
Joseph Jorgens, M.D., *Professor of Radiological Sciences in Residence.*
David E. Kuhl, M.D., *Professor of Radiological Sciences.*
Norman S. MacDonald, Ph.D., *Professor of Radiological Sciences.*
Ismael Mena, M.D., *Professor of Radiological Sciences in Residence.*
Frederick S. Mishkin, M.D., *Adjunct Professor of Radiological Sciences.*
Lawrence S. Myers, Ph.D., *Adjunct Professor of Radiological Sciences.*
Amos Norman, Ph.D., *Professor of Radiological Sciences and Radiation Oncology.*
Bernard J. O'Loughlin, M.D., Ph.D., *Adjunct Professor of Radiological Sciences.*
Michael E. Phelps, Ph.D., *Professor of Radiological Sciences.*
Robert L. Scanlan, M.D., *Adjunct Professor of Radiological Sciences.*
Richard J. Steckel, M.D., *Professor of Radiological Sciences.*
Joseph Tabrisky, M.D., *Professor of Radiological Sciences.*
Elias G. Theros, M.D., *Professor of Radiological Sciences.*
Daniel J. Torrance, M.D., *Adjunct Professor of Radiological Sciences.*
Richard Wesenberg, M.D., *Acting Professor of Radiological Sciences.*
Milo M. Webber, M.D., *Professor of Radiological Sciences.*
Gabriel H. Wilson, M.D., *Professor of Radiological Sciences (Chairman of the Department).*
Leo G. Rigler, M.D., *Emeritus Professor of Radiological Sciences.*
George V. Taplin, M.D., *Emeritus Professor of Radiological Sciences.*
Zoran L. Barbaric, M.D., *Associate Professor of Radiological Sciences.*
John R. Bentson, M.D., *Associate Professor of Radiological Sciences.*
Marvin B. Cohen, M.D., *Adjunct Associate Professor of Radiological Sciences and School of Medicine.*
James D. Collins, M.D., *Associate Professor of Radiological Sciences.*
J. Duncan Craven, M.D., *Adjunct Associate Professor of Radiological Sciences.*
Jack I. Eisenman, M.D., *Adjunct Associate Professor of Radiological Sciences.*
Martin B. Epstein, Ph.D., *Adjunct Associate Professor of Radiological Sciences.*
L. Stephen Graham, Ph.D., *Adjunct Associate Professor of Radiological Sciences.*
Barbara M. Kadell-Wootton, M.D., *Adjunct Associate Professor of Radiological Sciences.*
Milton Kunin, M.D., *Adjunct Associate Professor of Radiological Sciences.*
Ralph S. Lachman, M.D., *Associate Professor of Radiological Sciences in Residence and Pediatrics.*
Ruthann Pick, M.D., *Adjunct Associate Professor of Radiological Sciences.*
Isaac Reese, Ph.D., *Adjunct Associate Professor of Radiological Sciences.*
Richard F. Riley, Ph.D., *Associate Professor of Radiological Sciences.*
Gerald Robinson, Jr., Ph.D., *Adjunct Associate Professor of Radiological Sciences.*
William F. Sample, M.D., *Associate Professor of Radiological Sciences.*
Heinrich R. Schelbert, M.D., *Associate Professor of Radiological Sciences.*
Harold D. Snow, D.V.M., *Adjunct Associate Professor of Radiological Sciences.*
Marvin Weiner, M.D., *Associate Professor of Radiological Sciences.*
Lawrence W. Bassett, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Marshall E. Bein, M.D., *Assistant Professor of Radiological Sciences.*
John F. Bray, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Sharon E. Byrd, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Nitaya Chitchakkol, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Sachiko Cochran, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Donald R. Eisert, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Gerda Gallob, Ph.D., *Adjunct Assistant Professor of Radiological Sciences.*
Antoinette S. Gomes, M.D., *Assistant Professor of Radiological Sciences.*
Verity S. Grinnell, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Martin Herman, Ph.D., *Assistant Professor of Radiological Sciences and Radiation Oncology in Residence.*
Grant B. Hieshima, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Edward J. Hoffman, Ph.D., *Assistant Professor of Radiological Sciences in Residence.*
Henry S. Huang, D.Sc., *Assistant Professor of Radiological Sciences in Residence.*
Hooshang Kangarloo, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Anthony A. Mancuso, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Charles Mehringer, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Theodore Q. Miller, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Judith Rose, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
William Sample, M.D., *Assistant Professor of Radiological Sciences.*
Dennis Sarti, M.D., *Assistant Professor of Radiological Sciences.*
Toshiuyki T. Tanaka, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Neal Tobochnik, Ph.D., *Adjunct Assistant Professor of Radiological Sciences and Radiation Oncology.*
J. Michael Uszler, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Ramesh C. Verma, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Lalitkumar H. Vora, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Isaac Weintraub, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Robert W. Wilson, M.D., *Assistant Professor of Radiological Sciences in Residence.*
James Winter, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Martin A. Winston, M.D., *Adjunct Assistant Professor of Radiological Sciences.*
Dennis W. Wong, Pharm.D., *Adjunct Assistant Professor of Radiological Sciences.*
Nancy J. Worthen, M.D., *Assistant Professor of Radiological Sciences in Residence.*
Caroline H. Yeager, M.D., *Assistant Professor of Radiological Sciences in Residence.*

•

Louis Adler, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael O. Anderson, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Rolf D. Arndt, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Rajnikant K. Bakhda, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Bruce M. Barack, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Donald de Forest Bauer, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ronald L. Becker, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Daniel S. Berman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Gerald D. Berman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Larry P. Bilodeau, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Harry A. Bishop, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Louis J. Bonann, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael B. Brachman, M.D., *Associate in Radiology of Radiological Sciences.*
Maria C. Bravo-Large, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Richard B. Bridenbaugh, M.D., *Assistant Clinical Professor of Radiological Sciences.*
John D. Buckley, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Earl Budin, M.D., *Associate Clinical Professor of Radiological Sciences.*
Patrick Cahill, M.D., *Assistant Clinical Professor of Radiological Sciences*
Leroy S. Clark, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David E. Cohn, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ian R. Coster, D.V.M., *Lecturer in Radiological Sciences.*
James G. Davis, M.D., *Associate Clinical Professor of Radiological Sciences.*
Donald T. Desilets, M.D., *Associate Clinical Professor of Radiological Sciences.*
Scott H. M. Driscoll, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Adah Mary Duncan, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael M. Edelstein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ben E. Eisenstein, M.D., *Clinical Instructor in Radiological Sciences.*
Harold L. Endlich, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Vincent A. Esposito, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Karl H. Falkenbach, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Vincent R. Fennell, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David O. Findley, Ph.D., *Lecturer in Radiological Sciences.*
Donald T. Fitzgerald, M.D., *Associate in Radiology of Radiological Sciences.*
Ezekiel Freed, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Stan Furmanski, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Jerome J. Gambino, M.D., *Lecturer in Radiological Sciences.*
Manohar P. Gandhi, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Harvey A. Gilbert, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Lionel D. Ginsberg, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David S. Goller, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Robert K. Gray, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Julius H. Grollman, M.D., *Clinical Professor of Radiological Sciences.*
Michael T. Gyepes, M.D., *Clinical Professor of Radiological Sciences.*
Julia E. Halasz, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Darwood B. Hance, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Laurence G. Hanelin, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Oscar Harvey, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Gerald Hassan, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Donald F. Hausknecht, Ph.D., *Lecturer in Radiological Sciences.*
Gail W. Haut, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Samuel B. Haveson, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael Hayes, M.D., *Associate Clinical Professor of Radiological Sciences.*
Edward Helmer, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Richard B. Hoffman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Neal Horn, M.D., *Assistant Clinical Professor of Radiological Sciences.*
John W. Horns, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Margaret A. Ingram, M.D., *Clinical Instructor in Radiological Sciences.*
Peter M. Joyce, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Peter J. Julien, M.D., *Assistant Clinical Professor of Radiological Sciences.*

NOTE: For key to symbols, see page 74

Joseph E. Kennedy, III, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Mitchell S. Komaiko, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Stanley J. Lance, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Robert A. Ledner, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Paul P. Lee, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Norman D. Levine, M.D., *Associate Clinical Professor of Radiological Sciences.*
Bernard S. Lewinsky, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Samuel T. Lim, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Rabbe R. Lindstrom, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Joseph F. Linsman, M.D., *Associate Clinical Professor of Radiological Sciences.*
James F. Mack, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Paul S. Mahoney, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Sulabha Masih, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Edward M. McMonigle, M.D., *Assistant Clinical Professor of Radiological Sciences*
Harvey S. Miller, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Stephen M. Miller, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Jerrold H. Mink, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Sherwin M. Olken, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ronald J. O'Reilly, M.D., *Associate Clinical Professor of Radiological Sciences.*
Theodore T. Ott, *Lecturer (Retired) of Radiological Sciences.*
Joseph Parks, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Joseph Patterson, M.D., *Assistant Clinical Professor of Radiological Sciences.*
George Peters, M.D., *Clinical Instructor of Radiological Sciences.*
Jonathan Po, M.D., *Assistant Clinical Professor of Radiological Sciences.*
William L. Pogue, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Saar A. Porrath, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Barry D. Pressman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David I. Rabinov, M.D., *Associate Clinical Professor of Radiological Sciences.*
Burton I. Rein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Robert T. Reinke, Jr., M.D., *Assistant Clinical Professor of Radiological Sciences.*
Garry D. Roghair, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ivan W. Rosen, M.D., *Associate in Radiology of Radiological Sciences.*
Michael J. Ryan, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Joseph R. Scalley, M.D., *Assistant Clincial Professor of Radiological Sciences.*
Arthur F. Schanche, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Daniel H. Schimmel, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Alfred L. Schmitz, M.D., *Associate Clinical Professor of Radiological Sciences.*
Paul K. Segrist, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Roger Sevrin, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael S. Shaub, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Ellis L. Silberman, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Lois J. Smart, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Thomas F. Sneed, M.D., *Assistant Clinical Professor of Radiological Sciences.*
James L. Steffens, M.D., *Clinical Instructor of Radiological Sciences.*
Mark A. Stein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David Stern, M.D., *Assistant Clinical Professor of Radiological Sciences.*
H. Jerome Stulberg, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Richard J. Sukov, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Edgar L. Surprenant, M.D., *Associate Clinical Professor of Radiological Sciences.*
Frederick E. Taber, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Paddy Taber, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Doina Tanasescu, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Herbert Toch, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Stanford B. Trachtenberg, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Harry T. Vanley, M.D., *Clinical Instructor of Radiological Sciences.*
Arnold Vinstein, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael S. Wagner, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Michael H. Weller, M.D., *Associate Clinical Professor of Radiological Sciences.*
Morton Wexler, M.D., *Assistant Clinical Professor of Radiological Sciences.*
David W. Wilder, M.D., *Assistant Clinical Professor of Radiological Sciences.*
Henry S. Williams, M.D., *Associate Clinical Professor of Radiological Sciences.*
Gerald I. Winkler, M.D., *Clinical Instructor of Radiological Sciences.*
Ralph Wolfstein, M.D., *Associate Clinical Professor of Radiological Sciences.*
John H. Woodruff, Jr., M.D., *Associate Clinical Professor of Radiological Sciences.*
Duane A. Young, M.D., *Assistant Clinical Professor of Radiological Science.*
Norman Zheutlin, M.D., *Clinical Professor of Radiological Sciences.*
Arthur S. Zimmerman, M.D., *Clinical Instructor of Radiological Sciences.*

Requirements for Admission to Graduate Status

Candidates for admission to graduate status in the Department of Radiological Sciences must meet the general requirements set by the Graduate Division for admission to such status.

Areas of Study. Study in the fields of radiation physics, radiation biology, and radiation chemistry with applications in nuclear medicine, radiation therapy, and diagnostic radiology will be open to qualified students.

Requirements for the Degree of Master of Science in Medical Physics

General University Requirements. Candidates for the Master of Science degree in Medical Physics must meet the general requirements set by the Graduate Division for this degree. The candidate must elect the Thesis Plan.

Departmental Requirements. The student must complete radiology courses in the three clinical rotations (Nuclear Medicine, 202A; Diagnostic Radiology, 202C; and Radiation Therapy, 202D), and the necessary prerequisites. Additional courses may be required. The student should have an appropriate background in physics, chemistry, biology, and mathematics.

Requirements for the Doctoral Degree in Medical Physics

General University Requirements. Candidates for the Doctoral Degree in Medical Physics must meet the general requirements set by the Graduate Division for this degree. A series of written and oral examinations are required before advancement to candidacy.

Departmental Requirements. (1) Advancement to Candidacy. Advancement to candidacy is granted only after the student has passed preliminary written screening examinations and a qualifying oral examination in the physical, biological, and chemical foundations of medical physics. (2) Normally, graduate students will be expected to take courses 200, 202, 204, 206, 207, 208, 260, and 266. Completion of additional courses may be recommended.

The Doctorate in Medical Physics is not granted merely upon completion of routine requirements as to examinations, courses, and dissertation; fulfillment of such requirements is a prerequisite. The Ph.D. will be granted only to students who have clearly demonstrated both an adequate grasp of a broad field of knowledge and an ability to contribute to that field of knowledge by original and independent research.

Graduate Courses

199. Directed Individual Study or Research in Medical Physics for Undergraduate Students. (½ to 1 course) Prerequisite: consent of the Graduate Adviser of Medical Physics. Directed individual study in Medical Physics for undergraduate students. Student must submit written proposal outlining study or research to be undertaken. This should be worked out in consultation with the faculty member involved prior to the beginning of the quarter. The Staff

200A. Physics and Chemistry of Nuclear Medicine. Prerequisite: consent of instructor. Nuclear structure, statistics of radioactive decay, nuclear radiations and their interaction with matter, nuclear decay processes, nuclear reactions, dosimetry, and compartment models. The physical and chemical properties of radioactive preparations used in nuclear medicine. The Staff

200B. Instrumentation in Nuclear Medicine. Prerequisite: course 200A. Introduction to nuclear medicine instrumentation including exterior probe systems, well scintillation detectors, liquid scintillation counters, scanners and cameras; dosimetry of internally administered radioisotopes. Mr. Graham

201. Environmental Radiations. The sources, physical properties, and biological hazards of ionizing radiations, ultraviolet and laser light, and microwave and acoustic radiations in the environment. Social benefit vs. technological risk will be evaluated. Mr. Norman

202A-202D. Applications of Medical Physics to Clinical Problems. Prerequisite: course 200C or consent of instructor. Selected studies in the clinical use of radiosotopes.

202A-202B. Nuclear Medicine. The Staff

202C. Diagnostic Radiology. The Staff

202D. Radiation Therapy. The Staff

202E-202F. Application of Medical Physics to Clinical Problems: Radiation Therapy. Prerequisite: course intended for physicians only. Lecture/seminar discussion of dosimetric calculations and measurements involving cases under treatment. Written reports on representative problems selected from current literature and/or clinical experience. The Staff

203. Physics of Radiation Therapy. Radiation quantities and units. Radiation dosimetry, clinical applications in treatment planning. Methods of measuring radiation quantities. The calibration of radiation therapy equipment. The Staff

204. Introductory Radiation Biology. Lecture. Effect of ionizing radiation on chemical and biological systems. Mr. Riley

205. Physics of Diagnostic Radiology. Production of x-rays, basic interactions between x-rays and matter, x-ray system components, physical principles of medical radiography, radiographic image quality, fluoroscopy, image intensifiers, special procedures, x-ray protection. Laboratory experiments will illustrate the basic theory. Mr. Greenfield

207. Radiation Protection and Health Physics. Concepts in radiation protection, the recommendation of the national council on radiation protection and measurements, the maximum permissible dose levels. Shielding calculations. The layout and design of radiographic installation. The Staff

208A-208B. Medical Physics Laboratory. Prerequisite: course 206A and 206B; or consent of instructor. Techniques for measuring ionizing and non-ionizing radiation, applications to problems in radiological sciences. Mr. Herman

210. Imaging in Diagnostic Radiology. Prerequisites: courses 200A and 200B, 203, 205. Review of Fourier analysis measurement of the LSF and MTE. Radiographic mottle and the Wiener Spectrum. Physics, mathematics, and engineering of imaging devices in conventional radiography, computerized tomography, ultrasound, and nuclear medicine. Detection of faint shadows, the ROC curve. The Staff

M216. Computer and Biomathematical Applications in Radiological Sciences. (Same as Biomathematics M216.) Prerequisite: Biomathematics 210 and elementary calculus are recommended. Computer and biomathematical methods will be presented that relate to dosimetry, treatment strategies, biological effects of radiation, and laboratory research in radiotherapy and radiobiology. Mr. Frey, Ms. Newton

260A-260B. Seminar in Medical Physics. (½ course each) Seminar. Joint critical study by students and instructors of the fields of knowledge pertaining to medical physics. Periodic contributions are made by visiting scientists. Research in progress is discussed. Mr. Norman, Mr. Riley

266A-266B-266C. Seminar in Nuclear Medicine. (½ course each) Seminar. Topics of current interest in nuclear medicine. Seminar intended for physicians, radiation physicists, and graduate students. The Staff

268. Seminar in Radiopharmaceuticals. (½ course) Current concepts in radioactive pharmaceutical agents in clinical use, including promising investigational agents. Utilization of short-lived, cyclotron produced isotopes in radiopharmaceuticals. The rational design of new radiodiagnostic agents. Mr. Robinson

481. Angiographic Techniques. (¼ course) Prerequisite: consent of the instructor. Laboratory. Beginning Radiology residents will be taught basic techniques of angiographic procedures, utilizing animals. Mr. Snow

495. Special Studies in Medical Physics. Teaching assistance in graduate laboratory courses under the supervision of a member of the faculty. May be taken on a "Satisfactory" (S) or "Unsatisfactory" (U) basis only. The Staff

596. Research in Medical Physics. (1 to 3 courses) Directed individual study of research. May be taken any number of times for letter grades; only one course may be used for M.S. credit. The Staff

597. Preparation for the Qualifying Examination for the Ph.D. May be taken for one quarter only, on a "Satisfactory" (S) or "Unsatisfactory" (U) basis, and is not creditable for the M.S. degree. The Staff

598. Research for the Preparation of the Master's Thesis. May be taken any number of times on a "Satisfactory" (S) or "Unsatisfactory" (U) basis. A maximum of two courses, or 598 and 596 combined, may be used for M.S. credit. The Staff

599. Research for Dissertation. (1 to 3 courses) Prerequisite: satisfactory performance on screening examinations. Research for and preparation of the doctoral dissertation. May be taken any number of times on a "Satisfactory" (S) or "Unsatisfactory" (U) basis. The Staff

ROMANCE LINGUISTICS AND LITERATURE (INTERDEPARTMENTAL)

Margherita Cottino-Jones, Ph.D., *Professor of Italian.*
Claude L. Hulet, Ph.D., *Professor of Spanish and Portuguese.*
C. P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*
Carroll B. Johnson, Ph.D., *Associate Professor of Spanish.*
Stephen D. Werner, Ph.D., *Associate Professor of French.*
Delphine Perret, Docteur IIIe cycle, *Assistant Professor of French.*
Edward F. Tuttle, Ph.D., *Associate Professor of Italian and Romance Linguistics (Chairman).*

The integration of linguistic and literary knowledge is taken to be one of the highest aims of this interdepartmental program.

Requirements for the Master's Degree

General Requirements. See Master's Degrees. The Program favors the comprehensive examination plan, but will approve M.A. theses for exceptionally well-qualified students under special circumstances.

1. *Admission Requirements.* The B.A. in French, Italian, Portuguese, or Spanish, or their equivalent, with a GPA in upper division courses of 3.00 or better. Students admitted from elsewhere whose preparation is considered deficient in view of their intended specialization are required to make up their deficiences by taking specified upper division courses. Such courses may be taken concurrently with graduate courses, but they do not count toward the course requirements for the M.A. Three letters of recommendation are required. During his first graduate year, the student who knows only the language of his major should prepare himself in at least one other Romance language so he can take courses in his minor no later than in his second year of graduate study.

2. *Course Requirements.* The M.A. program permits specialization in either Linguistics or Literature and will include a major and a minor. Twelve courses are the minimum requirement of which six courses (at least five of them graduate) must be in the student's major language, with specialization either in Linguistics or in Literature. One course in the history or development of the major language is highly recommended. At least three courses should be in the minor language, also with specialization in either Linguistics or Literature. The remaining three courses should be selected in consultation with the guidance committee so as to be logically supportive of the student's major field of study. Each individual program will be worked out in close consultation with the guidance committee. Course 596 may be included twice. Linguistics 100 is required of all students majoring in the linguistics field.

3. *Guidance.* Each new graduate student must make an appointment with the Chairman during the week preceding the start of classes to discuss general requirements and to decide on a program of courses for the quarter. Following this initial interview, the student is required to see his advisor at least once a quarter for review of his progress towards the degree. He must have his study list approved by his advisor each quarter before it is signed by the Chairman of the program. A guidance committee will be constituted for each student upon declaration of his field of specialization and in no case later than the end of the first quarter in the program.

4. *Language Requirement.* In addition to the Romance language of major interest and the Romance language of minor interest, candidates are required to have either Latin 3 or the equivalent, or Italian 3 or the equivalent (provided Italian is not their major), whether they specialize in Linguistics or in Literature. The language requirement must be completed no later than the quarter before the quarter in which the student expects to receive his degree.

5. *Comprehensive Examination Plan.* The comprehensive examination is administered by three members of the student's guidance committee, appointed by the Chairman. Two of the three committee members will represent the languages and field of the student's major and first minor. The written comprehensive examination, consisting of one 4-hour examination in the major field, one 2-hour examination in the minor field, and one oral examination not to exceed one hour, will be given each quarter in the second week prior to final examinations. The examination is graded by the comprehensive examination committee, whose decision is final. If a student fails the examination or any part thereof, he may retake the failed portions once when the examination is next regularly offered.

6. *Thesis Plan.* A student may petition for authorization to write an M.A. thesis only after completion of six courses which count toward the degree. It is the responsibility of the student to choose an appropriate topic and find a professor willing to direct the thesis. He then petitions the program for authorization to proceed. The program Chairman first examines the petition and then presents it to the Interdepartmental Committee for approval or denial by a majority vote. If the petition is approved, a thesis committee is appointed which consists of a chairman in the field of the thesis and two other members of the sponsoring departments. After completion of the thesis, the candidate must pass a two-hour oral examination testing his knowledge of the field of his thesis and his general competence. Only those students who attain a 3.5 grade point rating in the examination will be encouraged to proceed to candidacy for the Ph.D. degree.

Requirements for the Ph.D. Degree

General Requirements. See Doctoral Degrees.

Departmental Requirements.

1. *Fields of Specialization and Course Requirements.* Romance Linguistics and Literature Program: Linguistics or Literature. In each case the Ph.D. program will consist of a major and two minors. These courses (a minimum program) will be distributed as follows: Major – 5 courses, First Minor – 3 courses, Second Minor – 2 courses. At least one seminar is required in each of the three fields. In addition to those required for the master's degree, or equivalent, at least ten other graduate courses, of which no more than two 596 courses may apply, as well as such courses as his guidance committee may prescribe, are required. Linguistics 100 is required of all students majoring in the linguistics field.

2. *Linguistics.* A student specializing in Linguistics may take as his major field one of the following: (1) The present-day grammar of the Romance language of his major interest and its relation to the grammar of its sister languages and to language in general; (2) The development of the Romance language of his major interest in relation to its sister languages (and possibly other interrelated cultural aspects) from the perspective of historical linguistics; (3) The genetic and typological relationships of the Romance languages to other Indo-European languages and to language in general. The two minors may be other Romance languages, or one other Romance language plus a field of Romance literature.

3. *Literature.* The student specializing in Literature may take as his major field one of the following fields in the literatures of at least two Romance languages: (1) Early Romance Literature and Philology; (2) Renaissance and Baroque; (3) Modern Literature, preferably with emphasis in one century. The first minor may be one of the preceding fields not chosen for the major. The second minor may be the same field or a new field in another Romance language; or some other related field in the major language or in Romance Linguistics.

4. *Language Requirement.* In addition to the minimum of two Romance languages required in the student's program, Latin 3 or Italian 3, or the equivalent, is required of all students in the interdepartmental program. Students choosing options 2 or 3 in Linguistics or option 1 in Literature also require German, whereas those choosing option 1 in Linguistics or option 2 or 3 in Literature will require another foreign language to be determined by the guidance committee in accordance with the individual's program. A minimum level of acceptable accomplishment in non-Romance languages is passing the ETS test, where such test exists. In languages where there is no such test, passing an examination administered by the corresponding language department fulfills the requirements. This foreign language requirement may also be met by evidence of completion of two years of college level courses in the language with Grade B or better, or by evidence of fulfillment of the foreign language requirement in connection with an M.A. obtained elsewhere. The foreign language requirement must be satisfied no later than the quarter before the quarter in which the qualifying examinations are taken.

5. *Admission Requirements and Guidance.* Entering students whom the Chairman determines to have obtained the M.A. in French, Italian, Luso-Brazilian Language and Literature, Spanish or the equivalent with distinction are automatically eligible for admission to the Ph.D. program and may proceed

NOTE: For key to symbols, see page 74

to form their guidance committee; those whose M.A. program registers deficiencies in scope or quality will be required to make up those deficiencies and complete three graduate courses, after which their eligibility for admission to the Ph.D. program will be determined by the Interdepartmental Committee.

The guidance committee is composed of a chairman, who represents the student's major field of study and under whom the student proposes to write his dissertation, and two members representing the minor fields, all members belonging to the sponsoring departments. The chairman of the committee will normally be a tenured professor. It is the student's responsibility to constitute the committee and to secure the individual member's consent, which will be transmitted to the Chairman in writing. As soon as possible after advancement to candidacy, the student meets with his guidance committee for the purpose of working out his program of courses and setting a tentative date for the qualifying examinations. The guidance committee has final authority to prescribe the course of study in each individual case.

Students working toward the Ph.D. who have not yet been authorized to form their guidance committee are advised by the Chairman. Each new graduate student must make an appointment which will be scheduled during the week preceding the start of classes. During the interview the student and advisor discuss general requirements and decide on a program of courses for the quarter. Following this initial interview, the student is required to see his advisor at least once a year for a review of his program towards the degree. He must have his study list approved by his advisor every quarter.

Students who have formed their guidance committee are advised by the chairman of that committee, who, moreover, must approve their study list each quarter before it is signed by the Chairman of the program.

6. *Qualifying Examinations.* At least two months prior to the date of the qualifying examinations, the student proceeds to form his doctoral committee, consisting of the three members of the guidance committee, plus two additional members from outside the staffs of the sponsoring departments, which will also pass on the student's written and oral examinations. The qualifying examinations are given during the fall, winter and spring quarters and consist of (a) a three-hour written examination in the major field; (b) a two-hour examination in the first minor; (c) a one-hour examination in the second minor; and (d) a two-hour oral examination in the three fields at which time the student's prospectus for the dissertation is also discussed and approved. Failed portions of the examination may be retaken once after such remedial preparation as the committee may specify.

7. *The Dissertation.* The dissertation may be on any subject within the general area of Romance Linguistics and Literature. If more than five calendar years elapse between advancement to candidacy and the presentation of the dissertation, the program may require the student to revalidate his qualifying examination.

In consultation with the appropriate advisor(s), courses should be selected with an eye to the organic relationship between them, preferably among those listed below and/or their prerequisites:

Introduction to Romance Studies
(Spanish M200)
(Italian 201)

Courses in Linguistics

Grammatical Theory:
(Linguistics 201A-201B, 206A-206B)

Historical Linguistics:
(Linguistics 202A-202B, 203)

Synchronic Linguistics

Advanced Grammar:
(French 201A-201D, 206)
(Spanish 204A-204B, 206)
(Italian 259B)
(Portuguese 204A-204B)

Studies in Linguistics and Dialectology:
(French 261, 262)
(Spanish 256A-256B)

Historical Linguistics

The Development of the Romance Languages:

Northern Gallo-Romance:
(French 204A-204B)

Southern Gallo-Romance:
(French 215E)

Hispano-Romance:
(Spanish M203A-203B)

Italo-Romance:
(Italian 259A)

Romance Dialectology:
(Italian 259C)
(Spanish 209)

Indo-European Linguistics:
(Indo-European Studies 210, 280A-280B)

Romance Linguistics:
(Linguistics 225G)

Medieval Latin:
(Latin 231A-231B)

Vulgar Latin:
(Latin 232)

History of the Latin Language:
(Latin 240)

Italic Dialects and Latin Historical Grammar:
(Latin 242A-242B)

Later Medieval Latin Palaeography and Manuscripts, 1100-1500:
(History 224)

Studies in the History of the Romance Languages:

Gallo-Romance:
(French 215A)

Hispano-Romance:
(Spanish M251)

Italo-Romance:
(Italian 259A-259B-259C, 210A)

Courses in Literature

The Intellectual Background of Romance Literature:
(French 205A-205C)

Studies in Medieval Latin Literary History:
(History 222A-222B)

Literary Criticism:
(French 203A-203B-203C)
(Spanish M201)
(Italian 205A-205B)

Studies in the History of Ideas:
(French 260A-260B)

Studies in Literary Criticism:
(French 258A-258B)

Studies in Philosophy and Literature:
(French 259A-259B)

Early Romance Literature

Early Romance Literature:
(French 215B-215E)
(Spanish 222-223, Portuguese 242A)
(Italian 210B-210C, 214A-214G, 215A-215B-215C)

Petrarca:
(Italian 214D, 251)

Studies in Early Romance Literature:
(French 250A-250B)
(Spanish 262A-262B-262C)
(Italian 250A-250D, 252)

Renaissance and Baroque Literature

Renaissance and Baroque Literature:
(French 216A-216H, 217A-217I)
(Spanish 224-226, 237, Portuguese 242A and 243A)
(Italian 216A-E, 217A-217C)

Cervantes:
(Spanish 227)

Studies in Renaissance and Baroque Literature:
(French 251A-251B, 252A-252B, 253A-253B)
(Spanish 264A-264D)
(Italian 253A-253C, 255A-255B)

Modern Romance Literature

The XVIIIth Century:
(French 218A-218D)
(Spanish 230 and 239)
(Italian 218A-218E)
(Portuguese 242B, 243A)

Rousseau:
(French 218B-218C)

The XIXth Century:
(French 219A-219K)
(Spanish 231 and Portuguese 242B and 243B)
(Italian 219A-219F)

The XXth Century:
(French 220A-220P, 221A-221D)
(Spanish 232-235 and 240-245, and Portuguese 242C and 243C)
(Italian 220A-220C)

Studies in the XVIIIth Century:
(French 254A-254B)
(Spanish 277)
(Italian 256A-256B)

Studies in the XIXth Century:
(French 255A-255B)
(Spanish 270A-270B, 278)
(Italian 257A-257B)

Studies in the XXth Century:
(French 256A-256B, 257A-257B)
(Spanish 272A-272D, 280A-280D)
(Italian 258A-258B)

Genre Studies:
Novel: Portuguese 252A, 253A
Poetry: Portuguese 252B, 253B
Theater: Portuguese 252C, 253C
Essay and Short Story: Portuguese 252D, 253D

SLAVIC LANGUAGES AND LITERATURES

(Department Office, 115 Kinsey Hall)

Aleksandar Albijanić, Ph.D., *Professor of South Slavic Languages and Literatures.*
Henrik Birnbaum, Ph.D., *Professor of Slavic Languages and Literatures.*
Thomas Eekman, Ph.D., *Professor of Slavic Literatures.*
Michael S. Flier, Ph.D., *Professor of Slavic Languages and Literatures (Chairman of the Department).*
Marija Gimbutas, Ph.D., *Professor of European Archaeology.*
Kenneth E. Harper, Ph.D., *Professor of Russian Literature.*
Vladimir Markov, Ph.D., *Professor of Russian Literature.*
Michael Shapiro, Ph.D., *Professor of Russian Linguistics and Poetics.*
Dean S. Worth, Ph.D., *Professor of Slavic Languages.*
Peter Hodgson, Ph.D., *Associate Professor of Russian Literature.*
Rochelle Stone, Ph.D., *Associate Professor of Polish and Russian Literature.*
Alan H. Timberlake, Ph.D., *Associate Professor of Slavic Languages.*
Michael Heim, Ph.D., *Assistant Professor of Czech and Russian Literature.*

•

Edward Denzler, M.A., *Lecturer in Russian.*

Preparation for the Major

Required courses: Russian 1, 2, 3, 4, 5, 6, Slavic 99A-99B. Note: courses Russian 119 and 120A-120B may be taken in the sophomore year.

