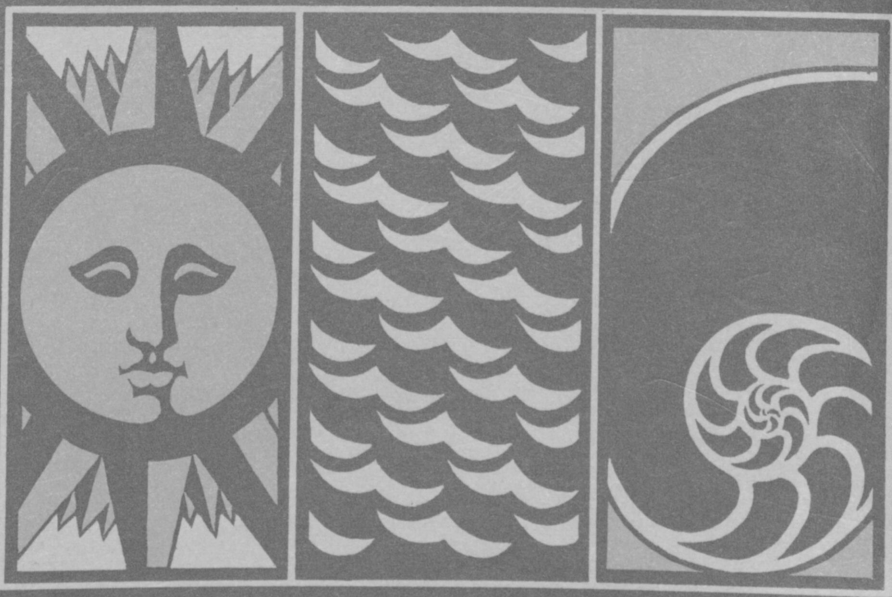
CALIFORNIA STATE COLLEGE AT LONG BEACH

Dr. Brent

Instr. Media

BULLETIN 67-68



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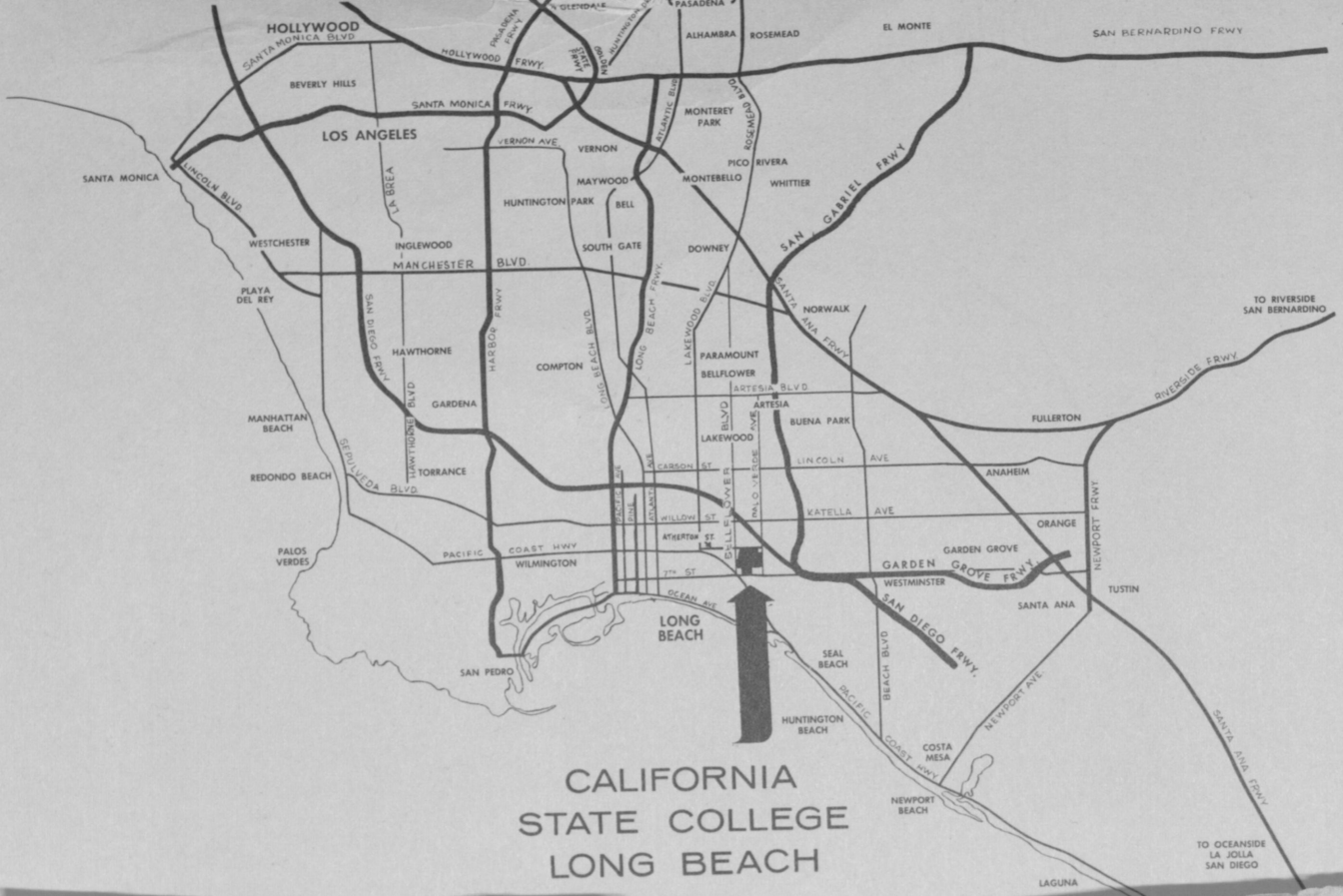

CALIFORNIA STATE COLLEGE LONG BEACH

CALIFORNIA STATE COLLEGE

LONG BEACH

BULLETIN

VOL. 18 JUNE, 1967

GENERAL CATALOG

GENERAL INFORMATION AND ANNOUNCEMENT OF COURSES

Fall and Spring Semesters 1967–1968

6101 E. Seventh Street, Long Beach, California 90801
Telephone, 433-0951

Edited by Barbara Keuneke, News Bureau
Cover by Robert Pryor
Maps by Norm Bueche, Audio Visual Center

PREFACE

This Bulletin is designed to provide most of the information a student needs to decide whether he wants to enroll at California State College at Long Beach, what procedure he should follow if he does and what he must do to graduate once he has enrolled. It contains, in addition, other information about the California State Colleges, California State College at Long Beach and its administration, faculty and the available courses of study. It also includes statements of policy about grades, probation, transfer of units, special examinations and other pertinent information. Since the student is ultimately responsible for his own program, it is advisable that he be familiar with the information relevant to his needs.

Prior to the fall semester an orientation program for freshmen and transfer students is held at the College. For further details contact the Office of Admissions and Records.

For the convenience of prospective students and other campus visitors a parking lot is located off Seventh Street.

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1967–68 CALENDAR

FALL SEMESTER, 1967

July 15	**Preferential admission to fall semester closes. To assure consideration for admission, applications should be filed as early as possible. Processing of an application cannot be completed until all transcripts are received.**
July 15	Graduate Aptitude Examination and GRE Advanced Engineering Test for Master's Degree Candidates.
July 22	The NLN Graduate Nurse Examination.
August 5	Entrance Examinations: American College Testing Program Examination, available at centers throughout state and nation.
September 1	**Admission to fall semester closes.**
September 18	Beginning of fall semester.
September 18	Faculty and staff meetings.
September 19–23	Registration. Refer to Schedule of Classes.
September 25	Instruction begins.
September 29	Last day to register and to add new class to program.
October 1	Last day for filing application for secondary student teaching.
October 1	Final date for filing Graduation Application card or Credential Application card with the Records Office by candidates for a degree or a credential, January, 1968 and for tentative checks for June, 1968 and Summer, 1968 graduation.
October 13	Last day to drop a course with mark of "W" if work is not of "C" grade.
October 15	Last day for filing application for elementary student teaching, for fieldwork in pupil personnel service credentials, and for field work in administration and supervision credentials.
October 21	Entrance Examinations: American College Testing Program Examination.
October 28	Graduate Aptitude Examination.
November 4	GRE Advanced Engineering and Geography Test for Master's Degree Candidates.
November 23–24	Thanksgiving recess.
December 9	Entrance Examinations: American College Testing Program Examinations.
December 16–Jan. 1	Christmas vacation.
January 24–Feb. 2	Final examinations.
February 3	End of fall semester.

SPRING SEMESTER, 1968

November 15 — **Preferential admission to spring semester closes. To assure consideration for admission, applications should be filed as early as possible. Processing of an application cannot be completed until all transcripts are received.**

January 6 — The NLN Graduate Nurse Examination.

January 15 — **Admission to spring semester closes.**

February 5 — Beginning of spring semester.

February 5 — Faculty and staff meetings.

February 6–10 — Registration. Refer to Schedule of Classes.

February 12 — Lincoln's Birthday—Holiday.

February 13 — Instruction begins.

February 15 — Final date for filing Graduation Application Card or Credential Application Card with the Records Office by candidates desiring tentative checks for January, 1969.

February 16 — Last day to register and to add new class to program.

February 17 — Entrance Examinations: American College Testing Program Examinations, available at centers throughout state and nation.

February 24 — Graduate Aptitude Examination.

March 1 — Last day for filing application for elementary and secondary student teaching, for fieldwork in pupil personnel service credentials and for administration and supervision credentials.

March 2 — Last day to drop a course with mark of "W" if work is not of "C" grade.

April 6–14, inclusive — Spring vacation.

April 27 — GRE Advanced Engineering and Advanced Geography Test for Master's Degree Candidates.

May 11 — Entrance Examinations: American College Testing Program Examinations, available at centers throughout state and nation.

May 30 — Memorial Day—Holiday.

June 5–14, inclusive — Final examinations.

June 15 — Commencement.

June 15 — End of spring semester.

1968 SUMMER SESSION

June 24–August 2 — First six-week session.

August 5–September 13 — Second six-week session.

1968–69 CALENDAR

September 16 — Beginning of fall semester.

TRUSTEES OF THE CALIFORNIA STATE COLLEGES

EX OFFICIO TRUSTEES

Ronald Reagan, B.A. ..... State Capitol, Sacramento 95814
Governor of California and President of the Trustees

Robert H. Finch, B.A., LL.B. ..... State Capitol, Sacramento 95814
Lieutenant Governor of California

Jesse M. Unruh, B.A. ..... State Capitol, Sacramento 95814
Speaker of the Assembly

Max Rafferty, A.B., M.A., Ed.D. ..... 721 Capitol Mall, Sacramento 95814
State Superintendent of Public Instruction

Glenn S. Dumke, A.B., M.A., Ph.D., LL.D., L.H.D.
5670 Wilshire Blvd., Los Angeles 90036
Chancellor of the California State Colleges

APPOINTED TRUSTEES

Appointments are for a term of eight years expiring March 1 on dates in parentheses. Names are listed in order of accession to the Board.

Louis H. Heilbron, A.B., LL.B., LL.D. (1969)
44 Montgomery St., San Francisco 94104

Donald M. Hart, B.A. (1968)
P.O. Box 1556, Bakersfield 93302

Charles Luckman, LL.D., A.F.D. (1974)
9220 Sunset Blvd., Los Angeles 90069

Paul Spencer, B.A. (1969)
1323 La Terracita Dr., San Dimas 91773

Theodore Meriam, A.B. (1971)
P.O. Box 370, Chico 95927

Albert J. Ruffo, LL.B., B.S. in E.E. (1971)
600 Bank of America Bldg., San Jose 95113

Mrs. Philip Conley, B.A. (1972)
3729 Huntington Blvd., Fresno 93702

E. Guy Warren, B.A. (1973)
P.O. Box 59, Hayward 94541

Daniel H. Ridder, B.A. (1967)
604 Pine Ave., Long Beach 90801

George D. Hart, A.B. (1967)
111 Sutter St., San Francisco 94104

Gregson E. Bautzer, B.A., LL.B. (1968)
190 N. Cañon Dr., Beverly Hills 90210

William A. Norris, A.B., LL.B. (1972)
609 So. Grand, Los Angeles 90017

James F. Thacher, A.B., LL.B. (1970)
310 Sansome St., San Francisco 94104

Victor H. Palmieri, B.A., LL.B. (1970)
10889 Wilshire Blvd., Suite 1550, Los Angeles 90024

Alec L. Cory, B.A., LL.B. (1973)
530 B St., Suite 1900, San Diego 92101

Chester R. Bartalini (1974)
995 Market St., Room 810, San Francisco 94102

OFFICERS OF THE TRUSTEES

Governor Ronald Reagan
President

Albert J. Ruffo
Chairman

Donald M. Hart
Vice-Chairman

Chancellor Glenn S. Dumke
Secretary-Treasurer

OFFICE OF THE CHANCELLOR OF THE CALIFORNIA STATE COLLEGES

5670 Wilshire Boulevard
Los Angeles, California 90036
213 938-2981

Chancellor ..... Glenn S. Dumke
Executive Vice Chancellor ..... Raymond A. Rydell
Vice Chancellor, Academic Affairs .....
Vice Chancellor, Business Affairs ..... Harry E. Brakebill
Assistant Chancellor ..... C. Mansel Keene
Faculty and Staff Affairs

THE CALIFORNIA STATE COLLEGES

California State College, Dominguez Hills
809 East Victoria Street
Dominguez Hills, California 90247
Leo F. Cain, President
213 532-4300

California State College at Fullerton
800 North State College Boulevard
Fullerton, California 92631
William B. Langsdorf, President
714 871-3300

California State College at Hayward
25800 Hillary Street
Hayward, California 94542
Fred F. Harcleroad, President
415 538-8000

California State College at Long Beach
6101 East Seventh Street
Long Beach, California 90801
Carl W. McIntosh, President
213 433-0951

California State College at Los Angeles
5151 State College Drive
Los Angeles, California 90032
John A. Greenlee, President
213 224-2011

California State College at San Bernardino
5500 State College Parkway
San Bernardino, California 92407
John M. Pfau, President
714 887-6311

California State Polytechnic College, Kellogg-Voorhis
Pomona, California 91766
Robert C. Kramer, President
213 964-6424

California State Polytechnic College, San Luis Obispo
San Luis Obispo, California 93401
Presidency Vacant
805 546-0111

Chico State College
First and Normal Streets
Chico, California 95926
Robert E. Hill, President
916 343-4411

Fresno State College
Shaw and Cedar Avenues
Fresno, California 93726
Frederic W. Ness, President
209 222-5161

Humboldt State College
Arcata, California 95521
Cornelius H. Siemens, President
707 822-1771

Sacramento State College
6000 Jay Street
Sacramento, California 95819
Robert Johns, President
916 454-6011

San Diego State College
5402 College Avenue
San Diego, California 92115
Malcolm A. Love, President
714 286-5000

San Fernando Valley State College
18111 Nordhoff Street
Northridge, California 91324
Ralph Prator, President
213 349-1200

San Francisco State College
1600 Holloway Avenue
San Francisco, California 94132
John Summerskill, President
415 469-9123

San Jose State College
125 South Seventh Street
San Jose, California 95114
Robert D. Clark, President
408 294-6414

Sonoma State College
Rohnert Park, California 94928
Ambrose R. Nichols, President
707 795-2011

Stanislaus State College
800 Monte Vista Avenue
Turlock, California 95380
Alexander Capurso, President
209 634-9101

THE CALIFORNIA STATE COLLEGES

The California State Colleges are a unique development of the democratic concept of tax-supported public higher education for all qualified students.

Spanning the state from Humboldt County in the north to San Diego in the south, the 18 campuses of the California State Colleges (with another campus soon to be constructed) represent the largest system of public higher education in the Western Hemisphere and one of the largest in the world. Current enrollment exceeds 170,000 full and part-time students. The faculty and administrative staff numbers approximately 9,000.

The individual colleges, each with a geographic, curricular and academic character of its own, offer a solid basic program in the liberal arts. Beyond this, each college is noted for its individuality in academic emphasis which makes for a diversified system. Course offerings leading to the bachelor's and master's degree are designed to satisfy existing student interests and to serve the technical and professional manpower requirements of the state.

The California State Colleges are dedicated to rigorous academic standards. Constant striving for academic excellence is at the heart of the system. The primary responsibility of each faculty within the system is the instructional process on the teacher-student level, with appropriate recognition of the necessary and constructive role of research in any institution of higher education.

Responsibility for the California State Colleges is vested in the Board of Trustees, which is appointed by the Governor, and the Board's administrative arm, the Chancellor. The Trustees and the Chancellor set broad policy for the colleges while delegating considerable independent responsibility for implementation at the college level.

A Statewide Academic Senate, made up of representatives elected by the faculty at each college, acts as a consultative body to the Chancellor in the area of academic affairs.

Although the oldest of the colleges, San Jose State College, dates back a century, the California State College system under an independent Board of Trustees was created by the Donahoe Act of 1960. Formerly, the colleges were under the jurisdiction of the State Board of Education.

Today, the California State Colleges are in a particularly dynamic period of their development. Prior to World War II, there were seven State Colleges with a peak total enrollment of some 13,000. Since 1947, eleven new colleges have been established and a site has been selected for a new college in Kern County. Enrollment in the system is expected to reach 225,000 by 1970.

CSCLB ADVISORY BOARD

The California State College at Long Beach Advisory Board consists of community leaders interested in the development and welfare of the College. The Board serves the President in an advisory capacity, particularly in matters which affect College and community relations. Members are nominated by the President and appointed by the Chancellor for terms of four years.

Llewellyn Bixby, Jr. ..... Long Beach
William W. Broom ..... Long Beach
C. Lowell Clarke ..... Long Beach
Lawrence A. Collins, Sr. (Honorary) ..... Long Beach
William S. Grant (Honorary) ..... Long Beach
John W. Hancock ..... Long Beach
Francis C. Hertzog, M.D. ..... Long Beach
Rabbi Wolli Kaelter ..... Long Beach
Harry J. Krusz ..... Long Beach
Jackson R. McGowen ..... Long Beach
Aaron Schultz ..... Long Beach
George P. Taubman, Jr. (Chairman) ..... Long Beach
Robert C. Westmyer ..... Long Beach
Leon L. Wiltse, M.D. ..... Long Beach

ADMINISTRATION

President ..... Carl W. McIntosh
- Executive Dean for Administration ..... David L. Bryant
  - Manager, News Bureau and Publications ..... Robert G. Wells
- Executive Dean for Development ..... Francis J. Flynn
- Academic Vice President .....
  - Associate Dean ..... Donald H. Simonsen
  - Associate Dean ..... Boyd A. Davis
  - Associate Dean ..... Roderick B. Peck
  - Coordinator of International Programs ..... M. Robert Rutherford
- Dean of Graduate Studies ..... Halvor G. Melom
  - Coordinator of Research ..... Hiden T. Cox
- Director of Educational Services ..... George E. Dotson
  - Coordinator, Television ..... Hubert P. Morehead
  - Coordinator, Audio-Visual Services ..... James E. Cockrum
  - Director of Institutional Studies and Data Processing ..... Robert T. Littrell
  - College Librarian ..... Charles J. Boorkman
- Dean of Students ..... George D. Demos
  - Associate Dean—Student Affairs ..... Lois J. Swanson
  - Associate Dean—Admissions and Records ..... Clarence R. Bergland
    - Admissions Officer ..... George LaDue
    - Registrar ..... Ruth K. Haney
  - Associate Dean—Counseling and Testing ..... Kenneth C. Weisbrod
  - Director of College Union ..... Frank Noffke
  - Director of Health Services ..... Donald C. Martinson, M.D.
  - Director of Housing ..... Frank Bowman
  - Director of Placement ..... H. Edward Babbush
- Business Manager ..... Bernard R. Carman
  - Non-Academic Personnel Officer ..... Art W. Baars
  - Chief of Plant Operation ..... Clifford L. Stapp
  - Accounting Officer ..... George H. Hackney
  - Business Service Officer ..... Fred Kruger
  - Budget Officer ..... David J. Scott

DIVISION AND DEPARTMENT CHAIRMEN

Division of Applied Arts and Sciences ..... C. Thomas Dean
- Criminology Department ..... C. Robert Guthrie
- Home Economics Department ..... Merna A. Samples
- Industrial Arts Department ..... Floyd M. Grainge
- Industrial Technology Department ..... Paul L. Kleintjes
- Nursing Department ..... Dorothy L. Walsh

Division of Business Administration ..... T. Hillard Cox
- Accounting Department ..... Delbert E. Williamson
- Business Education Department ..... Darrell V. Burras

Finance Department	Raymond G. Schultz
Management Department	Arthur C. Laufer
Marketing Department	Edmund A. Cotta
Operations Research and Statistics Department	Herbert L. Stone
Division of Education	Henry R. Sehmann
Educational Administration Department	Stanley W. Williams
Educational Psychology and Social Foundations Department	Virgil A. Revie
Elementary Education Department	David D. Beiderman
Instructional Media Department	Richard J. Johnson
Secondary Education Department	Daniel C. McNaughton
Division of Engineering	Walter J. W. Arnell
Civil Engineering Department	Willard H. Reed
Electrical Engineering Department	Rodney C. Lewis
Mechanical Engineering Department	Herluf P. Nielsen
Division of Fine Arts	Lawrence L. Peterson
Art Department	Joseph H. Krause
Drama Department	Harry E. Stiver
Music Department	Gerald Strang
Division of Health, Physical Education and Recreation	Walter C. Crowe
Director of Athletics	Fred L. Miller
Health Education and Safety Department	John A. Torney
Men's Physical Education Department	Robert A. Pestolesi
Recreation Department	David E. Gray
Women's Physical Education Department	C. Patricia Reid
Division of Humanities	Samuel E. Wiley
Comparative Literature Department	Harry L. (Peter) Carr
English Department	Roscoe L. Buckland
Foreign Languages Department	James H. Noguer
Journalism Department	Dixon L. Gayer
Philosophy Department	J. Brooks Maue
Radio-Television Department	Hubert P. Morehead
Speech Department	Jesse J. Thompson
Division of Natural Science	Kenneth L. Johnson
Biology Department	Bruce H. Carpenter
Chemistry Department	Roger D. Bauer
Geology Department	William W. Lumsden
Mathematics Department	Charles W. Austin
Microbiology Department	Frank E. Swatek
Physics-Astronomy Department	Charles A. Roberts, Jr.
Psychology Department	John E. Nygaard
Division of Social Sciences	Donald W. Peters
Anthropology Department	William J. Wallace
Economics Department	J. Richard Powell
Geography Department	Sheldon D. Ericksen
History Department	Howard Kimball
Political Science Department	Alexander D. Urquhart
Sociology and Social Welfare Department	George Korber

COLLEGE COUNCILS AND COMMITTEES

The Administrative Council serves as the chief coordinating and advisory council in the areas of administrative policy.

The Academic Senate is the basic legislative body of the faculty. The Academic Senate subcommittees are the following:

Admissions and Scholastic Standards
Athletic
Budget
Commencement and Ceremonies
Committee on Committees
Credentials and Teacher Education
Curriculum
Educational Policies
Elementary Teacher Education
Foreign Studies
Graduate Studies
Library
Privilege and Tenure
Publications
Research
Sabbatical Leave
Scholarships and Loans
Secondary Teacher Education
Student Conduct
Student Housing
Television

The Retention, Tenure Appointment and Promotion Committee is an all-College committee.

THE COLLEGE

HISTORY AND PURPOSE

The College was established January 27, 1949, to serve the area of Orange County and southeastern Los Angeles County. The College began instruction September 28, 1949, under the name of Los Angeles-Orange County State College in temporary, rented facilities in Long Beach with a faculty of 13 and a student body of 160 juniors, seniors and graduate students.

The College was renamed Long Beach State College in 1950, and in 1964 to California State College at Long Beach. In 1951 the College moved to its present 320-acre campus, donated by the City of Long Beach, on Highway 22 (Garden Grove Blvd.) on the eastern outskirts of Long Beach. Two years later, the first freshmen and sophomores enrolled. The same year, 1953, construction of the first permanent facilities was begun.

Today it has grown to a College with more than 750 full-time and 470 part-time faculty, a student body of more than 21,000 and 36 permanent buildings costing more than $35,000,000.

The College provides instruction "for undergraduate students and graduate students through the master's degree, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession." The purpose, which is defined by legislation, is shared by the other California State Colleges.

The College is in the process of organizing nine divisions into six separate schools. This organization will probably occur before or during this academic year. Changes in curriculum, requirements for graduation and departmental structure will not be affected.

INTERNATIONAL SCULPTURE SYMPOSIUM

The monumental sculpture which is visible around the campus is a result of the fruitful efforts of eight world renowned sculptors and a muralist who participated in the first International Sculpture Symposium ever to be held in the United States. Held in the summer of 1965, the Symposium not only brought fame to the College as the birthplace of sculpture symposia in the nation, but also marked it as the first college or university in the world to sponsor such an event.

Another of the unique aspects of the Symposium was the cooperation of Southern California industry in this cultural embellishment, termed by many a "wedding of industry and art."

Valued at approximately $300,000, the sculpture was financed by individuals and industries who realized the valuable implications of such a cultural undertaking.

The participants were sculptors Kengiro Azuma of Japan, J. J. Beljon of Holland, Andre Bloc of France, Kosso Eloul of Israel, Claire Falken-

stein and Gabriel Kohn of the U.S., Piotr Kowalski, a Pole living in France, Robert Murray of Canada and muralist Rita Letendre of Canada.

Bloc's project, a 65-foot-high concrete bell tower, is still to be completed.

The Symposium was operated on a non-profit basis for both the sculptors and the College. The sculptors were given travel, room, board and a small honorarium in return for the monumental sculpture which they agreed to execute.

The wood project facing Seventh Street was created by several of the art students who served as apprentices to the sculptors and was their contribution to this unique College endeavor.

The rewards which this sculpture has brought and will continue to bring to the College and the community will be felt throughout the life of the College.

ACCREDITATION

The College is accredited by the Western Association of Schools and Colleges, by the California State Department of Education, by the National Council on Accreditation of Teacher Education, by the Engineers' Council for Professional Development, by the National League for Nursing and is approved by the American Association of University Women.

The College holds membership in the following:

Administrative Management Society
American Association of Colleges for Teacher Education
American Association of Collegiate Registrars and Admissions Officers
American Association of School Administrators
American Association of University Women
American College Health Association
American Council on Education
American Management Association
American Mathematical Society
American Society for Engineering Education
Association of American Colleges
Association of College Unions
Association of College and University Housing Officers
Association for School, College and University Staffing
Association for Student Teaching
California Association of College and University Housing Officers
California Association of School Administrators
California Association of School Personnel Administrators
California Association of Secondary School Administrators

California Association for Supervision and Curriculum Development
California Council on the Education of Teachers
California Educational Placement Association
California Elementary School Administrators Association
California-in-Europe Programs, Inc.
College and University Personnel Association
College Student Personnel Institute
Community Welfare Council
Council of Graduate Schools in the United States
Los Angeles World Affairs Council
National Association of Accountants
National Association of College and University Attorneys
National Association of College and University Traffic and Security Directors
National Association for Foreign Student Affairs
National Association of Student Personnel Administrators
National Association of Women Deans and Counselors
National Commission on Accrediting
National League for Nursing
Northwest Association of Secondary and Higher Schools
Pacific Coast Association of Collegiate Registrars and Admissions Officers
Pacific Coast College Health Association
Western Association of College and University Business Officers
Western Association of Graduate Schools
Western College Association
Western College Placement Association

BUILDINGS AND FACILITIES

In addition to administration and office buildings, the Little Theater, the residence halls and health center, the College has many other buildings and facilities.

Instructional. Instructional buildings include five general classroom-laboratory buildings, a three-building science complex, three fine arts buildings, a music building, a language arts building, a physical education gymnasium-classroom facility, a home economics building, a health center, and engineering and industrial arts buildings.

The Library. The College Library, housed in a modern, three-story building, has in excess of 280,000 accessioned items and 1,800 current periodical subscriptions plus 25 newspapers. Its book collection is supplemented by a wide assortment of audio-visual aids such as phonorecords, microtexts, filmstrips and maps. The Library is divided into four major areas. Science and Technology and the Education and Curriculum library are on the first floor. The second floor is devoted to the Social Sciences; the third floor to the Humanities. Current, unbound periodicals are found in the Periodicals Room, also on the first floor.

The Soroptimist House. This building, a gift of the Soroptimist Club of Long Beach, provides a facility for parties, receptions and informal meetings.

The Bookstore and Cafeteria. The Bookstore provides for the supply and sale to students of prescribed textbooks, reference and popular books, stationery supplies and miscellaneous items for personal use.

The College Cafeteria, composed of a main dining facility, a faculty dining room and two snack bars, provides food service for the entire College.

Both facilities are operated as a nonprofit corporation, the Forty-Niner Shops, Inc. Faculty, students and administrators are represented on its board of directors.

COLLEGE FOUNDATION

The Long Beach California State College Foundation is a non-profit corporation organized to administer grants from governmental and private agencies for research and other activities related to the College program.

SPECIAL PROGRAMS

SUMMER SESSIONS

The College offers two six-week summer sessions each year. The programs are comparable to those of regular sessions except that many special clinics, conferences, seminars and field studies are offered.

Prospective students should request copies of the *Summer Session Schedule* from the Summer Session Office.

INTERNATIONAL PROGRAMS

THE CALIFORNIA STATE COLLEGES' YEAR ABROAD

The California State Colleges offer academic year programs of study at a number of distinguished universities abroad. For 1967–68 the cooperating universities are: University of Aix-Marseille, France; Free University of Berlin and University of Heidelberg, Germany; University of Florence, Italy; Waseda University, Tokyo, Japan; University of Granada and University of Madrid, Spain; University of Stockholm and University of Uppsala, Sweden; National University, Taiwan. Academic work successfully completed at the cooperating universities abroad may be applied toward the degree requirements of the College in accordance with College regulations.

A selection among applicants from all California State Colleges is made on the basis of academic, linguistic and personal qualifications. The criteria are:

a) Upper division or graduate standing by the beginning of the academic year abroad;
b) Academic achievement;
c) Proficiency in the language of instruction;
d) Faculty recommendations.

Cost to the student includes round trip transportation from San Francisco to the host university, room and board for the academic year, and medical insurance. In 1967–68 these costs are: France, Germany, Spain, $1,970; Italy, Japan, $2,070; Sweden, $2,270; Taiwan, $1,770. Payments may be scheduled throughout the year.

Programs in Japan, Sweden and Taiwan do not require previous linguistic preparation; applicants for all other programs must demonstrate adequate facility in the language of instruction at the host university.

Application for the 1968-69 academic year should be made early in the Fall semester of 1967. Detailed information may be obtained from the Coordinator of International Programs, Room 134, Administration Annex, this College, or by writing to the Office of International Programs, The California State Colleges, 1600 Holloway Avenue, San Francisco, California 94132.

SUMMER SESSION AT THE UNIVERSITY OF UPPSALA

The College sponsors and serves as the administrative center in the United States for an International Summer Session, offered each year by the University of Uppsala in Uppsala, Sweden. This six-week session, usually scheduled for the second half of June and the full month of July, is open to college graduates and to undergraduates who have completed their college freshman year. It is designed to satisfy the interests of American students, but it also attracts British and Continental students. Local Swedish students also are resident in Uppsala during the summer.

The International Summer Session offers courses in history, political science, sociology, literature, art and Swedish. All courses are taught in English by Uppsala and guest European professors. Each course carries three units of credit. Two courses, or a total of six units, may be taken during the session. For students of this College, all courses have been approved in advance for transfer credit.

Tuition and board and room for the six weeks are approximately $375. This excludes transportation and personal expenses of the student.

Course descriptions and additional information are available from the Coordinator of International Programs, Room 134, Administration Annex.

GENERAL HONORS PROGRAM

The General Honors Program is designed to give an intellectual challenge to the academically superior undergraduate by offering him intensive interdisciplinary courses in the liberal arts. Working in lecture sections, colloquia, tutorials, and at independent research, students admitted to the program will find an opportunity to appreciate and explore relationships between fields of study, ideas and issues.

The Honors Program is continuous and cumulative. Each semester selected students enroll in honors courses appropriate to their level. In no semester do Honors Program courses constitute more than a part of the student's total program; he selects the rest of his courses from the regular curriculum. Normally, students are admitted to the program only at the beginning of their freshman year, or at the beginning of their sophomore year. However, a student may petition the honors faculty for admission at other times; and if he meets the conditions, he will be admitted. The most important conditions are 1) high academic standing, and 2) an appropriate background in liberal arts studies. The latter condition is especially important because later phases of honors work presuppose either the earlier phases or comparable academic preparation.

Entering freshmen who are eligible for the Honors Program will be informed of that fact by the administration of the College as soon as possible after they have made application to the College, submitted their transcripts and taken the American College Testing Program. They will be invited to file application for the program. Their selection as honors students will be based on such application. The yearly deadline for the return of the application form is August 1. Students seeking admission either to the College or to the Honors Program after that deadline cannot be assured consideration.

Prospective sophomores who are eligible for the program will be informed of their eligibility in the second semester of their freshman year. They will be invited to apply for the program if they are interested. The yearly deadline for the return of such applications is August 1.

Students who do not receive invitations to apply for the program but who are nonetheless interested in enrolling may inquire at the honors office concerning their eligibility.

Honors Courses:

A. *Freshman Year:*

Honors 100A,B (2A,B): Freshman Colloquium I-II (3,3) F, S

Western man's interpretation of himself in major philosophical and aesthetic productions including works of art, music, drama and literature. Work will be carried on largely through small discussion groups and extensive outside research. Approximately one-third of the work of the course will be in fine arts and music, one-third in literature, and the remainder in philosophy. The course aims at facility in dealing with both the formal and the thematic aspects of the arts.

Note: Honors 100A,B satisfy the six-unit general education requirement in literature, philosophy, or the arts.

History 131A,B (4A,B): Western Civilization (3,3) F, S

Political, economic, social, cultural, religious and intellectual history of Western Civilization from its origins to the present. Stresses persons, ideas, movements and institutions that have had the greatest impact upon the modern world. This course is part of the regular History Department curriculum, but there are special sections for honors students. Work in these honors sections is both more intensive and extensive.

Note: History 131A or History 131B satisfies three units of the nine-unit general education requirement in social science.

Honors 131 (1A): Matter and Energy (3) F

An examination of modern ideas concerning matter and energy from a historical perspective and from a consideration of recent research. (Lecture 2 hours, laboratory 3 hours.)

Honors 132 (1B): Earth Science and Cosmology (2) S

The history of the earth and its place in the solar system and the origin and evolution of earth's features and fossil life. (Lecture 2 hours.)

Note: Honors 131 and 132 are optional and are recommended for honors students who seek a general education background in physical science. Honors 131 and 132 satisfy five units of the nine-unit general education requirement in natural science.

B. *Sophomore Year:*

Honors 200A,B (50A,B): Sophomore Colloquium I-II (3,3) F, S

Studies in the culture of Asia, emphasizing the civilizations of China and India. Attention is paid to the politics, history, art, literature, philosophy and religion of the Eastern World.

Honors 241 (1C): Biological Functions of Cells and Organisms (3) F

An introduction to the principles illustrating the unity of all biological systems including their structural organization and major cellular processes. (Lecture 2 hours, laboratory 3 hours.)

Honors 242 (1D): The Diversity of Life (2) S

An introduction to the diversity of animal and plant life and their ecological organization. (Lecture 2 hours.)

Note: Honors 241 and 242 are optional and are recommended for honors students who seek a general education background in biological science. Honors 241 and 242 satisfy five units of the nine unit general education requirement in natural science.

C. *Junior Year:*

Honors 301 (110), 302 (185): Junior Colloquium (3,3) F, S

The study of selected interdisciplinary topics, problems or issues. Work will be carried on largely through small discussion groups and extensive outside research. Topics, problems or issues may be changed from year to year.

D. *Senior Year:*

Honors 490 (190): Honors Tutorial (3) F

An individual research project generally of an interdisciplinary nature to be carried on by the student under the supervision of a faculty member chosen by the student and approved by the honors faculty.

Honors 498 (198): Honors Thesis (3) S

An individual research project generally of an interdisciplinary nature to be carried on by the student under the supervision of a faculty member and to culminate in a paper acceptable to a committee designated by the honors faculty.

Any honors course can be credited toward the eight-unit general education elective requirement.

Exemption by Examination:

The honors student should avail himself of the privilege of exemption by examination in the following courses:

United States History
American Political Institutions
English Composition
Health Education and Hygiene

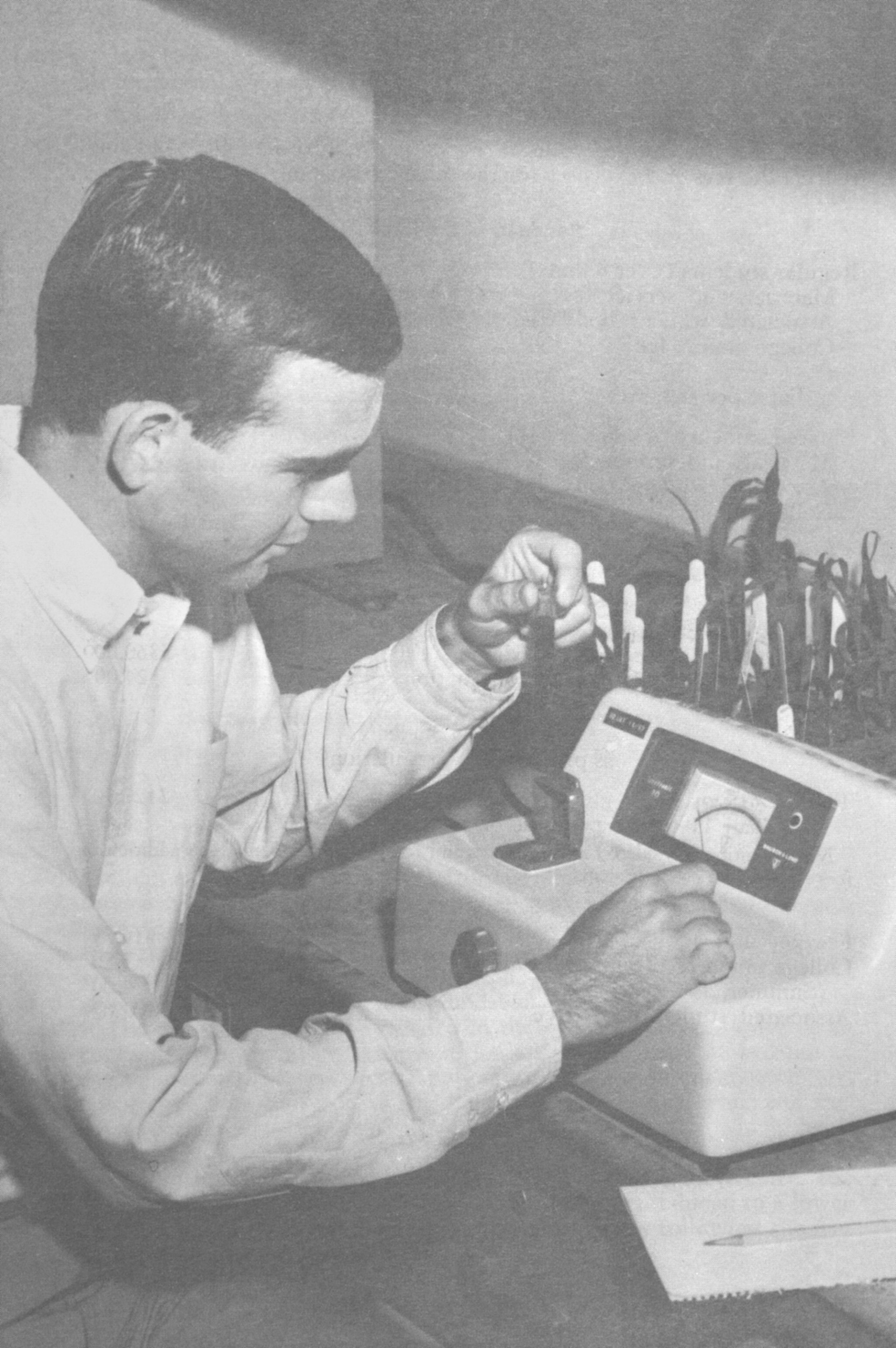
If the student passes the United States History exemption examination, he will elect three units from the list of approved social science courses outside history and political science; if he passes the United States Government exemption examination, he may elect three units approved by the Political Science Department.

It is recommended that the student who does not exempt himself by examination from the English 100 requirement should take this course in the first semester of his freshman year. It is further recommended that students who are exempted from English 100 take English 101—preferably in the first semester of their freshman year.

Good Standing in the Program:

The freshman year in the Honors Program is considered a probationary year. At its end the honor student's status must be confirmed by the honors faculty. In order to maintain good standing for continued enrollment in the Honors Program, all students should maintain an overall B (3.0) average and also maintain this same overall average in honors work.

Additional information concerning the Honors Program may be obtained from either the Academic Vice President or the Honors Program Office.



FEES AND EXPENSES

FEE SCHEDULE

Tuition is not charged to legal residents of California. The following reflects the fees and expenses for the semester system.

Residents of California

Regular students (over 6 units)	
Materials and service fee	$45.00
Associated student body fee	9.50
College union fee	8.00
Total per semester	$62.50
Limited students (6 units or less)	
Materials and service fee	22.50
Associated student body fee	5.00
College union fee	4.00
Total per semester	$31.50

Nonresidents

Tuition (15 or more units) maximum	$360.00
(less than 15 units) per unit or fraction	24.00

Foreign-Visa Students

as prescribed by regulations

Tuition (15 or more units) maximum	$127.50
(less than 15 units) per unit or fraction	8.50

Note: Tuition payable by non-residents and foreign-visa students is in addition to fees required of other students.

Summer Session

Fee per unit	$19.75
College union fee (Summer, 1967)	1.50
(Summer, 1968) per session	4.00
Associated student body fee	1.00

OTHER FEES OR CHARGES

Application (and reapplication) fee (non-refundable)	
Semesters beginning before December 1, 1967	$5.00
Semesters beginning after December 1, 1967	10.00
Late registration fee	5.00
Change of program	1.00
Parking fee per semester—regular students	13.00
Parking fee per semester—limited students	6.00
Parking fee per semester for less than four-wheeled self-propelled vehicles—one-fourth the fees shown above.	
Check returned for any cause	2.00
Complete transcript (no charge for first copy)	1.00
Diploma fee	3.50
Organ practice (per semester)	10.00
Residence hall room rental fee per semester	174.00
Residence hall board, required, per semester (approx.)	240.00
Failure to meet administratively required appointment or time limit (including but not limited to special aptitude examinations, failure to keep appointments for health examinations, special final examinations)	2.00

Auditors Pay the Same Fees as Others

Fees are Subject to Change by the Trustees of the California State Colleges

Full Payment of Registration and Activity Fees must be Made at Time of Registration

REFUNDS OF FEES

Materials and Service Fee

Upon a student's withdrawal from the College, the materials and service fee may be refunded if written application for refund is submitted to the Registrar not later than 14 days following the day of the term that instruction begins, provided that the amount of $10 shall be retained to cover the cost of registration. Late registration fees and late change of program fees are not refundable.

The entire fee may be refunded in the event a student is unable to continue his registration because of a College regulation or because of compulsory military service. Application for refund under such circumstances may be made at any time prior to the date when the student receives any academic credit for the courses for which he is registered.

The difference between the applicable material and service fee, less $5, may be refunded if the unit load of the student is reduced to a lower materials and service fee category within the 14 days following the day of the term that instruction begins.

Upon a student's withdrawal from the College, or upon a drop in unit load, nonresident tuition fees may be refunded if the application for refund is received within the following time limits:

Time limit	*Amount of refund*
(1) Before or during the first week of the semester	100%
(2) During the second week of the semester	90%
(3) During the third week of the semester	70%
(4) During the fourth week of the semester	50%
(5) During the fifth week of the semester	30%
(6) During the sixth week of the semester	20%

Refunds of a portion of parking fee according to the following schedule will be made upon return of all documents issued by the College which entitle a student to use campus parking facilities. Documents to be returned include any parking permit, stickers and decals issued. If any of these are affixed to the vehicle, their removal by a campus security officer or under his direction–as an agent of the State–shall constitute return of the attached items. Following is the schedule for refunds which will be paid:

(This schedule refers to calendar days, commencing on the date of the semester when instruction begins.)

Period	*Amount of refund*
1-30 days	75%
31-60 days	50%
61-90 days	25%
91-end of semester	None

Associated Students Fees and College Union Fees

Upon a student's withdrawal from the College during the 14 days following the day of the term that instruction begins, the Associated Students fee and the College Union fee is refundable in full; after that date, no portion of this fee is refundable.

No refund of Associated Students fee or College Union fee shall be allowed because of a reduction in unit load from more than six units to six or less units.

ESTIMATED EXPENSES FOR BOOKS AND SUPPLIES

The average expense for textbooks and other prescribed items for class use approximates $40–$50 per semester. The student should be prepared to meet these expenses at the time of registration.

STUDENT SERVICES AND ACTIVITIES

STUDENT HOUSING

Parietal Rule. The College requires unmarried minor (under 21) students not living with a parent or guardian to live in the College residence halls or in the off-campus residence halls which have been approved by the Student Housing Office. (This regulation does not apply to graduate students, to those enrolled in six or fewer units, or to those who are 21 years of age or over.)

Students seeking exceptions to the parietal rule should petition the Student Housing Committee before September 1 for the fall semester and before January 15 for the spring semester.

College Residence Halls. The two on-campus halls house 200 students each. Each room accommodates two students and is furnished with a single bed, chest of drawers, study desk, desk chair and closet for each occupant.

Residence hall application forms and additional information may be obtained from the Director of Housing. Applications for the fall semester are accepted after January 1 of the same year, and after September 1 for the following spring semester. The cost of room and board in the College residence halls is approximately $440 per semester. A $20 security deposit, payable at the time rental fee is paid, is required.

College housing rules give priority to students who are residents of California, to students under 21 years of age, to students living outside a 20-mile commuting zone, to those who lived in the halls during the preceding semester and to entering freshmen.

Off-Campus Residence Halls. There are three off-campus residence halls which have been approved by the College. These halls are co-educational with a capacity of 300 each. The room and board fee is approximately $440 per semester. Further information about these off-campus halls is available in the Student Housing Office.

Other Off-Campus Housing. A card file of rental listings is maintained in the Student Housing Office for the use of married students and students who are at least 21 years of age. These listings include rooms, rooms with board, rentals to share, furnished or unfurnished apartments and houses and a limited number of work-opportunity listings for students who are interested in working for their room and board or room rent. It is suggested that prospective students visit Long Beach to make these living arrangements, as information about these listings cannot be mailed.

Fraternity and Sorority Housing. Most of the Greek organizations that have recognized campus chapters maintain houses open to their members and pledges.

HEALTH SERVICES

It is required that each new student enrolling for more than six units or participating in physical education courses have on file at the Health Service a complete Health History Record and a physical examination (including a negative tuberculin skin test or chest X-ray). This examination is to be performed by a private physician at the student's own expense prior to registration.

The Student Health Service maintains physicians, nurses, technicians and receptionists on duty 8-5 p.m., Monday through Friday, and functions on an appointment basis. However, emergencies of any kind are given priority.

Services include physical examinations, health and psychiatric counseling, emergency care and first-aid, out-patient care for illness or injury, immunizations, physical therapy, X-ray, laboratory work and consultation in most medical specialties.

Prescriptions for costly drugs must be filled in community pharmacies, but some routine medications will be available in the Health Service. The Health Service does not issue excuses from class for injury or illness except for physical education activity classes. The decision to excuse a student from class is made by the instructor.

College medical services do not extend to major, complicated or severe illness or injury which are the responsibility of the individual student and/or his family. It is strongly recommended that students secure supplementary group health, accident and hospital insurance available at the Health Service at low premium. Generally, these policies must be purchased during or shortly following registration for classes.

During summer sessions, periods between semesters and all weekdays when classes are not in session, the Health Service provides emergency care only and is open from 8-5 p.m. *No off-campus calls are made at any time.*

A registered nurse is available from 5-10 p.m., Monday through Thursday, for emergencies arising during evening classes. She will be on call at the Health Service offices or can be contacted through the College switchboard or the Security Office to provide emergency first-aid care only. She also will act in an advisory capacity to facilitate further disposition of patients who must assume the responsibility for their further treatment. In case of a serious emergency, the nurse is authorized to call a doctor to the campus. Medical emergencies arising at any time the Health Service is closed will be directed to the Security Office.

COUNSELING

Psychological Counseling. The Counseling Center provides services toward improving self-understanding, capacity of self-management and skills in the formulation of realistic alternatives.

Students are invited to contact the Counseling Center to discuss such matters as social adjustment, emotional growth, educational handicaps, study skills, and long-term career planning. Appointments may be made at the Counseling Center, Administration Building.

Academic Advising. Students receive academic program planning and advisement from the instructional departments of their major field. However, counselors will advise students who have no declared major.

Admissions Counseling. Students seeking admission to the College should consult the Office of Admissions and Records for information.

FINANCIAL ASSISTANCE

Students are normally expected to be able to pay regular registration fees from their own resources. The College offers financial assistance to students in several forms for continuing college expenses.

Part-time Jobs. Employment services are available through the Placement Office. Full-time students with parents' incomes below federally established norms are given special consideration under the Economic Opportunity Act of 1964-Work Study Program. Students are qualified by the Financial Aid Officer for the Work Study Program. Students accepted for full-time fall enrollment may qualify for Work-Study during the preceding summer vacation.

Loans. The College administers the following loan programs: National Defense Education Act Loan Program, Nurses Training Act Loan Program and a Cuban Student Loan Program. All loans are based on need and are subject to the availability of funds. Applicants must apply by May 1 for the following academic year for first consideration. Included with the financial aid application is a Parents' Confidential Statement which must be submitted to the College Scholarship Service by parents of single students under age 25 and married students under age 21.

Emergency Loans. Short term loans, repayable during the current semester, are made in small amounts for emergencies.

Grants. All full-time exceptionally needy, undergraduate financial aid applicants are considered for Educational Opportunity Grants.

Scholarships. Applications for scholarships are available in the Office of Financial Aid between January and March 15. Each applicant is considered for every scholarship for which he is eligible. Recipients are selected on basis of scholarship or in terms of such criteria as are established by the donor organizations. All students receiving scholarships must enroll as full-time students. Awards are paid in two equal installments, one at the beginning of each semester.

Guaranteed Bank Loans. Applicants may apply through participating banks in their state of legal residency.

Veterans. The College participates in several provisions for aiding veterans, disabled veterans and veterans' children in securing an education: Cold War GI Bill (PL 89-358), Public Law 894 (Korean), PL 87-815 (peace time), PL 634 (war orphans), PL 88-361 (child of disabled veteran) and California State Educational Assistance to dependents of deceased or disabled servicemen. Veterans and veterans' children *must clear* with the Veterans Desk during registration if they wish to use their benefits.

The College urges all veterans and veterans' children to contact the appropriate state or federal agency well before they expect to enroll. Information may be obtained at the Records Office in the Administration Building.

TESTING

The Office of Testing provides individual testing services to help students with problems of an educational, personal, or vocational nature. However, the student seeking help should first contact the Office of Counseling for an individual interview so that appropriate tests may be assigned.

All entering freshmen must complete the American College Testing Program examination before acceptance for admission. All other entering undergraduate students are required to complete this examination for admission prior to registration. Information and applications for the ACT examinations can be obtained from high school counselors; the Office of Testing, California State College at Long Beach; or ACT, Box 414, Iowa City, Iowa 52240.

Students who miss the regularly scheduled examinations should notify the Office of Testing immediately.

The Mathematics Placement Tests are required of all students who must satisfy departmental mathematics requirements. Exceptions: students who plan to enter Mathematics 100 or who have satisfactorily completed a college course in calculus within the past four years.

Graduate testing requirements vary for each department. General and specific requirements may be found in the Graduate Bulletin.

The College reserves the right to administer additional tests to all undergraduate and graduate students whenever it is deemed appropriate for the improvement of the instructional program.

PLACEMENT SERVICES

Occupational counseling and assistance in finding suitable employment opportunities for graduates and alumni and part-time work for students is provided by the Office of Placement Services in the Administration Building. There is no fee for these services.

Students and graduates of this College seeking educational placement must either be (1) credentialed, (2) enrolled in student teaching or (3) enrolled in courses immediately culminating in a credential.

Students and graduates seeking full-time career placement in business, industry and government must have completed or be in the process of completing the residence requirement of the College, culminating in a degree.

Students seeking part-time employment should be currently enrolled in 12 semester units and have established a 2.0 grade point average or better.

STUDENT ACTIVITIES

Each student enrolled at the College automatically becomes a member of the Associated Students. The government of the Associated Students is organized into executive, legislative and judicial branches, with offices in the Forty-Niner Shops Building. Elected and appointed Associated Students officers legislate, execute and adjudicate regulations governing student affairs and maintain a wide variety of campus activities.

The College and the Associated Students grant recognition to campus organizations including honor societies, professional fraternities and recognition societies, service organizations, religious organizations and departmental and special interest groups. Fifteen national and one local Greek organization(s) have chapters on campus. Forty-two of the professional fraternities and recognition societies have national affiliations.

Further information about student government, organizations and affiliation procedures is available in the student handbook, *Nugget*, and from the Student Affairs-College Union Office.

The Associated Students currently sponsors a wide range of student publications, drama productions, forensic tournaments, athletic events, musical events, dances and recreational programs, lectures, forums and other cultural events.