The Major

Required courses: Russian 101A-101B-101C, 111A-111B-111C, 119, 120A-120B, 121, 122, 123; three courses chosen from Russian 130A-130B-130C, 134, 140A-140D, 150; one course chosen from Russian 124A-124F, or 126; and any two electives chosen from Russian 102A-102B-102C (when taken in conjunction with Russian 112A-112B-112C), 124A-124F, 125, 126, 130A-130B-130C, 134, 140A-140D,

150, 193, Polish 152A-152B, Czech 155A-155B, Serbo-Croatian 154A-154B.

Students intending to continue into graduate school should note that several graduate courses (numbered below 220) may be taken by qualified seniors with permission of the instructor and the Graduate Advisor.

Admission to Graduate Status

The completion of the undergraduate major or its equivalent is required. Students entering from other institutions will be asked to make up any deficiencies before being admitted to most graduate courses.

Requirements for the Master's Degree

1. For the general requirements, see Master's Degrees. The Department follows the Comprehensive Examination Plan. The M.A. is weighted towards either Linguistics or Literature, but all candidates are expected to have a sound general knowledge of both Russian linguistics and Russian literary history.

2. Application for advancement to candidacy must be made no later than the second week of the quarter in which the M.A. examinations are to be taken, but will be accepted only if the candidate has satisfied the foreign language requirement in French or German and has passed the Russian Language Proficiency Examination.

3. *Foreign Language Requirement.* The candidate has the option of satisfying the foreign language requirement in French or German by one of the following methods: 1) Pass the Educational Testing Service examination with a score of 500 or more points, 2) Pass the Departmental reading examination, 3) Complete Course 5 in French or German with a grade of "B" or better (equivalent university-level course work in French or German taken no more than two years prior to the candidate's admittance into the Department may be used to satisfy this requirement at the discretion of the Graduate Advisor). The foreign language requirement must be satisfied no later than the end of the quarter preceding the quarter in which the M.A. examinations are to be taken.

4. *Russian Lanuage Proficiency Examination.* The candidate must pass a Departmental Russian language proficiency examination no later than the end of the quarter preceding the quarter in which the M.A. examinations are to be taken. This examination, which tests proficiency in translating from English to Russian and vice-versa, may be retaken each quarter until the grade "Pass" is achieved.

5. *Course Requirements.* Required of all M.A. candidates: Slavic 201; Russian 102A-102B-102C, 112A-112B-112C, and 204. In addition, candidates for the M.A. (Linguistics) must take Slavic 202 and two courses chosen from Russian 211, 212, 213; candidates for the M.A. (Literature) must take Russian 211, 212 and 213, and one other literature course in the Department. Note: most of the courses required for the M.A. are open to qualified seniors with the permission of the instructor and the Graduate Advisor.

6. A written examination, based on course work and the Departmental reading list, will cover either (a) Linguistics, including a thorough knowledge of Russian phonology and grammar and an acquaintance with Comparative Slavic Linguistics, Old Church Slavic, and the history of the Russian literary language; or (b) Literature, including an acquaintance with the entire history of Russian literature from its origins to the present and a thorough knowledge of the major developments and figures of the nineteenth and early twentieth centuries.

7. A final oral examination will test the student in the fields of his major interest and on his general background. It will be conducted partly in Russian.

8. *Statute of Limitations.* The Department does not encourage part-time or non-resident M.A. candidates. The M.A. examinations must be taken within two calendar years from the time of admission to the Graduate Division (time spent in removing deficiencies, to a maximum of one year, does not count toward this two-year period).

9. Students who fail either the written or the oral examination may retake it once, not later than one calendar year after the first attempt.

10. A grade of "High Pass" on the M.A. examinations is one of the conditions for admission to the Department's doctoral program (see below). M.A. candidates who intend to continue toward the Ph.D. should note that courses numbered 220-239 which are required for the Ph.D. may be taken before completion of the M.A.

Requirements for the Doctor's Degree

1. For the general requirements, see Graduate Division. The Department's program envisages specialization in either Linguistics or Literature, with Russian as the principal language and literature respectively. By special arrangement, students can specialize in a language or literature other than Russian.

2. *Admission to the doctoral program.* Students may make formal application to the Department for admission to the doctoral program when they have: (1) passed the UCLA M.A. examination with a grade of "High Pass"; (2) satisfied the foreign language requirement in both French and German; (3) taken one year (or the equivalent) of a second Slavic language. Students who received a grade lower than "High Pass" on the UCLA M.A. examination, and entering students with an M.A. from other institutions, must (re)take the M.A. examination within one year as a doctoral screening examination, success in which is required for admission to the doctoral program.

3. *Foreign Language Requirement.* The candidate must satisfy the foreign language requirement in the second language, French or German, whichever was not used to satisfy the M.A. foreign lanugage Requirement. The student has the option of satisfying the requirement by one of the following methods: 1) Pass the Educational Testing Service examination with a score of 500 or more points, 2) Pass the Departmental reading examination, 3) Complete Course 5 in French or German with a grade of "B" or better (equivalent university-level course work in French or German taken no more than two years prior to the candidate's admittance into the Department may be used to satisfy this requirement at the discretion of the Graduate Advisor). The foreign language requirement must be satisfied no later than the end of the quarter preceding the quarter in which the Ph.D. examinations are to be taken. A student proposing to work toward the Ph.D. in Slavic linguistics may, upon Departmental approval, be permitted to substitute for the 500-point passing score in the second of his French and German examinations (i.e., in the examination in either French or German), a score of 450 points, plus a reading knowledge of one other language important to the study of Slavic philology, namely: Finnish, Hungarian, Latvian, Lithuanian, Romanian, or a Turkic language relevant to East or South Slavic historical linguistics, such reading knowledge to be tested in a manner prescribed by the Department Chairman. A reading knowledge of two such languages may, by the same procedure, be substituted for the entire French or (more rarely) German examination.

4. *Course Requirements.* For candidates in Linguistics: Slavic 222, 223, 242, Russian 241, 242, 243A, 265, and one seminar. For candidates in Literature: two courses chosen from Slavic 230A-230B-230C; Russian 251A; and three seminars. Recommended preparation: candidates specializing in Linguistics are advised to take or audit courses 100, 103, 110, 120A-120B, M150, in the Department of Linguistics; candidates specializing in Literature are advised to acquire a sound general knowledge of modern Western European literature.

5. *Qualifying Examinations.* The nature and scope of a series of written qualifying examinations will be prescribed for each candidate. All candidates are expected to have a sound general knowledge of both Slavic philology and Russian literary history, at least equivalent to that required for the M.A. at UCLA. In addition, candidates specializing in Linguistics and Literature, respectively, will be expected to demonstrate a more detailed mastery of either: (a) Linguistics, including Old Church Slavic, Comparative Slavic Linguistics, and the structure and history of one major and two minor Slavic languages (one from each of the Eastern, Western and Southern groups), which presupposes knowledge equivalent to one year's study of a second and third Slavic language; or (b) Literature, including the entire body of Russian literature from its origins to the present, and a basic knowledge of comparative Slavic literary history, which presupposes a knowledge of the major figures and developments in the literature of at least one Slavic country other than Russia.

6. Students who fail either the written or the oral qualifying examination may retake it once, not later than one calendar year after the first attempt.

7. *Slavic Colloquium Requirement.* The candidate is required to deliver a formal lecture in the Slavic Colloquium no later than two calendar years after advancement to candidacy.

8. *Statute of Limitations.* The qualifying examinations must be taken within two years of the date of admission to the doctoral program. The dissertation must be completed within three calendar years of the date when the qualifying examinations are passed.

Slavic

99A-99B. Slavic Peoples and Cultures. Three hours weekly. 99A. Prehistoric period and migrations of the Slavs. Beginnings of Slavic literacy. Cultural history of the Western and Southern Slavs. 99B. Cultural history of Russia, including the Ukraine and Belorussia. The Staff

177. Baltic Languages and Cultures. (1/2 course) Two hours weekly. A general survey of the peoples speaking Old Prussian, Lithuanian, and Latvian; their linguistic, historical and ethnic affiliations. Mrs. Gimbutas

M179. Baltic and Slavic Folklore and Mythology. (Same as Folklore M126.) Three hours weekly. A general course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities. Mrs. Gimbutas

199. Special Studies. (½ to 2 courses) No scheduled hours. Prerequisite: senior standing and consent of instructor. The Staff

Graduate Linguistic Courses

201. Introduction to Old Church Slavic. Three hours weekly. Introduction to phonology and grammar; readings. Required for the M.A. (Linguistics, Literature). The Staff

202. Introduction to Comparative Slavic Linguistics. Three hours weekly. Introduction to the comparative phonology and grammar of the Slavic languages. Required for the M.A. (Linguistics). The Staff

222. Introduction to Western Slavic Languages. Three hours weekly. Prerequisite: course 202. Recommended preparation: Czech 102A-102B-102C or Polish 102A-102B-102C. Introduction to the structure and history of the Western Slavic languages. Required for the Ph.D. (Linguistics). The Staff

223. Introduction to Southern Slavic Languages. Three hours weekly. Prerequisite: course 202. Recommended preparation: Serbo-Croatian 103A-103B-103C. Introduction to the structure and history of the Southern Slavic languages. Required for the Ph.D. (Linguistics). The Staff

224. Introduction to Ukrainian and Belorussian. Three hours weekly. Prerequisite: course 202. Introduction to the history and structure of Ukrainian and Belorussian as contrasted to Russian. The Staff

NOTE: For key to symbols, see page 74

241A-241B. Advanced Old Church Slavic. Three hours weekly. Prerequisite: course 201. 241A. Advanced readings in canonical texts. 241B. East, West and South Slavic recensions of Church Slavic. The Staff

242. Comparative Slavic Linguistics. Three hours weekly. Prerequisite: course 202. Indo-European to Common Slavic and the development of Common Slavic. Required for the Ph.D. (Linguistics). The Staff

251. Introduction to Baltic Linguistics. Three hours weekly. Prerequisite: course 202 recommended. Introduction to Baltic linguistics, with special reference to Baltic as a member of the Indo-European family and to the relationship between Baltic and the Slavic group. The Staff

261. Slavic Paleography. Three hours weekly. Prerequisite: course 201. Introduction to Slavic paleography: inscriptions, birchbark letters, Glagolitic and Cyrillic texts. The Staff

262A-262B. Western Slavic Linguistics. Three hours weekly. Prerequisite: course 222. 262A. Lekhitic. 262B. Czechoslovak, Sorbian. The Staff

263A-263B. Southern Slavic Linguistics. Three hours weekly. Prerequisite: course 223. 263A. Serbo-Croatian, Slovene. 263B. Bulgarian, Macedonian. The Staff

281. Seminar in Slavic Linguistics. Three hours weekly. Selected topics in comparative and historical Slavic linguistics. May be repeated for credit with consent of the instructor and Graduate Advisor. The Staff

282. Seminar in Structural Analysis. Three hours weekly. Selected topics. May be repeated for credit with consent of the instructor and Graduate Advisor. The Staff

Graduate Literature Courses

230A-230B-230C. Comparative Slavic Literature. Three hours weekly. Recommended preparation: upper division courses in Czech, Polish, Russian and Yugoslav literatures. 230A. Middle Ages through Baroque, 230B. Classicism to Romanticism. 230C. Realism to Modernism. Two quarters required for the Ph.D. (Literature). The Staff

290. Seminar in Comparative Slavic Literature. Three hours weekly. Prerequisites: courses 230A-230B-230C. Selected topics. May be repeated for credit with consent of the instructor and the Graduate Advisor. The Staff

295. Seminar in Literary Analysis. Three hours weekly. Selected topics. The Staff

Individual Study and Research

596. Directed Individual Study or Research. (½ to 2 courses) Prerequisite: approval of the instructor and the Graduate Advisor. The Staff

597. Preparation for the Comprehensive Examination for the Master's Degree or the Qualifying Examination for the Ph.D. (½ to 2 courses) Prerequisite: consent of the instructor and the Graduate Advisor. The Staff

599. Research for Dissertation. (½ to 2 courses)

Bulgarian

103A-103B-103C. Elementary Bulgarian. Five hours weekly. Basic course in the Bulgarian language. The Staff

130. Introduction to Bulgarian Civilization. Three hours weekly. An introductory survey of the social and cultural institutions of the Bulgarian people and their historical background. The Staff

Czech

102A-102B-102C. Elementary Czech. Five hours weekly. Basic course in the Czech language. The Staff

102D-102E-102F. Advanced Czech. Three hours weekly. Prerequisite: course 102C. The Staff

155A-155B. Czech Literature. Three hours weekly. Lectures and reading in English. 155A. Survey of Czech literature from the Middle Ages to the present. 155B. Selected topics. The Staff

Polish

102A-102B-102C. Elementary Polish. Five hours weekly. Basic course in the Polish language. The Staff

102D-102E-102F. Advanced Polish. Three hours weekly. Prerequisite: course 102C. The Staff

152A-152B. Survey of Polish Literature. Three hours weekly. Lectures and readings in English. 152A. From the Middle Ages to Romanticism. 152B. From Realism to the present. The Staff

160. Polish Romanticism. Three hours weekly. Lectures and readings in English. Comparison of Polish Romanticism with that of other Slavic and Western European countries. The Staff

280. Seminar in Polish Literature. Three hours weekly. Selected topics in Polish prose, poetry and drama. The Staff

Russian

Language Courses

1. Elementary Russian. Five hours weekly plus one hour per week in laboratory. The Staff

2. Elementary Russian. Five hours weekly plus one hour per week in laboratory. The Staff

3. Elementary Russian. Five hours weekly plus one hour per week in laboratory. The Staff

4. Intermediate Russian. Five hours weekly plus one hour per week in laboratory. The Staff

5. Intermediate Russian. Five hours weekly plus one hour per week in laboratory. The Staff

6. Intermediate Russian. Five hours weekly plus one hour per week in laboratory. The Staff

10A-10B-10C. Russian Conversation. (½ course each) Three hours weekly. Prerequisite: Russian 3 or consent of the instructor. Russian conversation designed to supplement the grammar and readings of courses 4-5-6. The Staff

101A-101B-101C. Advanced Russian. (¾ course each) Prerequisite: Russian 6. Course will meet three hours/week, with additional meetings and laboratory sessions at the instructor's discretion. Advanced grammar and reading. The Staff

102A-102B-102C. Advanced Grammar and Reading. (¾ course each) Three hours weekly. Prerequisite: Russian 101C or consent of instructor. Advanced grammatical analysis; reading of difficult texts. Required for the M.A. (Linguistics, Literature). The Staff

111A-111B-111C. Conversation and Composition. (¼ course each) Two hours weekly. Prerequisite: course 6 and 10C, or permission of the instructor. Conversation and composition. Conducted in Russian. Required of majors. The Staff

112A-112B-112C. Advanced Conversation and Composition. (¼ course each) Two hours weekly. Prerequisite: course 111C, or consent of the instructor. Advanced conversation and composition. Conducted in Russian. Required for the M.A. (Linguistics, Literature). The Staff

Linguistics Courses

121. Russian Phonology. Three hours weekly. Prerequisite: course 6. Introduction to transliteration and transcription, articulatory phonetics, phonemics. The Staff

122. Russian Morphology. Three hours weekly. Prerequisite: course 121. Introduction to morphophonemics, inflection, derivation. The Staff

123. Historical Commentary on Modern Russian. Three hours weekly. Prerequisites: courses 121, 122. Historical explanation of the phonological and morphological anomalies of modern Russian. The Staff

Literature Courses

119. Survey of Russian Literature to Pushkin. Three hours weekly. Prerequisite: upper division standing. (Slavic majors should take this course during their sophomore year.) Lectures and readings in English. The Staff

120A-120B. Survey of Russian Literature. Three hours weekly. Prerequisite: upper division standing. (Slavic majors should take this course during their sophomore year.) Lectures and readings in English. 120A. Nineteenth Century. 120B. Twentieth Century. The Staff

124A-124F. Studies in Russian Literature. Three hours weekly. Lectures and reading in English. The following writers will be alternately discussed: A. Pushkin; B. Gogol; C. Turgenev; D. Dostoevsky; E. Tolstoy; F. Chekhov. The Staff

125. The Russian Novel in its European Setting. Three hours weekly. Prerequisite: upper division standing. Emphasis on nineteenth and twentieth-century novelists. Lectures and readings in English. The Staff

126. Survey of Russian Drama. Three hours weekly. Prerequisite: upper division standing. Major Russian plays of the 18th to 20th centuries. Lectures and readings in English. The Staff

130A-130B-130C. Russian Poetry. Three hours weekly. Prerequisite: course 6. Lectures and readings in Russian. 130A. Introduction to analysis of poetic texts. 130B. From mid-eighteenth century through precursors of Symbolism. 130C. From late-nineteenth century through contemporary Soviet verse. The Staff

134. Pushkin. Three hours weekly. Prerequisite: course 6. Major poetical works. Lectures and readings in Russian. The Staff

140A-140D. Russian Prose. Three hours weekly. Prerequisite: course 6. Lectures and reading in Russian. 140A. Major writers from Karamzin to Turgenev; 140B. Dostoevsky to Gorky; 140C. Contemporary writers; 140D. Advanced readings in Russian prose. The Staff

M150. Russian Folk Literature. (Same as Folklore M150.) Three hours weekly. Lectures and readings in Russian. The Staff

193. Seminar in Russian Literature. Three hours weekly. Prerequisites: Russian 6 or consent of the instructor; Russian 101C recommended. Reading and discussion of selected authors; written seminar papers will usually be required. The Staff

Graduate Linguistics Courses

203. Higher Course in Russian. (½ course) Two hours weekly. Prerequisite: course 102C. Reading advanced texts; advanced composition, conversation; stylistics. Required two quarters/year of all enrolled post-M.A. students. May be repeated for credit. The Staff

204. Introduction to the History of the Russian Literary Language. Three hours weekly. Prerequisites: course 123, Slavic 99A-99B. Introductory survey of literary Russian in its cultural and historical setting. Required for the M.A. (Linguistics, Literature). The Staff

210. Readings in Russian Historical Texts. Three hours weekly. Prerequisites: Slavic 201 or consent of instructor. Readings in early Russian chronicles and other documents of historical interest. The Staff

241. Russian Phonology. Three hours weekly. Prerequisites: courses 102A-102B-102C, 121. Survey of taxonomic and generative theories of Russian phonology. Required for the Ph.D. (Linguistics). The Staff

242. Russian Morphology. Three hours weekly. Prerequisites: courses 102A-102B-102C, 122. Advanced study of inflection and derivation. Required for the Ph.D. (Linguistics). The Staff

243A-243B. Historical Phonology and Morphology of Russian. Three hours weekly. Prerequisite: course 123. 243A. Survey of Russian historical phonology and grammar. 243B. Selected topics. 243A required for the Ph.D. (Linguistics). The Staff

263. Russian Dialectology. Three hours weekly. Prerequisites: courses 243A-243B. Introduction to the phonology and grammar of modern Great Russian dialects. The Staff

264. The Evolution of Literary Russian. Three hours weekly. Prerequisites: course 204, Slavic 201. Lectures and analysis of texts. Eleventh to twentieth centuries. The Staff

265. Russian Syntax. Three hours weekly. Prerequisites: courses 102A-102B-102C, 121, 122. Survey of traditional and generative approaches to Russian syntax. Required for the Ph.D. (Linguistics). The Staff

266. Russian Lexicology. Three hours weekly. An introduction to the formal and semantic patterning of the Russian lexicon. The Staff

Graduate Literature Courses

211. Eighteenth Century Russian Literature. Three hours weekly. Lectures and readings in major and secondary writers. Required for the M.A. (Linguistics, Literature; see M.A. requirements). The Staff

212. Nineteenth Century Russian Literature. Three hours weekly. Lectures and readings in major and secondary writers. Required for the M.A. (Linguistics, Literature; see M.A. requirements). The Staff

213. Twentieth Century Russian Literature. Three hours weekly. Lectures and readings in major and secondary writers. Required for the M.A. (Linguistics, Literature; see M.A. requirements). The Staff

251A-251B. Old Russian Literature. Three hours weekly. 251A. Survey of Old Russian Literature from the Kievan period through the seventeenth century. 251B. Selected topics. 251A required for the Ph.D. (Literature). The Staff

270. Russian Poetics. Three hours weekly. Prerequisites: courses 130A-130B-130C. Introduction to the technical study of Russian poetics and versification. Recommended as preparation for course 290. The Staff

290. Seminar in Russian Poetry. Three hours weekly. Prerequisites: courses 130A-130B-130C. Recommended preparation: course 270. Selected authors and works. May be repeated for credit with consent of the instructor and the Graduate Advisor. The Staff

291A. Seminar in Old Russian Literature. Three hours weekly. Prerequisite: course 251. The Staff

291B. Seminar in Eighteenth Century Russian Literature. Three hours weekly. Prerequisite: course 211. Selected authors and works. May be repeated for credit with consent of the instructor and the Graduate Advisor. The Staff

292. Seminar in Nineteenth Century Russian Literature. Three hours weekly. Prerequisite: course 212. Selected authors and works. May be repeated for credit with consent of the instructor and the Graduate Advisor. The Staff

293. Seminar in Twentieth Century Russian Literature. Three hours weekly. Prerequisite: course 213. Selected authors and works. May be repeated for credit with consent of the instructor and the Graduate Advisor. The Staff

294. Seminar in Russian Literary Criticism. Three hours weekly. Prerequisites: courses 211, 212, 213. Selected topics. May be repeated for credit with consent of the instructor and the Graduate Advisor. The Staff

Serbo-Croatian

103A-103B-103C. Elementary Serbo-Croatian. Five hours weekly. Basic course in the Serbo-Croatian language. The Staff

103D-103E-103F. Advanced Serbo-Croatian. Three hours weekly. Prerequisite: course 103C. The Staff

154A-154B. Yugoslav Literature. Three hours weekly. Lectures and readings in English. 154A. Survey of Yugoslav literature from the Middle Ages to the present. 154B. Selected topics. The Staff

Slovak

222. The Structure of Slovak. Three hours weekly. Prerequisite: Slavic 202: Slavic 222 recommended. Introduction to the phonological and morphological structure of the Slovak language, especially as contrasted with Czech. The Staff

Ukrainian

101A-101B-101C. Elementary Ukrainian. Five hours weekly. Basic course in the Ukrainian language. The Staff

Non-Slavic Languages of Eastern Europe

Lithuanian

101A-101B-101C. Elementary Lithuanian. Five hours weekly. Basic course in the Lithuanian language. The Staff

Romanian

101A-101B-101C. Elementary Romanian. Five hours weekly. Basic course in the Romanian language. The Staff

130. Introduction to Romanian Civilization. Three hours weekly. An introductory survey of the social and cultural institutions of the Romanian people and their historical background. The Staff

201. Romanian as a Romance Language. Three hours weekly. A survey of the structure and development of the Romanian language, with special emphasis on the relationship of Romanian to other members of the Romance group. The Staff

Related Courses in Other Departments

History 146A-146D; **Linguistics** 100, 103, 110, 120A-120B, M150, as well as several of the graduate courses in Linguistics.

SOCIAL WELFARE

(Department Office, 200 Dodd Hall)

Jerome Cohen, Ph.D., *Professor of Social Welfare.*
Maurice F. Connery, D.S.W., *Professor of Social Welfare (Chairman).*
Jeanne M. Giovannoni, Ph.D., *Professor of Social Welfare. (Chairperson, Doctoral Program Committee).*
Alfred H. Katz, D.S.W., *Professor of Public Health and Professor of Social Welfare.*
Harry H. L. Kitano, Ph.D. *Professor of Social Welfare and Professor of Sociology.*
Eileen Blackey, D.S.W., *Emeritus Professor of Social Welfare.*
Nathan E. Cohen, Ph.D., *Emeritus Professor of Social Welfare.*
Donald S. Howard, Ph.D., L.H.D., *Emeritus Professor of Social Welfare.*
Elliot T. Studt, D.S.W., *Emeritus Professor of Social Welfare.*
Warren Haggstrom, Ph.D., *Associate Professor of Social Welfare.*
Doris S. Jacobson, Ph.D., *Associate Professor of Social Welfare.*
Manuel R. Miranda, Ph.D., *Associate Professor of Social Welfare.*
Harry Wasserman, D.S.W., *Associate Professor of Social Welfare.*
Diane de Anda, Ph.D., *Assistant Professor of Social Welfare.*
Carol W. Williams, *Assistant Professor of Social Welfare.*
Rosina Becerra, Ph.D., *Acting Associate Professor of Social Welfare.*
Elsie Giorgi, M.D., *Lecturer in Human Behavior.*
Maxine Jackson, M.S.W., J.D., R.N., *Lecturer in Social Welfare.*
Stan Katz, Ph.D., *Lecturer in Social Welfare.*
Katherine M. Kolodziejski, M.S.W., *Field Work Consultant.*
Jane E. Kurohara, M.S.W., *Field Work Consultant.*
Nancy Miller, Ph.D., *Lecturer in Social Welfare.*
Alex J. Norman, D.S.W., *Acting Associate Professor of Social Welfare.*
Gertrude Saxton, M.A., *Field Work Consultant and Lecturer.*
Mary Seguin, D.S.W. *Field Work Consultant.*
David Shapiro, Ph.D., *Lecturer in Social Welfare.*
Winifred E. Smith, M.S.W., *Lecturer in an Coordinator of Field Instruction.*
Bernice Sokol, M.S.W., *Lecturer in Social Welfare.*
Jaime Soliz, M.S.W. *Field Work Consultant (Chairman of Admissions and Student Affairs).*
Laura S. Wiltz, M.S., *Field Work Consultant.*

Graduate Courses

201A-201B-201C. Dynamics of Human Behavior I, II, III. (½ course each) Lecture, two hours; laboratory, one hour. Credit to be given at the completion of the sequence 201A-201B; 201C will be graded separately. Biopsychosocial factors associated with individual and group behavior and development as applicable in the social functioning of individuals and groups. Emphasis is on theoretical issues and research evidence which contribute to a unified theory of human development.

202A-202B. Dynamics of Human Behavior: Deviance IV, V. (½ course each) Prerequisite: courses 201A-201B-201C. Credit to be given only at the completion of the sequence. This course deals with deviations and pathologies or stresses in the physical, emotional and social areas of human functioning as those problems relate to the role and function of the social worker.

203. Integrative Theory and Research in Human and Social Behavior. (½ course) An integrative course which brings together the preceding courses in the human behavior and the social environment series, by examination at an advanced level of the major theoretical strands and the identification of problem areas requiring further research.

204A. Social Systems in Social Welfare. (½ course) The application of social system theory to the problems of social welfare and social work. Analysis of the network of community relationships, values, stratification, institutions and subcultures as related to the premises and services of social work.

204B. Small Groups in Social Welfare. (½ course) Application of theory and knowledge of small group functioning to problems of working with groups in social work settings. Analysis of group formation, structure of interaction and communication patterns, and of leadership and morale problems. Application to family, peer and special-purpose groups.

205. Group Conflict and Change. (½ course) Study of the phenomena of group conflict and change as they appear in the social welfare matrix of groups, communities and social institutions; relationship between conflict and social and cultural change; major research contributions in understanding of these phenomena.

210A-210B-210C. Social Ecology. Prerequisite: Doctoral status and/or permission of the instructor. Exploration of data and theories from the biological and policy sciences regarding ecological relationships. Review of current biophysical, sociocultural, demographic, technological, economic, and political changes as they affect human society, its institutions and, more particularly, social welfare needs.

220. History and Philosophy of Social Welfare. (½ course) The history of social work as a field: body of knowledge, method and process, and point of view analyzed within the context of the economic, political, social, philosophical and scientific climate of the period.

221A. Social Welfare Policy and Services I. (½ course) Nature, roles and history of welfare institutions in different societies; applicable social system

NOTE: For key to symbols, see page 74

theory with special reference to values as seen by different components of the welfare system; theory and research about needs met and not met, about various welfare policies and organizational forms, and about social change to prevent needs.

221B. Social Welfare Policy and Services II. (½ course) Prerequisite: consent of the instructor. Study of income-maintenance policy and services. Introduces theory and research about selected levels of living, regularity and source of income, and their relevance for family and social well-being; analysis of various income-maintenance policies and services; causes and nature of poverty. Current antipoverty legislation.

222A-222B-222C. Social Welfare Administration I, II, III. (½ course each) Prerequisite: graduate status and/or permission of the instructor. Study of methods by which welfare policies are formulated and translated into action; the nature of organizational and research process involved in welfare administration; role of welfare agency personnel in policy formulation, implementation and evaluation.