Athletic teams of the College compete under rules of the National Collegiate Athletic Association and the California Collegiate Athletic Association and hold membership in both organizations.

The College sponsors a diverse program of intercollegiate athletics for both men and women. The intercollegiate program for men is governed by the rules and regulations established by the College Athletic Board of Control, California Collegiate Athletic Association and National Collegiate Athletic Association. The intercollegiate sports offered include football, basketball, baseball, track, cross country, water polo, swimming, gymnastics, wrestling, golf, tennis and crew.

Women's extramural sports are governed by the Women's Extramural Coordinating Council of Southern California Colleges. Activities offered are volleyball, basketball, tennis, swimming and golf for women and coed badminton, fencing and archery.

Men's and women's intramural programs offer a wide variety of activities.

ALUMNI ASSOCIATION

The Alumni Association gives graduates an opportunity to maintain contact with their former classmates and to receive information regarding the various activities of the College.

ADMISSION TO THE COLLEGE

Requirements for admission to California State College at Long Beach are in accordance with Title 5, Chapter 5, Subchapter 2 of the *California Administrative Code* as amended by the Board of Trustees of the California State Colleges on January 21, 1965. A prospective applicant who is unsure of his status under these requirements is encouraged to consult with a high school counselor or contact the college Office of Admissions and Records.

ADMISSION STANDARDS

ADMISSION AS A FRESHMAN

An applicant who has had no college work will be considered for admission under one of the following provisions. Although the Scholastic Aptitude Test and American College Test scores are both acceptable for admission, a student who has been accepted is required to take the ACT before registration.

CALIFORNIA HIGH SCHOOL GRADUATES AND RESIDENTS

An applicant who is a graduate of a California high school or a legal resident for tuition purposes must have a grade point average and a total score on the SAT or ACT which provides an eligibility index placing him among the upper one-third of California high school graduates. The grade point average is based upon the last three years and does not include physical education or military science. The table below does not cover every case, but gives several examples of the test score needed with a given grade point average to be eligible for admission.

Grade Point Average	*(SAT/ACT) Needed*
Above 3.21	Eligible with any score
2.80	832/19
2.40	1,152/27
2.00	1,472/35
1.99 and below	Not eligible

NON-RESIDENTS GRADUATING FROM HIGH SCHOOLS IN OTHER STATES OR POSSESSIONS

An applicant who is a non-resident for tuition purposes and who is a graduate of a high school in another state or a U.S. possession must have an eligibility index which would place him among the upper one-sixth of California high school graduates. The grade point average is based upon the last three years and does not include physical education or military science. The table on the next page does not cover every case, but gives several examples of the test score needed with a given grade point average to be eligible for admission.

Grade Point Average	*(SAT/ACT) Needed*
Above 3.60	Eligible with any score
3.22	826/19
2.90	1,082/25
2.45	1,442/34
2.44 and below	Not eligible

GRADUATES OF HIGH SCHOOLS IN A FOREIGN COUNTRY

An applicant who is a graduate of a foreign high school must have preparation equivalent to that required of eligible California high school graduates. The College will carefully review the previous record of all such applicants and only those with promise of academic success equivalent to that of eligible California high school graduates will be admitted.

NON-HIGH SCHOOL GRADUATES

An applicant who is over 21 years of age, but has not graduated from high school will be considered for admission only when his preparation in all other ways is such that the College believes his promise of academic success is equivalent to that of eligible California high school graduates.

HIGH SCHOOL STUDENTS

A student still enrolled in high school will be considered for enrollment in certain special programs if he is recommended by his principal and his preparation is equivalent to that required of eligible California high school graduates. Such admission is only for a given program and does not constitute the right to continued enrollment.

OTHER APPLICANTS

An applicant not admissible under one of the preceding provisions should enroll in a junior college or other appropriate institution. Only under the most unusual circumstances will such applicants be permitted to enroll in the College. Permission is granted only by special action.

RECOMMENDED PREPARATION

Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at California State College at Long Beach. While no course pattern is required, the applicant to be properly prepared to undertake a full program of studies and particularly to pursue the required program in General Education, is strongly encouraged to include the following subjects as minimally adequate background for college work:

1. College preparatory English.
2. Foreign language.
3. College preparatory mathematics.
4. College preparatory laboratory science.
5. College preparatory history and/or social science.
6. Study in speech, music, art, and other subjects contributing to general academic background.

ADMISSION AS AN UNDERGRADUATE TRANSFER

Applicants for admission to the College as undergraduate transfer students must qualify under one of the following provisions. Also, this College requires the ACT before registration.

APPLICANTS WITH 60 OR MORE SEMESTER UNITS

An applicant who has completed 60 or more semester units or the equivalent will be admitted if he has achieved a grade point average of 2.0 (C) on all acceptable college work attempted and he was in good standing at the last college attended.

APPLICANTS WITH FEWER THAN 60 SEMESTER UNITS

An applicant who has completed fewer than 60 semester units or the equivalent may be admitted if he meets the above requirements and he meets requirements currently in effect for first-time freshmen or, if he has been in full-time continuous enrollment at a college since his graduation from high school, he meets the requirements in effect for first-time freshmen at the time of his high school graduation.

APPLICANTS WITH PARTICULAR MAJORS

An applicant who does not meet either of the preceding provisions may be admitted to the College for the purpose of pursuing a major for which appropriate course work is not offered at the college from which he seeks to transfer when he meets all of the following:

1. He has completed all appropriate course work offered.
2. He has attained a grade point average of 2.0 (C) in all acceptable college work attempted.
3. He was in good standing at the last college attended.
4. He can, in the judgment of the College, succeed in that degree objective.

OTHER APPLICANTS

Only under the most unusual circumstances will an applicant not meeting either of the preceding provisions be considered for admission. Permission is granted by special college action.

ADMISSION AS AUDITORS

Persons who have not been accepted by the College for the semester they wish to attend may request permission to audit courses only after the close of registration. Applicants must present to the Office of Admissions and Records written authorization from the instructor of the course they wish to audit, after which the Office of Admissions and Records will issue a class admission card upon payment of regular fees. *Once enrolled, the student is restricted to auditor status and may not apply for credit at any time for work completed during the semester restricted to audit.*

Other students who have been accepted by the College and register for credit may in addition audit courses with the instructor's approval. At the end of the semester the instructor will report audit on his grade sheet to the Office of Admissions and Records. However, such students may, in a later session, enroll in the course audited previously and complete it for credit.

ADMISSION OF FOREIGN STUDENTS

Special application forms are required of foreign student applicants. Such forms and directions for their use may be obtained from the Office of Admissions and Records. A foreign student is required to submit with his application evidence of competence in the English language, a medical certificate of health, and evidence of financial resources adequate to provide for all expenses (approximately $175 United States currency per month) during the period that he expects to be registered as a student in the College.

ADMISSION TO SUMMER SESSION

Students who do not intend to become candidates for degrees or credentials at the College need not file an application for admission nor transcripts of record. Registration for credit in the summer session is limited to graduates of accredited high schools and to persons of sufficient maturity to profit by enrollment in courses offered. Adults who do not wish to enroll for credit may register as auditors with the approval of the instructor and payment of fees. *Registration in the summer session does not insure the privilege of enrolling in the fall semester.* Students entering the College during the summer session who wish to re-enroll in the fall semester must file application and the necessary official transcripts of record at the Office of Admissions and Records and receive a registration permit before the opening of the fall semester.

ADMISSION WITH GRADUATE STANDING

Refer to Graduate Bulletin.

TRANSFER OF UNDERGRADUATE CREDIT

From Accredited Junior Colleges

Seventy semester units may be allowed for credit earned in a junior college. No upper-division credit may be allowed for courses taken in a junior college, nor may any credit be allowed for professional courses in education taken in a junior college. No unit credit may be earned in a junior college for degree purposes after a student has completed 70 units of college work in any accredited collegiate institution.

From Accredited Four-Year Colleges

Refer to Residence under Degree Requirements in this catalog.

EXTENSION AND MILITARY CREDIT

A maximum of 12 semester units of extension and correspondence credit may be accepted toward the baccalaureate degree. Such credit must be accepted for degree purposes by the institution in which the work was taken.

Credit for military service is allowed in accordance with credit recommendations of the American Council on Education. To receive credit, the student must file a photostatic copy of his discharge record with the Office of Admissions and Records.

CREDIT OR WAIVER BY EXAMINATION

A student may apply for either a waiver of specific course requirements or a limited amount of course credit by examination. Students currently in attendance or those transferring from other institutions may apply. Applications for either a waiver or credit by examination must be made on a form provided by the Office of Admissions and Records. Final approval to establish credit by examination will be made by the appropriate academic department. Credit is not allowed for work experience.

Students who have completed advanced placement examinations may also apply for credit through the Office of Admissions and Records.

ADMISSION PROCEDURES

Permission to register in the College requires authorization from the Office of Admissions and Records. No student may attend any class without written verification of acceptance by the College and without registering and payment of fees.

Inquiries Concerning Admission Are to Be Directed to the Office of Admissions and Records

CLASSIFICATION OF STUDENTS

The class standing of undergraduate students at the time of admission is based on the number of units accepted. Undergraduate students who have completed fewer than 30 units are classified as freshmen; fewer than 60 units, sophomores; fewer than 90 units, juniors; 90 or more, seniors.

UNDERGRADUATE STUDENTS

New Students

New applicants must file an application for admission and official transcripts of high school and college work with the Office of Admissions and Records by *July 15* for the fall semester and by *November 15* for the spring semester. The applicant must request the registrar of all schools attended to forward official transcripts direct to the Office of Admissions and Records. *Transcripts presented by students are not acceptable.*

Students Previously But Not Currently Enrolled

a. Any student who was previously enrolled at the College and completed work in either of the two immediately preceding semesters, and has not attended another institution or has not been disqualified, is entitled to register without prior permission. If a student has not been enrolled within the prior calendar year in a regular semester, he must file with the Office of Admissions and Records only an *application for readmission.* A student should file the application for readmission *as early as possible,* but in no case later than *July 15* for the fall semester and *November 15* for the spring semester.

b. Former students who were enrolled in previous summer sessions and/or evening classes and who have not been accepted in degree status, must follow the procedure for new students as outlined above.

Students are urged to request the registrars of all schools attended to forward official transcripts well before deadline dates to the Office of Admissions and Records.

GRADUATE STUDENTS

Refer to Graduate Bulletin.

Inquiries Concerning Admission Are to Be Directed to the Office of Admissions and Records

REGISTRATION PROCEDURES

When admission requirements have been satisfied, the student is ready to register for classes at the College. Generally, registration requires a full day and involves getting the Permit to Register, the approval of a class program (at this step, the student should consult faculty advisers), final health clearance and payment of fees.

Students who have been accepted for admission should purchase the *Schedule of Classes* in the College Bookstore before registration. Registration dates, time and detailed instructions are included in the *Schedule of Classes.*

No student may register concurrently for credit at this and any other collegiate institution without advance permission from the Office of Admissions and Records.

GENERAL REGULATIONS AND PROCEDURES

GRADES

The student's work in each course is recorded in the Office of Admissions and Records in one of seven grades. Five are passing: A, excellent; B, above average; C, average; D, below average. Failure is indicated by F. A grade of P is assigned to indicate successful completion of such courses as student teaching and field work for the administration and supervision credentials. Units assigned this grade will not be used in computing grade point average for graduation honors or other purposes.

A mark of "N" is recorded to show satisfactory semester progress in a course which requires more than one semester's work to complete the requirements and to earn credit. No credit is earned for a course for the semester in which the mark of "N" is recorded, nor are the units used in computing grade point average.

An "incomplete" (I) may be assigned during the last four weeks of a semester under the following conditions:

1. A student is unable to complete all assignments for a course including the final examination because of illness or other satisfactory reason.
2. A student who has completed all other assignments is unable, because of illness or other satisfactory reason, to write the final examination.

The requirements of a course in which a mark of I has been assigned must be fulfilled within the next two succeeding semesters for the student to receive credit. Otherwise, the I automatically becomes an F.

Grades reported to the Office of Admissions and Records are official. Correction of grades can be made only by the instructor on the basis of clerical error.

FINAL GRADE REPORTS

Reports of final grades are mailed to each student at the end of each session.

WITHDRAWALS

1. During the first three weeks of classes in a semester a student may withdraw without prejudice and receive a mark of W. A *Complete Withdrawal Application* to drop all classes or a *Change of Program* form must be completed by the student at the Office of Admissions and Records, or at the Information Desk in the evenings, in the Administration Building, and at this time the student will be given *Request to Drop* cards which he must present to each instructor of classes he is dropping.

2. After the first three weeks of classes in a semester a student may withdraw with a mark of W if his work has been satisfactory, as defined in item (3) below, or a grade of F if his work has been unsatisfactory. The procedure for withdrawing is the same as (1) above. The student will be notified of the mark assigned when grade reports are mailed at the end of the semester.

3. Satisfactory work is defined as C or better for undergraduate students, and B or better for graduate students.

4. Medical Withdrawals. A student who becomes seriously ill or is hospitalized and is unable to complete the semester may withdraw by submitting a written request for withdrawal to the Office of Admissions and Records, and at the same time submitting to the Health Services Center a doctor's statement giving a complete diagnosis of the illness or reason for hospitalization and the beginning date of illness or hospitalization. Whether or not the withdrawal may be made without penalty after the third week of classes is based upon the College Physician's recommendation after receipt of the above statement. The student will be notified of the mark assigned when grade reports are mailed at the end of the semester.

5. Military Withdrawals. A student who is called to active military duty or who is on active duty at a local military installation and receives orders for transfer to a new military installation may either:

(a) Withdraw with a mark of W by completing a withdrawal application and presenting military orders to the Office of Admissions and Records which show that he must report for duty before completion of the courses in which enrolled (if withdrawal is made during the first 12 weeks of instruction, student may apply for a full refund of fees paid except the non-resident fee, if paid, which is not refundable; no refunds are made for withdrawals after the 12th week); *or:*

(b) Arrange with instructors, after the 12th week, to complete the course work prior to the end of the semester and receive credit, in which case no withdrawal application should be filed with the Office of Admissions and Records.

6. Instructor Drops. An instructor may drop a student whose name appears without a W after it on the official class listings issued by the Office of Admissions and Records if the student has never appeared in class or has attended but has failed to notify instructor of drop, by assigning a mark of W or F and recording this mark on the *Semester Grade Report* form which goes to the Office of Admissions and Records at the end of the semester. (1) and (2) above may be used as guides in determining whether an F or W will be assigned.

GRADE POINTS

The scholarship average is obtained by dividing the total number of grade points by the total number of units for which the student registered. Grade points are determined on the following basis:

A receives 4 points a unit;
B receives 3 points a unit;
C receives 2 points a unit;
D receives 1 point a unit;
F receives 0 points a unit;
Incomplete receives 0 points a unit.

Grades earned at another institution may not offset grade point deficiencies in courses taken at this College.

REPETITION OF COURSES

A student who has received a grade below C may repeat the course and receive the grade assigned by the instructor under whom the course is repeated. The extra units so earned may not be counted toward graduation, but such units will be counted in the total units attempted in computing the student's overall grade point average.

PROBATION AND DISQUALIFICATION

A student who fails to maintain a cumulative grade point average of 2.0 (C) on all units attempted and on all units attempted at the College will be placed on probation.

A student on probation who, at the end of the spring term, fails to attain a cumulative grade point average of 2.0 (C) on all units attempted and on all units attempted at the College will be disqualified. A student who at any time is reported to the Admissions and Scholastic Standards Committee as deficient in his scholastic achievement is subject to disqualification.

A student with lower division standing who is disqualified because of scholastic deficiency may petition the Admissions and Scholastic Standards Committee for readmission *only* upon successful completion of a total of 60 transferable units of work, including the units passed at the College. These units may be taken at any accredited college.

A student with upper division standing who is disqualified because of scholastic deficiency may petition the Admissions and Scholastic Standards Committee for readmission only after successful completion of summer session courses which remove the grade point deficiency or only after an absence of two semesters during which he shall have demonstrated his ability to do acceptable scholastic work by completing summer session and/or extension courses in his major or related fields with grades of B or higher.

Petitions for readmission must indicate the reason for requesting readmission and must include a statement of any academic work completed since disqualification as well as other information which the petitioner deems relevant to his petition. An application for admission and required transcripts, as well as the petition, must be submitted to the Office of Admissions and Records before the dates established by the College for filing applications. (See calendar in this Bulletin.)

STUDENT LOAD

Students who carry 12 units or more in a fall or spring semester are full-time students. Those who carry less than 12 units are part-time students.

Maximum unit load:

Graduates	16
First Semester Freshmen	16½
Students on Academic Probation	16½
All Other Students	17½

To carry more than the maximum unit load, a student must file a petition with the Committee on Admissions and Scholastic Standards and have it approved prior to registration.

A student whose outside employment could be expected to interfere with the normal unit load should reduce his academic program accordingly.

In general, students enrolled in teacher education should not register for more than 14 units of course work during the semester of student teaching, including the units for student teaching.

Students subject to Selective Service regulations should inquire about current rules governing the unit load required for postponement of induction. Veterans should inquire about unit load requirements for state and federal benefits.

In a summer session, a student may earn one hour of credit for each week in attendance. Thus, the student may take a maximum of six hours in each six-week session. Upon approval of the appropriate faculty adviser, the student may be allowed to take seven hours.

For graduate student load, see Graduate Bulletin.

FINAL EXAMINATIONS

It is the policy in most courses to have several examinations during the semester and a comprehensive final examination. The general supervision of examinations, and the scheduling and control of final examinations, is the responsibility of the Associate Dean of Instruction.

Permission to take a final examination at a time other than that regularly scheduled must be secured at least one week in advance of any change. The instructor may not change the schedule without authorization from the Associate Dean of Instruction.

CHANGE OF OBJECTIVE

The evaluation of credits transferred to the College is based in part upon the objective indicated on the application for admission. A student who wishes to change his degree or credential objective must file a change of objective form with the Office of Admissions and Records. (See Election of Regulations.)

GRADUATE RECORDS CHECK

Senior and graduate students who expect to receive degrees and/or credentials at the end of any session must complete the *Graduation Application* card and/or *Credential Application* card. The appropriate application for June candidates must be filed by the preceding October 1; for February and summer session graduates, by the preceding February 15.

CREDENTIAL PROGRAMS FOR PUBLIC SCHOOL SERVICE

Candidates for public school service credentials at the College are advised to familiarize themselves with the requirements for these programs. These requirements are outlined in the Credentials Section to this catalog. Application for student teaching, for field work in administration and supervision, and for field work in pupil personnel services must be made during the semester preceding that in which the student expects to enroll for these programs. See also the Credentials Section of this bulletin.

STUDENT CONDUCT

As members of the campus community and as citizens of the community at large, students are expected to conduct themselves in a manner which reflects credit on themselves and the College.

In accordance with the provisions of the *California Administrative Code*, Title 5, a student may be placed on probation, suspended or expelled for the following causes:

1. Disorderly, unethical, vicious or immoral conduct.
2. Misuse, abuse, theft or destruction of state property.

A College regulation states:

"No alcoholic or malt beverages shall be served at any college function. The officers of the organization are responsible for seeing that this policy is enforced."

BACCALAUREATE DEGREES

(General Information)

BACHELOR OF ARTS DEGREE

The College is authorized to grant the bachelor of arts degree with majors in the following fields of study: anthropology, art, biology, business administration, comparative literature, drama, economics, English, French, geography, German, health education, history, home economics, industrial arts, journalism, mathematics, music, philosophy, physical education, physical science, political science, psychology, recreation, social welfare, sociology, Spanish and speech.

BACHELOR OF SCIENCE DEGREE

The College is authorized to grant the bachelor of science degree with majors in the following fields of study: botany, business education, business administration, chemistry, criminology, earth science, geology, industrial technology, microbiology, physics and zoology and the bachelor of science in engineering, nursing and physical therapy.

BACHELOR OF VOCATIONAL EDUCATION DEGREE

The bachelor of vocational education degree is designed for vocational teachers recommended by the Board of Examiners for Vocational Teachers who meet the requirements established in the Education Code. Additional information concerning this degree may be obtained from the Office of Admissions and Records.

BACHELOR OF MUSIC DEGREE

BACCALAUREATE DEGREE REQUIREMENTS

1. General Education Requirement

Students in all major fields of study will complete the same pattern of general education requirements for the bachelor's degree. Those students transferring from another college who have not yet completed the pattern should enroll in the appropriate courses.

Undergraduate students who are seeking a Standard Teaching Credential with an Elementary or Secondary Specialization are advised that the general education requirements for the bachelor's degree and for the teaching credential differ in some details, however, with careful planning both can be met by the same program of courses. See Credential Section for specific recommendations.

A list of courses offered by the College which satisfy the general education requirements appears in this section below:

2. Major

The total number of units and individual subjects required to satisfy specific majors are outlined in detail for the various areas of study. See page 63 for a list of majors.

3. Minor

A minor for the bachelor's degree is not required.

4. Requirements in United States History, Constitution and American Ideals

To qualify for graduation, all undergraduate students shall demonstrate competence in the Constitution of the United States; in American history, including the study of American institutions and ideals; and in the principles of State and local government established under the Constitution of this State. These requirements may be satisfied by passing a comprehensive examination on these fields prepared and administered by the College or by completing appropriate courses. Students should contact the Chairman of the Department of Political Science or the Chairman of the Department of History.

5. Units

The total of 124 units for the bachelor of arts and the bachelor of vocational education degrees must include a minimum of 40 units of upper division work (courses numbered 300 or above).

The bachelor of science degree, 124 to 132 units, is designed for curricula where a more intensive major field of study is considered a requisite background for vocational competence. The total number of units and individual subjects required to satisfy specific majors in those areas where this degree is offered are outlined in detail for the offerings of the academic divisions. Otherwise, all requirements for the bachelor of science degree are identical with those for the bachelor of arts degree.

6. Activity Units

Activity courses are those which provide practice in such areas as journalism, music, speech, drama, and physical education. Within the 124-unit requirement, a student may earn credit of not more than eight units in activity courses in any one area, nor more than 20 units in activity courses in all areas.

7. Scholarship

The minimum scholarship requirement for the bachelor's degree is a grade point average of 2.0 (C) in all units attempted at the College, as well as a 2.0 (C) average on the student's entire college record. For graduation, a student shall also attain:

1. A 2.0 (C) average in all courses in the major.
2. A 2.0 (C) average in all courses in the major completed at the College.
3. A 2.0 (C) average in all upper division courses in the major completed at the College.

Students who plan to pursue teacher education programs should recognize that the academic scholarship requirement for certain credentials is a minimum grade of C or better in specified courses and an overall grade point average of 2.5 (C+). Students on academic probation at the College are not permitted to enroll in education classes.

8. Residence

A minimum of 24 semester units shall be earned in residence in the College. At least one-half of these units shall be completed among the last 20 semester units counted toward the degree. This requirement may be reduced for active military duty and for attendance at other California state colleges. Credit in summer sessions may be substituted for regular session unit requirements on a unit for unit basis.

COURSES SATISFYING GENERAL EDUCATION REQUIREMENTS

REQUIREMENTS	LOWER DIVISION	UPPER DIVISION
I. Social Science (*9 units*) A. U.S. History	History 171A or B or 161A, B	Any upper division U.S. History course except California history.
B. U.S. Government and Constitution	Political Science 100 (includes Federal and State and Local Government.)	Political Science 421 (includes Federal and State and Local Government.) P.S. 425 (for those needing *only* State and Local Government.)
C. Electives	Select lower and upper division courses in anthropology, economics, geography, history, political science or sociology.	
II. Natural Science (*9 units*, which *must include* at least one biological science course and one physical science course. *Two semesters of laboratory science are required.*)	BIOLOGICAL SCIENCE Courses requiring no prerequisites: Biology 200, 202; Botany 200, 201, 210, 211, 212; Zoology 210A–B. Students having had a year of high school biology may select their lower division biological science from the courses listed below: Anatomy and Physiology 200; Botany 200; Biology 201, 203, 204; Entomology 200; Microbiology 100, 101, 210; Zoology 200, 201.	Select upper division courses for which prerequisites have been met in: anatomy and physiology; microbiology; biology; botany; entomology and zoology.

	PHYSICAL SCIENCE Courses requiring no prerequisite: Physical Science 112; Geology 100; Astronomy 100. Students having had the appropriate high school background as listed in the catalog may select their lower division physical science from the courses listed below: Chemistry 100, 111A–B; Geology 101; Physics 100A–B, 104. Select upper division courses for which prerequisites have been met in: chemistry, geology, physics.
III. Literature, Philosophy, or the Arts* (*6 units, 3* of which must be in literature or philosophy.)	LITERATURE Any literature course, except English 184, 481, 482.
	PHILOSOPHY Any philosophy course.
	ARTS Any course in art, drama, music, industrial arts, or home economics. (Special methods courses are not applicable.)
IV. English (*3 units*)*	English 100.
V. Speech (*3 units*)	Speech 130, 131, 132, 133.
VI. Psychology (*3 units*)	Psychology 100.
VII. Physical Education (*2 units*)	Four successive semesters of Physical Education 103, 104, 105, 106.
VIII. Health Education and Safety (*2 units*)	Health Education 110.
IX. Electives (*8 units*)*	Select from any of the above fields, including journalism, comparative literature and mathematics. Six units of foreign languages may be applied as electives.

* The pattern of general education required of candidates for teaching credentials differs from that required for the bachelor's degree. For further information, see the Credential Section.

9. Faculty Approval

Proficiency of a student in any and all parts of a curriculum is properly ascertained by the faculty of the College. A favorable vote of the faculty shall be required to make a student eligible to receive a degree.

10. Election of Regulations for Degree Requirements

A student remaining in continuous attendance and continuing in the same curriculum in the College may elect to meet the graduation requirements in effect either at the time of his entering the College or at the time of his graduation therefrom, except that substitutions for discontinued courses may be authorized or required by the proper College authorities.

Continuous attendance may be claimed by any student whose registration record does not indicate a lapse of more than twelve months; however, enrolling and completing work in corresponding terms in consecutive calendar years will qualify as continuous attendance. The summer sessions as well as the fall term and spring term are included in this definition of "corresponding terms."

Failure to remain in continuous attendance will mean that the student must meet the regulations current at the time of resuming the degree program, or those applicable at the time of graduation. A change in the major for the degree automatically carries with such a change the acceptance of the current regulations pertaining to the new course of studies.

GRADUATION WITH HONORS

Cum Laude—A student eligible for a bachelor's degree who has attained an overall grade point average of 3.0 on all college units attempted may be graduated *Cum Laude* provided that he has also completed a minimum of 60 units at this College with a 3.0 average or higher.

Magna Cum Laude—A student eligible for a bachelor's degree who has attained an overall grade point average of 3.5 on all college units attempted may be graduated *Magna Cum Laude* provided that he has also completed a minimum of 60 units at this College with a 3.0 average or higher.

Summa Cum Laude—A student eligible for a bachelor's degree who has attained an overall grade point average of 3.75 on all college units attempted may be graduated *Summa Cum Laude* provided that he has also completed a minimum of 60 units at this College with a 3.0 average or higher.

CLASSIFICATION AND DESIGNATION OF COURSES

UNIT OF CREDIT

The unit of credit is the semester unit and the value for each course is indicated in parentheses following the title. In typical lecture and discussion courses, the number of units indicates the number of class hours per week. Activity courses, laboratory courses, and some lecture and discussion courses require class hours weekly in excess of the number of units of credit specified, as indicated in the schedule of classes published for each session. Summer session classes normally require the same number of class hours of instruction per session as are required in regular semester terms for courses having the same unit value.

COURSE NUMBERS AND CLASSIFICATION

Lower division courses carry numbers 100–299. Such courses are open to freshmen and sophomores and are primarily designed to provide much of that breadth of understanding known as general education as well as the foundations for the generally more specialized work of the third and fourth years. All such courses are open to upper division and graduate students, but do not count as upper division or graduate work in any curriculum.

Certain courses with a first digit of zero carry no unit credit.

Upper division courses carry numbers 300–499. Such a course in any area is open to those students who have completed a lower division course, or courses, in the area; except in those cases in which the subject is of such nature that an elementary course demands the maturity of the upper division student, in which case upper division status becomes the prerequisite.

Enrollment of a lower division student in an upper division course requires the approval of the department concerned except where prerequisites have been satisfied and enrollment in upper division courses is necessary to complete the pattern and sequence of the degree major.

Many upper division courses serve the purpose of extending and confirming the scholarly background of a graduate student in his chosen field.

Graduate level courses (500 and 600), listed without descriptions, are not open to students without an acceptable baccalaureate degree, but a senior with an overall grade point average of "B" or better may, under very special conditions and only with the prior permission of the instructor, the recommendation of his department and the approval of

the Dean of Graduate Studies, enroll in a course in the 500 to 599 series. However, graduate courses completed before the attainment of a bachelor's degree under these conditions will not be accepted as partial fulfillment of minimum requirements in the 500–600 series for the master's degree. Courses on the 600 level are only open to graduate students who have already attained an acceptable baccalaureate degree.

COURSE LISTINGS

Courses are listed as follows: new number, old number (in parentheses), title, semester units (in parentheses), and session offered. F indicates Fall Session; S indicates Spring Session and SS indicates Summer Session. Many of the courses offered during the fall and spring semesters are offered during the summer. The Summer Session *Schedule of Classes* should be consulted to determine the particular offering. Courses offered during the summer session only are indicated in this Bulletin. Courses offered only in alternate years are so designated. Included with some of the course numbers is a supplementary letter, such as L for laboratory designation or A and B for year sequence. A-B means that the courses must be taken in sequence but if only one semester's work is completed, the student is allowed credit for that semester. A,B designates related courses which need not be taken in sequence and if only one semester's work is completed, the student is given credit for that semester. The College reserves the right to make changes in course offerings without notice.

ORGANIZATION OF COURSE OFFERINGS

Courses are listed in alphabetical sequence by department or by subject in the Courses of Instruction section.

DEGREE REQUIREMENTS

for

BACCALAUREATE DEGREE PROGRAM

Major

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Art ..... Page 64
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BACCALAUREATE DEGREE REQUIREMENTS

ACCOUNTING (See Business Administration)

ANATOMY (See Biology Department)

ANTHROPOLOGY

Anthropology courses are designed to provide an understanding of the various peoples of the world through knowledge of their cultures or ways of living. The curriculum will include the processes of change within various cultures, and the scientific methods by which the anthropologist observes and analyzes various cultures from the simple to the complex.

Instruction is planned to meet the interests and goals of students in general, prospective teachers, and of students majoring in anthropology.

MAJOR IN ANTHROPOLOGY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Anthropology 110, 120, 270; recommended, Anthropology 240, Sociology 100.

Upper Division: A minimum of 24 units in anthropology as follows: 9 units of topical courses including Anthropology 303 and 413 and 3 units selected from Anthropology 305, 307, 411, 415; 6 units of ethnological courses including Anthropology 300 and 3 units selected from Anthropology 321, 322, 323, 332, 333, 334, 336, 346; 3 units of methodology courses selected from Anthropology 450, 460, 471, 480; 3 units of archaeological courses selected from Anthropology 341, 342, 345, 347; Anthropology 495.

ART

The art curricula have been planned to meet the needs of students in the four options listed below.

As is customary in most schools, the Art Department reserves the right to keep for a period of three years any work or projects completed by a student for class credit.

MAJOR IN ART FOR THE BACHELOR OF ARTS DEGREE

Four types of programs have been planned for students working for the bachelor of arts degree with a major in art.

Students with the objective of a master of arts degree in art should refer to the Graduate Bulletin for additional prerequisites which must be taken in the B.A. program, options I, III, or IV.

Option I—Bachelor of Arts (General Art) is for students who seek a broad understanding and appreciation of art.

Lower Division Requirements: Art 111, 112A, 112B, 121, 131, 161, 181, 184 and 187.

Upper Division Requirements: A minimum of 24 units of upper division art which must include two courses from each of the following: (1) art history; (2) design; (3) drawing, painting, illustration, printmaking, and (4) crafts, sculpture.

Information about the specific courses which may be selected in each of the above categories is available in the Art Department office.

Option II—Bachelor of Arts (Preprofessional) is for students who are specializing in a specific area of art with the intention of entering one of the professional art fields.

Lower Division Requirements: Art 111, 112A, 112B, 121, 131, 161, 181, 184 and 187, plus 6 units in designated courses supporting the specialization.

Upper Division Requirements: A minimum of 36 units of upper division art which must include: 6 units of art history, 18 units of designated courses for the art specialization, plus 12 units outside the art specialization.

Programs of Specialization are: (1) art history; (2) ceramics; (3) drawing and painting; (4) graphic design; (5) illustration; (6) industrial design; (7) interior design; (8) metalsmithing and jewelry; (9) printmaking; (10) sculpture; (11) textile design; (12) theatre design. Information about the specific courses required for each specialization are available in the Art Department office.

Option III—Bachelor of Arts (Secondary Teacher Preparation) is the four year art major degree program for those students with the objective of completing 30 units after the B.A. including all requirements for a secondary teaching credential.

Lower Division Requirements: Art 111, 112A, 112B, 121, 131, 161, 181, 184 and 187.

Upper Division Requirements: A minimum of 24 units of upper division art which must include two courses from each of the following: (1) art history; (2) design; (3) drawing, painting, illustration, printmaking, and (4) crafts, sculpture.

Additional specific requirements for the secondary teaching credential and the requirements for completing a teaching minor in art are included in the Credential Section.

Option IV—Bachelor of Arts (Elementary Teacher Preparation) is the four year art major degree program for those students with the objective of completing 30 units after the B.A. including all requirements for an elementary teaching credential.

Lower Division Requirements: Art 112A, 112B, 121, 131, 181 and 187.

Upper Division Requirements: A minimum of 24 units of upper division art which must include two courses from each of the following: (1) art history; (2) design; (3) drawing, painting, illustration, printmaking, and (4) crafts, sculpture. Additional specific requirements for the elementary teaching credential are included in the Credential Section.

BIOLOGY

Programs in biology are offered to provide adequate preparation for advanced study at the graduate level, to lead to vocational competence in occupational fields, to afford training to those who plan to enter the profession of teaching, and to contribute to the general education of students with majors in other fields of study.

Considerable emphasis is placed on field work in many courses. The variety of seashore, mountain, coastal and desert environments, together with the rich manmade resources afforded by nearby parks, zoological gardens, museums, observatories and libraries, provides an unrivaled opportunity for this field work.

Wherever applicable, laboratory and field experience are afforded the student in basic courses, this practice being founded on the conviction that individual and participative experience provides the most rewarding avenue to understanding and appreciation in science. This is equally desirable for the prospective elementary school teacher and for the student training for a career in one of the fields of science.

Students interested in preparing for work in the areas of wildlife management, biological survey, state and federal fisheries, and state and national parks will find courses designed to give adequate background for these occupational fields. Field courses, of one to several weeks duration, are periodically offered during summer sessions to qualified students who wish to participate in intensive study of various natural history or conservation subjects at desert, mountain or seashore locations.

Emphasis in Marine Biology

Students planning a career in some phase of marine biology should follow the requirements for a major in biology or zoology and include some of the following courses in their undergraduate program: Zoology 310, 320, 420, 450, Biology 450, Botany 320 and Geology 462. Additional courses in related fields should be selected in consultation with the major adviser. Facilities for work in marine biology include a refrigerated seawater system, aquaria, collecting gear and proximity to a range of marine habitats. There is a good working collection of marine invertebrates and fishes in the departmental museum.

MAJOR IN BIOLOGY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Botany 212 (or 210 and 211); Zoology 210A-B; Chemistry 111A-B; Physics 100A-B; Mathematics 102 (unless waived by placement examination); Microbiology 210; and Anatomy and Physiology 240 (or one upper division physiology course).

Upper Division: Chemistry 327; English 317*; and a minimum of 24 units in biological sciences including the following: Biology 311; Botany (two courses, one of which must be Botany 321, 331, 440, or

* May be waived by the department for a transfer student with six or more units in English Composition and who demonstrates high proficiency in grammar as shown by the English Proficiency Test.

450); Entomology 310 or Zoology 310; Zoology 330 or 331; Physiology (one course), unless fulfilled by Anatomy and Physiology 240. Remaining electives should be selected in consultation with the major adviser.

Major in Botany for the Bachelor of Science Degree:

See Botany.

Major in Microbiology for the Bachelor of Science Degree:

See Microbiology.

Major in Zoology for the Bachelor of Science Degree:

See Zoology.

Teaching Credentials:

See Credential Section.

BOTANY

MAJOR IN BOTANY FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: Mathematics 102 (unless waived by placement examination); Chemistry 111A-B; Physics 100A-B. Courses in the major to include Botany 212; Microbiology 210; Zoology 210A-B.

Upper Division: Chemistry 327; English 317*; a minimum of 33 units of upper division courses to include: Botany 321, 331, 440, and 450; Biology 311; Entomology 310; and the remaining units to be selected in consultation with the major adviser.

BUSINESS ADMINISTRATION

The purpose of the Division of Business Administration is to provide the education and training for a business career at the management level. Each student should receive the education and training which, when combined with appropriate experience, will properly prepare him for the professional and administrative responsibilities he may expect to face some years after college graduation. He should be well grounded in principles rather than in practices and procedures, for in our dynamic community, progress is exemplified by change in all but the most basic ideas and concepts. He must understand and appreciate the environment in which he lives so that he may be an effective person and a useful citizen. While enrolled at the College, a student can lay only a foundation for a successful career. After graduation, a period of apprenticeship inevitably must be served during which the particular methods, techniques, and personnel practices of the enterprise are mastered. This knowledge can be best learned on the job. But the broad education, the

* May be waived by the department for a transfer student with six or more units in English composition and who demonstrates high proficiency in grammar as shown by the English Proficiency Test.

sense of interrelationships, the professional skills, and the mental discipline gained during the period of formal education in the division should materially shorten the apprenticeship of those who, possessing the personal and intellectual elements of executive ability, will eventually make a contribution to enlightened business leadership. The curricula are not intended to produce a highly specialized proficiency in technical business tasks.

To attain this goal we recommend:

1. A rigorous and broad education in the liberal arts and sciences. This education should include:
   a. A strong background of depth and breadth in the behavioral and natural sciences.
   b. A working knowledge of the tools of learning such as mathematics, philosophy, and the scientific method.
   c. The skills of communications—reading, writing, speaking, listening.
2. A general core of knowledge in business and economics. The courses of the core are designed to afford the student an opportunity to acquire a broad understanding of the major business functions and of the major techniques employed in solving business problems. The core group aims to equip the student with sound foundations upon which he may develop executive and administrative abilities through advanced study and job experience. It is not the purpose of the core to train specialists in any of the functions and techniques of business enterprise.
3. A field of specialization. The design of this requirement is to afford the student an opportunity to explore a business functional area more intensively. The field of emphasis requirement is imposed primarily for the purpose of developing in the student a specialist's attitude toward business problems and policies as distinguished from training him in the performance of a particular task.

To achieve the above purpose the Division of Business Administration offers both undergraduate and graduate courses of study. The undergraduate curricula lead to the bachelor of arts degree, or to the bachelor of science degree with a field of specialization in accounting, finance, industrial relations, management, marketing, operations research and statistics, production management or business education. The graduate curriculum leads to a master of business administration degree. The specific requirements for the above-listed degrees are to be found under the appropriate academic area in this section of the catalog.

Business Administration Advisory Council

The Advisory Council for the Division of Business Administration is composed of outstanding executives in middle and top management of finance and industry in the division's service area of Los Angeles and Orange Counties. The role of this council is to afford an effective liaison between the Division of Business Administration and the business com-

munity, and to keep the administration and faculty informed of modern business practices and procedures. This will insure that the curricula of the Division of Business Administration are abreast of the times. The council will advise on student placement opportunities before and after graduation. The council is composed of the following members:

Mr. William E. Brady, C.P.C.U., Vice President, Gilbert C. Van Camp Insurance Agency, Inc.

Mr. Alan Harris, Plant Manager, Johns-Manville Products Corp.

Mr. Paul D. McClaughry, C.P.A., partner, Windes, McClaughry & Co.

Mr. E. Tennyson Moore, President, Moore Realty

Mr. James Simmons, Harbor Area Representative, L.A. County Federation of Labor AFL-CIO

Mr. John B. Wells, Jr., Resident Manager, Dean-Witter and Company

Mr. W. W. Wright, Executive Vice-President, Finance, Beckman Instruments, Inc.

MAJOR IN BUSINESS ADMINISTRATION FOR THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

Lower Division: Accounting 200A-B (Accounting 201 may be substituted for 200A-B provided a grade of C or higher is earned); Finance 222, Mathematics 117, Economics 200, 201; either Finance 224 or Geography 152; either English 101 or 203.

Upper Division: Business Administration "Core" courses including Accounting 300A or 320; Finance 362; Management 300, 361, 425; Marketing 300; Operations Research and Statistics 320, 321; Economics 310, 311; courses in the field of specialization.

MAJOR IN BUSINESS ADMINISTRATION FOR THE BACHELOR OF ARTS DEGREE

The curriculum for the bachelor of arts degree offers more breadth than that leading to the bachelor of science degree since the student is not required to specialize in any particular functional areas of business. This curriculum is especially recommended to those who intend to work toward a graduate degree in the future. The following sequence of courses is required for this specialization:

Philosophy 472 or Mathematics 330; Mathematics 122; Speech 330 or 331; Economics 330 or 368 or 370; it is suggested that the student who plans to go on to graduate work include among his electives 6 units of a foreign language.

MAJOR IN BUSINESS ADMINISTRATION FOR THE BACHELOR OF SCIENCE DEGREE

Field of Specialization in Accounting

The accounting curriculum offers training in the nature, theory, and central problems of business accounting. It is designed to provide (1) an understanding of the problems relating to the verification, valuation, presentation, and interpretation of financial information, with emphasis on periodic income measurement; and (2) an understanding of the

functions of cost allocations, budgeting, planning and control, which provide management with effective data for decision-making. The study of accounting provides a background for students who (1) plan to enter the field of professional public accounting and to become Certified Public Accountants or who (2) plan to broaden their understanding of accounting for careers in business or government. The following sequence of courses is required for this specialization:

Accounting 300B, 320, 400, 450, 470.

Field of Specialization in Finance

The finance curriculum offers training in the administration, techniques, and regulations applicable to business finance, investments, insurance and risk management and real estate. The study of the institutions of American finance, their customs, practices, and legal framework gives a basis from which the student builds an understanding of the demand function of finance. The supply function is studied through offerings in investments including analysis of securities and commodities coupled with analysis of their price trends and turning points. Special emphasis is given to the study of acquisition, administration, and distribution of funds for the individual business firm as well as the supplying of funds by individuals and institutions for investment in private enterprise. The finance major may direct his emphasis toward business finance, investments or insurance. The following sequence of courses is required for this specialization:

Investment emphasis: Finance 302, 360, 364, 382, 384, 386.

Insurance emphasis: Finance 302, 304, 306, 360, 364, 382.

Field of Specialization in Industrial Relations

The industrial relations curriculum offers training in the areas of manpower management and manpower marketing. The study of economics, legislation, economic security, and collective bargaining affords a foundation for understanding the elements in the demand for and the supply of labor as well as the tripartite relationship of unions, management, and government in labor relations. Effective selection, direction, and utilization of employees are studied as elements of personnel management. Analytical techniques are emphasized. The industrial relations major may direct his efforts toward either labor relations or personnel management. The following sequence of courses is required for this specialization:

Labor relations emphasis: Management 440, 462; Economics 340, 440; Management 401 or 463 or Psychology 381.

Personnel management emphasis: Management 462, 463; Economics 340; Psychology 381, 486.

Field of Specialization in Management

The management curriculum is designed to prepare students for introductory positions such as administrative analysts, administrative assistants, and management trainees in all types of business enterprise.

This specialization is also suitable preparation for entering administrative positions in hospitals, hotels, and non-profit organizations. It is particularly applicable for students who may work originally in any of the functional areas with top management as the ultimate goal. Fifteen units from the following are required for this specialization:

Management 360 or 440 or 462, 401; Operations Research and Statistics 342 or 460 or Management 400; Marketing 340 or 360, 408.

Field of Specialization in Marketing

The marketing curriculum offers training in effective distribution of consumer and industrial goods and services in our economy. It is designed to acquaint students with marketing principles and policies, and the numerous dynamic marketing problems that have an influence on all types of business enterprise, and to provide preparation for a business career in commercial, governmental, and service organizations. The program combines a broad background of training in retailing, wholesaling, advertising, credits and collection, foreign trade, marketing management, and marketing research. One of the following sequences of courses is required for this specialization:

General Marketing: Marketing 310, 330, 408, 470 and one of the following: Marketing 305, 320, 325, 335, 340, 350, 360, 365, 410, 430.

Advertising and Sales Management: Marketing 320, 330, 430 or 325, 408, 470 or 335.

Retailing: Marketing 310, 320 or 350, 330, 408 or 325, 410.

Field of Specialization in Operations Research and Statistics

The operations research and statistics curriculum offers training in the nature, theory and use of operations research, statistics, mathematics and information processing in management decision-making, and in associated research activities which are needed to formulate problems and to verify that the formulations are valid. The study of information processing includes the role of the computer in solving these operations research and statistics problems as well as the processing of business information for record keeping, planning and control purposes. The study of operations research and statistics provides background useful in research organizations, management consulting firms, government agencies and research and information processing departments of almost every industry. The following sequence of courses is required for this specialization:

Operations Research and Statistics 305, 422, 445, 460, 463.

Field of Specialization in Production Management

The production management curriculum offers training in the production functions of the business enterprise; economic plant operations and high living standards are largely dependent upon the effectiveness with which these functions are administered. Direction of production activities is concerned with the efficient use and control of men, materials, machines, and industrial plants. Emphasis is placed on de-

veloping students' knowledge and understanding of the techniques of decision-making, policy formulation and evaluation, organization theory, and the analytical techniques appropriate to production management. Students who elect the production management major should be cognizant of the increasing application of science and technology in the solution of production management problems. The following sequence of courses is required for this specialization:

Management 400, 401, 440 or 462; Civil Engineering 200; Mechanical Engineering 222.

MAJOR IN BUSINESS EDUCATION FOR THE BACHELOR OF SCIENCE DEGREE

The major in business education for the bachelor of science degree is designed to provide courses fulfilling the degree requirements for credential candidates and to provide training in the fields of office administration and secretarial science.

Basic courses for the business education major:

Accounting 200A-B, 300A or 320; Business Education 100B, 130, 320; Finance 222, 362; Management 361; Marketing 300; Operations Research and Statistics 320 or Economics 380; Economics 200, 201, 310; English 101.

Fields of Concentration—One of the following fields of concentration must be completed in addition to the above basic courses:

Office Administration: Mathematics 117; Business Education 302, 431; Management 425; Operations Research and Statistics 342.

Secretarial Science: Mathematics 100 or 102; Business Education 302, 312, 321, 413, 431.

Teaching Credentials:

See Credential Section.

CHEMISTRY

The program in chemistry at the bachelor's degree level is planned to promote development of both broad and specialized background in a specific science, to serve as preparation for graduate work in chemistry or biochemistry, and to provide a foundation for those students seeking careers in teaching, medicine and in industrial and governmental scientific endeavors. The program is approved by the American Chemical Society.

MAJOR IN CHEMISTRY FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: Chemistry 111A-B, 251, 251L; courses to support the major to include Physics 110, 120, 230, 240 and Mathematics 117, 122, 123, 124, and one of the following: Biology 202, Botany 210, 212, Microbiology 210 or Zoology 210A. A reading knowledge of scientific German or Russian is required.

Upper Division: Chemistry 321A-B, 451, 371A-B, 373 and an additional six units of chemistry including not more than three units of Chem-

istry 496. Courses to support the major to include a minimum of three additional upper division units in physics, mathematics, botany, microbiology or zoology as approved by the adviser. English 300 or 317 is required.* (A student who has a "B" or better in both Chemistry 327 and 328 may be admitted to Chemistry 321B without having had Chemistry 321A. It is recommended, however, that he audit Chemistry 321A before taking Chemistry 321B.)

Transfer Students: A student who transfers to the College must take at least 16 units of upper division chemistry courses here including either Chemistry 321B or Chemistry 371A-B. In exceptional situations at the discretion of the department, advanced courses may be substituted for the 321B or Chemistry 371A-B requirement. To receive credit toward the major for Chemistry 321A and 321B, which have been taken elsewhere, the consent of the department chairman is required.

COMPARATIVE LITERATURE

This curriculum provides an interdisciplinary major in comparative literature. The goal of this major is a broad, liberal education based on comparative studies of the great literatures of the world. In addition, this major provides for intensive study in English, foreign languages and philosophy.

The bachelor's degree in comparative literature is designed for the following areas of professional specialization: (1) graduate scholarship in various areas of the humanities; (2) the teaching of literature and language; (3) governmental and business administration, requiring an extensive background in world culture and the ability to express oneself in one's own language and in foreign languages.

Individual programs are designed in consultation with the comparative literature coordinator and professors in the area of specialization.

MAJOR IN COMPARATIVE LITERATURE FOR THE BACHELOR OF ARTS DEGREE

45 units of general education (including 3 units of freshman composition and 8 units of electives).

22–28 units of electives (6 units of which should prepare for the concentration at the upper division level).

51–57 units in the major divided as follows:

Comparative Literature: 18 units selected from the following courses: Comparative Literature 230, 232, 330A,B, 332, 340, 346, 431, 432, 438, 439, 447, 448, 449 and English 331, 398, 489.

Concentration: 21 upper division units (18 of which must be in literature) for a concentration in English, French, Spanish, German or 21

* May be waived by the department for a transfer student with six or more units in English composition and who demonstrates high proficiency in grammar as shown by the English Proficiency Test.

upper division units in philosophy. A student should have six units of lower division work in preparation for the upper division concentration. If the student shows proficiency in lower division work, he may be excused from the six unit requirement.

Foreign Language: 12 upper division units (nine of which must be in literature) in one modern foreign language. If a student selects a concentration in a modern foreign language he must substitute for this requirement 12 upper division units in English, philosophy, another foreign language, fine arts or music.

CRIMINOLOGY

The program in criminology offers the bachelor of science degree to the man or woman seeking comprehensive training for a professional career in law enforcement or its allied fields. Recognizing that many presently interested in such training are employed in police work and may have taken advantage of course work offered in local community colleges, the pattern for this major provides for a relatively extensive base of fundamental work in the lower division. The upper division requirements include subjects of a more advanced, specialized, and administrative nature.

A minimum of 39 units of study in criminology courses plus 24 units of supporting courses constitutes the major. The total program for the degree must include a minimum of 124 semester units. For information concerning general regulations and degree requirements, refer to Baccalaureate Degrees.

Note: Identical and Interchangeable Courses. The Department of Criminology offers certain courses on an identical and interchangeable basis, whereby such courses are scheduled with a day section and an extended-day section. The employed police officer whose work shift changes monthly may change his hours of college work accordingly, attending either section at his convenience.

Note: Students Intending to Transfer from City or Junior College. Students intending to transfer from city or junior colleges to this College to continue work for a bachelor of science degree in criminology are advised to complete general education requirements while in attendance at a city or junior college.

A total of 27 units in criminology (or police science) courses are acceptable for transfer credit. Fifteen units may be transferred to meet the lower division requirement if they parallel the 15 units required at this College. Twelve additional units of criminology courses will be accepted as electives. No lower division criminology course should be taken at a city or junior college which is duplicated in the upper division curriculum of this College.

MAJOR IN CRIMINOLOGY FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: A minimum of 15 units of which Criminology 151, 155 and 157 are required. Courses not satisfied in lower division status may be taken after the student has attained upper division status.

Upper Division: A minimum of 24 units of which Criminology 311, 321, 322, 324, and 495 (required of students without prior law enforcement experience) are required. In general, 15 units of lower division course work in criminology (or police science) are considered prerequisites to any upper division course. Deviations from the normal pattern of lower and upper division requirements may be approved by the faculty of the department.

Supporting Courses: A minimum of 24 units including Psychology 370, one other 3 unit psychology course; Sociology 100; 9 units of political science selected from Political Science 400, 405, 411, 425, 427, 460, 461, 465, 471, 475; 3 units selected from Sociology 320, 335, 445; and 3 units selected from Sociology 142, 345, 368, 441.

DRAMA

The Department of Drama offers two basic programs leading to the bachelor of arts degree with opportunities for focus of interest in theatre arts either for children or adults. Each program provides appropriate background for its respective teaching credential at the elementary or secondary level. Either program will provide a background for the master of arts degree in drama which, in turn, is the basis for a junior college credential and other professional objectives.

This flexibility of program planning in drama has been organized to serve student needs in four principal areas: (1) Enrichment of the student's liberal arts background through the development of appreciations and insights derived from drama courses taken as general education electives. (2) Preparation for the teaching profession on the elementary, secondary, junior college, and college levels. Students may elect either a teaching major or minor in drama which is fully recognized as an academic area for teacher preparation. (3) Development of interests and skills that will offer the student life-long satisfactions as an avocational outlet. (4) Preparation for the professions of director, technical director, scene designer and performer in the community theatre, recreational theatre, children's theatre, educational theatre and television.

MAJOR IN DRAMA FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Drama 112, 114, 124, 140A, 242, 244, and 246. (Speech 133 is to be taken in fulfillment of the general education speech requirements.)

Upper Division: A minimum of 24 units in drama including Drama 314, 321, 346, and 374, plus units chosen in drama and all English courses indicated in "A" Children's Theatre or "B" Adult Theatre.