223. Seminar on the Social Work Profession. (½ course) The nature and role of social work in contemporary society; relationships with other professions; probable future trends in the profession; social work ethics, professional organizations, certification licensing; professional responsibility for continued self-criticism and improvement of the profession.

224A-224B-224C. History and Philosophy of Social Welfare. Prerequisite: Doctoral status and/or permission of the instructor. Analysis of long-term trends in welfare policies and programs in relation to political, economic, and other relevant factors. Philosophical foundations underlying social welfare theories, programs, and methods will be explored and values, assumptions, and attitudes historically affecting social welfare examined.

225A-225B-225C. Social Welfare Systems. Prerequisite: Doctoral status and/or permission of the instructor. Analysis of theories of organizational behavior affecting social welfare systems (including supranational systems transcending national boundaries), their directions, goals, values, and relationships to social work. Application of organizational theory to planning, organizing, and administering welfare agencies will be stressed.

227A-227B-227C. Comparative Social Welfare Theories and Programs. Prerequisite: Doctoral status and/or permission of the instructor. Analysis of interrelationships between nations' welfare services and the social, economic, religious, and broader cultural milieus within which they develop. Special attention to social theories, value systems, and other elements of culture which particularly affect welfare programs.

230A-230B-230C. Theory of Social Work Method I, II, III. (½ course each) Concurrent social work practicum is required. An introduction to the theory of social work with individuals and small groups and to the principles of practice which are derivative of this and related theory.

231A-231B. Advanced Theory of Social Work Method IV, V. (½ course each) Required: Concurrent social work practicum. Advanced-level, critical analysis of theories, concepts and principles underlying social casework practice. Specific attention to deviation and stress as conditions affecting functioning of individuals and groups; and to diagnostic knowledge and competence required in rehabilitation and prevention.

240A-240B-240C. Theory of Social Work Method (Community Organization) I, II, III. (½ course each) Concurrent practicum in social work required. Covers historical and theoretical developments in community organization; understanding the community as a social system; role of the practitioner in identification, analysis and evaluation of needs, existing programs, policies, structures and strategies of intervention.

241A-241B. Advanced Theory of Social Work Method (Community Organization) IV, V. (½ course each) Concurrent practicum in social work required. Emphasis on various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within the context of community planning; emerging patterns of physical, economic and social planning within the framework of social change theory.

M242. Counseling Families of Handicapped Children. (½ course) (Same as Psychiatry M254.) Prerequisite: consent of instructor. Techniques and issues in counseling families through evaluation, feedback, and treatment. Social and psychological stresses on family unit, professional's reactions, community resources, and issues of genetic counseling, placement, and developmental crises.

245A-245B-245C. Development of Social Work Practice Theory. Prerequisite: Doctoral status and/or permission of the instructor. Critical analysis of social work practice theories in historical, social and scientific contexts, with attention to how theory becomes modified through application to practice.

258. Critical Problems in Social Welfare. Prerequisite: Doctoral status and/or permission of the instructor. Concerned with current problems in the field of social welfare. Specific topics to be discussed will vary depending upon the research and educational interests and needs of the class. May be repeated for credit.

M275. Family Process: Psychological and Social Perspectives on the Family. (Same as Psychology M275.) This course reviews various theoretical perspectives applicable to the analysis of family structure and dynamics. Critical issues in the application of family constructs to clinical problems will receive particular attention.

Mr. Cohen, Mr. Goldstein

280. Social Welfare Research. (½ course) Sources, nature and uses of social work theory and research-based knowledge and of broader social data relevant to social welfare activities. Critical analysis of major methods of developing scientific knowledge.

281A-281B-281C. Advanced Social Welfare Research. (½ course each) Credit to be given only at the completion of the sequence. Group research projects requiring intensive examination and analysis of a social problem area directed toward the development of research knowledge and techniques for social work practice. This course is offered on an In Progress basis, which requires students to complete the full three-quarters sequence, at the end of which time a grade is given for all quarters of work.

285A-285B-285C. Research in Social Welfare. Prerequisite: Doctoral status and/or permission of the instructor. Review of areas of research of concern to social workers with special attention to design, instrument construction, data collection, data processing, data reduction, analysis and interpretation. Designs studied will include survey, panel, experimental observation, and theory development research.

286A-286B-286C. Survey of Research Methods. Prerequisite: Doctoral status and/or permission of the instructor. Purpose to present basic concepts underlying research methods. Content includes theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative and survey; sampling; statistical methods; methods of observation and techniques of data analysis.

290A-290B-290C. Seminar in Social Work. (½ course each) A series of seminars dealing with trends in social work and social welfare, with the focus on current social problems affecting individuals, groups, and communities and new patterns of intervention based on recent demonstrations and research.

Professional Courses

401A-401B-401C. Practicum in Social Work. Laboratory, 20 hours weekly. Educationally directed practicum conducted in selected health, welfare and educational facilities. The major objective is to provide opportunities for the student to test his theoretical knowledge and to acquire a disciplined practice foundation in his profession.

402A-402B-402C. Advanced Practicum in Social Work. (1½ courses each) Prerequisite: course 401A-401B-401C. Laboratory, 24 hours weekly. Practicum in social work is arranged for the student in keeping with his major field of study.

501. Cooperative Program. (½ to 2 courses) Prerequisites: approval of UCLA Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

596A. Special Study and Research for M.S.W. Degree Candidates. (½ to 2 courses) Individual programming for selected students to permit pursuit of a subject in greater depth.

596B. Special Study and Research for D.S.W. Degree Candidates. (½ to 2 courses) Prerequisite: Doctoral status and/or permission of the instructor. S/U and letter grade.

597A. Preparation for the Comprehensive Examination for the M.S.W. Degree. (½ to 2 courses) Prerequisite: consent of the instructor.

597B. Preparation for the Qualifying Examination for the D.S.W. Degree. (½ to 2 courses) Prerequisite: Doctoral status and/or permission of the instructor.

599. Dissertation Research in Social Welfare for D.S.W. Degree Candidates. (½ to 2 courses) Prerequisite: Doctoral status and/or permission of the instructor.

SOCIOLOGY

(Department Office, 264 Haines Hall)

Howard E. Freeman, Ph.D., *Professor of Sociology.*
Harold Garfinkel, Ph.D., *Professor of Sociology.*
Oscar Grusky, Ph.D., *Professor of Sociology.*
Gene N. Levine, Ph.D., *Professor of Sociology.*
Georges Sabagh, Ph.D., *Professor of Sociology.*
Melvin Seeman, Ph.D., *Professor of Sociology (Chairman of the Department).*
Donald J. Treiman, Ph.D., *Professor of Sociology.*
Ralph H. Turner, Ph.D., *Professor of Sociology.*
Maurice Zeitlin, Ph.D., *Professor of Sociology.*
Leo J. Kuper, Ph.D., *Emeritus Professor of Sociology.*
Richard T. Morris, Ph.D., *Emeritus Professor Sociology.*
Rodolfo Alvarez, Ph.D., *Associate Professor of Sociology.*
Kenneth D. Bailey, Ph.D., *Associate Professor of Sociology.*
Phillip Bonacich, Ph.D., *Associate Professor of Sociology.*
Robert M. Emerson, Ph.D., *Associate Professor of Sociology.*
Lucie C. Hirata, Ph.D., *Associate Professor of Sociology.*
John E. Horton, Ph.D., *Associate Professor of Sociology.*
Ivan H. Light, Ph.D., *Associate Professor of Sociology.*
David E. Lopez, Ph.D., *Associate Professor of Sociology.*
David D. McFarland, Ph.D., *Associate Professor of Sociology.*
Valerie K. Oppenheimer, Ph.D., *Associate Professor of Sociology.*
Melvin Pollner, Ph.D., *Associate Professor of Sociology.*
Jerome Rabow, Ph.D., *Associate Professor of Sociology.*
Emanuel A. Schegloff, Ph.D., *Associate Professor of Sociology.*
Samuel J. Surace, Ph.D., *Associate Professor of Sociology.*
Warren D. TenHouten, Ph.D., *Associate Professor of Sociology.*
Jeffrey Alexander, Ph.D., *Assistant Professor of Sociology.*
Jack Katz, Ph.D., *Assistant Professor of Sociology.*
Linda B. Nilson, Ph.D., *Assistant Professor of Sociology.*
Melvin Oliver, Ph.D.., *Assistant Professor of Sociology.*
Jeffrey Prager, *Assistant Professor of Sociology.*
William G. Roy, *Assistant Professor of Sociology.*
Lynne G. Zucker, Ph.D., *Assistant Professor of Sociology.*
——, *Assistant Professor of Sociology.*

Ralph L. Beals, Ph.D., *Emeritus Professor of Anthropology and Sociology.*
Judith Blake Davis, Ph.D., *Professor of Public Health and Sociology.*
Michael S. Goldstein, Ph.D., *Associate Professor of Public Health and Sociology.*
C. Wayne Gordon, Ph.D., *Professor of Education and Sociology.*
Roderick J. Harrison, *Assistant Professor of Sociology.*
Harry H. L. Kitano, Ph.D., *Professor of Social Welfare and Sociology.*
David O'Shea, Ph.D., *Associate Professor of Education and Sociology.*
Edwin S. Shneidman, Ph.D., *Professor of Thanatology, Medical Psychology, Psychology, and Sociology.*
Gerald H. Shure, Ph.D., *Professor of Psychology and Sociology.*
Julia C. Wrigley, *Assistant Professor of Education and Sociology.*
Robert S. Broadhead, Ph.D., *Adjunct Assistant Professor of Sociology.*
John Fleishman, Ph.D., *Adjunct Assistant Professor of Sociology.*
Eugenia Miller, Ph.D., *Adjunct Assistant Professor of Sociology.*

Purposes of the Major in Sociology

The primary purpose of the major in Sociology is to contribute directly to the student's capacity for critical analysis and understanding of social phenomena. It is intended at the same time to serve as a preparation for those who plan a career in areas such as the following: high school or junior college teaching, social work, architecture and urban planning, law, public health, and government service. It also provides training for advanced graduate work in Sociology and Social Psychology.

Preparation for the Major

An introductory course, Sociology 1 or 101, is required. Also required at the lower division level is a statistics course, Sociology 18. Alternatively, this requirement can be met with Mathematics 50A, Psychology 41, Economics 40, or Public Health 100A.

Also required at the lower division level are two courses from Group A: Mathematics 2, 4A; Philosophy 31; Economics 1, 2; or Linguistics 1; and two courses from Group B: Anthropology 5A, 5C, 22; History 1A, 1B, 1C; Philosophy 7, 21; Political Science 1; Psychology 10; or Geography 3. These courses may be used to satisfy

All courses required for the major in Sociology, including lower division and allied field courses, must be taken for a letter grade. A 2.0 grade-point average is required for the preparation and for the major.

The Major

Ten upper division Sociology courses, not including course 101, are required for the major. These ten courses must include the following: (40 units)

(1) *Sociology 109 and Sociology 112 or 113.* These courses, devoted to the systematic exploration of sociological methods and theories, introduce students to the skills and concepts necessary for upper division work in the Department. Students are strongly advised to complete these two required courses as early as possible in the junior year.

(2) Four upper division courses as required by one of the specialized *Concentrations for the Major* listed below.

(3) Any four additional upper division Sociology courses.

(4) Four upper division allied field courses (16 units) in other departments are required to complete the major. The allied fields are: Anthropology, Economics, Geography, History, Political Science and Psychology. Each concentration has its own set of recommended allied field courses. This list of courses (and faculty advisors) is available from the Department's Undergraduate Counselor in Haines Hall 254B. Students are encouraged to examine these specific concentration related listings as well as consult the respective faculty advisor for each concentration.

Concentrations for the Major

By the end of the junior and no later than the beginning of the senior year, students are required to declare their specific concentration by filing a statement with the Undergraduate Counselor. The purpose of the concentration requirement is to expose the student to systematic, in-depth work within a specific area of sociology. Completion of a concentration will require four upper division Sociology courses, as well as four upper division allied field courses. A student must take a concentration's required course (if any) *before* declaring that concentration. Students are required to select one of the following concentrations and to meet its course requirements:

(1) *Comparative and Historical Sociology*

Required: 138.
Two of the following: 120, 126, 140, 141.
One of the following: 130-137.

(2) *Organizations*

Required: 121.
Three of the following: 120, 123, 128, 140, 141, 147, 152.

(3) *Political Sociology*

Required: 140 and
Three of the following: 114, 120, 124, M143, 147, 150.

(4) *Quantitative Sociology*

The student should consult the Faculty Advisor for pre-major
requirements for this concentration.
Required: 116 and
Three of the following: 123, 126, 152 and 154.
Recommended: Math 152AB instead of Sociology 18 on the Prep.

(5) *Race and Ethnicity*

Required: 124 and
Two of the following: 120, 123, 151, and 155.
One of the following: 130-137

(6) *Social Change and Modern Society*

Required: 120 and
Two of the following: 123, 140 and 150.
One of the following: 124, 125, 136, 141.

(7) *Social Demography*

Required: 126 and
Three of the following: 116, 123, 132, and 160.

(8) *Social Organization and Language, Thought and Experience*

Four of the following: 144AB, 148, 149, 153, 157, and 159.

(9) *Social Psychology*

Required: 154 and
Three of the following: 115, 150, 151, 152, 153, and 155.

(10) *Social Stratification*

Required: 123 and
Three of the following: 114, 116, 124, 128, 136, 140, 155, and
160.

A Psychology course taken to fulfill the breadth requirement cannot also be used for the allied field requirement. Only eight units of Sociology 199 are allowed. At least four of the Sociology courses must be taken while in residence in the College of Letters and Science on this campus.

Students are encouraged to consult the Undergraduate Counselor in Haines Hall 254B whenever problems arise with regard to their academic programs. This office also provides counseling for students interested in obtaining career advice.

(Note: The Honors Program section remains the same. Delete all Core Area designations (I-VI) listed on page 22 of the General Catalogue 1978-79 edition).

Courses 109, 210A and 210B are recommended for students who intend to pursue graduate work in Sociology.

The Honors Program

The Honors Program in Sociology provides an opportunity for outstanding students to undertake an independent year-long research project under the guidance of a member of the sociology faculty. The project culminates with an honors thesis or paper. The main advantage provided is the opportunity to work closely with individual faculty sponsors. Students intending to obtain advanced degrees will find this program especially useful. Students selected will enroll in Sociology 199HA, B, and C in their senior year. These courses will count toward the ten upper division course requirement for all Sociology majors. Upon completing the program students will graduate either with Departmental Honors or Highest Honors on their record. Qualifications: In order to quality for the program the student must have a 3.5 overall grade point average, have completed the Sociology Preparation requirements and, in most cases, have completed the required theory course. Applications are available in the Sociology Undergraduate Counselor's office, 254B Haines Hall. Students should apply in the last quarter of their junior year.

Requirements for the Master's Degree

For the M.A. degree in sociology, the student is required (1) to complete an acceptable program of a minimum of nine upper division and graduate level courses (the equivalent of 4 quarter units each) of which at least six courses must be graduate level (200 series) in sociology; (2) to pass two departmental examinations in statistics or complete courses 210A-210B with grades of C or better; (3) to complete one of the two-quarter methodology sequences in the series numbered 212-218; and (4) to satisfy the faculty that he has an adequate command of sociological theory, methodology, and substance has been demonstrated by submission of an acceptable dossier of written papers, as prescribed in departmental regulations. Those students who plan to seek the Ph.D. are advised to complete the foreign language requirement or its equivalent some time during their first year of graduate study. The M.A. degree is especially intended to qualify students who plan to become junior college teachers. Students are encouraged to plan their programs so as to fulfill the requirements for the junior college or secondary teaching credentials. Details on credential matters may be obtained from the Credentials Counselor in the School of Education.

Requirements for the Ph.D. Degree

Candidates for the doctor's degree must conform to the general requirements set by the Graduate Division for the Ph.D. degree. It should be emphasized that the granting of the doctor's degree does not depend alone upon the satisfactory completion of a specified number of courses. The candidates must demonstrate competence as research scholars and ability to give instruction in the field.

In addition to the general requirements set by the Graduate Division, every prospective candidate for the doctor's degree must fulfill the following: 1. Pass a reading examination in French, German, Spanish, Italian, Russian, or other language approved by the Department, (a) Or, as an alternative, the student could complete course 5 of a language, or the equivalent, with a minimum grade of C, or five quarters of study of one language with a minimum grade of C in each course. (b) A second alternative is for students who might find it equally profitable for their research to study sources in an allied field such as history, political science, linguistics, psychology, economics, philosophy, or mathematics. The student would be permitted to substitute for the language requirement a set of three upper division or graduate courses offered at UCLA and passed with a grade of at least B. In order to do this, students must submit the proposed list of courses to their Ph.D. committee, or to the Executive Committee if no Ph.D. committee has been formed, with a justification for the set of courses presumably based on the potential contribution of these courses to their Ph.D. research. Only courses taken while the student is a graduate student will count toward fulfilling this requirement; and once approved, any substitution of courses for those originally approved would require full committee approval. 2. Pass two departmental examinations in statistics or complete courses 210A-210B with grades of C or better. 3. Complete two of the two-

NOTE: For key to symbols, see page 74

quarter methodology sequences in the series numbered 212-218. 4. Satisfy the faculty that an adequate command of sociological theory, methodology, and substance has been demonstrated by submission of an acceptable dossier of written papers, as prescribed in departmental regulations. 5. Pass written examinations in two special fields. 6. Pass a qualifying oral examination. 7. Prepare a satisfactory doctoral dissertation embodying the results of original research. 8. At the option of the certifying members of the candidate's doctoral committee, a final oral examination may be deemed necessary. Details of these requirements are described in a brochure which may be secured from the Graduate Affairs Office of the Department.

The dissertation will be in accordance with the requirements of the Graduate Division. Before the dissertation is begun, the subject must be approved in writing by the student's graduate advisers.

Lower Division Courses

1. Introductory Sociology. No credit will be given for this course to students who have completed Sociology 101. Survey of the characteristics of social life, the processes of social interaction, and the tools of sociological investigation. The Staff

18. Interpretation of Quantitative Data. Prerequisite: course 1 or 101, or may be taken concurrently. Satisfies the statistics requirement for the major in sociology. Reading graphs and tables; statistical description using indices of central tendency, dispersion, and association; simple linear regression. Probability; the binomial, normal, t and chi-square distributions and hypothesis testing based on them. Examples drawn from recent issues of American Sociological Review or other leading sociological journals. The Staff

Upper Division Courses

Course 1, or the equivalent, and upper division standing (upper division standing may be waived by permission of the instructor) are prerequisite to all upper division courses in Sociology.

101. Principles of Sociology. Prerequisite: upper division standing. No credit will be given for this course if course 1 has been completed. For upper division students who have not taken Sociology 1. A more intensive introduction to sociology than is given in course 1. May not be counted on the major. The Staff

109. Introduction to Sociological Research Methods. A systematic treatment and semiquantitative skills of use in sociological research, e.g., classification, questionnaire and schedule design, content analysis, critical analysis of studies, conceptual analysis of case materials. Field work may be required for this course.
Mr. Bailey, Mr. Harrison, Mr. TenHouten

112. Development of Sociological Theory. A comparative survey of basic concepts and theories in sociology, 1850-1920; the codification of analytic schemes; a critical analysis of trends in theory construction.
Mr. Alexander, Mr. Bailey, Mr. Horton

113. Contemporary Sociological Theory. A critical examination of significant theoretical formulations, 1920 to the present; an analysis of the relation between theoretical development and current research emphasis.
Mr. Garfinkel, Ms. Hirata, Mr. TenHouten

114. Marxist Sociology. The course will stress the fundamentals of Marxist theory and method and their historical development. Attention will be given throughout to continuing debates within Marxism and to differences between Marxism and other schools of sociological thought. This course does not meet the theory requirement for the major.
Mr. Horton

115. Experimentation and Laboratory Methodology in Sociology. Prerequisites: course 18 or equivalent introductory statistics and introductory social psychology. This course provides opportunities for students to participate as observers, subjects, and experimenters in a variety of laboratory and simulations of social and political settings and to use a number of computer-supported techniques as aids in conducting, analyzing, and interpreting their experiences in these settings.
Mr. Shure

116. Introduction to Mathematical Sociology. Prerequisite: Mathematics 2, 4A (a course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus), and Sociology 18 or equivalent. Mathematical treatments of several sociological phenomena, such as occupational mobility, population growth, organizational structure, and friendship patterns, each covered in some detail, including initial development and subsequent evaluation and modification, emphasizing both the deductive and computational aspects of mathematics.
Mr. McFarland

120. Social Change. A study of patterns of social change, resistance to change, and change-producing agencies and processes.
Mr. Alexander, Mr. Roy, Mr. Surace

121. Organizations and Society. Sociological analysis of organizations and their social environment. An introduction to basic theories, concepts, methods, and research on the behavior of organizations in society.
Mr. Alvarez, Mr. Grusky, Mr. Surace

122. Mass Communications. Formal organization, functions, and development of the mass media; communications as a social process; cultural patterns; audience characteristics; communications and bureaucracy. Aspects of the American media are compared with other systems, e.g., Soviet, British, Arabic. Field work may be required for this course. Mr. Levine

123. Social Stratification. An analysis of American social structure in terms of evaluational differentiation. Topics to be considered include criteria for differentiation, bases for evaluation, types of stratification, the composition of strata and status systems, mobility, consequences of stratification and problems of methodology.
Mr. Lopez, Mr. McFarland, Ms. Nilson

124. Ethnic and Status Groups. The characteristics of the "visible" ethnic groups, e.g., Japanese, Mexican and Negro; their organization, acculturation, and differentiation. The development, operation and effects of selective immigration and population mobility. The status of the chief minorities in the continental U.S., with comparative materials drawn from Jamaica, Hawaii, and other areas.
Mr. Alvarez, Mr. Kitano, Mr. Prager

125. Urban Sociology. Urban and rural cultures, the characteristics of cities in Western civilization, with emphasis on the American metropolis.
Mr. Light, Mr. Oliver

126. Social Demography. Studies of past, present, and future trends in population growth. Sociological theories of causes and consequences of population growth and redistribution. Emphases on the correlates of fertility, mortality, and migration.
Mr. Bailey, Ms. Oppenheimer, Mr. Sabagh

128. Occupations and Professions. Description and analysis of representative occupations and professions, with emphasis upon the contemporary United States.
Mr. Light, Ms. Nilson, Ms. Oppenheimer

129. White Racism. Verbal and metaphorical stereotyping of blacks, whites and other subdominant and dominant groups; cross-cultural comparisons; impact of media; institutional racism, educational and economic; political mobilization of black and poor communities; the study of strategies for resisting white racism. The Staff

130. Social Processes in Africa. A course in comparative sociology. A study of selected processes in African societies, primarily in the fields of urban sociology, social structure and social change, involving an interdisciplinary approach.
The Staff

131. Latin American Societies. A descriptive survey of the major Latin American societies, emphasizing their historical backgrounds and their emergent characteristics, with special attention to the relations between rural and urban life. Mr. Lopez

132. Population and Society in the Middle East. Prerequisite: upper division standing and consent of the instructor. A survey of the Middle Eastern societies; their historic and environmental bases; the contemporary demographic and cultural situation. Mr. Sabagh

133. Comparative Sociology of the Middle East. Prerequisite: upper division standing and consent of the instructor. A review of the unity of Middle Eastern societies in Islam and their diversity exemplified by such nomadic peoples considered throughout. The Staff

134. Comparative Social Institutions of East Asia. Analysis of selected social institutions of China, Japan, and Korea. Emphasis will be on continuity and change in East Asian societies. Ms. Hirata

136. Structure and Process of American Society. Analysis of interrelationships among structures and processes in American society, with emphasis on patterns of differentiation, exchange, control, and belief formation. The question of boundary definition (both analytic and real) and the question or order will be considered throughout.
Mr. Roy, Mr. Zeitlin

137. Comparative Studies of Jewish Communities in the U.S. and Abroad. The history, distribution, structure, and functioning of major Jewish communities is covered, with particular focus upon North America and Israel. Interrelationships and sources of conflict between Jews and Gentiles in Western countries are taken up. More generally, the economic and social integration of Diaspora Jewish communities is treated. Field work may be required for this course. Mr. Levine

138. Comparative and Historical Sociology. Prerequisite: course 1/101. A survey of the central themes of comparative and historical studies in sociology. The various aspects of the development of modern society are covered including the development of nation-state, the emergence of capitalism, industrialization, and population growth. Variation in contemporary society is viewed from a variety of theoretical perspectives.
Ms. Hirata, Mr. Prager, Mr. Roy

140. Political Sociology. The contributions of sociology to the study of politics including the analysis of political aspects of social systems, the social context of action, and the social bases of power. Mr. Roy, Mr. Zeitlin

141. Economy and Society. The sociology of economic life with emphasis upon principal economic institutions of the United States.
Mr. Light

142. Sociology of the Family. Theory and research dealing with the modern family, its structure and functions, including historical changes, variant family patterns, family as an institution, and the influence of the contemporary society on the family. The Staff

M143. Sociology of Education. (Same as Education M108.) Studies of social processes and interaction patterns in educational organizations, the relationships of such organizations to aspects of society, social class and power, social relations within the school, formal and informal groups, school culture, roles of teachers, students, and administrators.
Mr. Gordon, Mr. Rabow, Ms. Wrigley

144A. Conversational Structures I. An introduction to some of the structures which are employed in the organization of conversational interaction, such as turn-taking organization, the organization of repair, and some basic sequence structures with limited expansions. Mr. Schegloff

144B. Conversational Structure II. Prerequisite: course 144A. A consideration of some of the more expanded sequence structures, story structures,

topical sequences, and the overall structural organization of single conversations.
Mr. Schegloff

145. Sociology of Deviant Behavior. An examination of the leading sociological approaches to the study of deviation and a general survey of the major types of deviation in American society.
Mr. Freeman, Mr. Horton, Mr. Surace

146. Criminology. Theories of the genesis of crime; factors in the organization of criminal behavior from the points of view of the person and group; criminal behavior systems.
Mr. Katz, Mr. Rabow

147. Control of Crime. Theories of punishment; methods of dealing with convicts; social organization of police, courts, prisons, probation, and parole. Field work is a required feature of this course. Mr. Emerson, Mr. Rabow

148. Normal Environments. Structural interpretation of the concerted production, management, and alteration of preceivedly normal interpersonal environments. Field work is a required feature of this course. Mr. Garfinkel, Mr. Pollner

149. A Study of Norms. Properties of norms, of normatively governed conduct, of lay and professional methods for describing, producing, using, and validating norms in contrasting settings of socially organized activities; relevance of these properties for the programmatic problems of analytic sociology. Field work is a required feature of this course. Mr. Garfinkel, Mr. Pollner

150. Collective Behavior. Prerequisite: course 1 or equivalent, course 18 or equivalent, and upper division standing. Characteristics of crowds, mobs, publics, social movements, and revolutions. Their relation to social unrest and their role in developing and changing social organization.
Mr. Prager, Mr. Seeman, Mr. Turner

151. Culture and Personality. Prerequisite: course 1 or equivalent, course 18 or equivalent, and upper division standing. Theories of the relation of variations in personality to culture and group life, in primitive and modern societies, and the influence of social role on behavior. Mr. Turner

152. Group Processes. Systematic study of the formation, structure, and functioning of groups; anal;'sis of group processes and group products from a variety of theoretical viewpoints; implications of various research techniques
Mr. Bonacich, Mr. Rabow, Ms. Zucker

153. Process and Socialization in the Family. Prerequisite: course 1 or equivalent, course 18 or equivalent, and upper division standing. Examination of the processes of interaction, decision-making, role differentiation, conflict, integration, and socialization within the family and their interrelations with society. Mr. Turner

154. Social Psychology: Sociological Approaches. A survey of the contribution of sociologists to theory and research in social psychology including theories of social control; conformity and deviation; reference groups; and interaction process.
Mr. Bonacich, Mr. Grusky, Mr. Rabow

155. Intergroup Conflict and Prejudice. A study of the causes and consequences of group conflict, with emphasis upon majority-minority relations, prejudice and discrimination. Special attention is given to alternative sociological and psychological theories of prejudice; the effects of minority status upon the individual; and the possibilities for attitude and behavior change. Mr. Oliver, Mr. Seeman

156. Psychoanalytic Sociology. Prerequisites: Introductory Sociology or Sociology 101, and Sociology 18. A course in theory (112/113) is recommended, as well as a course in Social Psychology. A course designed to review the models of integration, between psychoanalysis and sociology. This analytical perspective will be applied to selected substantive areas and social processes. The areas include, but are not limited to, group development, delinquency, and deviance. The processes include socialization, identity and self formation, role taking and role making. Mr. Rabow

157. Sociology of Mental Illness. Analysis of the major sociological and social psychological models of madness. Study of the social processes involved in the production, recognition, labeling and treatment of 'mental illness.'
Mr. Emerson, Mr. Goldstein, Mr. Pollner

M158. Death and Suicide: Psychological and Sociological Aspects. (Same as Psychology M163.) Junior required. This course is offered on both a pass/not pass and letter grade basis. The definition and taxonomy of death; the new permissiveness and taboos relating to death; the romanticization of death; the role of the individual in his own demise; the modes of death; development of ideas of deaths through the life span; ways in which ideas of death influence the conduct of lives; the impact of dying on the social structure surrounding the individual; preventive, interventive and postventive practices in relation to death and suicide; partial death; megadeath; lethality; the psychological autopsy; the death of institutions and cultures.
Mr. Shneidman

159. The Sociology of Knowledge. Prerequisite: course 1 or equivalent. A study of the social production of modes of thought and forms of knowledge. The course includes the study of ways in which bodies of knowledge and cognitive styles are produced, used and transformed in every day, organizational, and extraordinary contexts.
Mr. Pollner, Mr. Rabow, Mr. TenHouten

160. The Demography and Sociology of Women's Economic Roles. Prerequisites: course 1, course 18, or Mathematics 50, or Psychology 41, or Economics 140 or Public Health 160A or by consent of the instructor. A demographic and sociological analysis of the factors affecting women's economic roles in the world of work and the family. Topics to be considered include demographic determinants of women's socioeconomic roles, women's changing place in the occupational structure, men's and women's contribution to the socioeconomic status of the family, the socioeconomic position of women without men to support them, future trends, and social policy affecting women's status.
Ms. Oppenheimer

161. The Social Organization of Psychiatric Treatment. Review of current research and theory on psychiatric treatment processes and treatment organizations, including mental hospitals and community mental health organizations. Sociology 157 is *strongly recommended* as a prerequisite for this course. Mr. Emerson, Mr. Grusky

Advanced Studies

181-186. Undergraduate Seminars. Prerequisites: upper division standing, major in Sociology, and permission of the instructor. These courses are listed under each of six core areas, with 181 in Core Area I, 182 in Core Area II, etc. The Staff

199. Special Studies. (½ to 2 courses) Prerequisite: senior standing, 3.0 grade-point average in major, course 1 and 18 or the accepted equivalent required, consent of instructor and department chairman. A course of independent study designed for graduate or senior undergraduate students who (a) desire a more advanced or specialized treatment of an area covered in the regular course list and who present that course as a prerequisite; or (b) desire work in an area of sociological analysis currently not covered by an upper division course. Only 8 units are allowed. See Undergraduate Counselor for course contract. The Staff

199HA-199HB-199HC. Special Study for Honors. Prerequisite: Admission to the Sociology Department Honors Program.