No more than 8 units of drama activity (cast and/or crew) will apply toward degree requirements.

A. Children's Theatre:
(1) Drama 352, 354, 359, and:
(2) 4 units selected from Drama 348, 358, 362, 414, and 476, and;
(3) English 481 and 464.

B. Adult Theatre:
(1) 5 units selected from Drama 342A, 348, 474, and;
(2) 5 units selected from Drama 322, 362, 426, and 476, and;
(3) Drama electives, 2 units, and English 464, 398. Drama 322, 342A, 348, 362, and 474 are recommended. Students planning a continuing program into graduate studies should also add Drama 426 and 499 before completion of the B.A. degree.

For additional requirements for the credential major and minor see the Credential Section.

EARTH SCIENCE

Earth science is the interdisciplinary study of materials, energy and resources in four areas: (1) the solid earth and its interior, (2) the atmosphere, (3) the hydrosphere, (4) the earth's environment in space and time. The objectives are to offer an interdisciplinary curriculum to fill the need for the training of secondary teachers in earth science, to offer a degree program which will provide an avenue in science with sufficient elective choice to encourage both a strong major and minor program in science and to make available a science degree valuable as a base for more intelligent appraisal of scientific environment, natural resources, land use, pollution and other areas of critical importance in today's world.

MAJOR IN EARTH SCIENCE FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: Geology 100, 101, 220; Astronomy 100; courses to support major include Biology 200, Chemistry 111A-B, Mathematics 117, Physics 100A-B.

Upper Division: Geology 310, 331, 350, 380, 460, 462, 463; Geography 444.

ECONOMICS

Economics is a system of formal logic, based on observed regularities in the experience of men, as they associate together in the process of earning a living. The purpose of economics, like that of any science, is prediction—in this case, prediction of the *economic* behavior that may be expected within the framework of existing or proposed social institutions.

The study of economics is an essential part of the process by which one becomes an educated person. It enables one to think for himself about the economic issues and problems that preoccupy the minds of men, in personal and public life, as well as in the business world. Training in economics is required of all students preparing for careers in business. It is recommended for those preparing to teach the social studies in the public schools.

MAJOR IN ECONOMICS FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Economics 200, 201, Accounting 200A, and two of the following: Anthropology 120*, Geography 140*, Sociology 100*.

Upper Division: Economics 310, 311, 320, 361, 380, 412 and two of the following: Economics 330, 332, 340, 350, 365, 366, 368, 370, 420, 480. Three units of English selected from the following: English 101, 300, 317 or 320.

EDUCATION

(See Credential Section)

ENGINEERING

The Division of Engineering offers a four-year curriculum leading to the bachelor of science degree in engineering and provides a broad training for a professional career in engineering or for continuing academic work towards an advanced degree. The total program includes a minimum of 132 semester units and provides opportunity in the upper division to specialize by options in the areas of civil, materials, mechanical or electrical engineering. For administrative purposes the Division of Engineering includes departments of civil, mechanical and electrical engineering. The options in civil, mechanical and electrical engineering were accredited by the Engineers' Council for Professional Development in 1963. The other option, materials engineering, was a new option offered for the first time in the fall of 1966. Many of the engineering courses are available in evening or Saturday classes primarily for those employed in local industries.

The high school student planning to enter engineering is advised to pursue a strong program in pre-engineering subjects. These subjects should include biology, physics, chemistry, advanced algebra, trigonometry and one year of mechanical drawing in addition to the general requirements for admission to the College. A deficiency in any of the above areas will result in an extension of the time required to complete the program in engineering.

The curriculum is also designed to accommodate students transferring with pre-engineering training from other colleges such as the junior colleges and liberal arts colleges. Transfer students should note and follow where possible, the appropriate curriculum as outlined in later sections.

* Upper division courses may be substituted as follows: Anthropology 415 for Anthropology 120, Geography 350 for Geography 140, and Sociology 335 or Psychology 315 for Sociology 100.

Engineering Advisory Council

The Advisory Council for the Engineering Division consists of outstanding engineers and executives from industry and government in the Long Beach area. Its function is to afford a liaison between the College and industry and to keep the administration and faculty informed of modern engineering practices. This will insure that the curricula are kept abreast of the times. It will also advise on placement opportunities before and after graduation. The council consists of the following members:

Mr. Donald Erb, Structural Engineer

Mr. Philip Finkelstein, Chief Design Engineer, Long Beach Naval Shipyard

Professor Homer H. Grant, Associate Dean, School of Engineering, University of Southern California

Mr. Mills Hodge, Personnel Manager, Proctor and Gamble Manufacturing Company

Mr. Henry Jordan, Chief Engineer, Bureau of Franchises and Public Utilities, Long Beach

Mr. Glen W. Miller, Consulting Engineer

Mr. Charles R. Strang, Deputy Director, Engineering and Product Development, Douglas Aircraft Company, Long Beach

Dr. Edward R. Van Driest, Chief Scientist, Aero Space Labs, North American Aviation

Mr. Charles L. Vickers, General Manager, Long Beach Harbor Department

ENGINEERING FACILITIES

The Engineering Building, completed in January 1962, houses the Division of Engineering and permits all engineering laboratory and design facilities, division and department offices and faculty offices to be grouped in a central location. The Engineering Building includes laboratory facilities in each of the instructional areas described in the following paragraphs:

Civil Engineering Department

The Department of Civil Engineering offers an option designed to give the students a broad educational background essential to modern civil engineering practice. The program is built around a basic core of mathematics, natural and engineering sciences common to accredited professional engineers' programs. It is planned to give a selection of basic engineering-science education to enable the graduate to begin a career in any of the various fields of practice in civil engineering or to prepare for graduate study in related engineering majors. It makes possible a systematic and integrated foundation in the principles of structural design and analysis, transportation facilities, water supply and sewerage disposal facilities, soils and foundations, construction mate-

rials and municipal engineering. Opportunity to explore a particular area of interest is offered in the wide selection of civil engineering electives to permit the student a sequence of courses related to the area of his choice.

The Engineering Building houses laboratory facilities in fluid mechanics, surveying, soils and foundations, concrete, cement, structures, construction materials and photogrammetry. A sanitary engineering laboratory is housed in a temporary building awaiting the projected new engineering building.

Electrical Engineering Department

The option in electrical engineering is designed to prepare graduates for responsible engineering positions in design, development, research, sales, and operation in the field of electronics and electromagnetics. The curriculum is built around a strong basic core of mathematics, physics, and engineering science. This is followed by basic courses in electronics and electromagnetics. Opportunity to explore a particular area of interest and to provide a wide background in the field of engineering electronics is provided in the senior year by a choice of nine elective units.

Laboratory facilities in the field of electrical engineering are available in the Engineering Building and include basic as well as more advanced electronic laboratory instruction, servo-mechanisms laboratory and electric machinery laboratory.

No electrical engineering student may enroll in an electrical engineering course unless he has received a minimum grade of C in each of the prerequisites. In addition to any other all-college requirements regarding grade point averages for graduation, an electrical engineering student must achieve a minimum 2.0 average in all electrical engineering courses attempted.

Mechanical Engineering Department

Engineering Materials Option

This option has been developed for the student who is interested in such subjects as the structure of metals and related materials, alloying, heat treatment, properties at high and at low temperatures, and the use of these materials in engineering applications. Scientific knowledge in this area has, during the past 25 years, expanded at a rate comparable to that experienced by the field of electronics, and, therefore, any realistic modern program in materials must include a relatively large amount of work in mathematics, chemistry and physics.

Our laboratories have excellent equipment for study in this field and include facilities for thermal and mechanical treatment for the study of macrostructure, microstructure and crystal structure, and for the determination of properties at both high and low temperatures.

Mechanical Engineering Option

The realm of mechanical engineering is so extensive that training must be broad and basic, providing grounding in fundamentals which

an engineer requires in order to gain competence in any specialized field. In view of this, the curriculum in mechanical engineering includes ample foundation courses in mathematics, physics, chemistry, and graphics. These are followed by courses in energy conversion, thermodynamics, fluid mechanics, mechanics and strength of materials, metallurgy, and design. Opportunity to explore further a particular area of interest is provided by elective units in the senior year.

The laboratories of the department are provided with modern equipment for undergraduate instruction in the following areas: instruments and measurements, fuels and lubricants, materials and metallurgy, thermodynamics and heat power, vibration and design.

BACHELOR OF SCIENCE DEGREE IN ENGINEERING

CIVIL ENGINEERING OPTION

Lower Division: C.E. 101, 205, 206, 225; M.E. 172; E.E. 210, 210L; Physics 110, 120, 230, 240; Mathematics 122, 123, 224; Chemistry 111A-B.

Upper Division: Economics 300; Mathematics 370A, C.E. 301A,B, 305, 328, 335, 336, 340, 345, 358; 406, 409, 435, 458, 459; M.E. 330, 331, 371, 373, 374; 6 units of approved upper division electives from C.E., E.E., M.E., Mathematics, Science, or Business Administration.

ELECTRICAL ENGINEERING OPTION

Lower Division: C.E. 101; M.E. 172; Physics 110, 120, 230, 240; Mathematics 122, 123, 224; Chemistry 111A-B; E.E. 210, 210L, 240.

Upper Division: Economics 300; Mathematics 370A; C.E. 301A,B, 406; M.E. 330, 331, 371, 475; E.E. 310, 320, 330, 330L, 360, 410, 430, 430L, 450, 450L, 470, 470L; approved electives to total 132 units.

ENGINEERING MATERIALS OPTION

Lower Division: M.E. 172, 222; C.E. 101, 205; Physics 110, 120, 230, 240; Mathematics 122, 123, 224; Chemistry 111A-B.

Upper Division: M.E. 322, 330, 373, 374, 421, 423, 425; C.E. 301A,B, 406; E.E. 210, 210L; Chemistry 371A-B; Economics 300; Mathematics 370A-B; Physics 310A, 340, 450A, 470; approved electives to total 132 units.

MECHANICAL ENGINEERING OPTION

Lower Division: M.E. 172, 205, 222, 272; C.E. 101, 205; E.E. 210, 210L; Physics 110, 120, 230, 240; Mathematics 122, 123, 224; Chemistry 111A-B.

Upper Division: M.E. 322, 330, 331, 336, 337, 371, 373, 374, 375, 471; C.E. 301A,B, 335, 336, 406; E.E. 310, 330, 330L; Mathematics 370A; Economics 300; approved electives to total 132 units.

ENGLISH

The English curriculum is designed to serve all students in the College by offering them training in written expression and experience in literature and literary criticism.

The courses of study for the English major are designed to enlarge the literary background of the student and to prepare him for business and professional life, for teaching, or for graduate work.

For all degrees and credential patterns, work in a foreign language is highly recommended, preferably to begin (or continue from high school) in the lower division and to continue in the upper division.

Recommended course sequences, advisement sheets, and other information are available in the English Department office.

MAJOR IN ENGLISH FOR THE BACHELOR OF ARTS DEGREE

A total of 39 units in English:

Lower Division: 9-12 units distributed as follows: English 101, 250A, B; Electives: any lower division literature courses offered in English or comparative literature except English 180; English 184 is recommended.

Upper Division: 27-30 units distributed as follows: English 370A,B, 464; at least two of the following: English 451, 452, 453, 454, 455, 456, 457 or 458, 459; English 469 or 479; Electives, 9-12 units: any upper division English or comparative literature courses except English 316, 317, 413, 483; students may elect either 481 or 482 but not both in satisfying this requirement.

MAJOR IN ENGLISH (TEACHING EMPHASIS) FOR THE BACHELOR OF ARTS DEGREE

See Credential Section.

CREATIVE WRITING OPTION

A total of 39 units as follows:

Lower Division: 12 units distributed as follows: English 101*, 202 or 204, 250A,B*.

Upper Division: 27 units distributed as follows: General principles, 3-6 units selected from English 489, Philosophy 361, Drama 426, Speech 417; Genre and authors, 6–9 units selected from English 385, 386, 398, 464*, 467A,B, 468A,B, 469* or 479*, 476, 477, 478 and Comparative Literature 332, 346, 447, 448, 449; Creative writing, 6–9 units selected from English 405*, 406*, 407*, Speech 304, Drama 480; Literary history, 9 units, 3 from each group: (1) English 451*, 452*, 462; (2) English 453*, 454*, 455*, 456*; (3) English 370B*, 457* or 458*, 459*, 474.

ENTOMOLOGY (See Biology)

FOREIGN LANGUAGES (See specific language)

* The student who wishes to satisfy the requirements for the secondary credential should choose his courses in each option from among those starred. See Credential Section.

FRENCH

The program in French is designed to meet the needs of (1) prospective teachers; (2) students preparing for executive secretarial positions where knowledge of modern languages is essential; (3) students who plan to enter the consular service, and majors in international relations; (4) those who desire to enlarge their background of experience in the field of communication and share in the aesthetic and cultural contributions of the peoples of the world; and (5) those preparing for professional and graduate work.

MAJOR IN FRENCH FOR THE BACHELOR OF ARTS DEGREE

Lower Division: One year of intermediate French. Students who have completed sufficient high school French may take upper division courses as soon as lower division requirements have been met.

Upper Division: A minimum of 30 units of upper division courses which must include French 312, 313, 314, 411.

Departmental Requirement: One year of a second foreign language is required of all majors.

Teaching Credentials:

See Credential Section.

GEOGRAPHY

The major aims of the geography curriculum are: to assist in the training of students planning to enter elementary or secondary school teaching; to supplement the training of students preparing for business; to prepare students for graduate work in geography; and to provide courses for students majoring in the social sciences and in geography. To accomplish these aims the Department of Geography offers several programs designed to meet the specific needs of differing groups of students. Those planning to follow majors or minors in this subject should consult with the departmental adviser.

MAJOR IN GEOGRAPHY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Geography 100, 140, and 152 or equivalents.

Upper Division: A minimum of 24 units including Geography 380, 440 and either Geography 386, 444, 482, and 496, plus 6 units chosen from 452, 466, and 470; or Geography 304, 306, plus 9 units chosen from 386, 444, 452, 466, 470, 482, and 496.

GEOLOGY

MAJOR IN GEOLOGY FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: Geology 100, 101, 220; Chemistry 111A-B; Civil Engineering 225; Mathematics 117, 122, 123; Physics 100A-B or Physics 110, 120, 240; Zoology 210A. Students planning courses in specialized

fields of geology emphasizing chemistry, engineering, mathematics or physics (i.e. geochemistry, mineralogy, engineering geology, geophysics, oceanography, et cetera) should complete mathematics through 224 and take the Physics 110, 120, 240 sequence. Students planning a career in paleontology may substitute Zoology 210B for Mathematics 123.

Upper Division: Geology 330, 340, 341, 350, 420, 421, 440 and 450; courses to support major to include *** English 300 or 317 and 10 units of additional upper division course work selected in consultation with major adviser. Students planning a career in engineering geology may substitute upper division courses totaling equal unit value for Geology 341 and 421.

GERMAN

The program in German is designed to meet the needs of (1) prospective teachers; (2) students preparing for executive secretarial positions where knowledge of modern languages is essential; (3) students who plan to enter the consular service and majors in international relations; (4) those who desire to enlarge their background of experience in the field of communication and share in the aesthetic and cultural contributions of the peoples of the world; and (5) those preparing for professional and graduate work.

MAJOR IN GERMAN FOR THE BACHELOR OF ARTS DEGREE

Lower Division: One year of intermediate German. Students who have completed sufficient high school German may take upper division courses as soon as lower division requirements have been met.

Upper Division: A minimum of 30 units of upper division courses in German which must include German 312, 313, 314, 411.

Departmental Requirement: One year of a second foreign language is required of all majors.

Teaching Credential:

See Credential Section.

HEALTH EDUCATION

Courses are offered which are designed to satisfy health education requirements for (1) general education, (2) the physical education major, (3) the standard designated service credential with a specialization in health to serve as a public school nurse, (4) the baccalaureate degree major, (5) the teaching major and minor in health education for the standard teaching credential.

*** May be waived by department for a transfer student with six or more units in English composition and who has demonstrated high proficiency in grammar as shown by the English Proficiency Test.

MAJOR IN HEALTH EDUCATION FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Anatomy and Physiology 201, 202; Microbiology 101; Physical Education 130.

Upper Division: Health Education 320, 323, 325, 327, 430, 435, 440; Home Economics 430; Psychology 351 or 370; Safety Education 330.

Teaching Credentials:

See Credential Section.

HISTORY

The study of history is intended to serve as a cultural background, as a preparation for graduate work in history and the other social sciences, or as a foundation for those planning to enter teaching, law, librarianship, government, foreign service, and related fields.

GENERAL EDUCATION REQUIREMENT OF UNITED STATES HISTORY

Candidates may satisfy the requirement as follows: *Lower Division Students*—History 161A, B or 171A or B. *Upper Division Students*—Any upper division U.S. history course except California history.

MAJOR IN HISTORY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: A minimum of 12 units including History 131A, B or 151A, B and 161A, B or 171A, B.

Upper Division: History 499 and a minimum of 24 additional units, which must include at least 6 units in each of three of the following areas: (1) Ancient and Medieval, (2) Modern European, (3) Russian, (4) British, (5) Latin American, (6) United States, (7) Far Eastern and South Asian History.

HOME ECONOMICS

The Department of Home Economics offers programs of study leading to the bachelor of arts and master of arts degrees. Programs of study also meet the requirements for the teaching credential.

Home economics curricula are designed to provide a liberal education which will enable students to meet the needs of family and community living and at the same time to prepare students for professional careers in the various areas of the field—child development and family relations, food and nutrition, textiles and clothing, housing and home furnishings, and family finance and management.

The curricula also serve the needs of students who find that certain areas of home economics are important to their professional objectives, and to those who wish to study certain aspects of home economics as a matter of personal interest.

With departmental approval, students may select courses, *in addition to the core*, for a major in home economics with specific objectives such as:

Home Economics Education. Requirements for teaching credentials must be met. These requirements include specific courses in education and student teaching.

Dietetics and Institutional Management. Requirements for membership in the American Dietetic Association must be met. These requirements include special courses in quantity food preparation, institutional management, diet and disease, chemistry, bacteriology and economics. For the hospital dietitian, a year of internship in an approved institution is required.

Home Economics in Agricultural Extension. Additional courses in two or more areas of home economics are needed. Courses in areas such as business, speech, drama, journalism, radio and television are desirable.

Home Economics in Business. This emphasis prepares for representative types of business opportunities such as equipment, food, nutrition, housing, journalism, textiles, clothing, and merchandising. Selected areas within the major are combined with those in other departments in terms of the student's specific objectives.

MAJOR IN HOME ECONOMICS FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Home Economics 100, 111, 142, 235, 251, 254*; Art 100 and/or 111 or equivalents; Psychology 100 or equivalent; Sociology 100 or 142 or equivalent; Economics 200 or 300 or equivalent; English 100 and 101, or equivalent; Chemistry 100 or 111A or equivalent; Anatomy and Physiology 200 or equivalent; Microbiology or Physics (4 units).

Upper Division: Home Economics 321, 323, 331, 333,* 342, 344, 353, 409, 413. Chemistry 327 or equivalent; Economics 300 or equivalent (if 200 was not taken).

Teaching Credentials:

See Credential Section.

INDUSTRIAL ARTS

The industrial arts curriculum is designed to meet the needs of the following groups of students: (1) those preparing to enter the teaching profession in the field of industrial arts who need the Standard Teaching Credential; (2) those who are teaching industrial arts and who desire work to further their professional growth; (3) those who desire to broaden their experiences, but who do not plan on entering the teaching profession; and (4) those who are vocationally qualified and who desire to qualify to teach industrial arts subjects in their special areas.

* May be waived by passing a comprehensive examination in the subject.

Courses in industrial arts also are designed for students completing majors in other subject fields and wishing to take elective units in this area.

Course offerings in industrial arts have been selected so that the student can qualify for (1) technical training leading to the baccalaureate degree; (2) a teaching major or minor in industrial arts for the Standard Teaching Credential; and (3) the master of arts degree with a major in industrial arts.

MAJOR IN INDUSTRIAL ARTS FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Industrial Arts 111, 121, 131, 141, 151, 161, 181, 284; Art 100; Photography 210.

Upper Division: 24 units of technical industrial arts courses planned in consultation with a major adviser, which must include Industrial Arts 343. Also required are Secondary Education 450I, English 317, and Industrial Arts 383, 483, 484 and 485. Industrial Arts 485 is not a requirement for the A.B. degree but must be taken concurrently with student teaching, Secondary Education 481I.

Teaching Credentials:

See Credential Section.

INDUSTRIAL TECHNOLOGY

The program in industrial technology is designed for the student who, through screening based upon evaluation of previous college work, job experience, testing and counseling, clearly demonstrates his aptitude and promise for high level technical work with related administrative responsibility. The following student groups are served by this program:

1. Transfer students from the junior colleges who desire to earn the bachelor of science degree in their area of specialization.
2. Students who desire a change of objective from other occupational curricula.
3. Personnel currently employed who desire additional training and/or the bachelor's degree.

It should be noted that this curriculum, for degree purposes, is open only to students who are able to transfer technical course credits earned at two- or four-year colleges or approved military service schools. Prospective students are required to counsel with a member of the industrial technology staff prior to submission of an application for admission to the program.

At the present time there are three specialization options in industrial technology.

Construction Technology. Persons completing the prescribed program will be qualified to serve in expediting, coordination, inspection, detailing, aide to architects, specification writing, facilities planning and development and associated work in the construction or manufacturing industries.

Electronics Technology. Persons completing the prescribed program will be qualified to serve in methods, planning, facilities, development, production and quality control, specification and technical writing, and maintenance areas of electronic and control industries.

Manufacturing Technology. Persons completing the prescribed program will be qualified to serve in tooling, methods, facilities planning and development, specification and technical writing, quality, liaison and maintenance aspects of production in manufacturing industries.

Industrial Technology Advisory Council

The advisory council, composed of leaders actively engaged in areas of technology with which the program is concerned, continually provides information and guidance about industrial developments in methods, materials and techniques so that the program reflects the best of current practices. In reference to the above, they examine various aspects of the program and make recommendations for changes in course content, methods and/or facilities. Membership is as follows:

Mr. Robert W. Bowman, General Manager, Industrial Tectonics, Inc.
Mr. Ray E. Gariss, Supervisor, Tool and Manufacturing Engineering, Douglas Aircraft.
Mr. Fred A. Hassouna, AIA, East Los Angeles College.
Mr. Christy Lembesis, Industrial Planning, Autonetics.
Mr. William M. McCune, President, Diversified Builders, Inc.
Mr. Cedrick Sanders, President, Decon Corporation.

MAJOR IN INDUSTRIAL TECHNOLOGY FOR THE BACHELOR OF SCIENCE DEGREE

A minimum grade of C is required in all major technical courses, mathematics, chemistry and physics.

Specific requirements for each option are indicated below:

Construction Technology. Art 330A, Accounting 201, Finance 222, 342, Marketing 360; Chemistry 100; Economics 300; Civil Engineering 225; English 101, 317; Mathematics 117, 120 or 122; Philosophy 170; Physics 100A-B; Psychology 381; Industrial Arts 344, 345, 412, 442; Industrial Technology 300, 302, 303, 304, 307, 309, 321, 323, 325, 405, 406, 421, 425. Field work, and general education requirements and electives selected in consultation with adviser, to total 128 units.

Electronics Technology. Art 330A; Accounting 201, Marketing 300, Management 462; Chemistry 100; Economics 300; English 101, 317; Mathematics 117, 120 or 122; Philosophy 170; Physics 100A-B; Psychology 381; Industrial Arts 241, 323; Industrial Technology 303, 305, 307, 309, 340, 341, 345, 402, 406, 408, 442, 446, 447. Twenty-four units of transfer technical courses, field work, general education requirements and electives selected in consultation with adviser, to total 128 units.

Manufacturing Technology. Art 330A; Accounting 201, Marketing 300, Management 462; Chemistry 100; Economics 300; English 101, 317; Mathematics 117, 120 or 122; Philosophy 170; Physics 100A-B; Psychology 381; Industrial Arts 241, 323, 423, 441; Industrial Technology 300, 302, 303, 304, 305, 307, 309, 361, 362, 364, 364L, 365, 402, 406, 408, 466, 468. Field work, general education requirements and electives selected in consultation with adviser to total 128 units.

Field work consists of approved, certified, practical work experience in industry. This work must be in an area allied with the student's option.

JOURNALISM

The Journalism Department offers a flexible baccalaureate program leading to professional journalism careers or to educational journalism, at the student's option. The major curriculum aims to develop a well-rounded journalist who can go into such areas as newspaper reporting and editing, advertising, radio and television reporting, public relations, magazine editing and related work in the media. With certain modifications, the program will prepare teaching candidates for journalism assignments on the high school and junior college levels.

MAJOR IN JOURNALISM FOR THE BACHELOR OF ARTS DEGREE

Lower Division (13–16 units): Journalism 110, 120, 140, 222 or 242, 280, Industrial Arts 151 or 351 and/or Speech 209.

Upper Division (17–20 units): Journalism 330, 320 or 420, 322 or 342, 355, 410 (for teachers only), 460, 470, 350 (optional), and 499.

The journalism major will be further enriched by recommended electives drawn from correlated areas, such as anthropology, art, economics, English, history, criminology, sociology and speech. Each student is encouraged to develop a program which will be of the greatest value to him. Hence his personal interests, aptitudes and vocational objectives will determine the choice of electives outside the journalism area.

A journalism major and minor, primarily for teachers, are also offered. (See the Credential Section or a Journalism Department adviser for course requirements.)

MANAGEMENT (See Business Administration)

MARKETING (See Business Administration)

MATHEMATICS

The mathematics program is designed to meet a variety of needs including those of: (1) students preparing for graduate work in mathematics; (2) prospective teachers; (3) students planning to work as mathematicians in industry; (4) students with a special interest in probability and mathematical statistics; (5) non-mathematics majors.

MAJOR IN MATHEMATICS FOR THE BACHELOR OF ARTS DEGREE

Lower Division: English 101 *; Mathematics 117, 122, 123, 224, and any one of the following: 10 units of chemistry, 8 units of one foreign language, 6 units of philosophy, 6 units of physics. This is to include either Physics 100A or 110 but not both. Physics 104 is not acceptable.

Upper Division: A minimum of 30 units of approved upper division mathematics courses to include Mathematics 344 and 460A-B.

Teaching Credentials:

See Credential Section.

MICROBIOLOGY

The curricula in microbiology leading to a bachelor of science degree are designed to satisfy the needs of four basic groups: (1) Laboratory Technology—to give the student background and specific instruction in this area. This study is designed to qualify the student for field work and State license. This type of career is open to both men and women in hospitals, city, county, state and national public health and private laboratories; (2) the general microbiology degree is of a broader nature and is designed to fit the needs of a student wishing to go into medical or industrial research, industry or graduate study; (3) the pre-professional option is one designed to prepare the student for medical, dental, osteopathic or veterinary school; and (4) a major in microbiology can also be utilized for a junior college credential when taken in conjunction with the proper education courses.