199HA. Design of a research project to serve as the student's honors thesis. A research proposal, detailed bibliography, and regular meetings with the sponsoring faculty member will be required;

199HB. Continuation of work initiated in 199HA. A series of progress reports will be prepared in consultation with the instructor;

199HC. Completion of the written report or honors thesis. The Staff

Graduate Courses

201A-201B. Proseminar in Sociology. Prerequisite: graduate status. A comprehensive survey of basic concepts and theories in the major fields of sociology. Designed primarily for graduate students in the first year of residence.
Mr. Alexander, Mr. Lopez

210A-210B. Intermediate Quantitative Methods I-II. Prerequisite: course 18 or equivalent. An intermediate level treatment of fundamentals of statistical theory and procedures: probability theory, basic distributions (normal, binomial, t, chi-square, F, etc.), their interrelations, and statistical procedures based on them; analysis of contingency tables; multiple and partial correlation and regression; analysis of variance and experimental designs; the general linear model; systems of equations. Additional special topics that can include: use of computers; loglinear models; factor analysis, discriminant function analysis; scaling and measurement; sampling design; nonparametric techniques and measures; matrix algebra if used in coverage of listed topics. The course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for each quarter.
Mr. Bonacich, Mr. McFarland, Mr. TenHouten

210C. Intermediate Quantitative Methods III. Prerequisite: 210B. Not required for the M.A. or Ph.D. degrees in sociology. This course will cover additional and more advanced multivariate techniques of particular value to sociologists. Mr. Bonacich

212A-212B. Marxist Methodology. Prerequisite: course 112 or consent of instructor. Practice in the dialectical method of attaining scientific knowledge about society as a process and mode of production. A critical examination of methodological issues and techniques, and practical field researches.
Mr. Horton

213A-213B. Techniques of Demograpic and Ecological Analysis. Prerequisite: course 210A or equivalent. Procedures and techniques for the collection, evaluation, and analysis of demographic and ecological data; models of population and ecological structure and change; applications to the study of social structure and social change.
Mr. Sabagh

214A-214B. The Measurement of Sociological Variables. Prerequisite: courses 210A-210B and consent of the instructor. Theory and technique of measurement in sociology and social psychology; construction, application and evaluation of measurement techniques, especially the forms of scaling. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.
Mr. TenHouten

215A-215B. Experimental Sociology. Prerequisite: course 210A or equivalent and consent of the instructor. A course designed to provide students with the basic fundamentals of the experimental method, particularly as it is used in social psychology. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.
Mr. Grusky, Mr. Rabow, Mr. Shure

216A-216B. Survey Research Methods. Course in methodology and techniques: formulation of research problem; study design; hypotheses; sampling; measurement; questionnaire and schedule construction; interviewing and data collection; processing and tabulation; analysis and interpretation; presentation of findings; cross-national, replicative, panel and other complex survey designs. Students participate in survey research project. This course is offered on an In Progress basis, which requires students to complete the full two-

NOTE: For key to symbols, see page 74

quarter sequence, at the end of which time a grade is given for all quarters of work.
Mr. Levine, Mr. Treiman

217A-217B. Ethnographic Field Work. Prerequisite: consent of the instructor. Theories and techniques of ethnographic field work. This course will consider the kinds of problems amenable to ethnographic approaches, methods and techniques for doing field work, and ethnical problems involved in such research. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Mr. Emerson, Mr. Pollner

218A-218B. Ethnomethodological Methods. Prerequisite: consent of the instructor. Examination of techniques used in ethnomethodological research, practice in the critical evaluation of research, and directed experience in the conduct of an extended investigation employing ethnomethodological procedures. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work.
Mr. Garfinkel

219. Theory of Sociological Inquiry. Prerequisite: course 210A and consent of the instructor. A general review of procedures followed by social scientists in attempts to achieve valid theoretical knowledge. Focuses on inductive inference and theory testing: control and randomization, experimental and nonexperimental research designs, association and causality, models, measurement theory, sampling theory. Mr. TenHouten

220. Role Theory. Prerequisite: graduate status and consent of the instructor. A review of theories and research dealing with social roles, with special emphasis on roles in social interaction and in formation of the social self. Mr. Turner

224A-224B. Problems in Social Psychology. Prerequisite: course 210A and consent of instructor. The basic course of graduate students intending to specialize in social psychology. The first quarter examines systematically major theoretical contributions to the field. The second quarter introduces the student to current work being done in the Department in several subfields. The Staff

225A-225B. Demographic Perspectives on the Relationship of Family and Economic Systems. Prerequisite: course 210A-210B or consent of the instructor. An examination of the interrelationship of family and economic systems in societies at different levels of economic development, focusing particularly on the U.S. experience. Central to the course is: (1) an analysis of how demographic factors affect economic and family systems; (2) how these systems, and changes in them, affect demographic variables; and (3) how this two-way process influences the relationship of family and economic systems over time. The first quarter will be primarily devoted to lectures and readings. The second quarter carries students into individual research projects involving a term paper and class room reports of results. Ms. Oppenheimer

226. Leadership and Comparative Social Structure. A comparative analysis of leadership in different social structures with particular attention to the development, maintenance, and disintegration of leadership corps and cadres. Mr. Surace

227. The Sociology of Knowledge. Prerequisite: graduate status or consent of the instructor. A survey of theories and research concerning social determinants of systems of knowledge and the role of intellectual and artistic elites in Western societies. Mr. Horton

230. Theories of Deviance. An examination of various sociological approaches to the study of deviant behavior with emphasis on anomie theory as the major orientation today. Special attention given to the problems of defining deviance and the articulation of sociological and psychological levels of explanation.
Mr. Emerson, Mr. Rabow, Mr. Surace

234. Sociology of Community Organization. Prerequisite: graduate status and consent of the instructor. A survey of recent and classical research and literature dealing with predominantly political institutions, the problem of order, and the organization of communal life in the village and the metropolis. The Staff

235. Social Structure and Social Movements. Prerequisite: graduate status or consent of the instructor. A survey of some social science theories bearing on the analysis of large scale social movements and upheavals. The causes, course and consequences of selected social movements, insurrections and revolutions will be examined. Mr. Surace

236. Social Change in the Middle East. An analysis of the sources, extent, and types of social change in the Middle East with an emphasis on the origin and consequences of industrialization and urbanization. Mr. Sabagh

237. Social Stratification in the Middle East. Modes of social differentiation in traditional Middle Eastern societies, localism and tribalism, the counter influence of processes leading to the recurrent emergence of societies of large scale and their distinctive structural characteristics. Mr. Sabagh

238A-238B. Field Work in Minority Communities. Prerequisite: graduate standing and consent of the instructor. This two-quarter sequence is designed to supply graduate students with the theoretical and methodological equipment necessary for studying disadvantaged minority communities. Special emphasis is given to the Black ghetto and the barrio. Nonstandard language forms (mainly Black English, and Chicano) are especially focused upon instrumentally. In the field students will gather empirical data that sheds light on the ways in which data of greater validity and practical utility might be collected among these groups. This course is offered on an In Progress basis, which requires students to complete the full two-quarter sequence, at the end of which time a grade is given for all quarters of work. Mr. Levine

240. Mathematics of Population. Prerequisites: introductions to matrices, calculus, and probability theory. Discrete and continuous deterministic and probabilistic models of the growth and composition of a one-sexed population classified by age, plus selected topics on more complicated population models. Mr. McFarland

247. Neurosociology. Prerequisite: graduate standing and consent of the instructor. Relations between aspects of social structure and higher cortical functions. Mr. TenHouten

248. The Sociology of Cognitive Development. Prerequisite: graduate standing or consent of instructor. Analysis of ways in which mental processes are structured and organized by positions and practices in the social world, and by change and development in society. Mr. TenHouten

M249A. Sociocultural Aspects of Health and Illness: Social Epidemiology. (Same as Public Health M283E.) Prerequisite: Public Health 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on life styles and other socioenvironmental factors associated with disease and mortality.
Mr. Goldstein

M249B. Sociocultural Aspects of Health and Illness: Health Professions. (Same as Public Health M283F.) Prerequisite: Public Health 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. A sociological examination of the concepts "health" and "illness" and role of various health professionals especially physicians. Attention given to the meaning of professionalization and professional-client relationships within organization settings.
Mr. Goldstein

M249C. Sociocultural Aspects of Health and Illness: Health Behavior. (Same as Public Health M283G.) Prerequisite: Public Health 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of the instructor. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick role behavior. The Staff

Seminars

250. Methodological Problems.
Mr. Bailey, Mr. TenHouten

251. Topics in the Problem of Social Order.
Mr. Garfinkel

252. Criminology. Mr. Katz, Mr. Rabow

253. Quantitative Methods in Sociology.
Mr. Bailey, Mr. Bonacich, Mr. Freeman

M254A. Sociology of Law. (Same as Law M154.) Prerequisite: consent of instructor. Social control functions of law and legal institutions with particular attention to the contrast between law-ways of stateless and tribal societies and contemporary American legal processes and institutions, primarily those of criminal law. Mr. Prager

254B. Sociology of Law. Social control functions of law and legal institutions with particular attention to the contrast between law-ways of stateless and tribal societies and contemporary American legal processes and institutions, primarily those of criminal law. Mr. Emerson, Mr. Prager

255A-255B. Systematic Sociological Theory. Course 255A is prerequisite to 255B.
Mr. Alexander

256. Demography. Mr. Bailey, Mr. Sabagh

257. Sociology of the Arts. Mr. Horton

258. Sociology of Religion. The Staff

259. Social Structure and Economic Change: Historical and Comparative Perspectives.
Ms. Hirata, Mr. Surace, Mr. Zeitlin

260. Industry and Society.
Mr. Light, Mr. Surace

261. Ethnic Minorities. Mr. Levine, Mr. Seeman

262. Selected Problems in Urban Sociology.
Mr. Light

263. Social Stratification. Mr. Treiman

264. Professions in the American Society.
Ms. Nilson, Ms. Oppenheimer

265. Problems in Organization Theory.
Mr. Grusky, Ms. Zucker

266. Selected Problems in the Analysis of Conversation. Prerequisite: course 144A or consent of the instructor. Mr. Schegloff

267. Selected Problems in Communication.
Mr. Pollner, Mr. Schegloff

268. Historical and Interpretive Sociology.
Mr. Surace

269. Collective Behavior. Mr. Turner

270. Selected Problems in Socialization.
Mr. Turner

271. Ethnomethodology. Mr. Garfinkel

272. Topics in Political Sociology.
Mr. Roy, Mr. Surace, Mr. Zeitlin

273. Attitudes and Social Structure. Mr. Seeman

274. Selected Problems in the Sociology of Africa. Prerequisite: graduate standing and consent of the instructor. Selection of problems in the sociology of Africa from among the following fields: urbanization; racial and ethnic relations, national integration, and political change. The Staff

275. Seminar in Comparative Social Structure: Developed Societies. The comparison of social structures among developed societies, including the comparative analysis of the main institutional features, social class arrangements, social mobility characteristics, and the like. Comparisons will involve the U.S. and developed countries in Western Europe, Asia and Oceania. Mr. Treiman

276. Selected Topics in the Sociology of East Asia. Prerequisite: graduate standing and consent of the instructor. The seminar will analyze selected problems in China, or in China and Japan comparatively. Possible topics include: 1. China's Great Proletarian Cultural Revolution; 2. Internal contradictions in Chinese society: male-female relations, the city and the countryside, minority nationalities, class struggle under socialism, etc.; 3. China and Japan: two models of development. Ms. Hirata

277. Sociology of Science. Mr. TenHouten

279. Sociology of the Theatre. Seminar on different movements in the theatre, or expressions of the Theater (e.g., Theatre of the Absurd, Contemporary Experimental Theatre), with emphasis on the theatrical performance as it relates to the environing society, responds to, or reacts against, theatrical conventions, socializes the players to the performance, and creates its own social world. Mr. Horton

280. Seminar in Evaluation Research. Prerequisite: graduate standing. The seminar covers both the technical and political aspects of implementing evaluation research studies. The role of evaluation research in social policy development is considered as well as procedures for undertaking process and impact evaluations. Graded S/U and lettergrade. Mr. Freeman

281. Selected Problems in Mathematical Sociology. Prerequisite: Mathematics 4B or consent of the instructor. An exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction. Mr. Bonacich, Mr. McFarland

282. Organizations and the Professions. The Staff

284. Topics in Mental Health and Illness. Prerequisite: course 157 or equivalent and graduate standing. Mr. Emerson, Mr. Grusky, Mr. Pollner

M287A-287B. Population Policy and Fertility. (Same as Public Health M274A-274B.) Prerequisites: Public Health 102, 112, 173 or equivalent, graduate standing, and consent of instructor. Analysis of research concerning major issues in population policy with special emphasis on human fertility. Public Health M274A is prerequisite for M274B. Sociology M287A is prerequisite for M287B. Ms. Blake

M287C. Seminar in Population Policy and Fertility. (Same as Public Health M274C.) Prerequisites: Public Health M274A-274B or equivalent, graduate standing, and consent of instructor. Review of current literature in population policy and fertility in conjunction with student research reports. May not be repeated for credit. Ms. Blake

291. Moral Solidarity in Communities. Comparative analysis of social solidarity and the collapse of social solidarity in voluntary and traditional communities. Contrasts more and less solidary types with special reference to utopian communities and developmental processes. Mr. Light

292A-292B-292C. Research Development. The Staff

495. Supervised Teaching of Sociology. Prerequisites: Teaching Assistant status in the Department of Sociology, or equivalent. A special course for teaching assistants. It is designed to deal with the problems and techniques of teaching introductory sociology. The Staff

Individual Study and Research

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of UCLA Graduate Advisor and Graduate Dean. Approval of host campus Instructor, Department Chairperson and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

596. Directed Research and Study in Sociology. (½ to 2 courses) The Staff

597. Individual Study for Examinations. Preparation for the dossier for the master's degree or the qualifying examination for the Ph.D. The Staff

599. Research in Sociology for Ph.D. Degree Candidates. (1 to 2 courses) The Staff

SPANISH AND PORTUGUESE

(Department Office, 5303 Rolfe Hall)

Shirley L. Arora, Ph.D., *Professor of Spanish.*
José R. Barcia, Lic. F. y L., *Professor of Spanish.*
Rubén A. Benítez, Ph.D., *Professor of Spanish.*
Claude L. Hulet, Ph.D., *Professor of Spanish and Portuguese.*
Carroll B. Johnson, Ph.D., *Professor of Spanish (Chairman of the Department).*
C.P. Otero, Ph.D., *Professor of Spanish and Romance Linguistics.*
Stanley L. Robe, Ph.D., *Professor of Spanish.*
John A. Crow, Ph.D., *Emeritus Professor of Spanish.*
John E. Englekirk, Ph.D., *Emeritus Professor of Spanish.*
Donald F. Fogelquist, Ph.D., *Emeritus Professor of Spanish.*
Aníbal Sánchez-Reulet, Ph.D. *Emeritus Professor of Spanish.*
Marion A. Zeitlin, Ph.D., *Emeritus Professor of Spanish and Portuguese.*
Gerardo Luzuriaga, Ph.D., *Associate Professor of Spanish.*
Richard M. Reeve, Ph.D., *Associate Professor of Spanish.*
Enrique Rodríguez-Cepeda, Ph.D., *Associate Professor of Spanish.*
Paul C. Smith, Ph.D., *Associate Professor of Spanish.*
Susan Plann, Ph.D., *Assistant Professor of Spanish.*
A. Carlos Quicoli, Ph.D., *Assistant Professor of Portuguese and Romance Linguistics.*
A. John Skirius, Ph.D., *Assistant Professor of Spanish.*
Mariá L. de Lowther, M.A., *Assistant Professor of Spanish, Emeritus.*

•

José M. Cruz-Salvadores, M.A., *Lecturer in Spanish.*
E. Mayone Dias, Ph.D., *Lecturer in Spanish and Portuguese.*
George L. Voyt, J.D., *Lecturer in Spanish.*

The following courses are primarily designed to serve the department's three B.A. programs: the B.A. in Spanish (Plan A), the B.A. in Spanish and Linguistics (Plan B), and the B.A. in Portuguese, as well as to prepare students for its three graduate programs: the M.A. in Spanish, the M.A. in Luso-Brazilian Languages and Literatures, and the Ph.D. in Hispanic Languages and Literatures. The department's courses are also functionally supportive of such extradepartmental programs as the Teaching Credential in Spanish, the B.A. and M.A. programs in Latin American Studies, the M.A. program in Folklore and Mythology, and the M.A. and Ph.D. programs in Comparative Literature and Romance Linguistics and Literature.

Spanish

Preparation for the Major

Courses 5, 25, M42, and M44, or their equivalents.

The Major

The Major, Plan A (Language and Literature)

Linguistics 100 is prerequisite to Spanish 100 and 103. Spanish majors may take it Pass/Non Pass or for a letter grade. It is applicable to the Breadth Requirement (Plan A and Plan B) as a course in Social Sciences.

Fifteen upper division courses distributed as follows: nine required courses: 100, 103, 105 or 109, 115 or M118, 120A-120B, 121A-121B, and 127; six elective courses: one in Spanish literature, one in Spanish American literature, and four selected from other Department offerings not including 160A-160B-160C.

The Major, Plan B (Spanish and Linguistics)

In addition to the normal preparation for the major, Plan B requires completion of six quarters of work in one other foreign language or three quarters in each of two other languages. Portuguese is recommended.

The major consists of thirteen upper division courses distributed as follows: four required courses in Spanish: 100, 103, 105 or 109, 119; six required courses in Linguistics: 100, 103, 110, 120A, 120B, 140; three electives in Spanish.

General College Regulation

No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

Honors Program

To qualify for graduation with departmental honors, students must achieve a 3.0 overall grade-point average, a 3.50 grade-point average in the major, and have completed two of the three Senior Seminars, 170A, 170B, 170C.

Requirement for Teaching Credentials

Consult the UCLA *Announcement of the Graduate School of Education.*

The Master's Degree in Spanish

General Requirements. See Master's Degrees. The Department favors the Comprehensive Examination Plan, but, with departmental approval, the Thesis Plan may be followed.

Departmental Requirements — Comprehensive Examination Plan. (1) Foreign Language Requirement: a reading knowledge of one other foreign language approved by the graduate adviser. Portuguese is acceptable. This requirement must be met not later than the same quarter in which the tenth course is taken. (2) Course Requirement: ten courses with a minimum of seven in the 200 series, of which one must be a seminar. With the approval of the graduate adviser, a maximum of two courses may be taken at the graduate level in closely related fields. (3) The Comprehensive Examination: two three-hour written examinations to be given the next-to-the-last week preceding the final examination period of the Fall, Winter, and Spring quarters. The M.A. consists of three fields: Linguistics, Spanish Literature, and Spanish-American Literature. The student chooses one as his major field, the other two becoming his minor fields. He is examined for three hours in the major and one-and-one-half hours in each minor. Reading lists which constitute the basis of the examinations will be available to the student. Only those students who pass these examinations with distinction (High Pass) will be automatically eligible to enter the Ph.D. program.

Departmental Requirements — Thesis Plan. (1) Guidance Committee: the preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. The other two members will be appointed by the chairman of the Department after consultation with the candidate and the chairman of the committee. The committee members shall be appointed to represent three different fields of interest within the Department. No committee shall be appointed before a candidate has completed one full quarter of work in graduate standing, including no less than seven courses in the Department, of which at least one must be in the 200 series. (2) Foreign Language Requirement: the same as the Comprehensive Examination Plan. (3) Course Requirement: nine courses of which a minimum of six must be in the 200 series. With the approval of the guidance committee a maximum of two courses may be taken at the graduate level in closely related fields. (4) Thesis and Examination: the subject and general plan of investigation for the thesis must be approved by the Department and the instructor concerned before a guidance committee can be appointed. After completion of the thesis, the candidate must pass a three-hour oral examination testing his knowledge of the field of his thesis and his general competence. A reading list which will constitute the basis for part of this examination will be available to the student. Only those students

NOTE: For key to symbols, see page 74

who pass these examinations with distinction (High Pass) will be automatically eligible to enter the Ph.D. program.

Ph.D. Degree in Hispanic Languages and Literatures

General Requirements. See Doctoral Degrees.

Admission to the Doctoral Program. The UCLA M.A. in Spanish or Luso-Brazilian Language and Literatures, or its equivalent, is prerequisite. Students who hold the M.A. from UCLA fall into one of three categories and are so notified upon receipt of the degree. The categories are: a) *Low Pass* (Terminal M.A.) – Students who pass with terminal M.A.'s are not eligible for admission into the Ph.D. program; b) *High Pass* – Students who pass the M.A. "with distinction" are automatically eligible for admission to the Ph.D. program, and may file Form I ("Notice of Intention to Proceed Toward the Doctoral Degree") and form their guidance committee immediately; c) *Middle Pass* – Students in this category may continue toward the Ph.D. on the following probationary basis: 1) Take three graduate courses with three different members of the Department; 2) Find a tenured professor who is willing to direct the dissertation; 3) File Form I which is considered by the Graduate Advisers Committee in consultation with the professors with whom the student has studied. The entire Department then votes to accept or reject the student. If accepted, the student will be advised to form his guidance committee. Students who hold the M.A. from other institutions will not be assigned to a guidance committee until their second quarter of studies in the Department, after complying with the provisions set forth in the "Middle Pass" category. In some cases they may be required to pass the UCLA M.A. examination, normally in the second or third quarter of residence.

Foreign Language Requirement. In addition to Spanish and Portuguese, the candidate must have a reading knowledge of at least two other foreign languages to be chosen with the approval of the guidance committee in the light of the candidate's field of specialization. The candidate must pass the test in one of these two languages not later than in the third quarter of graduate studies and the other not later than in the seventh quarter.

Fields of Specialization. The Department recognizes the following fields of specialization, from which one major and four minor fields shall be selected: (a) Medieval and Renaissance Literature; (b) The Golden Age; (c) 18th and 19th Century Spanish Literature; (d) 20th Century Spanish Literature; (e) Colonial and 19th Century Spanish American Literature; (f) 20th Century Spanish American Literature; (g) Portuguese Literature; (h) Brazilian Literature; (i) Spanish and Portuguese Philology and Linguistics; (j) Spanish and Luso-Brazilian Folklore. The field in which the candidate intends to present a dissertation will be designated as his major field. The minimum course requirement for the major field will be determined by the candidate's guidance committee. The minimum course requirement for a minor field is one graduate course (series 200-249) followed by a corresponding seminar (series 251-286) or the equivalent.

Course Requirement. Three upper division courses in Portuguese or Brazilian literature and a minimum, after the B.A., of 18 graduate courses and seminars, including Spanish M200, M201, M203A, and one additional graduate course in one of the above fields of specialization not chosen as a major or minor. Those students who choose Philology and Linguistics as their major field must also include Portuguese M203B, and have a specific knowledge of Classical and Vulgar Latin and of Old French or Old Italian.

Qualifying Examinations. The qualifying examinations will be given during the Fall, Winter, and Spring quarters and will consist of: (a) a three-hour written examination in the candidate's major field; (b) four one-hour written examinations in the minor fields; and (c) a two-hour oral examination. The qualifying examinations are normally taken no later than nine quarters after the B.A. and six quarters after receiving the M.A. At the time of the qualifying examinations, or subsequently, the committee may specify whether or not an oral examination is required after the acceptance of the dissertation in its final form.

The Dissertation. The dissertation may be on any subject within the general area of Spanish and Portuguese languages and literatures. If five years have elapsed since any of the requirements have been taken, these requirements must be revalidated by the Department.

1. Elementary Spanish. Meets five hours weekly; laboratory one hour. This course corresponds to the first year of high school Spanish. Not available for academic credit for those students who have completed more than one year of high school Spanish or the equivalent. The student will, however, be credited with four units toward their minimum progress requirement. The Staff

1G. Reading Course for Graduate Students. (No credit) Meets five hours weekly. The Staff

2. Elementary Spanish. Meets five hours weekly; laboratory one hour. Prerequisite: course 1 or one year of high school Spanish, or equivalent. Not available for academic credit for those students who have completed two years of high school Spanish or the equivalent. The students will, however, be credited with four units toward their minimum progress requirement. The Staff

2G. Reading Course for Graduate Students. (No credit) Meets five hours weekly. Prerequisite: course 1G or equivalent. The Staff

3. Elementary Spanish. Meets five hours weekly; laboratory one hour. Prerequisite: course 2, or two years of high school Spanish, or equivalent. The Staff

4. Intermediate Spanish. Meets five hours weekly; laboratory one hour. Prerequisite: course 3, or three years of high school Spanish, or equivalent. The Staff

5. Intermediate Spanish. Meets five hours weekly; laboratory one hour. Prerequisite: course 4 or four years of high school Spanish, or equivalent. The Staff

8A-8B. Spanish Conversation. (½ course each) Beginning each quarter. Meets three hours weekly. Prerequisite: course 8A is open to those who have completed course 4, or equivalent. Students who have completed course 3 with grade B or better may be admitted. The Staff

9A-9B. Advanced Conversation. (½ course each) Beginning each quarter. Meets three hours weekly. Prerequisite: course 8B or equivalent. The Staff

25. Advanced Spanish. Prerequisite: course 5 or equivalent. Concentration on the building of vocabulary and the attainment of a high degree of comprehension in preparation for the courses in literature. The Staff

M42. Civilization of Spain and Portugal. (Same as Portuguese M42.) Highlights of the Civilization of Spain and Portugal, with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major. Mr. Cruz–Salvadores

M44. Civilization of Spanish America and Brazil. (Same as Portuguese M44.) Highlights of the Civilization of Spanish America and Brazil with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major. Mr. Reeve, Mr. Skirius

Upper Division Courses

The basic prerequisite to all upper division courses except 160A-160B-160C is Spanish 25 or the equivalent.

100. Phonology and Pronunciation. Prerequisite: Linguistics 100. Meets four hours weekly, including one hour laboratory. Analysis of the phonetic and phonemic systems of Spanish with special emphasis on the correlation between the phonemic and graphemic systems. Interrelation of phonological and morphological phenomena. Exercises and drills directed toward individual needs. Required for major (Plan A and Plan B). Ms. Plann, Mr. Robe

103. Syntax. Prerequisite: Linguistics 100. A study of sentence types and their variations. The lexicon and its features. Interrelation of syntactic, semantic and morphological phenomena. Required for major (Plan A and Plan B). Mr. Otero, Ms. Plann

105. Intermediate Composition. Prerequisite: course 103. Paraphrasing, summarizing, and study of idiomatic expressions. The Staff

109. Advanced Composition. Prerequisite: course 103. Correction of student's original compositions and analysis of basic stylistic elements. The Staff

115. Applied Linguistics. Prerequisite: course 103. Meets three hours weekly. Survey of the major linguistic problems faced by the teacher of Spanish. Ms. Plann

117. The Spanish of Southern California. Prerequisites: Spanish 100 and 103 or consent of the instructor. Analysis of pronunciation, word formation, syntax, and lexicon of the Spanish of Southern California, with attention to regional features, social and age levels of speech, and interference from English. Mr. Robe

M118. History of the Portuguese and Spanish Languages. Prerequisite: Spanish 100. (Same as Portuguese M118.) Meets four hours weekly. Major features of the development of the Portuguese and Spanish languages from the origins in Vulgar Latin to modern times. Contributions of other languages to the formation of Portuguese and Spanish. Mr. Otero, Mr. Quicoli, Mr. Smith

119. Literary Analysis. (Formerly numbered 147.) An introduction to the study of literary devices, figures of speech and the differentiation of literary genres. Strongly recommended as preparation for the required courses in literature. Required for major (Plan B). The Staff

120A-120B. Survey of Spanish Literature. Prerequisite: M42 for Spanish majors. Beginning each quarter. An introduction to the principal authors, works and movements of Spanish literature. Required for the major (Plan A). Mr. Johnson, Mr. Rodríguez–Cepeda

121A-121B. Survey of Spanish American Literature. Prerequisite: Spanish M44 for Spanish majors. Beginning each quarter. An introduction to the principal authors, works, and movements of Spanish American literature. Required for the major (Plan A). Mrs. Arora, Mr. Luzuriaga, Mr. Reeve

122. Medieval and Renaissance Literature. The main genres of Medieval and Renaissance Spanish literature with emphasis on at least one representative work for each. Recommended preparation 120A. The Staff

124. The Golden Age. The main genres of the Golden Age with emphasis on at least one representative work for each. Recommended preparation 120A. Mr. Johnson, Mr. Rodríguez–Cepeda

127. Don Quijote. Directed reading and intensive study of the novel. Required for the major (Plan A). Recommended preparation 120A. Mr. Johnson, Mr. Rodríguez–Cepeda

128. Neoclassicism and Romanticism in Spain. The main manifestations of thought and literature from 1700 to 1850 with emphasis on representative works. Recommended preparation 120B. Mr. Benítez

130. Spanish Literature from 1850 to 1898. The development of post-Romantic literature with emphasis on representative works. Recommended preparation 120B. Mr. Smith

132A. Spanish Literature in the 20th Century: Poetry and Drama. Spanish poetry and theater since

1898 with emphasis on several representative works for each genre. Recommended preparation 120B. Mr. Barcia, Mr. Benítez

132B. Spanish Literature in the 20th Century: Fiction and the Essay. Spanish prose genres since 1898 with emphasis on representative novels, short stories and essays. Recommended preparation 120B. Mr. Barcia, Mr. Benítez

137. The Literature of Colonial Spanish America. A study of the most important authors and movements in the various regions of Spanish America to 1810. Recommended preparation 121A. Mrs. Arora

139. 19th Century Spanish American Literature. A detailed study of the important writers and movements from 1810 to 1860. Recommended preparation 121A. Mr. Luzuriaga, Mr. Reeve, Mr. Skirius

141. Mexican Literature. A study of the major Mexican literary contributions to the development of a national culture. Recommended preparation, 121A-121B. Mr. Reeve, Mr. Skirius

142A. Spanish American Literature in the 20th Century: Poetry and Drama. A detailed study of the important lyrical and dramatic movements in Spanish America since 1880. Recommended preparation 121B. Mr. Luzuriaga, Mr. Skirius

142B. Spanish American Literature in the 20th Century: Fiction and the Essay. Spanish American prose genres since 1880 with representative novels, short stories and essays. Recommended preparation 121B. Mr. Reeve, Mr. Skirius

M149. Folk Literature of the Hispanic World. (Same as Folklore M149.) A study of the history and present dissemination of the principal forms of folk literature throughout the Hispanic countries. Mrs. Arora, Mr. Robe

151. Folk Song in Spain and Spanish America. (½ course) Meets three hours weekly. A study of the origins and development of Spanish folk music and the different types of folk songs and folk poetry peculiar to the various regions of Spain and Spanish America. The Staff

160A-160B-160C. Hispanic Literatures in Translation. (Formerly numbered 150A-150B.) Class readings and analysis of selected works in translation. Classroom discussion, papers and examinations will be in English. Meets three times weekly.

160A. Spain and Portugal. Mr. Johnson

160B. Spanish America and Brazil. Mr. Hulet

160C. *Don Quijote* in English Translation. Class reading and analysis of Cervantes: *Don Quijote*. Mr. Johnson

170A. Senior Seminar: Topics in Spanish Literature. Prerequisite: Spanish major, senior standing, 3.50 G.P.A. in the major. Directed research on topics within the general area of Spanish literature. Two senior seminars are required for Departmental Honors. Given Fall Quarter only. Mr. Barcia, Mr. Benítez

170B. Senior Seminar: Topics in Spanish American Literature. Prerequisite: Spanish major, senior standing, 3.50 G.P.A. in the major. Directed research on topics within the general area of Spanish American literature. Two senior seminars are required for Departmental Honors. Given Winter Quarter only. Mrs. Arora, Mr. Luzuriaga, Mr. Reeve

170C. Senior Seminar: Topics in Hispanic Linguistics. Prerequisite: Spanish major, senior standing, 3.50 G.P.A. in the major. Directed research on topics within the general area of Hispanic linguistics. Two senior seminars are required for Departmental Honors. Given Spring Quarter only. Mr. Otero, Mr. Robe, Mr. Smith

199. Special Studies. (½ to 1 course) Prerequisite: consent of adviser and instructor. A maximum of two full courses may count toward the major. The Staff

Graduate Courses

M200. Bibliography. (Same as Portuguese M200.) Meets three hours weekly. Identification and analysis of bibliographical sources for work by doctoral candidates in their fields of specialization. Mr. Benítez, Mr. Rodríguez–Cepeda

M201. Literary Criticism. (Same as Portuguese M201.) Meets three hours weekly. Definition and discussion of methods of literary criticism. Mr. Benítez, Mr. Otero

M203A-203B. The Development of the Portuguese and Spanish Languages. (Same as Portuguese M203A-203B.) Prerequisites: course M118, 100 or consent of instructor. Intensive study of the historical development of the Portuguese and Spanish languages from their origin in spoken Latin. Mr. Otero, Mr. Smith

204A-204B. Transformational Grammar. Meets three hours weekly. Prerequisite: course 204A is prerequisite to 204B, or consent of the instructor. A transformational approach to the Spanish language, with some consideration of the bearing of syntax, semiology, and phonology on style, metaphor and meter. Mr. Otero

206. Linguistics. Meets three hours weekly. Prerequisite: course 115 or equivalent. A study of theoretical synchronic linguistics as applied to Spanish. Mr. Otero, Ms. Plann

209. Dialectology. Meets three hours weekly. Prerequisite: course 100 or 115 or equivalent. The major dialect areas of Peninsular and American Spanish, with the distinguishing features of each. Influence and contribution of cultural and historical features, including indigenous languages, to their formation. Mr. Robe

222. Medieval and Renaissance Poetry. Meets three hours weekly. Readings and lectures on Spanish poetry from the beginnings to 1550. The Staff

223. Medieval and Renaissance Prose. Meets three hours weekly. Readings and lectures on Spanish prose from the beginnings to 1550. The Staff

224. The Poetry of the Golden Age. Meets three hours weekly. Readings and lectures on the main poets and poetic movements of the Golden Age. Mr. Rodríguez–Cepeda

225. The Drama of the Golden Age. Meets three hours weekly. Readings and lectures on the "comedia." Mr. Rodríguez–Cepeda

226. Prose of the Golden Age. Meets three hours weekly. Readings and lectures on fictional, didactic, religious, and historial writings. Mr. Johnson

227. Cervantes. Meets three hours weekly. Readings and lectures on the works of Cervantes. Mr. Johnson

230. Neoclassicism and Romanticism. Meets three hours weekly. Readings and lectures on representative works of the period. Mr. Benítez

231. The 19th Century Novel. Meets three hours weekly. Readings and lectures on the novel of the 19th century. Mr. Benítez, Mr. Smith

232. The Generation of 1898. Meets three hours weekly. Readings and lectures on representative works of the generation. Mr. Barcia

233. Contemporary Spanish Drama. Meets three hours weekly. Readings and lectures on the theater since 1898. Mr. Barcia

234. Contemporary Spanish Poetry. Meets three hours weekly. Readings and lectures on poetry since 1898. Mr. Barcia

235. Contemporary Spanish Prose. Meets three hours weekly. Readings and lectures on the novel, the short story, and the essay since 1898. Mr. Barcia

237. Chroniclers of the Americas. Meets three hours weekly. Readings and lectures on the "Cronistas de Indias." Mrs. Arora, Mr. Robe

239. Neoclassic and Romantic Prose and Poetry in Spanish America. Meets three hours weekly. Intensive study of Neoclassicism and Romanticism in Spanish America. The Staff

240. The Modernist Movement. Meets three hours weekly. An intensive study of the important writers of this movement during the period 1880-1916. Mr. Luzuriaga

243. Contemporary Spanish American Poetry. Meets three hours weekly. Intensive study of the important poets of Spanish America since 1916. The Staff

244. Contemporary Spanish American Novel and Short Story. Meets three hours weekly. A study of the important novelists and short story writers from Modernism to the present. Mr. Reeve

245. Contemporary Spanish American Essay. Meets three hours weekly. Intensive study of the important essayists of the 20th century. Mr. Skirius

246. Contemporary Spanish American Theater. Meets three hours weekly. A study of the principal dramatists and theater movements in the twentieth century. Mr. Luzuriaga

M249. Hispanic Folk Literature. (Same as Folklore M249 and Portuguese M249.) Meets three hours weekly. An intensive study of folk literature as represented in a) ballad and poetry; b) narrative and drama; c) speech. Mrs. Arora, Mr. Robe

Seminars

M251. Studies in Galegan-Portuguese and Old Spanish. (Formerly numbered 253 and same as Portuguese M251.) Prerequisite: course M203A-203B. Problems related to the historical development of Galegan-Portuguese and Old Spanish. Mr. Otero

256A-256B. Studies in Linguistics and Dialectology.

256A. Studies in Linguistics. Prerequisite: course 206. Mr. Otero

256B. Studies in Dialectology. Prerequisite: course 209. Mr. Robe

Meets two hours weekly. Problems in the analysis and description of the contemporary language. Directed toward independent research.

262A-262B-262C. Studies in Medieval and Renaissance Literature.

262A. Lyric Poetry. Meets two hours weekly. Prerequisite: course 222. The Staff

262B. Epic Poetry. Meets two hours weekly. Prerequisite: course 222. The Staff

262C. Prose Writers. Meets two hours weekly. Prerequisite: course 223. The Staff

264A-264D. Studies in the Golden Age.

264A. Poetry. Meet two hours weekly. Prerequisite: course 224. Mr. Johnson, Mr. Rodríguez–Cepeda

264B. The "Comedia." Meets two hours weekly. Prerequisite: course 225. Mr. Johnson, Mr. Rodríguez–Cepeda

264C. Studies in Prose of the Golden Age. Meets two hours weekly. Prerequisite: course 226. Mr. Johnson, Mr. Rodríguez–Cepeda

264D. Don Quijote. Meets two hours weekly. Prerequisite: course 227. Mr. Johnson, Mr. Rodríguez–Cepeda

270A-270B. Studies in 18th and 19th Century Spanish Literature.

270A. Poetry, Drama and Prose. Meets two hours weekly. Prerequisite: course 230. Mr. Benítez

270B. The Novel Meets two hours weekly. Prerequisite: course 231. Mr. Benítez, Mr. Smith

272A-272D. Studies in 20th Century Spanish Literature.

272A. The Novel. Meets two hours weekly. Prerequisite: course 232 or 235. Mr. Barcia

272B. The Theater. Meets two hours weekly. Prerequisite: course 233. Mr. Barcia

NOTE: For key to symbols, see page 74

272C. Poetry. Meets two hours weekly. Prerequisite: course 234. Mr. Barcia

272D. The Essay. Meets two hours weekly. Prerequisite: course 235. Mr. Barcia

277. Studies in Colonial Spanish American Literature. Meets two hours weekly. Prerequisite: course 237. Mrs. Arora

278. Studies in 19th Century Spanish American Literature. Meets two hours weekly. Prerequisite: course 239. The Staff

280A-280D. Studies in Contemporary Spanish American Literature.

280A. Modernist Poetry. Meets two hours weekly. Prerequisite: course 240. Mr. Luzuriaga

280B. Post-Modernist Poetry. Meets two hours weekly. Prerequisite: course 243. The Staff

280C. Novel and Short Story. Meets two hours weekly. Prerequisite: course 244. Mr. Reeve

280D. The Essay. Meets two hours weekly. Prerequisite: course 245. Mr. Skirius

M286A-286B-286C. Studies in Hispanic Folk Literature. (Same as Folklore M286A-286B-286C.)

286A. The Romancero. Meets two hours weekly. Prerequisite: course 222. The Staff

286B. Narrative and Drama. Meets two hours weekly. Prerequisite: course 239 or M249. Mrs. Arora, Mr. Robe

286C. Ballad, Poetry and Speech. Meets two hours weekly. Prerequisite: course M249. Mrs. Arora, Mr. Robe

Professional Courses

310. The Teaching of Spanish in the Elementary School. Meets three hours weekly. Prerequisite: course 115. The Staff

370. The Teaching of Spanish in the Secondary School. Meets three times weekly. Prerequisite: course 115. The Staff

372. The Language Laboratory. (½ course) Meets three hours weekly. Preparation of materials. Equipment, techniques, and problems related to the operation of the language laboratory. Mr. Otero

495. The Teaching of Spanish in the University. Prerequisite: graduate standing in the Department. Basic concepts of modern theories of language and language acquisition which underlie modern methods of second language teaching. Methods of second language teaching: Pattern Drill; "Inductive Grammar" (de Sauzé; Pucciani and Hamel; Barcia) and others. Teaching practice. Observation and discussion of selected classes. Lesson preparation and execution. Test construction. Mr. Quicoli

Individual Study and Research

596. Directed Individual Study or Research. (1 to 2 courses) Prerequisite: approval of graduate adviser and of Chairman of the Department. Study or research in areas or on subjects not offered as regular courses. Work evaluated on letter grade basis. No more than one full course may count toward the M.A. course requirement. Limited to a maximum of two full courses in any graduate program. The Staff (F,W,Sp)

597. Preparation for Graduate Examinations. (1 to 2 courses) Prerequisite: official acceptance of candidacy by the department, and approval of graduate adviser. Individual preparation for the comprehensive examination for the M.A. degree or the qualifying examinations for the Ph.D. degree. Graded satisfactory/unsatisfactory. May be taken only once for each degree examination and only in the quarter that comprehensive or qualifying examinations are to be taken. The Staff (F,W,Sp)

598. Research for M.A. Thesis. (1 to 2 courses) Prerequisite: consent of the guidance committee. Research in preparation of the master's thesis. Graded satisfactory/unsatisfactory. The Staff (F,W,Sp)

599. Research for Ph.D. Dissertation. (1 to 2 courses) Prerequisite: restricted to those who have passed the qualifying examinations for the doctor's degree. Research for and preparation of the Ph.D. dissertation. Graded satisfactory/unsatisfactory. The Staff (F,W,Sp)

Portuguese

Preparation for the Major

Courses 3, 25, M42 and M44, or their equivalent.

The Major in Portuguese

Thirteen upper division courses distributed as follows: Seven required courses: 100, 103, M118, 120A, 120B, 121A, 121B. The remaining six courses may consist of six electives in Portuguese, or four electives in Portuguese plus two courses supportive of the student's program and approved by the department in history, philosophy, linguistics, or another language or literature.

General College Regulation. No credit will be allowed for completing a less advanced course after satisfactory completion of a more advanced course in grammar and/or composition.

Requirement for Teaching Credentials. Consult the UCLA ANNOUNCEMENT OF GRADUATE SCHOOL OF EDUCATION.

The Master's Degree in Luso-Brazilian Language and Literatures

General Requirements. See the Graduate Division. The Department favors the Comprehensive Examination Plan, but, with departmental approval, the Thesis Plan may be followed. See Thesis and Comprehensive Examination.

Departmental Requirements — Comprehensive Examination Plan. (1) Foreign Language Requirement: a reading knowledge of one other foreign language approved by the graduate adviser. Spanish is acceptable. This requirement must be met at least one quarter before the awarding of the degree. (2) Course Requirements: Nine upper division and graduate level courses of which a minimum of six will be graduate courses in the 200 series, including one seminar; two graduate courses in closely related fields may be taken with the approval of the graduate adviser; a maximum of three upper division courses, excluding those required or elective courses in the preparation of the major, may be taken; (3) The examination will be divided into three major parts. In the first, the student will be expected to show a general knowledge of the history and structure of the Portuguese language. In the second and third parts, the student will be expected to show a thorough acquaintance with the authors, works, and movements of both Portuguese and Brazilian literature. Reading lists which will constitute the basis for the second and third examinations will be available to the student. Only those students who pass these examinations with distinction will be encouraged to proceed to the candidacy for the Ph.D.

Departmental Requirements — Thesis Plan. (1) Guidance Committee: the preparation and examination of each candidate will be the responsibility of a guidance committee composed of three members of the Department. The chairman of the committee will be the instructor under whom the candidate proposes to write his thesis. The other two members will be appointed by the chairman of the Department after consultation with the candidate and the chairman of the committee. The committee members shall be appointed to represent three different fields of interest within the Department. No such committee shall be appointed before a candidate has completed one full quarter of work in graduate standing, including no less than two courses in the Department, of which at least one must be in the 200 series. (2) Foreign Language Requirement: the same as for the Comprehensive Examination Plan. (3) Course Requirements: same as for the Comprehensive Examination Plan, except that the student will be required to enroll in Portuguese 598, Research on Master's Thesis, which will count as one of the nine required courses. (4) Thesis and Examination: the subject and general plan of investigation for the thesis must be approved by the Department and the instructor concerned before a guidance committee can be appointed. After completion of the thesis, the candidate must pass a three-hour oral examination testing his knowledge of the field of his thesis and his general competence. A reading list which will constitute the basis for part of this examination will be available to the student. Only those students who pass these examinations with distinction will be encouraged to proceed to candidacy for the Ph.D.

Ph.D. Degree in Hispanic Languages and Literatures.

General Requirements. See the Graduate Division.

Lower Division Courses

1. Elementary Portuguese. Meets five hours weekly; laboratory one hour. The Staff

2. Elementary Portuguese. Meets five hours weekly; laboratory one hour. Prerequisite: course 1 or equivalent. The Staff

3. Intermediate Portuguese. Meets five hours weekly; laboratory one hour. Prerequisite: course 2 or equivalent. The Staff

8A-8B. Portuguese Conversation. (½ course each) Meets three discussion hours weekly. Prerequisite: open to students who have completed Portuguese 3 with Grade B or better. The Staff

25. Advanced Portuguese. Meets four hours weekly. Prerequisite: course 3 or equivalent. The Staff

M42. Civilization of Spain and Portugal. (Same as Spanish M42.) Highlights of the Civilization of Spain and Portugal, with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major. Mr. Cruz-Salvadores

M44. Civilization of Spanish America and Brazil. (Same as Spanish M44.) Highlights of the Civilization of Spanish America and Brazil with emphasis on their artistic, economic, social and historical development as background for upper division courses. Conducted in English. Required for the major. Mr. Reeve, Mr. Skirius

Upper Division Courses

100. Phonology and Pronunciation. Meets four hours weekly, including one hour in laboratory. Analysis of the phonetic and phonemic systems of Portuguese with special emphasis on the correlation between the phonemic and graphemic systems. Exercises and drills directed toward individual needs. Mr. Dias, Mr. Quicoli

101A. Advanced Reading and Conversation. Meets three hours weekly. Reading and discussion of writings by modern Brazilian and Portuguese authors. Mr. Hulet

101B. Advanced Composition and Style. Meets three hours weekly. Correction of student's composition and analysis of basic stylistic elements. Mr. Hulet

102A-102B. Intensive Portuguese. Prerequisite: advanced foreign language experience (other than Portuguese) or consent of the instructor. An intensive course stressing both speaking and reading skills designed to cover the equivalent of four quarters of the traditional pattern, to meet the peculiar needs of advanced (upper division and graduate) students who are specializing primarily in foreign languages, linguistics, comparative or romance literature. The Staff

103. Syntax. Meets four hours weekly. A review of the patterns of the Portuguese language: the verb system, syntax of preposition, word pattern and word distribution. Mr. Dias, Mr. Quicoli

M118. History of the Portuguese and Spanish Languages. (Same as Spanish M118.) Meets four hours weekly. Prerequisite: Portuguese 100. Major

features of the development of the Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. Contributions of other languages to the formation of Portuguese and Spanish. Mr. Otero, Mr. Quicoli, Mr. Smith

120A. Survey of Portuguese Literature. Meets four hours weekly. First half of an introduction to the principal movements, authors, and works of Portuguese Literature. Mr. Dias

120B. Survey of Portuguese Literature. Meets four hours weekly. Second half of an introduction to the principal movements, authors, and works of Portuguese Literature. Mr. Dias

121A. Survey of Brazilian Literature. Meets four hours weekly. First half of an introduction to the principal movements, authors and works of Brazilian Literature. Mr. Hulet

121B. Survey of Brazilian Literature. Meets four hours weekly. Second half of an introduction to the principal movements, authors, and works of Brazilian Literature. Mr. Hulet

124. Medieval Portuguese Literature. The main genres of Medieval Portuguese and Galician literature with emphasis on at least one representative work for each. Mr. Dias

126. Renaissance and Baroque Portuguese Literature. The main genres of Renaissance and Baroque literature with emphasis on at least one representative work for each. Mr. Dias

127. Colonial Brazilian Literature. A study of the most important authors and literary currents to 1830. Mr. Hulet

128. 18th and 19th Century Portuguese Literature. The main manifestations of thought and literature from 1700 to 1900 with emphasis on representative works. Mr. Dias

129. Romanticism in Brazil. A study of representative trends and authors. Mr. Hulet

135. Naturalism, Realism and Parnasianism in Brazil. A study of representative trends and authors. Mr. Hulet

136. Contemporary Portuguese Literature. A study of representative trends and authors. Mr. Dias

137. Contemporary Brazilian Literature. A study of representative trends and authors. Mr. Hulet

199. Special Studies. (½ to 1 course) Prerequisite: consent of adviser and instructor. A maximum of two full courses may count toward the major. The Staff

Graduate Courses

M200. Bibliography. (Same as Spanish M200.) Meets three hours weekly. Identification and analysis of bibliographical sources for work by doctoral candidates in their fields of specialization. Mr. Benítez, Mr. Rodríguez–Cepeda

M201. Literary Criticism. (Same as Spanish M201.) Meets three hours weekly. Definition and discussion of methods of literary criticism. Mr. Benítez, Mr. Otero

M203A-203B. The Development of the Portuguese and Spanish Languages. (Same as Spanish M203A-203B.) Prerequisite: course 100 and 118 or consent of instructor. Intensive study of the historical development of the Portuguese and Spanish languages from their origin in spoken Latin. Mr. Otero, Mr. Smith

204A-204B. Transformational Grammar. Prerequisite: consent of instructor; course 204A or consent of instructor is prerequisite to 204B. A transformational approach to the Portuguese language, focussed especially on the syntactic component and its relations with other aspects of grammar. Mr. Quicoli

206. Portuguese Linguistics. Lecture, three hours. Prerequisite: Portuguese 115 or equivalent or consent of instructor. A study of theoretical synchronic linguistics of Portuguese. Mr. Quicoli

242A-242B-242C. Special Topics in Portuguese Literature.

242A. Medieval and Renaissance Literature. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Dias

242B. 18th and 19th Century Literature. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Dias

242C. 20th Century Literature. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Dias

243A-243B-243C. Special Topics in Brazilian Literature.

243A. Colonial Literature. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Hulet

243B. 19th Century Literature. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Hulet

243C. 20th Century Literature. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Hulet

M249. Hispanic Folk Literature. (Same as Folklore and Spanish M249.) Meets three hours weekly. An intensive study of folk literature. Mrs. Arora, Mr. Robe

M251. Studies in Galegan-Portuguese and Old Spanish. (Same as Spanish M251.) Prerequisite: course M203A-203B. Problems related to the historical development of Galegan-Portuguese and old Spanish. Mr. Otero, Mr. Smith

252A-252D. Special Studies in Portuguese Literature.

252A. The Novel. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Dias

252B. The Poetry. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Dias

252C. The Theater. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Dias

252D. The Short Story and Essay. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Dias

253A-253D. Special Studies in Brazilian Literature.

253A. The Novel. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Hulet

253B. The Poetry. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Hulet

253C. The Theater. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Hulet

253D. The Short Story and Essay. Meets two hours weekly. Prerequisite: consent of instructor. Mr. Hulet

370. The Teaching of Portuguese in the Secondary School. For future teachers in this field. Mr. Hulet

Individual Study and Research

596. Directed Individual Study or Research. (1 to 2 courses) Prerequisite: approval of graduate adviser and of Chairman of the Department. Study or research in areas or on subjects not offered as regular courses. Work evaluated on letter grade basis. No more than two full courses may count toward the M.A. course requirement. Limited to a maximum of three full courses in any graduate program. The Staff

597. Preparation for Graduate Examination. (1 to 2 courses) Prerequisite: official acceptance of candidacy by the department, and approval of graduate adviser. Individual preparation for the comprehensive examination for the M.A. degree. Graded satisfactory/unsatisfactory. May be taken only once for each degree examination and only in the quarter that comprehensive or qualifying examinations are to be taken. The Staff

598. Research for M.A. Thesis. (1 to 2 courses) Prerequisite: consent of the guidance committee. Research in preparation of the master's thesis. Graded satisfactory/unsatisfactory. The Staff

599. Research on Dissertation. (½ to 2 courses) Research for and preparation of the doctoral dissertation. Restricted to those who have passed the Qualifying Examinations for the doctor's degree. Graded S/U. The Staff

SPEECH

(Department Office, 232 Royce Hall)

Donald Erwin Hargis, Ph.D., *Professor of Communication Studies.*
Waldo Woodson Phelps, Ph.D., *Professor of Speech.*
Harrison Manly Karr, Ph.D., *Emeritus Professor of Speech.*
Charles Wyatt Lomas, Ph.D., *Emeritus Professor of Communication Studies.*
Daniel Vandraegen, Ph.D., *Emeritus Professor of Speech.*
Ralph Richardson, Ph.D., *Associate Professor of Speech.*
Paul Irwin Rosenthal, Ph.D., *Associate Professor of Communication Studies (Chairman of the Department).*

•

Eugenie Dye, Ph.D., *Lecturer in Speech.*
Marde S. Gregory, *Lecturer in Speech.*
Harry Howell, III, Ph.D., *Lecturer in Speech.*

The Department of Speech is in the process of being phased out and is no longer offering degree programs. The courses listed below are offered by the faculty as a service to the general instructional program of the University.

Lower Division Courses

1. Principles of Oral Communication. Prerequisite: Subject A. Theory and practice of informal public speaking, including selection of content, organization of ideas, language and delivery; practice in extemporaneous and manuscript speaking; training in critical analysis through reading and listening to contemporary speeches. The Staff

2. Public Speaking and Discussion. Prerequisite: course 1. A continuation of course 1, with special emphasis on group discussions, panels, symposia, debates, and formal public speaking. Critical analysis of speeches in both contemporary and historical settings. The Staff

Upper Division Courses

101. Introduction to Public Address. Analysis of rhetorical principles. Application to informative and persuasive speaking, to problem-solving discussion, and to the criticism of contemporary speeches. Open to upper division students who do not have credit for Speech 1 and 2. May not be counted as part of upper division major. The Staff

103. Phonetics of English. A study of the physical production and acoustic characteristics of the sounds of American English. Mr. Hargis

107. Principles of Argumentation. Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, ambiguity of terms, and prejudices. The critical analysis of selected argumentative speeches. Mr. Howell

108. The Deliberative Process. The nature and function of deliberative speaking in public meetings and parliamentary bodies. Rules of parliamentary speaking. Parliamentary debate on public issues. Critical analyses of selected speeches. The Staff

109. Principles of Audience Analysis. Theory of audience analysis and adaptation. Preparation and delivery of the occasional speech. Mr. Phelps

112. Oral Interpretation of Literature. A study of the literary, aesthetic, and oral bases for the analysis of communication of (112A.) prose and (112B.) poetry. Mr. Hargis

113. Readers Theater. The concepts and practices of the oral interpretation of non-dramatic literature within the framework of the readers theater. Lectures, readings, reports, and performance practice. Mr. Hargis

137A-137B. American Public Address. Critical study of speeches by leading American orators. Relationships of speakers to issues and social movements of their day.

137A. Colonial period to 1865; 137B. 1865-1930. Mr. Richardson

NOTE: For key to symbols, see page 74

138. Contemporary American Public Address. Critical study of American oratory from 1960 to the present with emphasis upon movements and issues including civil rights, Viet Nam and Watergate.
Mr. Phelps

144. Speech and Community Action. Consent of the instructor required. An intensive laboratory-based, observation-oriented study of speech and communication practices of action groups, protest groups, and public officials involved with the metropolitan Los Angeles urban crises.
Mr. Richardson

170. Rhetoric of Winston Churchill. An intensive study of the speeches of Winston Churchill during the wilderness years the 30's and during the wartime years. The background and the impact of these speeches also are examined. Mr. Phelps

172. Rhetoric of Harry S. Truman. An intensive study of the major speeches of President Harry S. Truman. The background and the impact of these speeches are examined in relation to the social and political context of the Truman years.

175. The Speeches of Abraham Lincoln. Students will be introduced to the full span of Lincoln's speaking career. His methods of preparation, the influence of associates, his style, his delivery, and lastly, his effect upon the nation will be studied.
Mr. Richardson

190A-190B. Forensics. (½ course each) Prerequisite: consent of the instructor. May be repeated once for credit. The Staff

191. Analysis and Briefing. (½ course) Intensive study of selected political or social issues; preparation of bibliography; analysis and evaluation of issues and arguments. May be repeated once for credit. The Staff

197. Proseminar in Rhetoric. A variable topic course involving intensive study of discourse associated with a single major issue or personality. Senior standing or consent of instructor.
Mr. Phelps

199. Special Studies. (½ to 1 course) Prerequisite: senior standing and consent of instructor.
The Staff

Graduate Courses

STATISTICS

Studies in statistics and related areas are possible in various academic departments. Detailed information may be found in the announcements of the individual departments listed below.

Anthropology

Course in statistical methods.

Architecture and Urban Planning

Quantitative methods in statistics.

Biomathematics

Introductory and advanced courses in Biomathematics including stochastic modeling in biology. M.S. and Ph.D. degrees.

Dentistry

Elementary statistics course.

Economics

Upper division and graduate offerings in econometrics.

Education

Graduate offerings in experimental design and in measurement.

Engineering

Upper division and graduate offerings in statistics and probability.

Geography

Quantitative methods in statistics.

Management

Master of Science and Ph.D. degree programs with specialization in business statistics offered by the Quantitative Methods Division.

Mathematics

Probability and statistics available as a field in the Ph.D. program in mathematics and the applied mathematics program.

Pharmacology

Bioassay.

Political Science

Upper division course in quantitative methods.

Psychology

Course work in statistics, factor analysis, scaling.

Public Health

Introductory and advanced courses in biostatistics. A Master of Science and Ph.D. degree in Biostatistics are given by the Biostatistics Division. An M.P.H. and Dr. P.H. with concentration in Biostatistics are given by the School of Public Health.

Social Welfare

Survey research statistics.

Sociology

Offerings in statistics, measurement, demography.

SUBJECT A REQUIREMENT

(Department Office, 302 Royce Hall)

Everett L. Jones, M.A., *Director of Freshman English.*

Subject A.

Every student who does not satisfy the Subject A requirement by presenting transfer credit or by passing an acceptable examination is required to take, in the quarter immediately following his admission to the University, either English A or English 1. Placement in these courses is determined by performance on the Subject A Placement Test.