All four patterns have basic courses in common. A program desired in any of the four can be arranged through counseling by advisers in the department.

* Waived for any student who scores above the 52 percentile on the English Proficiency Test.

MAJOR IN MICROBIOLOGY FOR THE BACHELOR OF SCIENCE DEGREE

General Microbiology Option

Lower Division: Chemistry 111A-B, 251, 251L; Mathematics 102 or 120; Physics 100A-B; Microbiology 210; Zoology 210A-B.

Upper Division: English 317 *; and a minimum of 36 units including the following: Microbiology 320, 330, 360A-B, 452, 471; Microbiology 450, 451, or Biology 311; Chemistry 327, 441A-B; and a minimum of 6 units to be selected in consultation with the major adviser from upper division courses.

Medical Microbiology Option (Laboratory Technology)

Lower Division: Chemistry 111A-B, 251, 251L; Mathematics 102 or 120; Physics 100A-B, Microbiology 210, Zoology 210A-B. (One anatomy and physiology course may be substituted for Zoology 210B.

Upper Division: English 317 †; and a minimum of 36 units including the following: Microbiology 320, 322, 323, 330, 360A-B, 452; Chemistry 327, 447, 441A; and a minimum of 6 units to be selected in consultation with the major adviser from upper division courses.

Preprofessional Microbiology Option (pre-medical, pre-dental, pre-veterinary):

The preprofessional option follows either the general microbiology or the medical microbiology options.

The elective units are selected (in consultation with the major adviser) to satisfy the specific course requirements of the professional school to which the student seeks admission.

MUSIC

The music curriculum provides programs for (1) the student who wishes to become a professional musician; (2) the student who plans to enter the teaching profession; (3) the student for whom music is part of a general education; (4) the student intending to pursue an advanced degree in music.

All entering freshmen and transfer students are required to take a group of placement tests and auditions which are normally administered at the beginning of registration week. Each entering student should inquire at the Music Office for the details.

Each music major must declare a specialization in some performance area (voice, piano or other instrument), develop his ability in this area, appear in student recitals and demonstrate his progress before a faculty jury each semester.

* Waived for any student who scores above 52 percentile on the English Proficiency Test.

† May be waived by the department for a transfer student with 6 or more units in English composition and who demonstrates high proficiency in grammar as shown by the English Proficiency Test.

Since keyboard facility is important to every music major, each student is urged to meet keyboard proficiency requirements in the lower division, regardless of his performance area.

Participation, with or without credit, in one of the principal performance organizations (A Cappella Choir, Symphony Orchestra or Band) is required of each music major each semester.

A satisfactory senior recital is a prerequisite to graduation.

MAJOR IN MUSIC FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Music 020 (four semesters), 100 (four semesters), 141A-B, 142A-B, 241, keyboard competency equivalent to 220B.

Upper Division: At least 24 units of upper division music courses, including: Music 300 (four semesters), 341, 342, 360A,B, 329 or 429 (four semesters), 428, 442. Undergraduates carrying more than 6 units are required to take Music 020 every semester except the semester of the senior recital.

Teaching Credentials:

See Credential Section.

BACHELOR OF MUSIC DEGREE

Core: Music history and literature (Music 360A-B—6 units, plus 4 additional units); music theory (Music 141A-B, 142A-B, 241, 341, 342, 442); music performance (Music 100, 300); keyboard proficiency (equivalent to Music 220B); semester recital (Music 020); total of 40 units.

Concentration: Group of interrelated courses, chosen with the aid and approval of an adviser, according to the student's objectives, including at least 12 upper division units. Total of 24 units. Typical concentrations include individual performance, instrumental music, choral-vocal music, history and literature, composition. Department will provide recommended patterns for use in advisement. Instrumental music and choral-vocal music are the usual concentrations for teaching credential candidates.

NURSING

Basic Degree Program in Nursing:

The basic program offers courses to prepare the student to become a nurse. Graduates of the program are eligible to write the examination for licensure as a registered nurse.

The Office of the Surgeon General, Department of the Army, has approved the nursing program for participation in the Army Student Nurse Program and direct commissioning in the Army Nurse Corps.

Application should be made directly to the Office of Admissions and Records. The freshman year is spent at the campus taking regular college courses for the prescribed nursing program. These courses are also applicable to several degree objectives other than nursing. Eligibility for

continuation in the curriculum in the sophomore year will be determined by aptitude tests, recommendations, interviews, physical examinations, and scholastic attainment. To remain in the nursing program, the student must achieve a grade of C or better in each nursing clinical course and attain a cumulative grade point average of 2.0 (C) on all units attempted. A car is necessary for transportation to extended campus areas. Nursing students must carry malpractice insurance.

The curriculum in nursing consists of 132 semester units as outlined in the requirements for the degree. Hospitals and health agencies in the nearby community will be used for clinical instruction and laboratory practice. Transfer students and registered nurses are required to complete the prescribed program. The program has received full accreditation by the Board of Nursing Education, Registration of California and the National League for Nursing.

Transfer students and registered nurses must file official records in the Nursing Department office in addition to records filed in the Office of Admissions and Records. Nursing students registering for clinical nursing courses must complete application forms by April 1 for fall semester and November 1 for spring semester. The National League Graduate Nurse examination and the ACT test are required.

Advisory Committee for Nursing:

The responsibilities of the Advisory Committee for Nursing are to interpret the nursing program in the community, to evaluate progress reports and to recommend policies pertinent to the nursing program. Membership in the committee is as follows:

Dr. George Y. Abbe, Metropolitan Hospital
Mrs. Mary Jane Durnin, Women's Medical Auxiliary
Mr. David Laurence, Long Beach Pacific Hospital
Mrs. Eleanor Robertson, Long Beach Department of Health
Mr. Walter Oliver, Long Beach Community Hospital
Dr. Everett Carmody, Long Beach General Hospital
Sister Mary Victor, St. Mary's Hospital
Dr. Maurice Rosenbaum, Memorial Hospital
Dr. Stephen Gilbert, Veterans Administration Hospital

Philosophy of the Program: As an integral part of the College, the Department of Nursing offers a four-year program leading to a bachelor of science degree in nursing. Learning experiences in general and professional education are designed to provide the student with a background essential for professional nursing service and graduate education. Emphasis is placed upon individual development in order that the student may realize his fullest potential for responsible citizenship and professional competence.

The curriculum is formulated to help the student develop understanding of self and others, intellectual curiosity, and ability to work with others in identifying and resolving the health problems of a changing society.

Purpose and Aim in Establishing the Program: The purpose of the bachelor of science program in nursing is to prepare students to function, under supervision, as staff nurses in any field of nursing including public health.

BACHELOR OF SCIENCE DEGREE IN NURSING

Lower Division: Nursing 100, 210, 260; Chemistry 100 or equivalent; Anatomy and Physiology 203A-B; Physics 104 or equivalent; Biology 200 or equivalent; Sociology 100; Anthropology 120 or equivalent; Microbiology 210; Psychology 100; Home Economics 232; English 101; electives.

Upper Division: Nursing 321, 331, 332, 341, 342, 351, 361, 441, 442, 462; Chemistry 327; Educational Psychology 301, 305; electives.

See Credential Section for Public School Nursing Credential.

OPERATIONS RESEARCH AND STATISTICS

(See Business Administration)

PHILOSOPHY

The philosophy curriculum is designed for two purposes: (1) To make available to students the opportunity of meeting the general education requirements. To this end, generic lower division and upper division courses are designed to contribute to the general education of the student. They are intended to give practice in reflective thinking and aid the student in formulating his own philosophy of life. The student is introduced to the basic problems of philosophy, and opportunity is given for his understanding of representative approaches to their solution. Appropriate emphasis is placed upon practical and current problems. And, (2) To make available to students the opportunity of meeting the requirements for a major in philosophy. To this end, in addition to generic courses, specialized courses are designed to acquaint the student with the history of philosophy and related areas. These courses are intended for those who are seeking a liberal arts degree and/or those who plan to teach philosophy, for pre-professional students in such areas as theology and law, and as a foundation for graduate studies in the areas of library science, social science, diplomacy, theoretical physical science, and specialized historical studies.

MAJOR IN PHILOSOPHY FOR THE BACHELOR OF ARTS DEGREE

A minimum of 36 units in philosophy divided as follows:

Lower Division: At least 9 units and no more than 12 units in philosophy, including Philosophy 100 and 170.

Upper Division: At least 24 units in philosophy, including Philosophy 301 and 302 both of which should be taken during the first year of upper division work.

PHYSICAL EDUCATION

The Departments of Physical Education for Men and Women offer programs designed (1) to meet the professional needs of prospective physical education teachers, and (2) to satisfy the general education requirement in physical education. Courses are offered which satisfy the following requirements: (1) physical education major and minor for the Standard Teaching Credential with a secondary specialization, a junior college specialization, or a minor with an elementary specialization; (2) the bachelor of arts degree with a major in physical education; (3) the master of arts degree in physical education; (4) the general education requirement in physical education for all lower division students.

The departments also assume the responsibility for meeting the needs and interests of the college student in sports, dance and other recreational activities. Opportunities are provided for men and women students to participate in a broad elective instructional program, intramurals and intercollegiate competition.

All students participating in any physical education activity must have a medical clearance from the College Student Health Service.

MAJOR IN PHYSICAL EDUCATION FOR THE BACHELOR OF ARTS DEGREE

MEN

Lower Division: Men's Physical Education 111, 140, 141, 142, 143, 242, 243, 244, 245, 246, and 247. Physical Education 160 and 241.

Upper Division: Men's Physical Education 011 (if Men's Physical Education 111 not taken), 310, 311, 315, 390, 480 and 488. Physical Education 333, 335, and 437; two selected from Men's Physical Education 312, 313, or 433; one selected from Men's Physical Education 484 or 485; one selected from Men's Physical Education 486 or 487.

WOMEN

Lower Division: Women's Physical Education 120, 121, 140, 150, 151, 243, 244, 261, Physical Education 160, 241. One of the following: Women's Physical Education 250, 251.

Upper Division: Women's Physical Education 020 (if Women's Physical Education 120 not taken), 321, 330, 360, 421, 422, 430, 461, Physical Education 333, 335, 437; three selected from Women's Physical Education 340, 442, 443, 444; and one selected from Women's Physical Education 350 and 351.

Teaching Credentials:

See Credential Section.

PHYSICAL SCIENCE

The major in physical science for the bachelor of arts degree is a program offered jointly by the Departments of Physics-Astronomy,

Chemistry and Geology and administered by the Department of Physics-Astronomy. Its purpose is to prepare teachers for secondary and junior college teaching.

MAJOR IN PHYSICAL SCIENCES FOR THE BACHELOR OF ARTS DEGREE

Lower Division: English 101*, Physics 110, 120, 230, 240, and Chemistry 111A-B, and Mathematics 117, 122, 123, 224 and a choice of one course among the following: Biology 202, Zoology 210A, Botany 210, 212 and Microbiology 210.

Upper Division: A minimum of 24 units of courses selected in consultation with major adviser. Work must be completed in each of the following fields: physics, chemistry and geology. At least 15 units of this work must be in one of the above fields.

Teaching Credentials:

See Credential Section.

PHYSICAL THERAPY

The physical therapy curriculum is designed to enable students to become an integral part of the medical rehabilitation team as practicing physical therapists in a variety of clinical facilities. Appropriate science, professional, medical and clinical experiences are provided. Successful completion of the major and/or degree requirements leads to (1) a bachelor of science degree, or (2) a certificate of completion for students having an earned degree from a four-year institution. Successful completion of the program should qualify one for licensure with the State of California.

PROFESSIONAL PROGRAM ADMITTANCE REQUIREMENTS

Baccalaureate Program:

1. Be less than 35 years of age at the time of application.
2. Be eligible for admittance to the College.
3. Have earned a semester of college credit in anatomy, biology, chemistry, physics, physiology and psychology (all but psychology require laboratory work).
4. Have earned or have in progress at the time of application 60 college units appropriate to college degree requirements, including college general education requirements.
5. Demonstrated satisfactory potential for success in the program as disclosed by previous academic success, work experience, recommendations, mental, emotional and physical fitness and personal interview.
6. File an appropriate application with the coordinator of physical therapy on or before March 1 for the fall semester or November 1 for the spring semester.

Certificate Program:

Meet, with the exception of No. 4, the requirements set forth for the baccalaureate program, and have an earned college degree or be

* May be waived for students who achieved a standard score of 24 on the ACT English sub-test or who received an A or B grade in English 100.

in the final phases of work for a degree from an accredited four-year institution at the time of application. Requirements for Admittance to Clinical Practice:

1. Complete or have in progress all other requirements for the baccalaureate degree and/or major.
2. Earn a 2.0 (C) in each professional course attempted.
3. Successfully complete a competence inventory examination.

BACHELOR OF SCIENCE DEGREE IN PHYSICAL THERAPY OR CERTIFICATE OF COMPLETION

Lower Division: Anatomy and Physiology 203A-B.

Upper Division: Physical Therapy 310, 320, 350, 352, 353, 371, 380, 430, 460, 472, 473 and 485A,B.

PHYSICS

The major in physics for the bachelor of science degree is offered for: the student seeking eventually the doctor's degree and the position of professional physicist in the traditional sense, the student seeking a position in an industrial laboratory and the student seeking a career in teaching physics. This major program has been designed with the conviction that a student must first of all be a physicist and must have a program which penetrates the fundamental conceptual bases of physical phenomena, cultivates skill in the design of experiments and their practical execution and stimulates interest in the many means used to interpret the physical world.

MAJOR IN PHYSICS FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: English 101*, Physics 110, 120, 230, 240; courses to support the major to include Mathematics 117, 122, 123, 224, and Chemistry 111A-B, and a choice of one course among the following: Zoology 210A, Botany 210, 212, Microbiology 210 and Biology 202.

Upper Division: Mathematics 370A-B; Physics 310A,B, 320, 330, 340, 380, 440, 450A-B, 451A-B, 470, and either 480, 484 or 6 approved upper division units of physics and/or mathematics courses.

PHYSIOLOGY (See Biology)

POLICE SCIENCE AND ADMINISTRATION (See Criminology)

POLITICAL SCIENCE

The political science major is designed to provide the student with a systematic knowledge of the nature and scope of political science. A

* May be waived for students who achieved a standard score of 24 on the ACT English sub-test or who received an A or B grade in English 100.

student may elect to major in political science as a preparation for such fields as: (1) college or university teaching, (2) law, (3) government career service, (4) foreign career service, and (5) politics. In addition, a political science major is preparation for general education, good citizenship and participation in political life. Students interested in the fields mentioned above should consult with an adviser to secure aid in planning their programs.

GENERAL EDUCATION REQUIREMENT IN GOVERNMENT

The Education Code requires each college graduate to meet (1) a federal government requirement and (2) a California state and local government requirement. Both of these requirements can be met by Political Science 100 (for lower division students) or Political Science 421 (for upper division students).

If the student has completed the federal government requirement, but not the California state and local government requirement, the student should take Political Science 425. Students who have taken American federal, state or local government at another institution should check with the political science faculty before enrolling.

MAJOR IN POLITICAL SCIENCE FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Political Science 100, 200AB. Political Science 110 is highly recommended.

Upper Division: A minimum of 24 units distributed as follows: 3 units, public law, Pol. Sci. 400; 3 units, political thought, Pol. Sci. 370 or 380; 9 units selected from international politics, Pol. Sci. 300, comparative government, Pol. Sci. 330, politics, Pol. Sci. 430, or public administration, Pol. Sci. 460 or 461; 9 units of recommended political science electives.

MAJOR IN POLITICAL SCIENCE FOR THE BACHELOR OF ARTS DEGREE WITH A CONCENTRATION IN PUBLIC ADMINISTRATION

Lower Division: Political Science, 6 units.

Upper Division: A minimum of 30 units distributed as follows: 3 units, public law, Pol. Sci. 400; 3 units, political thought, Pol. Sci. 370 or 375 or 380; 12 units, public administration, Pol. Sci. 460 and 461 and 6 units from Pol. Sci. 465, 471, 475, 481; 6 units, chosen in consultation with adviser; 6 units, intern training.

PSYCHOLOGY

The psychology curriculum is designed to provide the student with: (1) a broad background in the principles of modern psychology, (2) a knowledge of the applications of psychology in special fields and (3) skills and various techniques of psychological measurement and investigation.

Students electing a major in the field of psychology may concentrate their studies in general, learning, experimental, physiological, child, clinical and social psychology. The psychology program also provides preparation for further graduate study. Psychology majors anticipating graduate study should consult the Graduate Bulletin for a statement concerning prerequisites.

Psychology 100 or an equivalent three-unit course in introductory general psychology is required for the bachelor's degree and is prerequisite for all other courses in the psychology curriculum.

All psychology majors should obtain a statement of recommended electives from the department office or adviser.

Particular attention should be paid to the prerequisites for each course. Enrollment in a course for which the prerequisite has not been completed requires special permission from the instructor.

MAJOR IN PSYCHOLOGY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Psychology 100, 210, 220; Mathematics 114, 117 or 120; English 101 or 317*.

Upper Division: A minimum of 24 units in psychology including the following: Psychology 311 or 312; 401; two courses selected from Psychology 331, 333, 337, 341; two courses selected from Psychology 315, 343, 356, 433; one course selected from Psychology 351, 370.

PUBLIC ADMINISTRATION (See Political Science)

RECREATION

Recreation leadership is concerned with the organization and management of programs to satisfy the leisure needs and interests of all people.

The curriculum is designed to prepare men and women for positions of leadership, supervision and administration in public recreation and park departments, armed forces recreation, industrial recreation, medical recreation, camping and outdoor education and voluntary youth serving agencies.

The curriculum encompasses selected courses in sociology, education and psychology to provide an understanding of people; courses in recreation leadership, art, music, physical education and drama to achieve a broad background in program skills; and a variety of professional courses to develop an understanding of American leisure and the recreation profession.

MAJOR IN RECREATION FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Sociology 100; English 101; Physical Education 160; Music 281, 290; Drama 124; Journalism 120.

* May be waived for students who achieved a standard score of 24 on the ACT English sub-test or who received an A or B grade in English 100.

Upper Division: Art 304; Educational Psychology 301; Journalism 470; Physical Education 360; Psychology 351; Sociology 336, 366; Speech 358 or Drama 374; Recreation 311, 312, 315, 316, 317, 341, 421, 425, 475, 484, 485.

SOCIOLOGY AND SOCIAL WELFARE

The courses in sociology are designed for those who wish a knowledge of the scope and methods of sociology, either for general cultural background or as an integral part of preprofessional training.

The social welfare major is designed for those who, with a bachelor's degree, expect to enter such fields as public assistance, correctional services and certain group work activities; or who plan to enter graduate schools of social work to prepare for such fields as family counseling, medical and psychiatric social work, school social work, child welfare services, community welfare organizations and others requiring the master's degree in social work.

MAJOR IN SOCIOLOGY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: All majors are required to have credit for Sociology 100, 142 and 255. Anthropology 120 and Sociology 260 are recommended.

Upper Division: All majors are required to have a minimum of 24 units including credit for Sociology 335, 455, 456, and also complete one course from each of the following areas:

(1) Demography and Ecology: Sociology 350, 410, 419.

(2) Social Organization: Sociology 320, 420, 422, 425.

(3) Social Interaction: Sociology 336, 430, 435.

(4) Social Disorganization: Sociology 345, 347, 367, 368, 441, 442, 445.

The remaining 3 units must be chosen from the courses listed in the above four categories. Sociology 310 will not count toward the major but may be taken as an elective.

MAJOR IN SOCIAL WELFARE FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Anthropology 120, Anatomy and Physiology 200 or Biology 200; Sociology 100, 255, 260.

Upper Division: Educational Psychology 301, Psychology 370, Economics 300, Sociology 320, 362, 365, 367, 368, 455, 460A, B.

SPANISH

The program in Spanish is designed to meet the needs of (1) prospective teachers; (2) students preparing for executive secretarial positions where knowledge of modern languages is essential; (3) students who plan to enter the consular service, and majors in international rela-

tions; (4) those who desire to enlarge their background of experience in the field of communication and share in the aesthetic and cultural contributions of the peoples of the world; and (5) those preparing for professional and graduate work.

MAJOR IN SPANISH FOR THE BACHELOR OF ARTS DEGREE

Lower Division: One year of intermediate Spanish. Students who have completed sufficient high school Spanish may take upper division courses as soon as lower division requirements have been met.

Upper Division: A minimum of 30 units of upper division courses, which must include Spanish 312, 313, 314, 411.

Departmental Requirement: One year of a second foreign language is required of all majors.

Teaching Credentials:

See Credential Section.

SPEECH

The Department of Speech serves two general functions. First, it provides a program for the student planning a career in any of the specialized areas of speech: rhetoric-public address, speech pathology-audiology, television-radio-film. Second, the department provides a variety of general education courses as a part of the curriculum designed to give all students broad experiences in the liberal arts.

To fulfill its first function, the department offers specialized curricula to students who are planning (1) to utilize a comprehensive background of speech theory and practice in business or professional fields, (2) to become speech clinicians and audiologists, (3) to enter the field of professional or educational television and radio, (4) to become teachers of speech at the secondary or higher educational levels.

To fulfill its second function, courses are offered to satisfy both the general education requirement in speech and the need for additional general education electives for cultural enrichment.

GENERAL EDUCATION REQUIREMENT IN SPEECH AND SPEECH PROFICIENCY

Any of the following courses may be taken to fulfill the general education requirement in speech: Speech 130, 131, 132, 133. Satisfactory completion of one of these courses does not necessarily satisfy the requirement of speech proficiency for student teaching. Upon completion of his course, the student who plans to enroll later in student teaching should check with his instructor to find out whether he has been cleared for speech proficiency as a classroom teacher. Students completing their general education speech requirement on another campus must be cleared by the Department of Speech for speech proficiency if they plan to enroll for student teaching. Testing dates are published in each Schedule of Classes.

MAJOR IN SPEECH FOR THE BACHELOR OF ARTS DEGREE

The department offers the bachelor of arts degree in three areas of emphasis. The specific requirements for each are as follows:

General Speech Concentration

This concentration should be elected by students completing an academic major for a standard teaching credential.

Lower Division: Speech 130, 271.

Upper Division: Majors must complete two courses from each of the following groups: (a) Speech 441, 442, 443, 444, 445, (b) Speech 331, 332, 333, (c) Speech 335, 446A, 446B, 449, (d) Speech 361, 406, 417, 471, (e) Speech 371, 440, 448.

Speech Pathology Concentration

Lower Division: Speech 271, six units from Speech 130, 131, 132, 133.

Upper Division: Speech 361, 371, 448, 461, 462, 463, 469 (2 units), 471, 473. Students desiring American Speech and Hearing Association Certification should consult with an adviser regarding additional course work necessary.

Radio-Television Concentration

Lower Division: Speech 206, 209, 210 or 271.

Upper Division: Speech 301, 303 or 306, 304 or 309, 305, 406, 409, 410 or 417, Journalism 420.

Recommended Electives: At least 18 units in one of the following areas: business administration, creative writing, instructional media, journalism, social-behavioral sciences, speech and drama, fine arts.

ZOOLOGY

MAJOR IN ZOOLOGY FOR THE BACHELOR OF SCIENCE DEGREE

(including Entomology,* Marine Zoology † and pre-professional programs)

Lower Division: Botany 212 (or 210 and 211); Zoology 210A-B; Chemistry 111A-B; Physics 100A-B; Mathematics 102 (unless waived by placement examination); and Anatomy and Physiology 240 (or one upper division physiology course listed below.)

Upper Division: Chemistry 327; English 317‡; and a minimum of 34 units in biological science including the following: Biology 311, Entomology 310 § or Zoology 310; Zoology 330 or 331; Anatomy and Physiology 440, unless fulfilled by Anatomy and Physiology 240. Remaining electives should be selected in consultation with the major adviser.

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* Students with an emphasis in Entomology are required to take 21 upper division units of entomology, three upper division units of ecology, and Botany 321. In addition, Entomology 430 should be substituted for Zoology 330 or 331, and Entomology 440 should be substituted for Anatomy and Physiology 440.

† See major in biology for the bachelor of arts degree.

‡ May be waived by the department for a transfer student with six or more units of English composition and who demonstrates high proficiency in grammar as shown by the English Proficiency Test.

§ Students planning to enter medical, dental, or veterinary schools should substitute Entomology 311 for Entomology 310.

PREPROFESSIONAL PROGRAMS

Professional schools in many universities either require or recommend that applicants complete four-year programs for admission. Although the professional schools do not always require a bachelor's degree, they generally encourage basic preparation and a broad general education leading to that degree before beginning specialization.

The College offers preprofessional programs in dentistry, law and medicine. Following are recommendations and requirements of universities and professional schools in this vicinity.

The student who intends to apply for admission to a professional school should select a major field of concentration. If a degree is to be completed, the requirements for the selected major shall be completed in addition to the courses specifically required for admission to a professional school.

Pre-Dental

Pre-dental students most frequently select a major in zoology, chemistry or microbiology. However, any major academic field of concentration may be selected if the basic preprofessional requirements are incorporated in the preparation. The requirements for a degree will meet most of the recommendations for general education. Students are encouraged to secure further information from the Office of the Division of Natural Sciences where they may consult the pre-dental committee and the Dental Students Register.

Each pre-dental student shall confer with a member of the pre-dental committee each semester for advice as to courses which may be required only by specific dental schools. The basic requirements for entrance into most dental schools include those in the following paragraph.

General Zoology (including laboratory), General and Organic Chemistry (including laboratories), General Physics (including laboratory), courses in English and Social Sciences, and in Mathematics as required for courses in chemistry and physics. Certain additional courses in general education, science and a foreign language are recommended.

Pre-Legal

Students planning to enter law school may elect any one of several majors. However, the major chosen and the courses selected outside the major field should demand a high level of performance in reading difficult material, writing clearly and understanding abstract concepts. Prelegal students are advised to take the minimum program to meet the requirements of their chosen major and courses beyond the introductory survey level in other selected fields. A distribution of course sequences between the social sciences, the natural sciences and the humanities is desirable. Students should consult with designated pre-law advisers in the Office of the Division of Business Administration or the Office of the Division of Social Sciences concerning entrance requirements of specific law schools.

Pre-Medical

Each pre-medical student shall confer with a member of the pre-medical committee each semester for advice as to courses which may be required only by specific medical schools. Pre-medical students most frequently select a major in zoology, chemistry or microbiology. Other major academic fields may be selected if the basic preprofessional requirements are incorporated in the preparation. The requirements for a degree will meet most of the recommendations for general education.

Students are encouraged to secure further information from the Admissions Requirements of American Medical Colleges Including Canada, available in the Office of the Division of Natural Science.