THEATER ARTS

(Department Office, 2310 Macgowan Hall)

William B. Adams, M.A., *Professor of Theater Arts.*
John R. Cauble, M.A., *Professor of Theater Arts.*
Robert F. Corrigan, M.A., *Professor of Theater Arts.*
Donald B. Crabs, M.A., *Professor of Theater Arts.*
Arthur B. Friedman, Ph.D., *Professor of Theater Arts.*
Henry Goodman, Ph.D., *Professor of Theater Arts.*
Richard C. Hawkins, M.A., *Professor of Theater Arts.*
Melvyn B. Helstien, Ph.D., *Professor of Theater Arts.*
John H. Jones, M.A., *Professor of Theater Arts.*
Walter K. Kingson, Ed.D., *Professor of Theater Arts.*
Frank D. LaTourette, M.Litt., *Professor of Theater Arts.*
Darrell E. Ross, M.F.A., *Professor of Theater Arts.*
Louis C. Stoumen, B.A., *Professor of Theater Arts.*
Abe V. Wollock, Ph.D., *Professor of Theater Arts.*
John W. Young, M.A., *Professor of Theater Arts (Chairman of the Department).*
Walden P. Boyle, Ph.D., *Emeritus Professor of Theater Arts.*
Michael Gordon, M.F.A., *Emeritus Professor of Theater Arts.*
Hugh J. Gray, Ph.D., *Emeritus Professor of Theater Arts.*
Edward Hearn, M.A., *Emeritus Professor of Theater Arts.*
William W. Melnitz, Ph.D., *Emeritus Professor of Theater Arts.*
Samuel Selden, Litt.D., *Emeritus Professor of Theater Arts.*
William Froug, B.J., *Associate Professor of Theater Arts.*
Robert H. Hethmon, Ph.D., *Associate Professor of Theater Arts.*
Dan F. McLaughlin, M.A., *Associate Professor of Theater Arts.*
Stephen D. Mamber, Ph.D., *Associate Professor of Theater Arts.*
William H. Menger, M.A., *Associate Professor of Theater Arts.*
Carl R. Mueller, Ph.D., *Associate Professor of Theater Arts.*
Ruth E. Schwartz, Ph.D., *Associate Professor of Theater Arts.*
Howard Suber, Ph.D., *Associate Professor of Theater Arts.*
William D. Ward, M.F.A., *Associate Professor of Theater Arts.*
William T. Wheatley, Ph.D., *Associate Professor of Theater Arts.*
Theodore Apstein, Ph.D., *Adjunct Associate Professor of Theater Arts.*
Gary A. Gardner, Ph.D., *Assistant Professor of Theater Arts.*
Joanne T. McMaster, M.F.A., *Assistant Professor of Theater Arts.*
Margaret L. Wilbur, M.F.A., *Assistant Professor of Theater Arts.*
——, *Assistant Professor of Theater Arts.*

•

John D. Boehm, M.A., *Lecturer in Theater Arts.*
Robert Bookman, J.D., *Lecturer in Theater Arts.*
Edgar L. Brokaw, B.A., *Lecturer in Theater Arts.*
Shirley M. Clarke, A.A., *Lecturer in Theater Arts.*
Gordon Davidson, M.A., *Lecturer in Theater Arts.*
Lenore DeKoven, B.A., *Lecturer in Theater Arts.*
Anthony DeLongis, B.A., *Lecturer in Theater Arts.*
Teshome H. Gabriel, M.A., *Lecturer in Theater Arts.*
Hugh M. Grauel, M.A., *Lecturer in Theater Arts.*
H. Peter Guber, LL.M., *Lecturer in Theater Arts.*
John Ingle, M.A., *Lecturer in Theater Arts.*
Robert E. Lee, D.Litt., *Lecturer in Theater Arts.*
Mark McCarty, M.A., *Lecturer in Theater Arts.*
Sylvia E. Moss, B.A., *Lecturer in Theater Arts.*
Robert A. Nakamura, M.F.A., *Lecturer in Theater Arts.*
Thomas J. Orth, M.F.A., *Lecturer in Theater Arts.*
Jorge R. Preloran, B.A., *Lecturer in Theater Arts.*
Beverly J. Robinson, M.A., *Lecturer in Theater Arts.*
Richard S. Rose, M.F.A., *Lecturer in Theater Arts.*
Robert Rosen, M.A., *Lecturer in Theater Arts.*
Delia N. Salvi, Ph.D., *Lecturer in Theater Arts.*
Robert Trachinger, *Lecturer in Theater Arts.*
Frank A. Valert, *Lecturer in Theater Arts.*
George Van Buren, *Lecturer in Theater Arts.*
Richard Walter, M.A., *Lecturer in Theater Arts.*
Phillip B. Zarrilli, Ph.D., *Lecturer in Theater Arts.*

The Department of Theater Arts bases its work in theater, motion pictures, and television on a solid foundation in the liberal arts. The purpose of the curriculum is to develop in its students a scholarly, creative and professional approach to the theater arts. The aim of the Department is to train graduates who will eventually make original contributions in the field of their work.

The student majoring in theater arts must complete the requirements of the College of Fine Arts and the requirements under one of the two majors: theater, motion picture/television.

Preparation for the Major

Theater. Courses 5A-5B-5C, 10, 20 and English 90.

Motion Picture/Television. Students electing to specialize in motion picture/television for their B.A. degrees should complete the general University and College of Fine Arts Requirements before entering the program.

The Major

Theater. Courses 130A, 140A, 141A, 142A, 143A, 160A, 170, 172 (repeated four times), two units chosen from 122, 144A, 146B, 149A, 174, 190A or 190B; and 24 units of approved upper division Theater Arts electives, to bring the total to 60 upper division units. Through certain required courses listed above, all students during each quarter of residence are responsible for completing specific production assignments related to production activity of the Theater curriculum.

Motion Picture/Television. Admission to this major is not automatic. Applicants may not apply until just prior to achieving full status as a Junior in the University. They must obtain departmental permission by 1) filing a letter of intention; 2) giving evidence of creative or critical ability when requested; 3) and providing additional material as determined by the department.

No student in Motion Picture/Television may begin the major, consisting of 60 upper division units, before the Junior year, and during their Junior and Senior years they must take 108, 134, 179A (double course), and one of the following television courses: 180B, 184A, 184B, 184C, 185, plus 2 courses selected from 106A, 106B, 106C, 106D, 106E, 110A and 110B, and one upper division course chosen from the history, theory, and/or criticism course listings in Theater Arts. It is recommended that the majority of these required courses be completed during the Junior year.

In addition to the required courses, students must take a minimum of 28 units of upper division Motion Picture/Television electives which may include advanced classes in the fields of filmmaking, writing, animation, television production,

news and documentary, and critical studies. Students must consult with the Department undergraduate counselor to plan a program. Admission to advanced classes frequently requires consent of the instructor or senior standing. The student should be mindful of the exigencies inherent in filmmaking and be prepared to meet the additional demands of time and costs.

NOTE: Students are required to perform assignments on each other's projects. In addition, the Department of Theater Arts reserves the right to hold for its own purposes, examples of any work done in classes and to retain for distribution such examples as may be selected.

Teaching Credentials

Students may earn credentials for teaching theater arts, English and other subjects in California elementary and secondary schools. Some majors are more advantageous than others for professional preparation. Completion of the Teacher Credential Program in the Teacher Education Laboratory is required. Consult with the Graduate School of Education, 201 Moore Hall, for information.

Admission to Graduate Status

Most areas in the Department of Theater Arts accept students into the Graduate Program in the Fall Quarter only. Consult the Department for further information.

In addition to meeting the general requirements of the Graduate Division, the student will usually be expected to have completed his or her bachelor's degree in theater arts or its equivalent. Students whose theater arts preparation is deficient, as determined by the appropriate admissions committee, will be required to take work additional to the degree program to make up such deficiencies.

The applicant who has done his or her preparatory work elsewhere must provide the Department with the results of certain diagnostic tests and letters of reference. Further information should be obtained from the Student Affairs Office of the Department at least eight months prior to the beginning of the quarter in which the student plans to enroll.

A student pursuing a M.A. degree in Motion Picture/Television may, at the option of the Critical Studies Committee, be required to demonstrate competence in a foreign language if necessary to support the research in the student's area of specialization.

Requirements for the Master of Arts Degree

In planning a course of study, the student will place his or her emphasis on theater, motion pictures or television.

Theater. The Theater Program follows the Thesis Plan. This program requires the completion of a minimum of nine and one-half courses (38 units) in at least one year (three quarters) of intensive study and laboratory exercises and research leading to the completion of a written thesis in the history, aesthetics, criticism or techniques of theater. The student in Theater is required to take an active part in the production program of the Department as partial fulfillment of the degree requirements. The required courses are 200, 245A-245B, and 272A-272B-272C (a two-unit, in-progress course with grade and units awarded only upon completion of 272C in the third quarter). After being advised, the student will select six courses, including one from each of the following two groups: Group I: 201, 205A or 205B; Group II: 213, 240, 241, 290A or 290B.

Motion Picture/Television. The Motion Picture/Television Program follows the Comprehensive Plan. The general requirements are: (1) Completion of a minimum of nine courses, five of which must be 200 level courses in film and/or television history, theory, criticism, and in addition one course in research methodology, all of which must be completed with grades of "B" or better; the specific courses are selected in consultation with an adviser; (2) Passing of a two-part Comprehensive Examination, the first part of which consists of a written test of a broad body of knowledge and the second part of which consists of a scholarly essay of some fifty pages dealing with an area of specialization chosen by the student in consultation with the faculty; (3) Demonstration, by submission of the student's personally created film, television program, or script, of his or her knowledge of the basic skills of production and scriptwriting.

Students who have completed the B.A. program in Motion Picture/Television at UCLA will already have demonstrated their basic knowledge of production, scriptwriting, and history. Students entering the program from elsewhere may submit for consideration film and television work done at other universities – confirmed by the instructors originally involved as the student's personal work – as evidence of their history background and their production and scriptwriting competence. Or, alternatively, students may be required to take such courses as will fulfill these requirements, though these courses will not count towards the minimum of nine courses required for the M.A. degree. The student's program will be determined in consultation with an adviser and is subject to the approval of the Critical Studies Committee. The Comprehensive Examination will reflect course work, individual interests, and a broad knowledge of film and/or television. Students will be provided with guidelines and a suggested bibliography and filmography by the Department. Part I of the Comprehensive Examination, testing the student's breadth of knowledge, may be taken no earlier than the end of the third quarter of residence or its equivalent and no later than the end of the fifth quarter of residence or its equivalent.

Concurrently with their efforts to obtain a broad understanding of film and television studies, students will develop an area of specialization requiring intensive individual work. Part II of the Comprehensive Examination consists of the writing of a scholarly essay of some fifty pages under faculty guidance on this specialized topic. The essay must be completed and approved by the Critical Studies Committee no later than two quarters after the student has completed Part I of the Comprehensive Examination. Upon completion of both Parts I and II of the Comprehensive Examination, the Critical Studies Committee will render one of the following judgments: 1. Pass with Distinction; 2. Pass; 3. Fail. If one or more sections of Part I of the examination are not passed, the student may repeat such parts one more time in the following quarter. The maximum residency allowed for this program is seven quarters.

Master of Fine Arts Degree

The Department offers a two-year program leading towards an M.F.A. degree in either theater, motion pictures or television. (See below for requirements by subject area.) In addition to formal courses the student must complete certain projects in writing, direction, acting, design or technical direction.

For admission to the program a student must have completed the UCLA undergraduate program in theater arts in the area of his proposed specialization, or its equivalent. Candidates for the M.F.A. programs in theater or motion picture/television must provide evidence of creative work. Students may be admitted to the program with deficiencies when an undergraduate degree has been completed in some field other than theater arts, or when an undergraduate degree in theater arts has had different requirements. In such cases the student can anticipate extra time to remove the deficiencies.

Theater. The Department of Theater Arts follows the Comprehensive Plan for the M.F.A. in theater. The M.F.A. projects may be in writing, direction, scenic design, costume design, acting, technical direction, puppetry or management, and a candidate must arrange with his adviser a program of a minimum of 18 courses which involve him in the successful completion of required work and his project series.

Motion Picture/Television. The M.F.A. in motion pictures or television can be taken in animation, filmmaking, television production or writing. There is a minimum residence of two years. A program of a minimum of 18 courses must be arranged with a graduate adviser.

Students entering motion picture/television graduate studies from other disciplines or other institutions may be required to take make-up courses in deficient areas. The end projects at the graduate level will be one or more major productions, or a feature length script, demonstrating originality and the creative ability of the student as well as his professional mastery of the medium.

Doctor of Philosophy Degree in Theater Arts

The program of study for the Ph.D. in Theater Arts has two specializations: studies of history, theory and criticism in Theater and studies of history, theory and criticism in Motion Picture/Television. One foreign language is required and other languages are demanded if needed for the individual's studies and dissertation subject.

A limited number of students will be accepted each year for the Ph.D. in Theater Arts. Admission will depend both on scholarship and evidence of professional competence in the applicant's chosen specialization. Proof of completion of a M.A. or M.F.A. degree is required; for the theater program this degree must have been achieved in theater.

Note: Check the Schedule of Classes for courses restricted to majors only.

Italian Majors please note under Italian Department listing for Area Studies in Theater courses.

Lower Division Courses

THEATER AREA

5A. History and Drama of the Theater from Primitive Times to 1640. Lecture, three hours; discussion, one hour. Required of theater majors. The history of the influence of different cultures, traditions and technologies on the development of theater as a social institution. Mr. Zarrilli

5B. History and Drama of the Theater from 1640 to 1900. Lecture, three hours; discussion, one hour. Required of theater majors. The history of the influence of different cultures, traditions and technologies on the development of theater as a social institution. Mr. Zarrilli

5C. History and Drama of the Theater from 1900 to the Present. Lecture, three hours; discussion, one hour. Required of theater majors. The history of the influence of different cultures, traditions and technologies on the development of theater as a social institution. Mr. Zarrilli

10. Fundamentals of Theater Production. Lecture, three hours; laboratory, three hours. Required in the first quarter of residence for theater arts majors specializing in theater. A basic study of the relationship of acting, stage management, scenery, lighting, costume and sound to the production of the play. Emphasis will be placed on the planning, procedures, materials, equipment and disciplines of theater production.

20. Acting Fundamentals. Lecture/laboratory, four hours. Required of theater majors. An introduction to the interpretation of drama through the art of the actor. Development of individual insights, skills, and disciplines in the presentation of dramatic material to an audience.

Upper Division Courses

THEATER AND GENERAL SECONDARY CREDENTIAL AREAS

100. The Teaching of Theater. Lecture, three hours. Prerequisites: 160A and 160B or consent of instructor. Study of current methods and problems of production as related to the secondary level. Highly recommended for students pursuing a secondary teaching credential. Mr. Ingle

101. Introduction to Theater Arts. (½ course) Lecture, two hours; laboratory, two hours. Not open for credit to theater arts majors. A survey of theater, motion pictures, television and radio, together with

critical analysis of their roles in contemporary culture, leading to an appreciation and understanding of the theater arts. A nontechnical presentation for the general student. To be taken on a Pass/Not Pass basis only.

102A. Selected Topics on the History of the European Theater. Lecture, three hours. Prerequisite: course 5A or the equivalent and/or consent of the instructor. An investigation in depth of a selected area of study in theater history from the Greeks through the Renaissance. May be repeated for a maximum of 12 units of credit. Mr. Mueller

102B. Selected Topics on the History of the European Theater. Lecture, three hours. Prerequisite: course 5B or the equivalent and/or consent of the instructor. An investigation in depth of a selected area of study in theater history from the Baroque to the present. May be repeated for a maximum of 12 units of credit. Mr. Goodman

102D. History of the European Theater. Lecture, three hours. Prerequisite: consent of the instructor. A survey of the development of the theater from the Greeks to the present. May not be taken for credit by students who have had more than one course from the 5A, 5B, and 5C series.

102E. Theater of the Non-European World. Lecture, three hours; discussion, one hour. A survey of theater forms of the non-European world in which primary attention will be concentrated on an examination and analysis of the traditional dance-drama and puppet theaters of East Asia, Southeast Asia, South Asia, the Middle East and Africa. Analogous forms from European theater will be included for comparative purposes. Mr. Helstien

103A. Black People's Theater in America, Slavery to 1930. Lecture, three hours. An exploration of all extant materials on the history and literature of the theater developed and performed by Black artists in America from Slavery to 1930. Ms. Robinson

103B. Black People's Theater in America, 1930 to the Present. Lecture, three hours. An exploration of all extant materials on the history and literature of the theater as developed and performed by Black artists in America from 1930 to the present. Ms. Robinson

104A. History of the American Theater. Lecture, three hours. The history of the American theater from the Revolutionary War to WWI. Mr. Hethmon

104B. History of the American Theater. Lecture, three hours. The history of the American theater from WWI to the present. Mr. Hethmon

105. Main Currents in Theater. Lecture, three hours. Prerequisite: consent of instructor. Critical examination of the leading theories of theater from 1887 to the present. Study and discussion of modern styles of production. Mr. Mueller

117. The Puppet Theater. (½ course) Lecture/laboratory, four hours. Prerequisite: consent of the instructor. Study of the history and practice of the art of puppetry. An examination of the materials and methods of construction. Staging of puppet productions as laboratory practice. May be repeated for a maximum of six units credit. Mr. Helstien

118A. Creative Dramatics. Lecture/laboratory, four hours. Studies of the principles and procedures of the improvisational approach to drama as done with children from nursery school to Junior High.

118B. Advanced Creative Dramatics. (½ course) Discussion, one hour; laboratory, two hours. Prerequisites: course 118A or consent of instructor. Practical application of the methods and principles introduced in 118A. May be repeated for a maximum of six units.

119. Theater for the Child Audience. Lecture/laboratory, four hours. Principles of production and performance for the child audience.

120. Acting for the Stage. Lecture/laboratory, four hours. Prerequisites: course 20 and consent of instructor. Study and practice of the art of acting through scenes from dramatic literature throughout the ages. No student may receive more than 12 units of credit for any combination of courses 120 and 120A-120B-120C or 121A-121B-121C and 137A-137B-137C. The total number of units from both groups together not to exceed a maximum of 16 units.

122. Make-up for the Stage. (½ course) Studio, two hours. The art of make-up and its relation to the production as a whole. History, aesthetics, materials, and procedures of make-up. Mr. Jones

124. Voice for the Stage. Lecture/laboratory, six hours. Prerequisite: consent of instructor. Development of voice techniques for the stage. Includes work on relaxation, limbering, breathing, articulators, and resonators. Ms. Wilbur

125. Movement for the Actor. Lecture/laboratory, six hours. Physical awareness for the actor, concentrating on warming up the body, relaxation, control, stunts and gymnastics. Mr. Orth

130A. Fundamentals of Playwriting I. Lecture, three hours. Required of theater majors. Course designed to stimulate the student's critical and creative faculties through the preparation of original material for the theater. Guidance in the completion of a one-act play. Mr. Gardner

130B. Fundamentals of Playwriting II. Lecture, three hours plus conference. Prerequisites: course 130A and consent of writing staff. Study in original material for the theater, its preparation and development. The course is designed to give further insight into the critical and creating aspects of the short and full-length play and guidance in the completion of the one act and full-length play. May be repeated for a maximum of twelve units credit. Mr. Gordon

132. Manuscript Evaluation for the Theater. Lecture, three hours. Prerequisite: course 130A and consent of the instructor. May be repeated for a maximum of eight units. Principles and practices in the evaluation of manuscripts for theater. Mr. Gordon

136. Intermediate Acting for the Stage. Lecture/laboratory, four hours. Prerequisites: course 20, upper division standing and consent of instructor. Designed for students as an evaluation course for entrance into the continuum course in acting. Not open for credit to students who have taken 120C.

137A-137B-137C. Continuum Study in Acting for the Stage. Lecture/laboratory, four hours. Prerequisite: consent of instructor. The technique of characterization and performance in advanced and complex acting styles. No student may receive more than 12 units of credit for any combination of 120 and 120A-120B-120C or 121A-121B-121C and 137A-137B-137C. The total number of units from both groups together not to exceed a maximum of 16 units.

138. Special Problems in Performance Techniques. Lecture/laboratory, four hours. Prerequisite: consent of instructor. Study of complex problems in voice, movement and acting. May be repeated for a maximum of 12 units. Not open for credit for students who have taken 121D-121E-121F.

140A. Scenic Techniques for the Stage. Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. Required of theater majors. An intensive study of scenic materials, construction techniques, production organization and the rigging of scenery. (Courses 140A, 141A and 142A may be taken in any sequence, but not concurrently).

140B. Advanced Scenery for the Stage. Lecture/laboratory, four hours. Prerequisite: course 140A. Advanced study of technical problems in staging theater productions, including design analysis and planning related to rigging, shifting and construction techniques.

141A. Lighting Techniques for the Stage. Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. (Courses 141A, 140A, and 142A may be taken in any sequence, but not concurrently). Required of theater majors. An intensive study of theater lighting with emphasis on the relationship of lighting instruments and control equipment to lighting design. Mr. Ward

141B. Advanced Lighting for the Stage. Lecture/laboratory, four hours. Prerequisite: course 141A. The detailed study of stage lighting as an art, with emphasis given to design concepts. The interpretation of a script or score through the control of light and color in relation to actor and audience. Mr. Crabs, Mr. Ward

142A. Theater Costuming Techniques. Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. (Courses 142A, 140A, and 141A may be taken in any sequence, but not concurrently). Required of theater majors. The study of costumes analysis and the interpretation of theatrical costume design through the use of patterns, fabrics, and related costume materials. Ms. Moss

142B. Advanced Costuming for the Stage. Lecture, three hours; laboratory, four hours. Prerequisite: course 142A or consent of the instructor. Special problems in the procuring, designing, construction and management of costumes used in theatrical productions. Ms. Moss

143A. Scenic Design for the Theater. (½ course) Lecture, two hours. Prerequisites: course 10 and consent of instructor. Required of theater majors. Basic principles of design as applied to the interpretation and presentation of the visual aspects of dramaturgy. Study of styles, techniques and methods of design for the theater arts. The translation of ideas into visual forms. Mr. Corrigan, Mr. Crabs

143B. Advanced Scenic Design for the Theater. Lecture, two hours; laboratory, four hours. Prerequisites: course 143A and consent of the instructor. Further study of the design of scenery for the theater, and translation of the design into actual visual form. Solving design problems for the complicated play. Consideration of experimental ideas, and the investigation of new materials. Mr. Corrigan

144A. Theater Sound Techniques. (½ course) Lecture, two hours; laboratory, two hours. Prerequisite: course 10 or approved equivalent. A study of the equipment and techniques utilized in the recording and reproduction of sound for the theater. Mr. Ward

144B. Advanced Theater Sound. Lecture, three hours; laboratory, four hours. Prerequisite: course 144A or consent of the instructor. A detailed study of theater sound with emphasis on the composition and execution of theater sound tracks, recording techniques, and acoustic reinforcement. Mr. Ward

145. Costume Design for Theater. Lecture/laboratory, four hours. Prerequisite: consent of the instructor. Design of costumes for theatrical presentations. The study of the use of silhouette, fabrics, color, and decoration as related to theatrical characterizations.

146B. Scene Painting Techniques. (½ course) Lecture/laboratory, three hours. Prerequisite: consent of the instructor. The study of scenic painting techniques and materials, and their relation to the realization of color design and elevations. Mr. Corrigan

148. Special Courses in Design and Technical Theater. Lecture, three hours. Prerequisite: consent of the instructor. Group study of selected subjects in design and technical theater. May be repeated for a maximum of 12 units. Not open for credit to students who have taken 148A-148B-148C.

149A. Basic Drafting Techniques for the Stage. (½ course) Lecture/laboratory, four hours. Prerequisite: course 10 or consent of instructor. Studies of the basic skills and techniques of drafting for the stage, through the execution of floor plans and elevation drawings. Mr. Ward

149B. Advanced Drafting for Theater Arts. Lecture/laboratory, four hours. Prerequisite: course 149A or consent of instructor. An advanced course

in the technical sketching and drafting of working drawings essential in the development of the design of sets and properties for theater, television and motion picture productions. Mr. Corrigan

160A. Fundamentals of Play Direction. Lecture/laboratory, four hours. Required of theater majors. Basic theories of play direction and their application through the preparation of scenes under rehearsal conditions. Concurrent scheduling with course 198J. Mr. Helstien

160B. Intermediate Play Direction. Lecture/discussion, two hours; laboratory, eight hours. Prerequisite: course 160A and consent of the instructor. A course in the application of stage direction techniques to the one-act play. Each student will direct a one-act play to be performed under rehearsal conditions. Material will be drawn from published sources. Not open for credit to students who have had two units of credit from 160B.

161. Advanced Play Direction. Lecture, four hours; laboratory, six hours. Prerequisites: course 160A and consent of the instructor. Special problems in the direction of original one-act plays under production conditions. May be repeated for a maximum of eight units credit, with consent of the instructor.

170. Theater Laboratory. Lecture, four hours; laboratory, eight hours. Prerequisites: courses 140A, 141A, 142A, and 143A. Required of theater majors. Laboratory in theater production under supervision. The translation of ideas and concepts into the dramatic form.

171A. Advanced Theater Laboratory. (½ or 1 course) Hours to be arranged. Prerequisite: consent of the instructor. May be taken for a maximum of one course. Creative participation as an actor or stage manager in the public presentation of departmental productions.

171B. Advanced Theater Laboratory. (½ or 1 course) Hours to be arranged. Prerequisite: consent of the instructor. May be taken for a maximum of one course. Creative participation in the realization of production elements related to the public presentation of department productions.

172. Technical Theater Laboratory. (½ course) Hours to be arranged. Prerequisite: consent of the instructor. Required of theater majors. A laboratory in various aspects of theater production. The student must repeat the course for a total of 8 units. No assignment may be repeated more than once. Maximum 8 units. Concurrent scheduling with TA 272ABC and TA 472.

174. Techniques of Stage-Managing. (½ course) Lecture, two hours. The professional duties of the stage manager. The problems of unions, professional auditions, organization, scheduling, out-of-town openings, Broadway openings, and the responsibilities of a lengthy run.

190A. The Role of the Producer in the Professional Theater. (½ course) Lecture, two hours. A study of the structure governing the economic and artistic decision-making processes in the professional theater of America. Mr. Cauble

190B. The Role of Management in the Educational and Community Theater. (½ course) Lecture, two hours. A study of the artistic, social and economic criteria in the administration of educational and community theater. Mr. Cauble

191. The Touring Company. (2 or 3 courses) Lecture, 20 hours; laboratory, 22 hours. Prerequisite: consent of instructor. Rehearsal and technical preparation of a theatrical work for touring, and the performance of that work on tour.

MOTION PICTURE/TELEVISION AREAS

***15106A. History of the American Motion Picture.** Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. An historical and critical survey, with examples, of the American motion picture both as a developing art form and as a medium of mass communication. May be repeated for credit (maximum 2 courses) with departmental consent. *Determined on basis of change in course content.

***15106B. History of the European Motion Picture.** Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. An historical and critical survey, with examples, of the European motion picture both as a developing art form and as a medium of mass communication. May be repeated for credit (maximum 2 courses) with departmental consent. *Determined on basis of change in course content.

106C. History of African, Asian and Latin American Film. Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. A critical, historical, aesthetic and social study together with an exploration of the ethnic significance of Asian, African, Latin American and Mexican films.

106D. The Development of Film in Europe and the United States: From WWI through the Depression. Lecture/screening, eight hours; discussion, one hour. Prerequisite: consent of instructor. An interdisciplinary and comparative approach to the development of film in Europe and the United States from the silent era through the depression. Particular stress will be given to the interrelationship of film with its historical context and to the social dimensions of film structure, aesthetics, and language. (Part of two quarter sequence, that can be taken jointly or separately.) Not open for credit to students who have taken 198B in Winter Quarter, 1975.

106E. The Development of Film in Europe and the United States: From WWII to the Present. Lecture/screening, eight hours; discussion, one hour. Prerequisite: consent of instructor. An interdisciplinary and comparative approach to the development of film in Europe and the United States from the end of the 30's through the present. Particular stress will be given to the interrelationship of film with its historical context and to the social dimension of film structure, aesthetics, and language. (Part 2 of the two quarter sequence, but may be taken separately.) Not open for credit to students who have taken 198C in Spring Quarter, 1975.

107. Experimental Film. Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. A study and analysis of unconventional developments in the motion picture.

108. History of Documentary Film. Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of instructor. The philosophy of the documentary approach in the motion picture. The development of critical standards, and an examination of the techniques of teaching and persuasion used in selected documentary, educational, and propaganda films.

110A. History of Broadcasting. Lecture/viewing, six hours; discussion, one hour. Prerequisite: consent of instructor. Critical survey of broadcasting here and abroad. Consideration of the social responsibilities and educational implications of broadcasting. Not open for credit if student has credit for 110. Ms. Schwartz

110B. Problems and Issues in Broadcast Media. Lecture, four hours; discussion, two hours; laboratory, to be arranged. Prerequisite: consent of instructor. Study of the current issues and problems related to public and commercial broadcast programming and management, including analysis of contemporary criticism of the broadcast media. Open for credit if student has credit for 110. Ms. Schwartz

111. Film Distribution and Exhibition. Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor. History and theory of organization of theatrical and nontheatrical distribution and exhibition of motion pictures and analysis of their interrelationships with production practices.

112. Film and Social Change. Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. The development of documentary and dramatic films in relation to and as a force in social development.

***15113. Film Authors.** Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. May be repeated for credit (maximum 2 courses) with departmental consent. *Determined on basis of change in course content. A study in depth of a specific film author (director or writer).

***15114. Film Genres.** Lecture and screening, six hours; discussion, one hour. Prerequisite: Consent of the instructor. May be repeated for credit with departmental consent (maximum 2 courses). *Determined on basis of change in course content. Study of a specific film genre, e.g., the Western, the gangster cycle, the musical, the silent epic, the comedy, the social drama.

115. Producers and Their Films. Lecture and screening, six hours; discussion, one hour. Prerequisite: consent of the instructor. A consideration of the individual or corporate producers as they have affected the art and industry of the motion picture. Course content will vary, considering the work of a studio such as Paramount, Metro-Goldwyn-Mayer, Warner Brothers, etc. or of an individual such as Samuel Goldwyn, Stanley Kramer, Hal Wallis, etc. May be repeated for credit (maximum 2 courses).

***15116. Criticism.** Lecture, four hours; laboratory, to be arranged. May be repeated for credit (maximum 2 courses) with departmental consent. *Determined on basis of change in course content. Study of and practice in criticism for the theater, motion pictures and television.

126A. Advanced Acting for Television and Motion Pictures. Laboratory, six hours. Prerequisite: course 20 or consent of the instructor. Projects in acting for television and motion pictures. Video tape recording of selected acting exercises and readings. May be repeated for credit for a maximum of 12 units. Mr. Friedman

126B. Broadcast Speech. Laboratory, six hours. Field visits as required. Prerequisite: consent of instructor. Intensive study of effective speech for the performer in Television and Radio. Audio and television recordings of selected individual and group readings. Playbacks, analysis and criticism. May be repeated for a maximum of 12 units. Mr. Friedman, Mr. Kingson

126C. Sportscasting. Lecture, two hours; laboratory, four hours. Prerequisite: consent of instructor. Intensive study of Sportscasting; laboratory emphasis on studio and field training; videotaping and playback of straight sportscasts, play by play, color, interviews, commentary and editorials. Students required to write original material for all exercises. Extensive training re hand-held field equipment; use of the remote truck. Field exercises. Students rotate in production positions. May be repeated for a maximum of 12 units. Mr. Friedman

127. The Film Image. Lecture, one hour; discussion, two hours; laboratory, one hour. Prerequisite: course 179A and consent of the instructor. Proseminar in the craft of film aesthetics. The Visual Revolution. Biophysical nature of perception. Lenses, perspective, graphic styles. Principles of composition, screenwriting, sound, editing. Problems of time and movement. How a director views his work and his world. Mr. Stoumen

131. Non-Theatrical Motion Picture/Television Writing. Discussion, three hours. Prerequisites: 179A and/or consent of instructor. A course in the research and writing of documentary, technical, educational, industrial and propaganda scripts. May be repeated for a maximum of three courses. Mr. Adams

134. Motion Picture/Television Writing. Discussion, three hours. Prerequisites: restricted to Motion Picture/Television majors and consent of instructor. Introduces students to problems in motion picture/television writing.