The basic requirements for entrance into most medical schools include General Zoology (including laboratory); Vertebrate Embryology (including laboratory); General Chemistry, Quantitative Analysis, Organic Chemistry, and General Physics (all including laboratories); mathematics as required for courses in chemistry and physics, social science courses and English. Certain additional courses in general education, science, and a foreign language are recommended.

CAL STATE LONG BEACH
READ GOOD BOOKS
KEEP YOUR RECEIPTS

CREDENTIAL SECTION

CREDENTIALS

Academic and professional curricula are offered to students in preparation for meeting the standard credential requirements to teach in the elementary and secondary schools, and in junior college. Similarly, work is offered for students and experienced teachers seeking preparation in pupil personnel services, teaching of exceptional children, supervision and certain special phases for public school service.

The College offers programs of study leading to standard credentials as established under the Certificated Personnel Law of 1961 (the Fisher law) and as amended by Senate Bill 908 (the Rodda law).

Students may take courses which apply to a standard credential and make application directly to the State Department of Education for the credential. This procedure is necessary in those instances where the College is not authorized to recommend certain credentials.

CREDENTIALS AVAILABLE THROUGH THE COLLEGE

The College is authorized by the State Board of Education to recommend to the Commission of Credentials the granting of the following public school service credentials to candidates who have successfully completed required courses of instruction. The department that administers each program is noted in the parentheses below.

The Standard Teaching Credential with the following specializations:

Elementary Teaching (Elementary Education)
Secondary Teaching (Secondary Education)
Junior College Teaching (Secondary Education)
Specialized Preparation
- Mentally Retarded (Educational Psychology and Social Foundations)
- Speech and Hearing Handicapped (Speech)

The Standard Designated Subjects Credential with the following specializations:

Public Safety and Accident Prevention including Driver Education and Driver Training (Health Education and Safety)

The Standard Designated Services Credentials with specialization in:

Pupil Personnel Services (Educational Psychology and Social Foundations)
- Pupil Counseling
- Child Welfare and Attendance
- School Psychometry
- School Psychology

Health to serve as a Public School Nurse (Nursing)

The Standard Supervision Credential (Educational Administration)

(To serve as supervisor, consultant or other intermediate administrative position including school principal.)

Elementary supervision	Elementary principal
Secondary supervision	Secondary principal
Junior College supervision	Junior College principal

CREDENTIALS AVAILABLE THROUGH THE STATE

The College, in conjunction with public school districts, offers programs for the completion of the partial fulfillment credentials and internship in Pupil Personnel Services. Students pursuing professional programs leading to satisfying the credential requirements should report to the appropriate Department Chairman in the Division of Education for information and assistance with problems identified with the credential(s) sought. Information concerning requirements for credentials not described in this Bulletin should be requested from the Credentials Office, State Department of Education, Sacramento.

HOW TO SECURE CERTIFICATION FOR A CREDENTIAL WITH COLLEGE RECOMMENDATION

I. Apply for Admission to the College

Credential candidates must be officially admitted to the College through the Office of Admissions and Records. Transcripts of all college work must be on file with this College if college recommendation for certification of the credential is desired. See calendar in this Bulletin for application procedures and dates to file applications and transcripts.

II. Complete Proficiency Examinations

Each student is responsible for making his own arrangements for completing proficiency examinations. Students may obtain information concerning proficiency examinations in the Office of Testing and Research, the Division of Education office and the appropriate Education Departmental offices.

III. Apply for Admission to Credential Programs

A. Standard Credentials

Application blanks for admission to teacher education are available in the Division of Education office and Education Departmental offices. Application blanks should be completed directly after registration for the semester preceding enrollment in education courses.

Qualified transfer students will be permitted to enroll in education courses in the first semester on campus on a provisional basis, pending verification of their meeting requirements of admission to teacher education.

No student may enroll for professional education courses until he has completed satisfactorily at least 60 lower division units, is in clear standing and has been admitted to a teacher education program. The standards for admission to teacher education are not the same as those for admission to the College. Satisfactory completion of lower division work does not guarantee admission to a teacher education program.

To qualify for enrollment in teacher education courses each student must:

1. Be at least a junior in clear standing
2. Have scored above the 25th percentile on the composite of the ACT (standard score of 17 or better) or be a graduate student and
3. Have filed an application for admission with the appropriate Teacher Education Committee.

The Elementary Teacher Education Committee or Secondary (and Junior College) Teacher Education Committee is responsible for evaluation of candidates for the standard teaching credentials. The appropriate committee acts upon each application in terms of standards in the regulations of the Trustees (Article 6, Sections 41,100 and 41,101) which include these factors: (a) academic aptitude (25th percentile or better), (b) scholarship, (2.0 grade point average for admission, higher for student teaching), (c) professional aptitude, (d) physical fitness, (e) fundamental skills, (f) personality and character and (g) many-sided interests.

B. Other Public School Credentials

(Refer to credential desired.)

IV. Complete Prescribed Study Programs, Follow Procedures for Admission to Student Teaching and Meet Other Credential Requirements

A student must complete a minimum of six units of course work at this College before being recommended for a credential.

V. Apply for College Certification Recommendation

The student pays a credential fee at the Business Office and files a credential application card. The Office of Admissions and Records processes and forwards necessary documents for recommended applicants to the State Department of Education. The student is encouraged to file the card during the first month of the semester prior to completion of work on the credential. The card must be filed no later than the second week of instruction of the semester in which the final work is being completed. After filing the card, the Office of Admissions and Records will forward an instruction sheet along with an application blank, Form 41-16, and fingerprint cards, Form FO-258, to candidates in their final semester of work. The student must file these completed forms and a health examination record by the College Health Service with the Office of Admissions and Records before the ninth week of the semester.

When the candidate successfully meets all requirements for the credential, he will be notified by the Office of Admissions and Records. The credential will be available in that office or will be mailed upon request.

An application for a credential based upon partial fulfillment is not processed through the Office of Admissions and Records.

A student who is not a citizen of the United States must apply directly to Sacramento for his credential.

STANDARD TEACHING CREDENTIAL WITH AN ELEMENTARY SPECIALIZATION

General Requirements

1. A baccalaureate degree or higher from an approved institution.

2. A fifth year (30 semester units) of upper division and/or graduate work completed beyond the baccalaureate degree. (Under certain conditions, including the completion of a degree and student teaching, the fifth year may be postponed and completed during the first seven years of teaching.) Further details are available in the Elementary Education Department.

3. The following general education:

Note: Undergraduate students who are seeking a bachelor's degree and a standard elementary teaching credential and desire to complete the requirements in general education for both objectives should follow the general education pattern outlined on page 56.

(a) Forty-five semester units of course work in five of the following six areas: (1) humanities (English, speech and philosophy); (2) social sciences (anthropology, economics, geography, history, political science and sociology); (3) natural sciences (biological and physical sciences); (4) mathematics; (5) fine arts (music, art and drama), and (6) foreign language.

(b) Two semesters of English composition or three semesters of English course work including a course in English composition. (Course work in English applies toward the humanities requirement above.)

(c) Three semester units of course work in the theory of the structure, arithmetic and algebra of the real number system (Mathematics 110 or Elementary Education 461 and 462) or three semester units of course work in calculus. (Mathematics 110 or calculus applies toward the mathematics requirement above.)

(d) Completion of the requirement on the United States Constitution either by course work (Political Science 100 or 421) or by passing an examination. (Political science applies toward the social science requirement above.)

The following course work is recommended within the baccalaureate degree program: Geography 100, a year of biological science, a year of physical science, Music 180, Art 100, Physical Education 270 and 271.

The following specialized content supporting courses are recommended within the five-year program: Art 300, Biology 301, Music 380, Physical Education 470 and English 481. The prerequisite for each course is waived for graduate students.

4. One of the following: (See lists below—Classification of Credential Majors Offered at this College for the Elementary Specialization.)

(a) A major in an academic subject matter area commonly taught in the public elementary schools. (Authorizes teaching of any subject in grades K–9 in a self-contained classroom.)

(b) An academic major and a minor each of which is in a subject matter area commonly taught in the public elementary schools. Specialized preparation may be substituted for the minor. (Authorizes teaching of any subject in grades K–9 inclusive.)

Note: The requirements for each academic major are listed under the Baccalaureate Degree Requirements in this Bulletin. Undergraduate students must complete all the requirements in the major for the bachelor's degree. Graduate students must complete the equivalent of the upper division requirements for their selected major offered at this College and such programs must include at least 24 upper division units in the major field. Requirements for each minor are listed in the latter part of this Credential Section.

Classification of Credential Majors Offered in Relation to the Elementary Specialization

List 1 — Academic — Commonly taught in the public elementary school. (No minor is required to support these majors.)

Anthropology
Art (Option IV)
Biology (requires 28 upper division units for a biology major)
Botany
Chemistry
Comparative Literature*
Drama
Earth Science
Economics
English
French
Geography
Geology
German
History
Mathematics
Microbiology
Music
Philosophy
Physical Science* (Physics, Chemistry, Geology, Astronomy)
Physics
Political Science
Psychology
Sociology
Spanish
Speech (general)
Zoology

*List 2 — Nonacademic — Commonly taught in public elementary schools. To be used only as a minor.***

Health Education
Home Economics
Industrial Arts
Physical Education
Safety Education

List 3 — Nonacademic — Not taught in public elementary school and not acceptable as a major or minor.

Business Administration
Business Education
Criminology
Engineering
Industrial Technology
Journalism
Nursing
Physical Therapy
Recreation
Social Welfare
Vocational Education

* Interdepartmental majors.
** If the major is in a nonacademic subject, then the credential authorizes the holder to teach only in his major and academic minor.

5. The following professional courses in education: (See Plan V for undergraduate students or Plan VI for graduate students available in the Elementary Education Department.)

(a) Required Professional Education Courses

Ed. Psych. 301 Child Growth and Learning (3)
El. Ed. 310 The Elementary School in American Society (3)
El. Ed. 440 Language Arts in the Elementary School (2)
El. Ed. 450 Reading in the Elementary School (2)
El. Ed. 460 Arithmetic in the Elementary School (2)
El. Ed. 470 Social Studies in the Elementary School (2)
El. Ed. 480 Observation and Participation in the Elementary School (2)
El. Ed. 481 Student Teaching in Elementary Grades (8)

(b) Recommended Professional Education Courses

I. Media 300 Instructional Media (2)
Ed. Psych. 305 Educational Psychology (3)
El. Ed. 420 Kindergarten-Primary Methods (2)

(c) Required Sequence of Professional Education Courses

The professional education sequence may begin as early as the first semester of the junior year or as late as the first semester of the graduate year.

For undergraduate students the following sequence of courses must be followed:

(1) Ed. Psych. 301 and El. Ed. 310 are prerequisites to all other required education courses,

(2) El. Ed. 480 must be taken concurrently with at least one of the following basic method courses: El Ed. 440, 450, 460, 470,

(3) Not more than two of the methods courses in (2) above should be taken per semester,

(4) Proficiency (shown by test or remedial course work) in English, spelling, arithmetic, speech and spelling prerequisite for El. Ed. 440, 450, 460, 470 and 480,

(5) Ed. Psych. 301, El. Ed. 310, 440, 450, 460, 470, 480 and the proficiency identified in (4) above are all prerequisites to El. Ed. 481; El. Ed. 420 is prerequisite to student teaching in kindergarten.

(6) I. Media 300 and Ed. Psych. 305 may be taken at any time.

For graduate students the following sequence of courses may be followed:

(1) All or part of the course work identified in item (5) above as prerequisite to student teaching may be taken concurrently; that is, Ed. Psych. 301 and El. Ed. 310 as well as any needed remediation may be taken concurrently with basic methods courses. El. Ed. 480, however, must be taken concurrently with at least one basic methods course.

(2) All courses identified in (5) are prerequisites to elementary student teaching.

Any deviation from the prescribed sequence must have prior approval from the Elementary Teacher Education Committee.

Elementary Teacher Education Policies and Procedures

1. Admission to elementary teacher education (see Admission to Credential Programs, p. 107).

2. Registration in required upper division education courses.

Plan a tentative program using Plan V for undergraduate students, Plan VI for graduate students (available in the Elementary Education Department office) as a guide. Programs of professional education courses should be planned and approved by a faculty member in the Elementary Education Department.

Achieve a satisfactory score on proficiency tests given by the Office of Testing (speech test given during the semester by the Speech Clinic) or successfully complete any required remedial courses in English, spelling, arithmetic and speech. Students enrolled in the College prior to attaining upper division standing should complete all prescribed elementary proficiency tests by the end of the sophomore year. If a student enters the College at the upper division level, these tests should be taken during the period prior to and/or during the first semester of enrollment.

Undergraduate students are required to complete all required remedial work to overcome any deficiencies before taking professional education courses beyond El. Ed. 310 and Ed. Psych. 301.

Graduate students are required to complete all required remedial work to overcome any deficiencies before enrolling in elementary student teaching. Refer to *Schedule of Classes* for test dates.

3. Requirements to continue in professional education courses.

For undergraduate students to continue in courses beyond El. Ed. 310 and Ed. Psych. 301 each student must: (1) be officially admitted to elementary teacher education, (2) maintain an overall average of C or better at this College and a minimum grade of C in each required education course, (3) complete required tests and/or remedial work, (4) follow prescribed prerequisites and, (5) comply with departmental policies.

For graduate students to qualify for student teaching, each student must: (1) be officially admitted to elementary teacher education, (2) maintain an overall average of C or better at this College and a minimum grade of C in each required education course, (3) complete required tests and/or remedial work, (4) apply for student teaching prior to the deadline and, (5) comply with departmental policies.

4. Registration for El. Ed. 480 — Observation and Participation in the Elementary Schools.

El. Ed. 480 is required concurrently with at least one professional education course in reading, social studies, language arts or arithmetic. Application for enrollment in the course should be filed in the office of the Coordinator of Elementary Teacher Education by June 1 for the fall semester and November 1 for the spring semester. Under special circumstances late applications may be accepted.

5. Application for elementary student teaching.

During the registration period one semester prior to student teaching the student shall obtain an application for student teaching from the Elementary Teacher Education office. The completed application, with the signature of the College physician and the test officer, indicating health and proficiency clearances, shall be returned to the Elementary Teacher Education office by October 15 or March 1 of the semester prior to student teaching.

Prior to elementary student teaching, candidates shall have completed the following: Ed. Psych. 301, El. Ed. 310, El. Ed. 440, El. Ed. 450, El. Ed. 460, El. Ed. 470 and El. Ed. 480 with a grade of C or better in each course.

Students applying for and enrolling in elementary student teaching must have completed 12 units of course work at this College and have an overall grade point average of 2.15 or higher. All remedial courses must be completed prior to filing the application for elementary student teaching.

Any exceptions to established policy must be approved by the Elementary Teacher Education Committee.

Following application, the Office of Admissions and Records checks each student's record to determine his remaining course requirements and his scholarship standards. Members of the faculty are asked to rate applicants. The Coordinator of Elementary Teacher Education reviews data and material relating to admission to student teaching.

The Elementary Teacher Education Committee, upon the Coordinator's recommendation, decides to accept, defer or reject the student for student teaching. The student is notified by the Elementary Teacher Education office of committee action, his teaching assignment, required meeting and other matters pertaining to student teaching.

6. Application for credential. (See previous section.)

Authorization for Service

The standard teaching credential with a specialization in elementary teaching under the Rodda Law shall authorize the holder to:

1. Teach in kindergarten or grades 1 to 9, inclusive, except courses in special education, as follows:

(a) A person with an academic major and any minor may teach any subject in kindergarten and in grades 1 to 9, inclusive.

(b) A person with an academic major other than a diversified major, but without a minor, may teach any subject in kindergarten and in grades 1 to 9, inclusive, in a self-contained class. He may teach in a departmentalized class in grades 7, 8 and 9 the subject in which he has a major. He may teach in a departmentalized class in grades 7, 8 and 9 any subject in which he has nine semester hours of upper division or graduate course work when the governing board of the district maintaining such grades by resolution specifically authorizes him to teach the subject. The authorization of the governing board shall remain valid for one year and may be renewed annually.

For the purposes of this section, a "self-contained class" is a class in which most of the subjects in one grade are taught by one teacher and a "departmentalized class" is a class in which one subject or one group of closely related subjects is taught by one teacher.

(c) A person with other than an academic major may teach in kindergarten or in grades 1 to 9, inclusive, only in subject matter areas in which he has a major or a minor.

2. Teach, in classes organized primarily for adults, any courses.

3. Teach in kindergarten or in grades 1 to 14, inclusive, any courses in an area in which the holder has completed specialized preparation.

Note: A professional program for reading specialists is offered in the Division of Education. Information available in that office.

STANDARD TEACHING CREDENTIAL WITH A SECONDARY SPECIALIZATION

General Requirements

1. A baccalaureate degree or higher from an approved institution.

2. A fifth year (30 semester units) of college or university postgraduate education, taken at the upper division or graduate level, in an approved institution, or the equivalent of a fifth year of college or university education.* (Under certain conditions a student may postpone the completion of some requirements until after first employment. Details are available in the Department of Secondary Education.)

3. The following general education:

Note: Undergraduate students who are seeking a bachelor's degree and a standard secondary teaching credential and desire to complete the requirements in general education for both objectives should follow the general education pattern outlined on page 56.

* With a single subject major six units in the major field or six units in the minor field must be taken at the upper division or graduate level after completion of the bachelor's degree.

(a) Forty-five semester units of course work in four of the following six areas: (1) humanities (English, speech and philosophy), (2) social sciences (anthropology, economics, geography, history, political science and sociology), (3) natural sciences (biological and physical sciences), (4) mathematics, (5) fine arts (music, art and drama), and (6) foreign language.

(b) Two semesters of English composition or three semesters of English course work including a course in English composition. (Course work in English applies toward the humanities requirement above.)

(c) Completion of the requirement on the United States Constitution either by course work (Political Science 100 or 421) or by passing an examination. (Political Science 100 or 421 applies toward the social science requirement above.)

4. One of the following: (See lists below—Classification of Credentials Majors offered in relation to the secondary specialization.)

Note: The requirements for each major are listed under the Baccalaureate Degree Requirements in this Bulletin. Undergraduate students must complete all the requirements in the major for the bachelor's degree. Graduate students must complete the equivalent of the upper division requirements for their selected major offered at this College and such programs must include at least 24 upper division units in the major field.

The requirements for each minor are listed in the latter part of this Credential Section.

(a) *Academic Major with Minor—Both Commonly Taught in Public High School*

Any subject in List 1 may be used as a major. Note that comparative literature and physical science are interdepartmental majors and each must consist of 24 upper division units in the field with 15 upper division units in a single subject within the field shown in List 1A. The current majors in these two fields listed in the Bulletin meet these requirements. The authorization to teach will be in the subject in which the student has completed the 15 units. With a major in List 1 (academic) any subject in List 1A or List 2 may be used as a minor. According to current College policy no interdepartmental minors are offered. Thus, the student with this type of minor cannot secure the College-recommended credential and will do student teaching only in the major. All minors for the secondary credential require a minimum of 20 units.

(b) *Academic Major Commonly Taught in Public High School Without a Minor*

Any subject in List 1 may be used as a major without a minor, but since authorization to teach would be limited to the major, the student must recognize that in some fields such a practice would severely limit the student's opportunity to secure employment.

(c) *Nonacademic Major with Academic Minor, Both Commonly Taught in Public High School*

Any subject in List 2 except safety education may be used as a major. Such a subject must be accompanied by a minor which is academic from List 1A. Furthermore, the minor must contain 12 upper division units.

(d) *Nonacademic Major Not Commonly Taught in Public High School —Two Minors—Commonly Taught*

Any subject in List 3 may be used as a major. Such subjects must be supported by two minors from List 1A each of which must include 12 upper division units.

Note: Students majoring in subjects in List 1 or 2 which are currently in limited demand should consider having two minors from List 1A or List 2 which are in demand.

Classification of Credential Majors Offered in Relation to the Secondary Specialization

List 1 — Academic — Commonly Taught in Public High Schools

A. Single Subject Majors*

Art — Option III
Anthropology
Biology
Botany
Chemistry
Drama
Earth Science
Economics
English
Foreign Languages (one language)
Geography
Geology
History
Mathematics
Microbiology
Music
Philosophy
Physics
Political Science
Psychology
Sociology
Speech (general)
Zoology

B. Interdepartmental Majors

(Teaching authorization for these majors is in the single subject(s) in which the student has completed 15 units of upper division course work.)

Comparative Literature
Physical Science

List 2 — Nonacademic — Commonly Taught in Public High Schools

Business Education
Health Education
Home Economics
Industrial Arts
Journalism
Physical Education
Safety Education
Vocational Education

* For the secondary specialization with a single subject major, 6 units in the major field or 6 units in the minor field must be taken at the upper division or graduate level after the completion of the bachelor's degree.

List 3 — Nonacademic — Not Commonly Taught in Public High School

Business Administration**	Nursing
Criminology	Physical Therapy
Engineering	Recreation
Industrial Technology	Social Welfare

5. The following professional education courses:

Ed. Psych. 302 Adolescent Development and Learning 3

Sec. Ed. 310 American Secondary Schools 3

Sec. Ed. 421 Instruction and Evaluation in the Secondary School 3

Sec. Ed. 480 Observation and Participation in the Secondary School 2

(Waived if student (a) takes observation in an approved special methods course, or (b) obtains waiver from the Secondary Education Department based upon previous kinds of observation or participation experiences.

Special Methods 0–4

(Number of units required varies with the major department. Most departments have a three unit course. Natural sciences and mathematics require none. Art requires three and business education four.

The required professional sequence must be completed before enrollment for student teaching with the exception of certain special methods courses designated to be taken concurrently with student teaching.

Secondary Teacher Education Policies and Procedures

The secondary education curriculum is designed to provide the professional preparation of students desiring to teach in the public schools of California at the secondary level (grades 7–12 inclusive). A student's failure to meet any of the responsibilities listed below as early as possible can result in delay of student teaching or granting of the credential.

1. Admission to Secondary Teacher Education.

Each candidate for this specialization must file application and be admitted to the program. (See Admission to Teacher Credential Program.)

2. Completion of College Requirements.

3. Program Approval by Major Department.

The candidate should consult with an adviser in his major as early as possible. He should be familiar with departmental major requirements described in the Bulletin and in the section entitled Credential Majors and Minors. He is also responsible for consulting his department to plan a program leading to student teaching and to the credential. Departmental recommendation is necessary for student teaching. Transfer students are required to complete at least six units in the major at this College prior to student teaching unless waived by the major department.

** Will be considered a business education credential major if it includes Business Education 100B, 302 and 320.

4. Program Approval by Minor Department.

The candidate also should consult with an adviser in his minor department. Early consultation, especially in departments without structured minors, is essential to ensure selection of courses providing minimum preparation for possible future teaching assignments. Departmental recommendation is necessary for student teaching.

5. Meeting Grade Point Requirements.

For the credential the scholarship requirement is an average of 2.0 (C) on the student's entire college record, as well as in the programs of the major and the minor. In addition, the student must attain a grade of C or above in each course in the professional education sequence. Secondary student teaching candidates must meet the minimum scholastic requirement of an overall grade point average of 2.5 (C+) or an upper division and graduate grade point average of 2.75 (B—) upon application. Applicants who fail to meet either of these requirements may petition through their major department for admission to student teaching by offering evidence of compensating factors. The Secondary Teacher Education Committee will act upon such petitions if evidence exists that compensating factors merit admission to student teaching. Under no circumstances will a petition be accepted from a candidate whose overall grade point average falls below 2.25.

6. Completion of English and Speech Proficiency Tests.

Students should arrange to complete proficiency tests as soon as possible, as the tests and remedial work must be completed before application to student teaching. In no case may the initial testing be delayed beyond the registration period of the semester of application to student teaching. An exception to completion of remedial work before application may be granted only to transfer students who first register at the College one semester before they intend to register for student teaching. Proficiency tests and remedial requirements may be completed as follows:

English: The English proficiency requirement can be met either by attaining a satisfactory score on an English proficiency test given by the Testing Office or by the satisfactory completion of English 001 or 011.

Speech: The speech proficiency test requirement can be met by providing assurance of effective speaking, oral reading and voice control through satisfactory performance in a speech test given by the Speech Department. The test may be taken in a general education speech course or other speech performance course at this College or during the semester by special appointment in the Speech and Hearing Clinic. Should the student fail to meet minimum standards of performance, he must take prescribed remedial work to overcome deficiencies.

7. Application for Student Teaching.

Application forms for student teaching are available in the office of the Coordinator of Secondary Education. The completed application with signatures from the major and minor department credential advisers, the Testing Office and the Student Health Service must be returned to the office of Secondary Teacher Education by October 1 or March 1 of the semester prior to student teaching. Following the application the Office of Admissions and Records checks each student's record to determine his remaining course requirements and his scholarship standards. Faculty members of the major and minor departments are asked to rate applicants. The Secondary Teacher Education Committee then reviews all data and material, assesses the student's personality and decides whether to accept, defer or reject the student for student teaching. The student will be notified by the Secondary Teacher Education Office of his teaching assignment, required meetings and other matters pertaining to student teaching. Full mornings or afternoons from noon shall be reserved for the student teaching assignment. The College reserves the right to determine the specific assignment for student teaching.

8. Application for Credential. (See previous section.)

Authorization for Service

The standard teaching credential with specialization in secondary teaching authorizes the following service: (a) teaching in grades 7 through 12 any subjects named as majors or minors on the credential, (b) teaching any subjects in classes organized primarily for adults, (c) teaching in kindergarten and grades 1 through 14 any courses in which the holder has a minor in an area of specialized preparation named on the credential, (d) if the credential lists both a major and a minor the district governing board may by resolution on a yearly basis authorize the teaching of any subjects in grades 7 through 12 except in classes for exceptional children.

If the credential does not list a minor, the governing board may by resolution on a yearly basis, authorize the teaching of any subjects in grades 7 through 12, except in classes for exceptional children, in which the holder has completed nine or more semester units of upper division or graduate course work; (e) the district governing board may by resolution on a yearly basis authorize the teaching in grades 13 and 14 of the major or minor listed on the credential, (f) serving as a librarian in kindergarten and grades 1 through 14 if the specialized area of librarianship is listed on the credential as a minor, (g) teaching music or art in the elementary grades if the subject is listed as a major or minor on the standard teaching credential with specialization in secondary teaching.

Note: An internship program leading to the secondary specialization is currently being developed. Information is available in the Secondary Education Department.

STANDARD TEACHING CREDENTIAL WITH A JUNIOR COLLEGE SPECIALIZATION

General Requirements

1. A master's or doctor's degree in a subject matter area commonly taught in the junior college.
2. One of the following:
   (a) An academic major consisting of a master's degree in a single subject selected from List 1. (See Graduate Bulletin.)
   (b) An academic major consisting of 12 or more semester hours of graduate work in a single subject constituting part of the course work for an interdepartmental master's degree selected from List 2. Authorization for teaching is limited to the single subject in which the applicant has earned 12 semester hours of graduate work as a part of the interdepartmental degree major.
   (c) A nonacademic master's degree and any academic minor. Majors selected from List 3 which are offered for the master's degree at this College must be supported by an academic minor selected from List 4. Requirements for the minor are listed in the latter part of this section. The minor must include a minimum of 12 units of upper division or graduate course work.