NOTE: For key to symbols, see page 74

135. Advanced Motion Picture/Television Writing. (2 courses) Discussion, three hours. Prerequisite: course 134 and/or consent of instructor. A course in motion picture/television writing offered each quarter. Original motion picture/television material to be developed. May be repeated for a maximum of 24 units. No student may receive more than 24 units of credit for any combination of 135, 135A, 135B, 135C.

150A. Basic Motion Picture/Television Photography. Lecture, three hours; laboratory, four hours. Prerequisites: course 179A, restricted to Motion Picture/Television majors. Introduction to image control in film photography through exposure, lighting, and selection of film, camera, and lens. Supervised projects in photography to complement material covered in the lecture. Mr. Valert

150B. Advanced Motion Picture/Television Photography. Lecture, three hours; discussion, one hour, laboratory, eight hours. Prerequisites: course 150A, and consent of instructor; restricted to Motion Picture/Television majors. Supervised exercises in studio and location film photography to develop skill in lighting and management of the photographic process as applied to motion pictures and television. May be repeated for a maximum of 12 units. Mr. Valert

151. Design for Motion Pictures and Television. Lecture, three hours; laboratory to be arranged. Prerequisites: course 179A and consent of instructor; restricted to Motion Picture/Television majors. The techniques of art direction. If the course is repeated, the student is required to design and complete a short film. May be repeated for a maximum of 12 units.

152A. Motion Picture/Television Sound Recording. Lecture, three hours; laboratory, to be arranged. Prerequisites: course 179A and one course chosen from 154AB or C; restricted to Motion Picture/Television majors. Introduction to principles and practices of motion picture and television sound recording, including supervised exercises. Mr. Adams

152B. Motion Picture/Television Sound Re-Recording. Lecture, three hours; laboratory, five hours. Prerequisites: course 179A and one course chosen from 154AB or C; restricted to Motion Picture/Television majors. Introduction to re-recording studio procedures including track and cue sheet preparation, and responsibilities and functions of the re-recording mixer. Course includes supervised practical exercises. May be repeated for a maximum of 12 units. Mr. Adams

153C. Color Cinematography. Lecture, three hours. Prerequisite: consent of instructor. History and theories of color photography with emphasis on present-day methods in motion picture and television production. A comparative study of additive and subtractive systems as employed by Technicolor, Ansco, Kodak, and others.

154A. Motion Picture/Television Editing. Lecture, three hours; laboratory, to be arranged. Prerequisites: course 179A, restricted to Motion Picture/Television majors. A study of the role of editing the fictional and nonfictional production with emphasis on the techniques and procedures used in manipulation of the visual image for both dynamic and continuity effects. Mr. Brokaw

154B. Motion Picture/Television Editing. Lecture, three hours; laboratory, to be arranged. Prerequisites: course 179A, restricted to Motion Picture/Television majors. A study of the role of editing the fictional and non-fictional production with emphasis on the techniques and procedures used in manipulation of the sound track in sync dialog cutting, post-syncing, and music and sound effects cutting, including offscreen narration, dialogue substitution and playback tracks. Mr. Brokaw

154C. Motion Picture/Television Editing. Lecture, three hours; laboratory, to be arranged. Prerequisites: course 179A, restricted to Motion Picture/Television majors. A study of the role of editing the fictional and non-fictional production with emphasis on the finishing stages including title preparation, the use of optical effects and blowups, preparation for the supervision of the mix, and the cutting of originals for single strand and A&B printing. Mr. Brokaw

163. Direction of Actors for Motion Pictures/Television. Laboratory, six hours. Prerequisites: course 179A and consent of the instructor. Exercises in analysis of script and character for the purpose of directing actors in motion picture and television productions. Emphasis on eliciting the best possible performance from the actor. May be repeated for a maximum of 12 units credit. Ms. Salvi

164. Direction for Motion Pictures. Laboratory, to be arranged. Prerequisites: course 179A and consent of the instructor. A study of the problems faced by a motion picture director and various approaches to their solution. May be repeated for a maximum of 12 units credit.

165. Direction for Television. Laboratory, six hours. Prerequisites: courses 134, 179A, 185 and 186A. Instruction and supervised exercises in television direction with emphasis on the creative use of cameras, sound, composition, and communication with those in front of and behind the camera. May be repeated for credit; maximum three courses.

179A. Film Project 1. (2 courses) Hours, to be arranged. Prerequisites: junior standing and completion of all lower division requirements of the University and the College of Fine Arts. Restricted to the Motion Picture/Television majors. The completion of a first film, including its writing, production and editing. Required in the Motion Picture/Television major. Production Faculty

179B. Motion Picture Production. (1, 2 or 3 courses) Hours to be arranged. Prerequisites: course 179A and consent of Production Faculty. The completion of a motion picture production, including its writing, production and editing. May be repeated for a maximum of 16 units. Production Faculty

179D. Motion Picture Production. Hours, to be arranged. Prerequisites: courses 179A and 179B and consent of the instructor. A course to augment the production skills of students demonstrating difficulties in basic techniques. May not be repeated. May not be applied to the major. Production Faculty

179E. Motion Picture/Television Production. (1 or 2 courses) Hours to be arranged. Prerequisites: course 179A and consent of instructor. Completion of a group film or videotape production with three or more students collectively responsible for its conception, writing, direction and production.

180A-180B-180C. Workshop in Broadcast News and Documentary. Discussion, three hours; laboratory, five hours. Prerequisites: consent of the instructor. Instruction and supervised exercises in writing, reporting, editing, and producing radio and television news, public affairs, and documentary programs. Mr. LaTourette

181A. Animation Design in Theater Arts. Lecture, three hours; laboratory, three hours. Prerequisite: consent of the instructor. History and use of speech, rhythm, and graphic design to form effective communication on film. Mr. McLaughlin

181B. Writing for Animation. (1 or 2 courses) Lecture, six hours; laboratory to be arranged. Prerequisites: course 181A, consent of the instructor and a storyboard at the first class meeting. Research and practice in creative writing and planning for the animated film. May be repeated for credit; maximum four courses (16 units). Mr. McLaughlin

181C. Animation Workshop. (1 or 2 courses) Lecture, six hours; laboratory to be arranged. Prerequisites: course 181A, consent of the instructor and a storyboard at the first class meeting. Organization and integration of the various creative arts used in animation to form a complete study of a selected topic. May be repeated for credit; maximum four courses (16 units). Mr. McLaughlin

184A-184B-184C. Community Television Programming and Management. Laboratory, eight hours. Prerequisite: consent of the instructor. Supervised operation and programming of a community television station. Class participation in semi-weekly campus broadcasts. Mr. LaTourette

185. Television Production. Laboratory, eight hours. Prerequisite: consent of instructor. Instruction and supervised exercises in the basic technique of using cameras, lighting, and sound in the production of television programs.

186A-186B-186C. Television Laboratory. (1 or 2 courses) Laboratory, to be arranged. Prerequisites: one course chosen from 180B, 184A, 184B, 184C or 185 and consent of the instructor. The conception, direction, and production of an original television program.

187A-187B-187C. Remote Television Broadcasting. (1 course each) Laboratory, three hours plus additional hours to be arranged. Prerequisite: one course chosen from 180A, 184A, 184B, 184C or 185 and consent of instructor. Instruction and supervised exercises in the planning and production of remote on-location television programs. Mr. Trachinger

188. The Aesthetics of Visual Communication. Lecture, three hours. Prerequisites: upper division standing and consent of instructor. An introduction to the study of communication in art, with an emphasis on the problem of aesthetic perception and its proper role in the experience of contemporary visual arts.

189. Overview of the Motion Picture Industry. Discussion, three hours. Prerequisite: consent of instructor. Evolution of economic and business structure of Motion Pictures from early beginnings to present, stressing methods of operation and the influence of social and economic pressures that contributed to the changing financial, distribution and exhibition practices. Not open for credit to students who have taken 198D in Fall Quarter, 1975. Mr. Grauel

192. Motion Picture and Television Internship. (1 or 2 courses) Laboratory, ten or 20 hours weekly; field experience. Prerequisite: consent of instructor. An internship at various film and television studios accentuating the creative contribution, the organization, and the work of professionals in their various specialties. May be repeated once for a maximum of 12 units.

193A. Film Curatorship. Lecture, two hours; discussion, two hours; laboratory, four hours. Prerequisite: consent of the instructor. Study of the principles and techniques of film curatorship and research, including but not limited to acquisitions, cataloguing, storage and retrieval systems. Special attention will be devoted to the application of new technology, equipment, and program materials to film archival-library design for research and teaching. Not open for credit to those who have taken course 194A.

193B. Television Curatorship. Lecture, two hours; discussion, two hours; laboratory, four hours. Prerequisites: consent of the instructor. Study of the principles and techniques of television curatorship and research, including but not limited to acquisitions, cataloguing, storage and retrieval systems. Special attention will be devoted to the application of new technology, equipment, and program materials to television archival-library design for research and teaching. Not open for credit to those who have taken 194B. Ms. Schwartz

195. Independent Production of Feature Films. Lecture, three hours. Prerequisite: course 189 and consent of instructor. Survey of financial and business aspects involved in packaging, distributing and exhibiting motion pictures today from the various perspectives of prominent industry leaders. May be repeated for credit (maximum 2 courses) with department consent.*

*Determined on basis of change in instructors.

SPECIAL STUDIES FOR ALL SPECIALIZATIONS

199. Special Studies in Theater Arts. (½ to 2 courses) Hours to be arranged. Prerequisites: senior standing, 3.0 GPA in major and consent of the instructor. May be repeated for a total of two courses.

Graduate Courses

Certain graduate courses concerned with individual student projects may be repeated for credit upon recommendation of the departmental graduate adviser. Not open to undergraduate students. See College of Fine Arts, Unit Requirements.

200. Bibliography and Methods of Research in Theater Arts.

Section 1. Theater. Mr. Hethmon

Section 2. Motion Pictures. Mr. Suber

Section 3. Television-Radio. Ms. Schwartz

201. Seminar in Modern Production Theories. Lecture, four hours. Selected topics from European and American theater studies. Mr. Hethmon

202A. Seminar in Classical Theater. Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Studies of the development of theatrical production and dramatic form in the Greek, Hellenistic, and Roman periods. Mr. Mueller

202B. Seminar in Medieval Theater. Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Studies of theatrical production and dramatic form in the Middle Ages. Mr. Hethmon

202C. Seminar in Renaissance and Baroque Theater. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1485 to the early 18th century. Mr. Goodman

202D. Seminar in 18th and 19th Century Theater. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1700 to 1870. Mr. Goodman

202E. Seminar on the Modern Consciousness in Theater. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the prototypes of modern experience as encountered in the work of Ibsen and Strindberg. Mr. Goodman, Mr. Mueller

202F. Seminar in Naturalism and Expressionism. Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Study of the modern theater's response to scientific thought and industrialism. Mr. Goodman

202G. Seminar in Symbolism. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Adaptations of the religious impulse in such artists as Maeterlinck, Yeats, Meyerhold, Appia, Craig, Andreyev, Claudel, and Eliot. Mr. Goodman

202H. Seminar in Surrealism. Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Study of the development from Rimbaud to the present of the basic concepts of Surrealism as they relate to the theater. The seminar will deal with certain major writers such as Apollinaire, Jarry, and Cocteau, but will also take up the theatrical techniques which the movement has fostered. Mr. Mueller

202J. Seminar on Theater and Social Order. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the concept of order as it underlies theater which attempts to correct, reform, explain, or argue with the ethical or metaphysical condition of the period. The work of such playwrights as Shaw, Brecht, Sartre, and Arthur Miller will be investigated together with the theatrical styles the movement developed.

202K. Seminar in Colonial and 19th Century American Theater. Discussion, three hours. Prerequisite: graduate standing and consent of the instructor. Studies in the development of theatrical production and dramatic writing in American theater from 1665 to the 20th Century. Mr. Hethmon, Mr. Wollock

202M. Seminar in 20th Century American Theater. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the American theater's search to define the place of American experience in the modern world. Mr. Hethmon

202N. Seminar in Theater Architecture from the Baroque Playhouse to the Present. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the influence of modern experience on architectural thought in the modern theater. Mr. Crabs

203. Seminar in Film and the Fine Arts. Discussion, three hours; laboratory, six hours. Prerequisites: graduate standing and consent of the instructor. Studies in the interrelationship between film and the fine arts, with particular emphasis on the ways in which contemporary theories and practices in painting, music, and dance have influenced the evolving art of film.

204. Seminar in Film and the Performing Arts. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Studies in the interrelationship between film and theater, in its broadest sense, with particular emphasis on the impact of acting and mise-en-scene in contemporary and past films.

205A. The Background of Theatrical Art. An analysis of the aesthetic principles and content of the tragic theater.

205B. The Background of Theatrical Art. An analysis of the aesthetic principles and content of the comic theater.

206A. Seminar in European Motion Picture History. Prerequisites: course 106B and consent of the instructor.

206C. Seminar in American Motion Picture History. Prerequisites: course 106A and consent of the instructor. May be repeated for a maximum of two courses (8 units) credit.

207A. Seminar in Realism, Naturalism, and the Film. Prerequisites: graduate standing and consent of the instructor. Study of the influence of the Realist and Naturalist movements in literature on form and content of both the silent and the sound film in America and Europe, and particularly on the work of such directors as Von Stroheim, Renoir, and Feyder.

207B. Seminar in Expressionism and Film. Prerequisites: graduate standing and consent of the instructor. Study of the impact of the Expressionist school in literature, art, and architecture, and its effect on the form and content of motion pictures, especially in the decade following World War I on such directors as Lang, Murnau, and Pabst.

207C. Seminar in Social Realism and Film. Prerequisites: graduate standing and consent of the instructor. Study of art in the service of ideology as illustrated by the effect of new standards of social, political, and aesthetic values on the development and content of motion pictures, especially in the Marxist countries from 1917 to the present day.

207D. Seminar in Surrealism and Film. Prerequisites: graduate standing and consent of the instructor. Study of the influence of the Surrealist movements as articulated by Breton and Apollinaire and reflected in the films of such directors as Germaine Dulac, Antonin Artaud, Luis Bunuel, and Arthur Penn.

207E. Seminar in Neo-Realism and Film. Prerequisites: graduate standing and consent of the instructor. Study of the development of cinema after World War II, notably in Italy, under the influence of French directors such as Renoir and the novels of Hemingway, Dos Passos, Faulkner, and Malraux, and climaxing in the work of such directors as Fellini, Antonioni, and Pasolini.

208A. Seminar in Film Structure. Prerequisites: graduate standing and consent of instructor. An examination of various film conventions, both fictional and nonfictional, and of the role of structure in the motion picture.

208B. Film Aesthetics. Prerequisite: graduate standing and consent of the instructor. Study and analysis of the film in relation to other art forms.

208C. Advanced Aesthetics. Prerequisites: course 208B, graduate standing and consent of the instructor. Detailed examination and evaluation through study of selected films of the aesthetics of motion pictures as formulated to date and as the foundation for further development of the arts.

209A. Seminar in Documentary Film. Prerequisite: graduate standing and consent of the instructor. The nonfictional film and its relation to contemporary culture.

209B. Seminar in Fictional Film. Prerequisite: graduate standing and consent of the instructor. Film as fiction and its relation to contemporary culture. May be repeated for a maximum of two courses (8 units) credit.

M209C. Ethnographic Film. (Same as Anthropology M247A.) Prerequisites: graduate standing and consent of instructor. The ethnographic film as a form of realist cinema and its relations to cultural anthropology. Offered in the fall quarter. Mr. Boehm, Mr. Hawkins, Mr. Moerman

209D. Seminar in the Animated Film. Discussion, three hours; laboratory, three hours. Prerequisite: consent of the instructor. A critical study of the animated film—its historical development and its structure, style and use. Mr. McLaughlin

210. Seminar in Contemporary Broadcast Media. Prerequisite: graduate standing and consent of instructor. Recent and current developments in radio, television, satellites, cable and cartridge television, and telecommunication centers. Commercial broadcasting and alternative systems at home and abroad. Mr. Kingson

211. Historiography. Prerequisites: graduate standing and consent of the instructor. Examination of the function and methods of writing film and television history as seen in the works of key historians in the United States and Europe. The development of the discipline from a journalistic pursuit of disparate facts to a coherent examination of the development of the media will be examined in relation to the principles that have guided leading writers.

212. Theory of Action and Motive in Drama. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Examination of the history and meaning of these basic concepts. Study of a variety of approaches to definition of these and related terms.

213. Seminar in the History of Scenic Design. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of principal designers and modes of scenic expression. Mr. Corrigan

214. Seminar on Social and Economic Factors in Contemporary American Theater. Discussion, three hours. Prerequisites: graduate standing and consent of the instructor. Study of the background of theater in terms of community support, foundation support, independent financing, community planning, audience development, and other factors affecting artistic presentations. Mr. Cauble

216. Seminar in Critical Methods. Discussion, four hours. Prerequisites: graduate standing and consent of instructor. Examination of the principal contemporary modes of criticism, including archetypal, sociological, phenomenological, and Aristotelian, with particular emphasis on their value in the study of theater and film.

217. Seminar in the Puppet Theater. Lecture, three hours. Prerequisites: consent of instructor. Studies

NOTE: For key to symbols, see page 74

in the puppet theaters of the world: techniques, literature, aesthetics. Mr. Helstien

219. Film, Television and Society. Prerequisites: graduate standing and consent of the instructor. Studies in the ways in which film and television affect the attitudes, beliefs, standards, and behavior of society, and the means by which society in turn shapes the evolution and production of film and television.

221. Seminar in Film Authors. Prerequisites: graduate standing and consent of the instructor. Intensive examination of the works of outstanding creators of film.

222. Seminar in Film Genres. Prerequisite: graduate standing and consent of the instructor. Studies of coherent patterns, styles, and themes as they have defined selected genres such as the Western, gangster, war, and science fiction film.

223. Seminar in Visual Perception. Prerequisite: graduate standing and consent of the instructor. The aesthetic, psychological, and physiological principles of vision as they relate to the ways in which man "sees" film and television, with emphasis on the ways in which these are different from other visual experiences.

224. The Expanding Visual Media. Prerequisites: graduate standing and consent of the instructor. Studies of the means by which technological and aesthetic advances are re-defining the future of film, television, and the other visually-oriented means of communication and expression. The implications of such developments as mixed-media, video cassettes, holography, satellite relays, and computer-generated images may receive special attention.

230A-230B-230C. Advanced Playwriting. Lecture, three hours. Prerequisite: course 130A, graduate standing and consent of instructor. Guided completion of a full-length play, or study and preparation for the writing of a thesis play. Mr. Gardner

240. The Contemporary Playhouse. Discussion, four hours. Prerequisites: graduate standing and consent of instructor. Advanced study of the concept, form and function of the contemporary playhouse and its equipment.

241. Research in Technical Theater. Lecture, four hours. Prerequisites: graduate standing and consent of instructor. Research in technical processes and equipment in theater.

243A-243B-243C. Advanced Problems in Design for the Theater. Lecture, four hours. Prerequisites: graduate standing and consent of instructor. Advanced study and practice in the design of stage productions. Determination of approach and style in scenic design. Mr. Corrigan

245A-245B. Production Planning in Theater. Lecture, two hours; laboratory, two hours. Prerequisites: graduate standing and consent of instructor. Development of planning procedures through the execution of a complete plan for producing a multi-scene production. Courses must be taken in sequence. Mr. Corrigan, Mr. Crabs

247. Production Planning in Television. Seminar, three hours; plus field studies in professional motion picture and television studios.

251. Advanced Design for Motion Pictures. (½ to 1 course) Hours to be arranged. Prerequisites: course 151 and/or consent of the instructor. May be repeated for a maximum of three courses credit. Advanced study and practice of techniques and methods of design for motion pictures. Art direction for advanced workshop productions in the project sequence.

264. Seminar in Film and Television Direction. Prerequisite: graduate standing and consent of instructor. A study, with professional guests, of their work, attitudes, and solutions to problems in directing fictional and documentary films and television.

M265A-265B. Ethnographic Film Direction. (1 or 2 courses each) (Same as Anthropology M267B-267C.) Prerequisites: course 209C, graduate standing and consent of the instructor. Advanced study of problems in the production of ethnographic films. M265A is offered in the winter quarter and M265B is offered in the spring quarter. Mr. Boehm, Mr. Hawkins, Mr. Moerman

268. Seminar in the Short Film. Lecture two hours; discussion, two hours. Prerequisites: course 179A and consent of instructor(s). The study and analysis of the problems presented by the conceptualization, form and structure of the short film. Included for consideration will be classical models, previously made student films by members in the class, and projected projects of class members. Extensive viewing of examples during class and extra laboratory sessions is required. Mr. Preloran, Mr. Suber

270. Seminar in Film and Television Criticism. Prerequisites: graduate standing and consent of the instructor. An analysis of key aesthetic questions and their application to criticism of motion pictures and television as evidenced in the writing of students in the course and professional critics.

272A-272B-272C. Production and Performance Laboratory. (½ course) Laboratory, to be arranged. Prerequisites: admission to the M.A. program in theater specialization and consent of instructor. Credit for creative production assignments required of all M.A. students during the first three quarters of residence. Credit will be granted only upon completion of TA 272C. Concurrent scheduling with TA 172 and 472.

275A. Seminar in Television Drama. Prerequisite: graduate standing and consent of instructor. A critical survey and analysis of the drama written and produced specifically for television from the so-called Golden Age of the medium to the present.

275B. Seminar in Television Documentary. Prerequisite: graduate standing and consent of instructor. A critical survey and analysis of the structure and content of the documentary as specifically created, written, and produced for television.

288. Seminar in Educational Television. Prerequisite: graduate standing and consent of the instructor. An historical survey and critical analysis of public, educational, and instructional television in the United States and abroad. Mr. Kingson

289. Current Business Practices in Motion Picture/Television. Discussion, three hours. Prerequisite: consent of instructor. Examination of current status of Financing-Production-Distribution Agreements; Union Agreements; Music; Copyright; etc.; necessary to an understanding of the Motion Picture/Television industry. Not open for credit to students who have taken 198E in Winter Quarter, 1976. Mr. Grauel

290A. The Role of Management in Artistic Decision Making in the Theater. Lecture, four hours. Prerequisite: consent of instructor. A descriptive study of the criteria for decision making in artistic institutions including the role of the institution in society, the economic environment of the arts, and the artistic value systems of arts organizations. Mr. Cauble

290B. Programming and Planning Policies in the Theater. Lecture, four hours. Prerequisite: consent of instructor. An analysis of the social, artistic and economic roles of the arts as reflected in programming policy. An examination of the social goals pursued in establishing relationships between the arts and their environment. Mr. Cauble

291. The Role of Management in Motion Pictures. Prerequisite: graduate standing and consent of instructor. A study of the artistic, social, and economic criteria for decision making in the production and distribution of motion pictures. Mr. Grauel

298A-298B. Special Studies in Theater Arts. (½ to 1 course each) Lecture/discussion, two or four hours. Prerequisites: graduate standing and consent of instructor. May be repeated once for credit. Seminar study of problems in theater arts, organized on a topic basis.

Professional Courses

417. Production Project for the Puppet Theater. (2 courses) Laboratory, 30 hours weekly; five hours consultation. Prerequisites: restricted to M.F.A. students; consent of the instructor. The design, construction and performance of a full-length production with puppets as the culminating exercise for the candidate for the M.F.A. degree in the Puppet Theater. Students will be expected to present the full argument for the design style and techniques used in the construction of the puppets, the rationale for the use of puppets for the particular project presented, and a final justification and analysis of the completed work. Mr. Helstien

420A. Advanced Techniques in Acting. Lecture/laborator, six hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Exercises in sense memory, personalization, and objectives to help the student respond truthfully to real and imaginary stimuli by developing concentration, awareness, imagination and spontaneity. Ms. Salvi

420B. Advanced Techniques in Acting. Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Extended work in improvisations and exercises in order to apply these techniques to a role. Beginning with monologues the work progresses to two-person scenes. Through these efforts the student will begin to personalize the character's emotional needs and drives. Ms. Salvi

420C. Advanced Techniques in Acting. Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Preparation and presentation of two-person scenes utilizing sensory work and "objectives" on a more refined basis. The student will now be able to find the similarities and differences between himself and the character and be able to play these elements truthfully and spontaneously. Ms. Salvi

421A. Advanced Projects in Acting. (1 or 2 courses) Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting students in Theater and consent of instructor. Preparation, presentation, and critique of scenes. Systematic role analysis and exercises in acting.

421B. Advanced Projects in Acting. (1 or 2 courses) Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting students in Theater and consent of instructor. Preparation, presentation and critique of scenes. Systematic role analysis and exercises in acting.

421C. Advanced Projects in Acting. (1 or 2 courses) Lecture/laboratory, six hours. Prerequisites: restricted to M.F.A. acting students in Theater and consent of instructor. Class exercises in acting. Preparation and presentation of roles under performance conditions.

423. Advanced Directing of the Actor for Motion Pictures and Television. Laboratory, eight hours. Prerequisites: course 163 and consent of the instructor. The Director learns how to build scenes and characters logically and how to sustain these along with emotional and physical continuity. This class utilizes a video-tape recorder in order to simulate the conditions of directing actors before the camera. May be repeated for a maximum of 12 units credit. Ms. Salvi

424A-424B-424C. Advanced Techniques in Voice for the Stage. (½ course each) Lecture/laboratory, two hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Development of voice techniques for the stage. Includes work on relaxation, limbering, breathing, articulators, and resonators. Special vocal problems for the actor. Ms. Wilbur

424D-424E-424F. Special Problems in Voice for the Actor. (½ course each) Lecture/laboratory, two hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. An extension of the first year work with increased demands on voice. Range and breathing capacity

extension. Articulation and the phonetic alphabet. Advanced voice problems. Ms. Wilbur

425A-425B-425C. Advanced Techniques in Movement for the Stage. (½ course each) Lecture/laboratory, two hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Physical awareness for the actor. Special emphasis on: warming up the body, relaxation, gymnastics (balance, falls, stunts), movement techniques and stage combat. Mr. Orth

425D-425E-425F. Special Problems in Movement for the Actor. (½ course each) Lecture/laboratory, two hours. Prerequisites: restricted to M.F.A. acting candidates in Theater and consent of instructor. Physical awareness for the actor, concentrating on individual problems in terms of space, movement, and time. Special emphasis: natural rhythms, relaxation and balance. Mr. Orth

430A-430B-430C. Advanced Studies in Playwriting. Seminar, to be arranged. Prerequisites: courses 230A-230B-230C and consent of instructor. Guidance in the completion of thesis plays. Mr. Apstein

432. Manuscript Evaluation. Lecture, four hours; laboratory, to be arranged. Prerequisites: course 132 and consent of instructor or admission to M.F.A. writing program and consent of the instructor. May be taken twice for credit (once each year of M.F.A. residence). Evaluation of manuscripts of beginning writers including but not limited to those produced in the beginning writing course Theater Arts 134.

434. Advanced Motion Picture/Television Writing. (2 courses) Discussion, three hours. Prerequisite: course 135 and consent of the instructor. Advanced problems in the writing of original motion picture/television material. May be repeated for a maximum of 24 units.

437. Nontheatrical Writing for Motion Picture/Television. Discussion, three hours. Prerequisite: consent of the instructor. Advanced problems in the field of documentary and special feature programs with emphasis on research and pre-production.

442A-442B-442C. Advanced Problems in Costume Design. Lecture/discussion, four hours. Prerequisite: consent of the instructor. Study of costume design for theatrical productions. Development of costume designs from theatrical scripts with emphasis upon production styles and character revelation. The scripts vary in period and style to give design practice in the major costume periods and artistic styles. Restricted to M.F.A. candidates.

443. Problems in Design. (½ or 1 course) Lecture/laboratory, four hours. Additional hours as required. Prerequisite: consent of instructor. Study and practice in design techniques for the theater. May be repeated for a maximum of 12 units. Mr. Corrigan

444. The Development of Costume Design Construction Technologies for Theater. Discussion, three hours. Prerequisites: restricted to M.F.A. candidates and consent of instructor. A study of the effect of artistic and stylistic ideas on the mode and dress of men and women. May be repeated for a maximum of 12 units.

446. Production Planning in Motion Pictures. (½ or 1 course) Lecture, three hours; laboratory to be arranged. Prerequisite: consent of the instructor. Mr. Grauel

452A. Advanced Motion Picture/Television Sound. Lecture, four hours; laboratory, four hours. Prerequisites: course 152A and/or consent of the instructor. Applications of electronic and acoustic theory to film and television recording and reproduction, including practical demonstrations.

452B. Music Recording Workshop. Lecture, four hours; laboratory, eight hours. Prerequisites: course 452A and/or consent of the instructor. Supervised exercises in studio music recording techniques, with emphasis on special requirements for motion pictures and television.

452C. Advanced Motion Picture/Television Sound Re-Recording. Laboratory, eight hours. Prerequisites: courses 152B, 452A, and/or consent of the instructor. Techniques of preparation and execution of re-recording using multi-track pickup recording technology, including supervised operational experience.

457. Design for Television. Lecture, one hour; laboratory, three hours. Prerequisite: consent of the instructor. Study and practice in design of television productions. Consideration of style as it relates to all elements of design in live and recorded television programs. Mr. Wollock

460A. Problems in Advanced Direction for the Stage. Lecture, to be arranged. Prerequisites: restricted to M.F.A. candidates and consent of instructor. Preparation and presentation of a published one-act play or its equivalent under rehearsal conditions. Discussion and critique of work in progress. Mr. Gordon

460B. Problems in Advanced Direction for the Stage. Lecture, to be arranged. Prerequisites: restricted to M.F.A. candidates and consent of instructor. Preparation and presentation of a published play under rehearsal conditions. Discussion and critique of work in progress. Mr. Gordon

460C. Problems in Advanced Direction for the Stage. Lecture, to be arranged. Prerequisites: restricted to M.F.A. candidates and consent of instructor. Preparation and presentation of a full-length original play under rehearsal conditions. Discussion and critique of work in progress. Mr. Gordon

462. Production Project in Direction for the Stage. Lecture, to be arranged. Prerequisites: restricted to M.F.A. students and consent of instructor. Preparation and presentation of an original play under minimal production conditions. Discussion and critique of work in progress.

463. Production Project in Direction for the Stage. (2 courses) Prerequisite: consent of the instructor. Preparation and presentation of play under fully produced theater conditions. Restricted to M.F.A. students.

464A-464B. Motion Picture Direction. (1 or 2 courses each) Hours to be arranged. Prerequisite: consent of the instructor. Special problems in the direction of fictional and documentary motion pictures.

466A-466B. Advanced Television Direction. (1 or 2 courses each) Lecture, two hours; laboratory, six hours. Prerequisite: consent of the instructor. Special problems in the direction of dramatic and documentary television programs.

472. Production and Performance Laboratory. (½ course) Hours to be arranged. Prerequisite: admission to the M.F.A. program. May be repeated for a maximum of 8 units of credit. Credit for creative production projects required of all M.F.A. students during the first three quarters of residence. Concurrent scheduling with TA 172 and 272ABC.

479A-479B-479C. Film Project 3. (1, 2 or 3 courses each) Hours to be arranged. Prerequisite: consent of the instructor. The completion of a third film, including its writing, design, production and editing.

480A-480B-480C. Workshop in Radio and Television News. Laboratory, eight hours. Prerequisite: consent of the instructor. Instruction and supervised exercises in reporting, writing, editing, and producing radio and television news, public affairs, and documentary programs. Mr. LaTourette

482A-482B. Advanced Animation Workshop. (1 or 2 courses each) Lecture, three hours; laboratory to be arranged. Prerequisites: courses 181A-181B-181C and consent of the instructor. Organization and integration of various creative arts used in animation, resulting in the production of a complete animated film. Mr. McLaughlin

485A-485B-485C. Advanced Television Production. (1 or 2 courses each) Laboratory, 16 hours. Prerequisites: Project 1 (course 179A), 185, 186A-186B-186C and consent of instructor. Instruction in the creation, preparation, and production of advanced television programs.

488A-488B-488C. Educational Television Workshop. Laboratory, eight hours. Prerequisite: consent of instructor. Instruction and supervised exercises in directing and producing television programs for educational purposes.

495A. Problems in the Teaching of Theater Arts. Lecture/laboratory, to be arranged. Prerequisites: graduate standing and consent of the instructor. Study of and practice in the teaching of Theater Arts at the college and university level.

495B. Problems in the Teaching of Theater Arts. Lecture/laboratory, to be arranged. Prerequisites: graduate standing and consent of the instructor. Demonstration of competence in theater, film, or television production through successful completion of a major teaching production assignment as technical director, designer, film or television maker.

495C-495D. The Problems in the Teaching of Theater Arts. (0 to 1 course) Laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Demonstration of competence in theater production through successful completion of a major teaching production assignment as theater director. Course to be conducted as a two-quarter sequence offered in Winter and Spring quarters only. Credit will be granted only upon completion of sequence. In-progress grade only.

496. The Practice of Teaching Theater Arts. (½ course) Discussion, two hours. Prerequisite: Required: once for all Teaching Assistant or Associates in the Department of Theater Arts. Orientation and preparation of graduate students who have the responsibility to assist in the teaching of undergraduate courses in the Department; discussion of problems common to the teaching experience. This 2 unit course will not count toward the M.A., M.F.A., or Ph.D. TAs may repeat the course. Graded S/U. Senior Faculty

498. Professional Internship in Theater Arts. (1 or 2 or 3 courses) Full or part-time at a studio or on a professional project. Prerequisites: Graduate status plus advanced standing in the M.F.A. program and consent of instructor. An internship at various film, television or theater facilities accentuating the creative contribution, the organization and the work of professionals in their various specialties. Given only when projects can be scheduled.

501. Cooperative Program. (½ to 2 courses) Prerequisite: approval of Graduate Adviser and Graduate Dean. Approval of host campus Instructor, Department Chairman and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. To be graded S/U.

Individual Study and Research

596A. Directed Individual Studies: Research. (½ to 3 courses) Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596B. Directed Individual Studies: Writing. (½ to 3 courses) Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596C. Directed Individual Studies: Directing. (½ to 3 courses) Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596D. Directed Individual Studies: Design. (½ to 3 courses) Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

596E. Directed Individual Studies: Acting. (½ to 3 courses) Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

NOTE: For key to symbols, see page 74

596F. Directed Individual Studies: Production. (½ to 3 courses) Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of the instructor.

597. Preparation for the Qualifying Examination for the Ph.D. in Theater Arts. (½ to 2 courses) May be repeated for a total of three courses.

598. M.A. Thesis in Theatre Arts. (½ to 2 courses) Research and writing for the M.A. thesis. Limited to students who have been advanced to candidacy. May be repeated for a total of three courses.

599. Dissertation in Theater Arts. (½ to 2 courses) Research and writing for the doctoral dissertation. Limited to students who have been advanced to candidacy. May be repeated for a total of three courses.

Related Courses in Other Departments

Classics 142. Ancient Drama.

Dance 152A. Lighting Design for Dance Theater.

152B. Costume and Scenic Design for Dance Theater.

English 10A-10B-10C. English Literature.

90. Shakespeare.

112. Children's Literature.

135A-135B-135C. Creative Writing: Drama.

167. The Drama, 1842 to the Present.

Humanities 1A-1B. World Literature.

Integrated Arts 1A-1B-1C.

Music 135A-135B-135C. History of Opera.

ZOOLOGY

The departments of Botanical Science and Zoology have merged to form the Department of Biology. Students currently enrolled as majors in Botanical Science or Zoology may complete requirements as stated in the 1971-1972 General Catalog (or the Supplement to the 1971-1972 General Catalog), or they may petition to change their majors to Biology.

Advising appointments and sample curricula are available in the Biology Student Affairs Office.

ADMINISTRATIVE OFFICERS

REGENTS EX OFFICIO

Edmund G. Brown, Jr.
Governor of California and President of The Regents

Mike Curb
Lieutenant Governor of California

Leo T. McCarthy
Speaker of the Assembly

Wilson Riles
State Superintendent of Public Instruction

Cheryl F. Biles
*President of the Alumni Association of the University of California***+

Forrest A. Plant
*Vice President of the Alumni Association of the University of California***+

David S. Saxon
President of the University

**New* or *changed* wording.

Lee Wenzel and George David Kieffer Regents-designate (non-voting).

APPOINTED REGENTS +

+Terms of Regents appointed by the Governor expire March 1 of the year named in parentheses, with names arranged in order of original accession to the Board. The student Regent (Renee P. Turkell) *and alumni Regents serve a* one-year term beginning July 1 and ending June 30 of the year listed.

Edward W. Carter (1982)

William K. Coblentz (1980)

DeWitt A. Higgs (1982)
Vice Chairman of the Board

Glenn Campbell (1984)

William French Smith (1986)

Robert O. Reynolds (1986)
Chairman of the Board

Dean A. Watkins (1984)

Joseph A. Moore (1990)

John H. Lawrence, M.D., (1988)

William A. Wilson (1988)

Gregory Bateson (1988)

Vilma S. Martinez (1990)

Verne Orr (1988)

John F. Henning (1989)

Stanley K. Sheinbaum (1989)

Yori Wada (1980)

Yvonne Brathwaite Burke (1990)

Renee P. Turkell (1979)

PRINCIPAL OFFICERS OF THE REGENTS

Donald L. Reidhaar
General Counsel

Herbert M. Gordon
Treasurer

Miss Marjorie J. Woolman
Secretary

Faculty Representative to the Board of Regents
William R. Frazer (September 1, 1977 to August 31, 1979) Karl S. Pister (September 1, 1979 to August 31, 1980)

OFFICE OF THE PRESIDENT

President of the University
David S. Saxon

Vice President of the University
William B. Fretter

Academic Vice President
Donald C. Swain

Vice President – Academic and Staff Personnel Relations
Archie Kleingartner

Vice President – Agriculture and University Services
James B. Kendrick, Jr.

Assistant President – Coordination and Review
Dorothy E. Everett

Associate Vice President
Thomas E. Jenkins

Executive Assistant to the President
David A. Wilson

Special Assistant to the President for Governmental Relations
Lowell J. Paige

OFFICERS EMERITI

President of the University, Emeritus, and Professor, Emeritus, of Business Administration
Clark Kerr

President of the University, Emeritus, and Professor, Emeritus, of Economics
Charles J. Hitch

Vice President of the University, Emeritus, and Dean of the College of Agriculture, Emeritus:
Claude B. Hutchison

Vice President of the University, Emeritus, Professor, Emeritus, of Agricultural Economics, and Agricultural Economist, Emeritus
Harry R. Wellman

Vice President – Educational Relations, Emeritus; and Professor of Economics, Emeritus
Frank L. Kidner

General Counsel of The Regents, Emeritus
Thomas J. Cunningham

Associate Counsel of The Regents, Emeritus
John E. Landon

CHANCELLORS OF THE CAMPUSES

Chancellor at Berkeley:
Albert H. Bowker

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 D. McElroy

Chancellor at San Francisco:
Francis A. Sooy

Chancellor at Santa Barbara:
Robert A. Huttenback

Chancellor at Santa Cruz:
Robert L. Sinsheimer

GENERAL ADMINISTRATIVE OFFICERS – UCLA

Chancellor, Charles E. Young

Executive Assistant to Chancellor, Rosemary Ford

Special Assistant to Chancellor, Beverly R. Liss

Assistant to Chancellor – Special Projects, John Sandbrook

Director, Hospital and Clinics, Baldwin G. Lamson

Director, Intercollegiate Athletics, J. D. Morgan

Vice Chancellor – Institutional Relations, Elwin V. Svenson

Director, Fine Arts Production, Ed Harris

Director, Museum of Cultural History, Christopher B. Donnan

Director, Public Information, Chandler Harris

Director, Publication Services, Sidney W. Kahn

Acting Assistant Chancellor – Alumni and Development, Alan F. Charles

Director, Alumni Relations,

Director, Development, Richard D. Chamberlain

Assistant Chancellor – Legal Coordinator, Alan F. Charles

Assistant Chancellor – Planning, Adrian H. Harris

Associate Director of Planning, Gerald R. Kissler

Associate Director of Planning-Budget Administration, Joseph W. Johnson

Assistant Director of Planning-Capital and Space Management, Rodney Rose

Executive Vice Chancellor, William D. Schaefer

Assistant Executive Vice Chancellor, Tallman Trask III

Coordinator of Academic Resources, Barbara Satenstein

Vice Chancellor – Faculty Relations, Harold W. Horowitz

Coordinator of Academic Personnel, Marrcele E. Ritter

Academic Assistant to the Chancellor for Affirmative Action, Harry H. L. Kitano

Associate Vice Chancellor – Graduate Affairs, James E. Phillips

Associate Vice Chancellor – Research, Albert A. Barber

Associate Vice Chancellor – Undergraduate Affairs, John C. Ries

Vice President – Business and Finance, Emeritus; and Professor of Political Science, Emeritus
John A. Perkins

University Provost, Emeritus; Chancellor at Santa Cruz, Emeritus; and Professor of Mathematics, Emeritus
Agnus E. Taylor

Vice President, Emeritus; and Secretary and Treasurer of The Regents, Emeritus
Robert M. Underhill

Treasurer of The Regents, Emeritus
Owsley B. Hammond

Director, Campus Computing Network, William B. Kehl

University Librarian, Russell Shank

Vice Chancellor – Student and Campus Affairs, Norman P. Miller

Special Assistant, Vice Chancellor – Student and Campus Affairs, Robert B. Wellman

Counceling Attorney – Student and Campus Affairs, Charles T. McClure

Director, Department of Women's Intercollegiate Athletics, Judith R. Holland

Director, Campus Activities Service Office, James M. Klain

Acting Dean, Campus Programs and Activities Office, William Locklear

Dean, Cultural and Recreational Affairs, Peter T. Dalis

Dean, Experimental Educational Programs, Jane S. Permaul

Assistant Vice Chancellor – Student Services and Development, Edward A. Shaw

Acting Dean, Office of Residential Life, Alan Hanson

Dean, Learning Skills Center, Marcella Graffin

Dean, Placement and Career Planning Center, Charles Sundberg

Dean, Psychological and Counseling Services, Kerry Yamada

Dean, Office of International Students and Scholars, Maxwell Epstein

Director, Student Health Services, Maurice M. Osborne, Jr.

Assistant Vice Chancellor – Dean of Students, Byron H. Atkinson

Associate Dean of Students, Manager, Office of Special Services/Veterans Affairs, L. Craig Cunningham

Associate Dean of Students, Student Legal Services, Raymond H. Goldstone

Vice Chancellor – Academic Programs, Charles Z. Wilson

Executive Officer, Academic Programs, Allen Yarnell

Director, Instructional Development, Andrea Rich

Director, Research and Evaluation, Vivian Freedman

Associate Vice Chancellor, Office of Undergraduate Affairs, John C. Ries

Assistant Vice Chancellor, Academic Services, Winston C. Doby

Director, Academic Advancement Programs, Edward C. Anderson

Director, Financial Aids, Larry Dreyer

Registrar, Stanley Chin

Acting Director, Undergraduate Admissions and Relations with Schools, Robert Caruso

Associate Director, Undergraduate Admissions and Relations with Schools, Juan Lara

Associate Vice Chancellor and Dean, Graduate Division, James E. Phillips

Associate Dean, Admission and Recruitment, Leo M. Snowiss

Associate Dean, Fellowship and Assistantships, Florence H. Ridley

Associate Dean, Student and Academic Affairs, Byron T. Wright

Director, Graduate Admissions, Sari C. Halasz

Dean, Division of Continuing Education, Leonard Freedman

Dean, University Extension, Phillip E. Frandson

Associate Dean, University Extension, R. Edgar Retzler

Director, Summer Session, Leonard Freedman

Assistant Director, Summer Session, Marjorie B. Johansen

Administrative Vice Chancellor, James W. Hobson

Executive Assistant, Harold A. Hyman

Special Assistant, David A. Wearley

Affirmative Action Officer, James Lake, Jr.

Management Analysis and Assistance, Manager, Allen Solomon

Campus Community Safety, Director/Police Chief, John C. Barber

Assistant Vice Chancellor – Business, Harland B. Thompson

Auxiliary Enterprises Administrator, Christian R. Smith

Business Services Administrator, Paul M. Saben

Contract and Grant Administration, Director, Terence A. Feuerborn

Materiel Manager, Richard Mooney

Services Enterprises Administrator, Anthony Stypinski

Assistant Vice Chancellor – Facilities,

Director Facilities Resources, V. Burt Cowman

Manager, Administrative Services, Jack D. Blackwood

Campus Architect, Larry Manning (Acting)

Manager, Custodial and Grounds,

Manager, Facilities Services, Arch G. O'Bryant

Assistant Vice Chancellor – Finance, Don C. Rebok

Accounting Officer, Morris Williams

Assistant Accounting Officer, Norman R. Ellis

Audit and Control, Financial Review Officer, Gene Ward

Main Cashier, Jessie W. Doty

Operational Assistance Officer, David C. Ewing

Assistant Vice Chancellor – Staff Personnel, George B. Enoch

Staff Assistant, Dorothy Friedman

Policy and Development Coordinator, Idarmis Villarrel

Career Opportunity Programs Coordinator, Alan Miller

Instant Personnel Services,

Staff Placement, Manager, Bonnie Bakst

Employee Organization Relations Manager, Gregory Kramp

Organization Relations and Development, Manager, Jack Powazek

Compensation and Benefits Manager, Ira N. Fishman

Insurance and Retirement Supervisor, Anne B. Johnson

Hospital and Clinic Personnel Manager, John R. Blackwell

DEANS OF THE GRADUATE DIVISION, COLLEGES AND SCHOOLS

Dean
James E. Phillips, Ph.D.

Emeriti
Gustave O. Arlt, Ph.D., LL.D.
Horace W. Magoun, Ph.D.

Associate

Fellowships and Assistantships
Florence H. Ridley, Ph.D.

Recruitment and Admissions
Leo M. Snowiss, Ph.D.

Student and Academic Affairs
Byron T. Wright, Ph.D.

Assistant
William Broesamle, M.B.A.
Rodney W. Skager, Ph.D.
Alan N. Willson, Jr., Ph.D.

College of Fine Arts

Charles Speroni, Ph.D.

Emeriti
David F. Jackey, Ph.D.
William W. Melnitz, Ph.D.

Associate
William R. Hutchinson, Ph.D.

College of Letters and Science

Eugen Weber, M. Litt.

Emeriti
Paul A. Dodd, Ph.D., LL.D.
Franklin P. Rolfe, Ph.D.

Divisional – Humanities
Philip Levine, Ph.D.

Divisional – Honors
E. Bradford Burns, Ph.D.

Divisional – Life Sciences
F. Harlan Lewis, Ph.D.

Divisional – Physical Sciences
Harold K. Ticho, Ph.D.

Divisional – Social Sciences
Antony R. Orme, Ph.D.

Associate
Paul S. Farrington, Ph.D.
John C. Ries, Ph.D.

School of Architecture and Urban Planning

Harvey S. Perloff, Ph.D.

Associate
William Mitchell, M.E.D.

School of Dentistry

Andrew D. Dixon, L.D.S., B.D.S., M.D.S., B.S., Ph.D., D.Sc.

Associate
Thomas K. Barber, B.S., D.D.S., M.S.

Assistant
Louis J. Goldberg, D.D.S., Ph.D.
Clinton Longwill, B.A., M.A.
Max H. Schoen, B.S., D.D.S., M.P.H., Dr.P.H.
Robert P. Thye, B.S., D.M.D., M.A.

Graduate School of Education

John I. Goodlad, Ph.D., L.H.D., LL.D.

Associate
C. Wayne Gordon, Ph.D.

Assistant
Marjorie S. Day, Ph.D.
Lawrence W. Erickson, Ed.D.
Thomas J. LaBelle, Ph.D.
Rodney W. Skager, Ph.D.

NOTE: For key to symbols, see page 74

School of Engineering and Applied Science

Russell R. O'Neill, Ph.D.

Associate
Alfred C. Ingersoll, Ph.D.
Russell A. Westmann, Ph.D.

Assistant
Richard Stern, Ph.D.
Ahmed R. Wazzan, Ph.D.
Alan N. Willson, Jr., Ph.D.

School of Law

William D. Warren, A.B., J.D., J.S.D.

Associate
John A. Bauman, B.S.L., LL.B., LL.M., Jur.Sc.D.
Susan Westerberg-Prager, A.B., M.A., J.D.

Assistant
Anthony X. McDermott, A.B., LL.B.
Michael Rappaport, B.S., J.D.
Fred L. Slaughter, B.S., M.B.A., J.D.

School of Library and Information Science

Robert M. Hayes, Ph.D.

Emeriti
Andrew H. Horn, Ph.D.
Lawrence C. Powell, Ph.D., Litt.D.

Associate
Harold Borko, Ph.D.

Graduate School of Management

J. Clayburn LaForce, Jr., Ph.D.

Emeriti
Neil H. Jacoby, Ph.D.
George W. Robbins, M.B.A.

Associate
Keith V. Smith, Ph.D.
Victor C. Tabbush, Ph.D.

Assistant
James R. Bettman, Ph.D.
William H. Broesamle, M.B.A.

School of Medicine

Sherman M. Mellinkoff, M.D.

Associate
A.F. Rasmussen, Jr., M.D., Ph.D.
Robert Tranquada, M.D.,

Assistant
Byron Backlar, J.D.
Wiley F. Barber, M.D.
Kathryn F. Fink, Ph.D.
Joshua S. Golden, M.D.
H. Earl Gordon, M.D.
Milton Greenblatt, M.D.
Edward A. Langdon, M.D.
J. Philip Loge, M.D.
Ralph W. McKee, Ph.D.
Ernst A. Noltmann, Ph.D.
Martin A. Pops, M.D.
Joseph Raymond, M.D.
David Satcher, M.D.
Martin D. Shickman, M.D.
William H. Swanson, M.D.
Jeremy H. Thompson, Ph.D.
Jerrold A. Turner, M.D.
Bernice M. Wenzel, Ph.D.

School of Nursing

Mary E. Reres, R.N., Ed.D.

Emeriti
Lulu Wolf Hassenplug, R.N., M.P.S., Sc.D.

Associate

Assistant
Corrine L. Hatton, R.N., M.N.
Harriet C. Moidel, R.N., M.A.

School of Public Health

Lester Breslow, M.D., M.P.H.

Associate

Assistant
Edward S. Nugent, M.A.P.A., M.B.A., F.A.C.H.A.

School of Social Welfare

Maurice F. Connery, D.S.W.

University Professors

Melvin Calvin, *University Professor*, Berkeley Director, Laboratory of Chemical Biodynamics

Murray Krieger, *University Professor*, Irvine Department of English and Comparative Literature

Josephine Miles, *University Professor*, Berkeley Department of English

Glenn Seaborg, *University Professor*, Berkeley Associate Director, Lawrence Berkeley Laboratory

Neil Smelser, *University Professor*, Berkeley Department of Sociology

Edward Teller, *Emeritus University Professor*, Livermore Lawrence Livermore Laboratory

Charles Townes, *University Professor*, Berkeley Department of Physics

Harold Urey, *University Professor*, San Diego Department of Chemistry

Sherwood Washburn, *University Professor*, Berkeley Department of Anthropology

Lynn White, Jr. *Emeritus University Professor*, Los Angeles Department of History

Index

Academic Advancement Program, 59
Academic Residence, 22
Administrative Officers, 332
Admissions, 68
Graduate, 70
Undergraduate, 68
Advancement to Candidacy, 22
Advisors and Counselors, 45
Aerospace Studies, 75
African Studies, 75
African Studies (Interdepartmental), 6
Afro-American Studies Major, 7
Alumni Association, 65
American History and Institutions, 4, 12
Anatomy, 77
Medical History Division, 78
Anesthesiology, 79
Anthropology, 80
Applied Linguistics (Interdepartmental), 87
Archaeology (Interdepartmental), 88
Architecture and Urban Planning, 90
Architecture and Urban Planning, School of, 26
Art, 96
Asian American Studies, 6
Asian American Studies (Interdepartmental), 101
Associated Students (ASUCLA), 64
Astronomy, 102
Athletics, 66
Atmospheric Sciences, 103

Bachelor's Degree, Requirements for, 11
Biochemistry, 106
Biological Chemistry, 106
Biology, 107
Biomathematics, 114
Breadth Requirements, 12
Business-Economics Education, 141

Campus Activities Service Office, 59
Campus Programs and Activities Office, 59
Cancellation of Registration, 22, 71
Candidacy for Degree, 5
Candidate in Philosophy Degree, 22
Central Ticket Office, 59
Certificate Programs, 25
Certificate of Resident Study for Foreign Students, 21
Change of Address/Name, 74
Change of College or Major, 5, 11, 24
Chemical, Nuclear, and Thermal Engineering, 32, 156
Chemistry, 115
Chicano Studies Major, 8
Child Care, 59
Classics, 120
Classics, 120
Greek, 121
Latin, 122
Clubs, 67
Commencement, 72
Communication Studies (Interdepartmental), 123
Communication Studies Major, 8
Comparative Literature, (Interdepartmental), 124
Computer Science, 32, 156, 158
Computer Sciences, 127
Computer Services, 60
Concurrent Degree Programs, 22
Council on Educational Development (CED), 47, 127
Course List Requirement (Letters and Science), 12
Course Credit, 4
Courses, 3, 74
Special Studies Courses, 3
Credit for Advanced Placement Tests, 14
Credit by Examination, 14
Cultural Opportunities, 66
Cultural and Recreational Affairs, 60, 66
Cybernetics, 8

Dance, 127
Dean of Students, 60
Degree Requirements, 2
Undergraduate, 4
Dentistry (Oral Biology), 129
Dentistry, School of, 29
Departmental Scholar Program, 25
Dismissal, Academic, 4
Doctoral (Ph.D.) Degree, 23
Double Majors, 11

Earth and Space Sciences, 130
East Asian Studies Major, 8
Economics, 137
Economics System Science Major, 9
Education, 141
Education Abroad Program, 25, 47
Education, Graduate School, 30
Engineering and Applied Science, School of, 32, 148
Engineering Systems, 33, 161
English, 167
English Composition, 12
English as a Second Language, 173
Enrollment, 73
Environmental Science and Engineering (Interdepartmental), 174
Ethnic Arts: Intercollege Major in Interdisciplinary Studies, 9
Ethnic Arts (Interdepartmental), 175
Experiential Program and Opportunities (EXPO Center), 47
Experimental College, 47
Experimental Educational Programs (Office of), 61
Extension, University, 47

Fees, General, 52
Resident/Non-Resident, 52
Final Examinations, 3, 4
Financial Aid Office, 60
Financial Aid Programs, 54
Fine Arts, College of, 18
Folklore and Mythology (Interdepartmental), 176
Footnote Key, 74
Foreign Language, 12, 22
Foreign Language Training, 25
Foreign Literature in Translation, 179
Foreign Students, 60
Fraternities, 67
French, 179
Freshman/Sophomore Seminars, 46

Genetics, 183
General Requirements, 23
Geochemistry (Interdepartmental), 183
Geography, 183
Geology (See Earth and Space Sciences), 189
Geophysics and Planetary Physics, 189
Geophysics and Space Physics, 190
Germanic Languages, 190
Dutch-Flemish and Afrikaans, 193
Hungarian, 193
Yiddish, 193
Grade Points, 4
Grades, 24
Grades and Scholarship Requirements, 2
Grading Regulations, 2
Graduate Advancement Program, 25
Graduate Cross-Enrollment Program, 25
Graduate Students' Association, 60
Grants, 55

History, 195
Honors, College, 5
Honors with Bachelor's Degree, 5
Honors Office, Division of (Letters and Science), 5
Housing, 57
Humanities, 204

Immunology, 205
In-Candidacy Fee Offset Grant Program, 24
Incomplete Grades, 3
Individual Major, Departmental and Interdepartmental, 10
Individual Ph.D. Programs, 23
Indo-European Studies (Interdepartmental), 205
Intercampus Exchange Program, 25
Interdepartmental Degree Programs, 25
Interdepartmental Majors, 6
Interdisciplinary Colloquia, 207
International Relations, Special Program in, 7
Islamic Studies, 207
Italian, 209

Journalism, 212

Kinesiology, 212

Latin American Studies (Interdepartmental), 215
Latin American Studies Major, 9
Law, School of, 36, 218
Learning Skills Center, 60
Letters and Science, College of, 5
Liberal Arts, Certificate Program in Diversified, 6
Library and Information Science, 219
Library and Information Science, Graduate School of, 36
Library, University, 48
Linguistics, 221
African Languages, 225
Indigenous Languages of the Americas, 226
South Asian Languages, 226
Loans, 55
Lower Division Program, 46

Major, College of Letters and Science, 10
Regulations, 10
Management, Graduate School of, 36, 227

Master's Degree, 21
Requirements, 21
Materials, 33, 162
Mathematics, 236
Mathematics-Computer Science Major, 9
Mathematics-System Science Major, 9
Mechanics and Structures, 33, 162
Medical History (See Department of Anatomy), 242
Medicine, School of, 38
Mentor Program, 46
Microbiology, 242, 243, 244
Microbiology and Immunology, 244
Immunology, 245
Microbiology, 245
Cell Biology and Virology, 246
Military Science, 246
Minimum Progress, 4, 12
Minimum Scholarship Requirements, 4
Molecular Biology (Interdepartmental), 247
Music, 248

Naval Science, 254
Near Eastern Languages and Cultures, 254
Ancient Near East, 256
Arabic, 256
Armenian, 257
Berber, 257
Caucasian Languages, 257
Hebrew, 257
Iranian, 258
Islamics, 258
Jewish Studies, 259
Near Eastern Languages, 259
Semitics, 259
Turkic Languages, 259
Urdu, 260
Near Eastern Studies Major, 9
Neuroscience (Interdepartmental), 260
Non-Discrimination, 67
Nursing, 261
Nursing, School of, 39

Ombudsman, 61
Organized Majors (College of Letters and Science), 5
Oriental Languages, 264
Orientation, 61

Parking Service, Campus, 59
Passed/Not Passed Courses, 3
Pathology, 267
Pharmacology, 268
Philosophy, 269
Physics, 273
Physiology, 276
Placement and Career Planning Center, 61
Career Development, 61
Student Employment, 61
Educational Career Services, 61
Planetary and Space Science (See Geophysics and Space Physics), 278
Plant Science (See Department of Biology), 278
Political Science, 278
Postdoctoral Scholars, 26
Predental Curriculum, 14
Predental Hygiene Curriculum, 14
Prelaw Studies, 15
Premedical Studies, 14
Prenursing Curriculum, 15
Preoptometry Curriculum, 15
Prepharmacy Curriculum, 15
Prephysical Therapy Curriculum, 15
Prepublic Health Curriculum, 15
Probation, Academic, 4
Professional School, Preparing for, 14
Psychiatry and Biobehavioral Sciences, 284
Psychological and Counseling Services, 61
Behavioral Division, 61
Counseling Division, 61
Psychology, 292
Public Health, School of, 40, 299

Radiological Sciences, 307
Readmission, 72
Graduate, 72
Undergraduate, 72
Recreation, 66
Refunds, 54
Registration, 72
Requirements, General University and College, 12
Requirements for Ph.D. Degree, 23
Romance Linguistics and Literature (Interdepartmental), 309
ROTC, 62
Air Force, 62
Army, 62
Navy, 62

Scandinavian Languages, 193
Scholarships, 4, 55
Senior Residence, 4
Service Projects, 67
Slavic Languages and Literatures, 310
Slavic, 311
Bulgarian, 312
Czech, 312
Polish, 312
Russian, 312
Linguistics Courses, 312
Serbo-Croatian, 313
Slovak, 313
Ukranian, 313
Lithuanian, 313
Romanian, 313
Social Welfare, School of, 44, 313
Sociology, 314
Sororities, 67
Spanish and Portuguese, 319
Spanish, 319
Portuguese, 322
Speech, 323
Statistics, 324
Student Conduct, 73
Student Government, 67
Student Health Services, 62
Student Legal Services, 64
Student Records (Disclosure of), 74
Student Services, 59
Subject A English Composition, 4, 12, 324
System Science, 33, 165

Teaching and Other Advanced Credentials, 26
Theater Arts, 324
Thesis or Comprehensive Examination Plan, 22
Transcript of Record, 72
Transfer of Credit, 22
Transfer Students, Special Regulations for, 12
Transportation, 58
Parking Permits, 58
Bus Service, 58
Carpools, 59
Off-Campus Permit Parking, 59
Tram Service, 59
Travel, 67

University Policies Commission, 64
Urban or Organizational Studies, Special Program in, 7

Veteran Affairs, 64
Visiting Scholars, 26
Visitors Center, 64

Withdrawal, 22, 71
Women's Resource Center, 64
Women's Studies, Special Program in, 7
Work Study Programs, 55

Zoology, 332