List 1 — Academic — Single Subject Commonly Taught in Public Junior College

Art
Biology
Chemistry
Drama
English
French
Geography
History
Mathematics
Microbiology
Music
Physics
Political Science
Psychology
Spanish
Speech

List 2 — Academic — Interdepartmental — Commonly Taught in Public Junior College

Physical Science
Social Science

List 3 — Nonacademic — Commonly Taught in Public Junior College

Business Administration
Civil Engineering
Electrical Engineering
Home Economics
Industrial Arts
Mechanical Engineering
Physical Education
Recreation Administration

List 4 — Academic — Single Subject Minors

Art	History
Anthropology	Mathematics
Biology	Microbiology
Botany	Music
Chemistry	Philosophy
Drama	Physics
Economics	Political Science
English	Psychology
Foreign Languages (one language)	Sociology
Geography	Speech (general)
Geology	Zoology

3. Completion of the U.S. Constitution requirement by taking Political Science 100 or 421 or by examination.

Junior College Teacher Education Policies and Procedures

The junior college specialization is designed to meet the requirements for the standard teaching credential and to prepare the candidate to teach at the junior college level.

1. Admission to the Program.

Each candidate for the junior college specialization must file application and be admitted to the program. (See Admission to Teacher Credential Program.)

2. Completion of College Requirements.

(The College recommended credential does not require professional education courses nor student teaching, but these experiences are offered for those who feel that their opportunities for placement would thereby be enhanced.)

3. Program Approval.

Each applicant will file a program with his major department. The department will make recommendations concerning admission to the Secondary Teacher Education Committee, which will make the final decision.

4. Professional Education for Junior College Teaching if Taken as an Elective.

A program of student teaching in a junior college (four units) is available as an elective for students who desire this experience. The student shall be responsible for the teaching of six units of junior college courses or the equivalent and observation of classes and counseling students for a minimum of three hours per week, or such substitution for student teaching in a junior college as shall be approved by the State Department of Education and the College.

Course work in professional education prerequisite to student teaching:

Ed. Psych. 302 Adolescent Development and Learning 3
Sec. Ed. 510 The Junior College 2
Special Methods 1-4
(Special methods courses in teaching the major subject as provided by the major department. Course numbers and unit value will vary with different departments.)

Ed. Psych. 302 and Sec. Ed. 510 should be taken the semester before student teaching; under special circumstances, with approval of major department, one or the other may be taken concurrently.

The steps for admission to junior college student teaching are similar to those for the secondary specialization with the following exception: a 3.0 (B) average in all graduate work is required.

5. Application for Credential. (See previous section.)

Authorization for Service

The standard teaching credential with a specialization in junior college teaching authorizes the following service: (a) teaching in grades 13 and 14 any subjects listed as majors on the credential; in addition, the credential issued will authorize teaching in grades 11 and 12 the subjects listed as majors if a three semester hour course in student teaching or one year of full time teaching experience in any grades 9 through 12 has been completed, (b) teaching any subjects in classes organized primarily for adults, (c) the district governing board may by resolution on a yearly basis authorize the teaching in grades 13 and 14 of any subjects listed as minors on the credential, (d) teaching in kindergarten and grades 1 through 14 any courses in which the holder has a minor in an area of specialized preparation listed on the credential, (e) serving as a librarian in kindergarten and grades 1 through 14 if the specialized area of librarianship is listed on the credential as a minor.

GENERAL EDUCATION PROGRAM RECOMMENDED FOR UNDERGRADUATE STUDENTS SEEKING A BACHELOR'S DEGREE

and a

Standard Teaching Credential With Specializations in Elementary or Secondary Teaching

49 units of course work in general education distributed as follows:*
1. Social Sciences—Nine units including the following: History 171A or 171B (three units) or History 161A,B (six units) or any upper

* Since four units of physical education and health education are institutional requirements for the bachelor's degree and are not acceptable among the 45 units of general education for the credential, 49 units are recommended to complete both general education programs. Six of the 49 may be applied toward the major or minor.

division U.S. history course; Political Science 100 (three units) or Political Science 421 (three units) and electives to total nine units selected from courses in anthropology, economics, geography, history, political science and sociology.

2. Natural Science—Nine units which must include at least one biological science course (excluding Biology 301) and one physical science course. Two semesters of laboratory science are required.

3. Literature, Philosophy or the Fine Arts—Six units, three of which must be in literature or philosophy. Any literature course may apply except English 184, 481 and 482. All philosophy courses may apply. Courses in the fine arts must be selected from the departments of art, drama and music. Special methods courses are not applicable.

4. English—Six units of English composition including English 100 (three units) and English 101 (three units) or English 317 (three units). English 317 should be taken as the second semester of English composition only by students who are majoring in a field that specifically requires it.

5. Speech—Three units selected from Speech 130 (three units), 131 (three units), 132 (three units) or 133 (three units).

6. Psychology—Psychology 100 (three units).

7. Physical Education—Two units including four successive semesters of physical education activity (½ unit each).

8. Health Education and Safety—Health Education 110 (two units).

9. Nine additional units to total 49 selected from areas 1 through 6 above, foreign language, mathematics and fine arts. Candidates for the elementary specialization should take Mathematics 110 and complete course work either in fine arts or in a foreign language. Candidates for the secondary specialization should complete course work in one of the following areas: fine arts, mathematics or foreign language.

STANDARD DESIGNATED SUBJECTS CREDENTIAL IN PUBLIC SAFETY AND ACCIDENT PREVENTION INCLUDING DRIVER EDUCATION AND DRIVER TRAINING

Admission to Program

The student planning to enroll in the Standard Designated Subjects Credential in Public Safety and Accident Prevention requests admission to the program by securing an application blank from the Health Education and Safety Department. The application must be filed with the department at the time of registration for the first required credential course in safety education.

Specific Requirements

1. A baccalaureate degree from an approved institution.
2. Thirteen units in safety education including: Safety Education 220, 325, 440, 445, 460.
3. A valid driver's license issued by the California Department of Motor Vehicles and an extensive driving record free of repeated accident experience and traffic law violations as verified by the Department of Motor Vehicles.

Authorization for Service

This standard designated subject credential authorizes the holder to teach public safety and accident prevention including driver education and driver training full time at all grade levels and in classes for adults.

STANDARD DESIGNATED SERVICES CREDENTIAL WITH A SPECIALIZATION IN PUPIL PERSONNEL SERVICES

Admission to the Program

The credential in pupil personnel services is required of persons serving a guidance function beyond the advisory duties customarily performed by classroom teachers and who are authorized to serve in one of the following areas: pupil counseling, including rehabilitation counseling, child welfare and attendance, school social work, school psychometry and school psychology.

Admission to this program is by application to the Educational Psychology and Social Foundations Department in the Division of Education. A program of courses must be completed with a department adviser during the first semester of enrollment. Candidates for field work or practicum courses must apply prior to March 1 for the fall and October 15 for the spring semester. An acceptable master's degree must be completed before the credential can be authorized.

Specific Requirements

1. A master's degree in an academic area or in psychology or counseling (education with an emphasis in educational psychology and social foundations) and specific course work described below or: a master's degree in social work or rehabilitation counseling or a certificate as a certified psychologist with a major in clinical, school or counseling psychology.
2. The applicant must complete 60 units of postgraduate work, substantially academic or clinical, in pupil personnel services. The applicant who has three years of full time teaching experience may substitute 30 units of postgraduate work in areas other than pupil personnel services.

General Prerequisites: Ed. Psych. 301 or 302, 305, Ed. Psych. 319 or Psychology 210 or Sociology 255.

Basic Requirements: Ed. Psych. 350, 430, 536 or 537, 605, 615, 631 or 632, Ed. Psych. 311 or Psychology 370 or 356, Psychology 473 or Sociology 362, Ed. Psych. 320 or Psychology 315, Ed. Foun. 585 or Psychology 453 or Sociology 336, Ed. Psych. 520 or Sociology 445 or Psychology 311.

Approved Electives: Selected from courses in the Department of Educational Psychology and Social Foundations, Psychology Department and Sociology Department with approval of adviser. The following courses may also be selected as electives: Anthropology 411, Elementary Education 640, Speech 461 and 464.

3. The applicant must complete 480 clock hours (10 units) of supervised field experience in pupil personnel services at least one-half of which is earned in a public or private school or 240 clock hours (five units) of field work and one year of full time pupil personnel experience in public or private schools or 240 clock hours (five units) of field work and three years of full time teaching experience.

Field Work Program: Ed. Psych. 541, 542A or B or C, Ed. Psych. 545 or Psychology 678 or Sociology 460A or B.

4. Applicants seeking the authorization for school psychometry and school psychology must complete course work in theory and supervised practice in administering and interpreting the following: diagnostic tests of learning difficulties, individual tests of intelligence, tests for determining deviation from the normal and case studies of children who vary from the normal.

School Psychometrist Program: Psychology 474, Ed. Psych. 525, 526, 527.

5. The applicant must be verified by the College to be a competent school psychologist in order to secure the psychologist authorization.

Authorization for Service

Authorizations for service are specific to the pattern of the student's elective plan. Plans I and II require teaching experience and limit service to pupil counseling, child welfare and attendance and school psychometry. Plans III and IV include all specialties with the exception of school psychology which is included in Plan V.

Plan I—With Teaching Experience (Designated services of pupil counseling including rehabilitation counseling and child welfare and attendance)

Requirements are:

1. A master's degree or higher from an approved institution in an academic area or in counseling or psychology.
2. Three years of successful teaching experience.
3. Sixty units of postgraduate work at the upper division or graduate level including at least 30 units in the area of pupil personnel services as specified in the general program listed above.

4. Five units of supervised field experience in the field program specified.

Plan II—School Psychometry with Teaching Experience (Designated services of pupil counseling including rehabilitation counseling, child welfare and attendance and school psychometry)
Requirements are:

1. Completion of the requirements in Plan I.
2. Completion of the requirements for the school psychometrist program as specified above.

Plan III—Without Teaching Experience (Designated services of pupil counseling, including rehabilitation counseling, child welfare and attendance and school social work)
Requirements are:

1. A master's degree or higher from an approved institution in an academic subject area or in counseling or psychology.
2. Sixty units of postgraduate work at the upper division or graduate level in the area of pupil personnel services including the general program specified above and approved electives to complete 60 units.
3. Ten units of supervised field experience in the field program specified above.

Plan IV—School Psychometry without Teaching Experience (Designated services of pupil counseling including rehabilitation counseling, child welfare and attendance, school social work and school psychometry)
Requirements are:

1. Completion of the requirements in Plan III.
2. Completion of the requirements for the school psychometrist program as specified above.

Plan V—School Psychology (Designated services of pupil counseling including rehabilitation counseling, child welfare and attendance, school social work, school psychometry and school psychology)
Requirements are:

1. Completion of the requirements in Plan IV.
2. Completion of a minimum of 24 units, of which six are at the graduate level, in psychology courses.
3. Verification by the Educational Psychology and Social Foundations Department that the applicant is a competent school psychologist.

Internship Program (Designated services credential with a specialization in pupil personnel services)

Admission to the Program

Students make application through the Department of Educational Psychology and Social Foundations by March 1 for the fall semester and by October 15 for the spring semester. Preference will be given to

students with a grade point average of 3.0 in undergraduate and 3.2 in graduate work. The school district in which the student will be employed will participate in the selection of the applicant.

STANDARD DESIGNATED SERVICES CREDENTIAL WITH A SPECIALIZATION IN HEALTH TO SERVE AS A PUBLIC SCHOOL NURSE

Admission to the Program

Students planning to enroll in the Standard Designated Services Credential with a Specialization in Health to serve as a school nurse should secure an application from the Nursing Department at registration.

Requirements

1. Five years of professional preparation in nursing to include:
   (a) A bachelor of science degree in nursing (see Nursing in this Bulletin)
   (b) Additional course work to include the following 24 units: Nursing 471, 481, 491; Speech 473; Health Education 430; Psychology 370; Ed. Psych. 430.
2. Possession of a valid license issued by the California Board of Nurse Education and Nurse Registration, Title 16, California Administrative Code, Chapter 14, 1409.
3. Possession of a Public Health Nursing Certificate issued by the California State Department of Health.

Authorization for Service

This credential authorizes the holder to serve in the public schools as a nurse and to perform the health services authorized by the license, certificate or registration that the governing board employs him to perform.

STANDARD SUPERVISION CREDENTIAL

The graduate program in educational administration provides specialized training toward the Standard Supervision Credential for public school service as a principal, supervisor, consultant, coordinator or equivalent supervisorial or intermediate administrative position. This credential authorizes service in elementary, secondary and junior college depending upon the area of specialization.

Admission to Program

Admission to this program is by application to the Educational Administration Department. Students in this program should seek program advisement early in their planning from a departmental adviser.

Specific Requirements

1. Six years, or its equivalent, of college or university education in an approved institution including two years (60 units) of acceptable postgraduate work.

2. A master's degree. If the degree is not in an academic subject, the two years of postgraduate education shall include 12 units in an academic area(s). (Service as a principal is authorized only if the holder has a major in an academic subject area and only if permitted by statute.)

3. Possession of a valid standard teaching credential.

4. Five years of successful full time classroom teaching in the public elementary or secondary schools or in private schools of equivalent status.

5. Prior to enrollment in this program the student shall make an appointment with a faculty member of the department for program approval and secure official consent of the department to enroll in the program.

6. The following professional courses are required for the credential and should be taken in sequence or concurrently:

All Specializations

Ed. Admin. 541 Principles and Organization of School Administration 3
Ed. Admin. 543 Legal Aspects of Administration 2
Ed. Admin. 547 Techniques of Public School Personnel Management 2

Elementary Specialization

Ed. Admin. 551 Organization and Administration of Elementary Schools 3
Ed. Admin. 553 Instructional Aspects of Administration in Elementary Schools 3
Ed. Admin. 681 Field Work in Administration-Elementary 3

Secondary Specialization

Ed. Admin. 561 Organization and Administration of Secondary Schools 3
Ed. Admin. 563 Instructional Aspects of Administration in Secondary Schools 3
Ed. Admin. 682 Field Work in Administration-Secondary 3

Junior College Specialization

Ed. Admin. 571 Organization and Administration of Junior Colleges 3
Ed. Admin. 573 Instructional Aspects of Administration in Junior Colleges 3
Ed. Admin. 683 Field Work in Administration-Junior Colleges 3

Recommended Electives

Ed. Admin. 545 Financial Aspects of Administration 2
Ed. Admin. 549 School Housing Administration 2
Ed. Admin. 590 Special Problems in Educational Administration 1-4

7. Application for advancement to candidacy in educational administration should be made after the student has completed the first seven units of the program. Final decisions on acceptance rest with the Educational Administration Department.

8. Application for field work and approval of the Educational Administration Department shall constitute acceptance to the field work program. Applications are due by October 15 and March 1 prior to the semester of enrollment (except by petition to the Educational Administration Department). Application forms are available in the Educational Administration Office.

9. Students who wish to receive their credential through the College must file the credential application card with the Office of Admissions and Records one semester prior to completing all credential requirements.

10. It is recommended that courses from areas outside of professional education (anthropology, economics, political science, sociology, etc.) be included in the 60 units of postgraduate work required for the credential.

Authorization for Service

The Standard Supervision Credential authorizes service as follows: (1) principal (including president), (2) vice-principal (including vice-president), (3) assistant principal (including assistant president), (4) supervisor (including consultant and coordinator), (5) dean, (6) registrar, and (7) a position the duties of which are any of the following: (a) administer, supervise, coordinate or direct the production, evaluation, distribution or instruction in the use of instructional aids including audio-visual, electronic or other modern educational media, or (b) administer or arrange teachers' institutes. It is important to note that this credential authorizes service in any school covered by the standard teaching credential with the exception that to serve as a principal the holder must have a major in an academic area.

A person who plans on obtaining the Standard Administration Credential must have a master's degree in an academic subject. Academic subject area refers exclusively to the natural sciences, the social sciences (other than education and educational methodology), the humanities, mathematics and the fine arts.

The State Board of Education may consider a given subject major, whatever its title, to be an academic subject major if it finds that at the specific institution the required courses and the content of such courses within the major are equivalent to those of an academic subject major.

Note: Courses for the Standard Supervision Credential in School Health Services, Pupil Personnel Services and Special Education are offered by the Department of Educational Administration. Requirements for each of the above credentials are available in the department office. Candidates are enabled to take the required course work at the College but must make direct application for the credential to the Commission on Credentials, California State Department of Education, Sacramento.

SPECIALIZED PREPARATION TO TEACH THE MENTALLY RETARDED

Admission to Program

Admission to this program for the credential to teach the mentally retarded is by application to the Educational Psychology and Social Foundations Department and assignment to an adviser.

Specific Requirements

All required courses for this specialized preparation may be taken concurrently with the program leading to a standard teaching credential with an elementary, secondary or junior college teaching specialization. The following credential requirements apply:

1. Completion of the requirements for the standard teaching credential with either an elementary, secondary or junior college teaching specialization.

   (a) Specialized preparation to serve as a teacher of exceptional children (mentally retarded) may be substituted for a minor only when the major is in an academic subject.

   (b) Completion of Ed. Psych. 484M (Student Teaching—Mentally Retarded 4) which will satisfy one-half of the student teaching requirement for a standard teaching credential.

   (c) Substitution: (1) six units in 2 below may be substituted for six units of professional preparation for the Standard Teaching Credential with a Specialization in Elementary Teaching, (2) four units required in 2 below may be substituted for four units of professional preparation for the Standard Teaching Credential with a Specialization in Secondary Teaching.

2. 22 units of specialized preparation to include the following:

Prerequisites: Ed. Psych. 301 or 302, 305.

Requirements: Ed. Psych. 350, 435, 461, 462, 463; Speech 361; Art 306A or B.

Electives: Selected from courses in educational psychology with approval of adviser to total 22 units. Also included are the following courses: Art 306A or B (whichever is not taken as a requirement), El. Ed. 620, 630, 640; Psychology 356, 370; Speech 461, 462, 663; Physical Education 438.

Authorization for Service

A person completing this specialized preparation will be authorized to teach mentally retarded children in elementary or secondary schools.

Credential With Partial Fulfillment of Requirements

Nine units selected from Ed. Psych. 461, 462, 463; Art 306A or B must be completed to authorize the credential with a partial fulfillment of requirements. Students must apply directly to the Commission on Credentials, California State Department of Education, Sacramento.

SPECIALIZED PREPARATION IN THE AREA OF SPEECH AND HEARING HANDICAPPED

Admission to Program

The student planning to enroll in the specialized preparation in the area of speech and hearing handicapped should file his application with the Speech Department early in his college program to insure proper advisement. Standards for formal acceptance into the program are the same as those outlined under the admission requirement for the standard teaching credentials.

Specific Requirements

All required courses for this specialized preparation may be taken concurrently with the program leading to a standard teaching credential with an elementary, secondary or junior college teaching specialization. The following credential requirements apply:

1. Completion of the requirements for the standard teaching credential with either an elementary, secondary, or junior college teaching specialization.

   (a) In order to complete this credential program, it is necessary to select a major in an academic subject area commonly taught in the public elementary or high schools. Specialized preparation in the area of speech and hearing handicapped is substituted, then, for a minor. Students should consult with Speech Department credential advisers before selecting an academic major.

   (b) Completion of Speech 469 (three units) and Ed. Psych. 484S (four units) fulfills the student teaching requirements for a standard teaching credential.

   (c) Six units of the requirements listed in 2 below may be substituted for six units of professional preparation for the standard teaching credential with specialization in elementary teaching. Students should consult Speech Department advisers for the specific education courses required.

   (d) Four units of the requirements listed in 2 below may be substituted for four units of the professional preparation for the standard teaching credential with specialization in secondary teaching. Students should consult Speech Department advisers for the specific education courses required.

2. Forty-six units of specialized preparation to include the following: Speech 271, 361, 371, 448, 461, 462, 463, 464, 469 (three units), 471, 473, 477, Psychology 370, Ed. Psych. 350, 484S (four units).

Authorization for Service

1. A person completing this specialized preparation with either a standard teaching credential with a specialization in elementary or in secondary teaching will be authorized to teach speech and hearing handicapped children in kindergarten and grades 1 through 14, inclusive.

2. A person completing this specialized preparation with the standard teaching credential with a specialization in junior college teaching will be authorized to teach speech and hearing handicapped children in grades 7 through 14, inclusive.

MAJORS AND MINORS FOR THE STANDARD TEACHING CREDENTIAL

Subject field	Acceptable as a MAJOR for			Acceptable as a MINOR for[5]		
	Elem.	Sec.[4]	J.C.	Elem.	Sec.	J.C.
Anthropology	yes	yes[1]	[2]	yes	yes[1]	yes
Art (See appropriate option)	yes	yes	yes	yes	yes	yes
Biology	yes	yes	yes	yes	yes	yes
Botany (See Biology)						
Business Education	no[3]	yes[5]	yes[5]	no[6]	yes	yes
Chemistry	yes	yes	yes	yes	yes	yes
Comparative Literature	yes	yes	[2]	no	no	no
Drama	yes	yes	yes	yes	yes	yes
Earth Science	yes	yes	[2]	no	no	no
Economics	yes	yes	[2]	yes	yes	yes
English	yes	yes	yes	yes	yes	yes
French	yes	yes	yes	yes	yes	yes
Geography	yes	yes	yes	yes	yes	yes
Geology	yes	yes	[2]	yes	yes	yes
German	yes	yes	[2]	yes	yes	yes
Health Education	no[3]	yes[5]	[2]	yes	yes	yes
History	yes	yes	yes	yes	yes	yes
Home Economics	no[3]	yes[5]	yes[5]	yes	yes	yes
Industrial Arts	no[3]	yes[5]	yes[5]	yes	yes	yes
Journalism	no[3]	yes[5]	[2]	no[6]	yes	yes
Mathematics	yes	yes	yes	yes	yes	yes
Microbiology	yes	yes[1]	yes	yes	yes[1]	yes
Music	yes	yes	yes	yes	yes	yes
Philosophy	yes	yes[1]	[2]	yes	yes[1]	yes
Physical Education	no[3]	yes[5]	yes[5]	yes	yes	yes
Physical Science	yes	yes	yes	no	no	no
Physical Therapy	no	no	no	no	no	no
Physics	yes	yes	yes	yes	yes	yes
Political Science	yes	yes	yes	yes	yes	yes
Psychology	yes	yes[1]	yes	yes	yes[1]	yes
Recreation	no[3]	yes[7]	yes	no[6]	no[6]	yes
Safety Education	no[3]	no	[2]	yes	yes	yes
Sociology	yes	yes[1]	[2]	yes	yes[1]	yes
Spanish	yes	yes	yes	yes	yes	yes
Speech (general)	yes	yes	yes	yes	yes	yes
Zoology (See Biology)						

[1] Student can qualify for secondary specialization with this major or minor, but the single subject as such is rarely taught in the secondary schools.
[2] Master's degree in this field not currently offered at this College.
[3] This subject is defined as nonacademic. If a student takes this subject for the elementary specialization, he is authorized to teach only in his major and minor.
[4] For the secondary specialization with a single subject major, six units of the major or minor must be taken at the graduate level. Comparative literature, and physical science are not single subject majors.
[5] A minor is required only for credential candidates who major in a nonacademic subject. All or part of the minor requirements may be completed during the fifth year.
[6] Minors must be commonly taught in the public schools at the level of specialization.
[7] This major must be supported by two minors in subjects commonly taught in the public high schools.

Note to Current Credential Holders:

The holder of a valid California regular general elementary, general secondary or junior college teaching credential needs to complete only the specialized area of preparation specified previously to secure a standard teaching credential valid for life on the level to correspond to his basic teaching credential (Education Code Section 13197.55).

MINORS FOR THE STANDARD TEACHING CREDENTIAL

Anthropology

Minor Requirements. The minor in anthropology for the elementary, secondary and junior college specialization requires 20 units and must include:

Lower Division: Anthropology 110, 120.

Upper Division: Three units selected from each of the following combinations: (a) Anthropology 303, 305, 307, 411, 413, 415; (b) Anthropology 300, 321, 322, 323, 332, 333, 334, 336; (c) Anthropology 341, 342, 345; six units of anthropology electives.

Art

Major for the Secondary Teaching Credential. Other specific requirements are Art 401A,B which must be completed for the A.B. degree and Art 499P and Sec. Ed. 350A which may be completed in the A.B. program or during the fifth year.

Major for the Elementary Teaching Credential. Other specific requirements which must be completed for the A.B. degree are Art 300, 401A,B.

Minor Requirements.

Elementary Specialization: 20 units which must include Art 300, 401A,B and a minimum of one course from each of the following groups: (a) art history, (b) design, (c) drawing, illustration, painting, printmaking, (d) crafts, ceramics, jewelry and sculpture; art electives which may include Art 301, 303, 305A-B, 308A-B.

Secondary Specialization: 20 units which must include Art 401A,B, 499p; a minimum of one course from each of the following groups: (a) art history, (b) design, (c) drawing, illustration, painting, printmaking, (d) crafts, jewelry, ceramics, sculpture; art electives which may include Art 301, 303, 305A-B, 308A-B.

Junior College Specialization: 20 units which must include Art 100, 112A,B, 401A,B, 499p; minimum of six units in one of the following groups: (a) art history, (b) design, (c) drawing, illustration, painting, printmaking, (d) crafts, jewelry, ceramics, sculpture.

Biology

Minor Requirements. The minor in biology with a specialization in elementary, secondary or junior college teaching must include six to eight units in the physical sciences, approved by the Biology Department and Botany 210, 211 or 212, Zoology 210A-B, seven additional units in the biological sciences, approved by the Biology Department when accompanied by an academic major or 12 additional upper division units in the biological sciences, approved by the Biology Department when accompanied by a nonacademic major.

Business Education

Minor Requirements. A minimum of 20 units which must include:

Secretarial: Bus. Ed. 100B, 110B, 130, 302 or 413, 312, 320, Accounting 200A-B.

Non-Secretarial: Bus. Ed. 100B, 130, 320, Accounting 200A-B, Finance 222, 302, Marketing 300.

In order to do secondary student teaching in business, students must select methods courses in business with the approval of the Business Education Department. A mastery of any business subject required for the business education minor may be determined by examination. If such determination is made, a sufficient number of units in other business subjects must be completed to satisfy the 20-unit requirement in business courses.

Chemistry

Minor Requirements. A minimum of 20 units which must include:

Lower Division: Chemistry 111A-B, 251, 251L.

Upper Division: Minimum of six units selected from Chemistry 321A-B, 327, 328, 371A-B, 373, 377, 431, 432, 441A-B, 443, 451 or 496.

Drama

Major Requirements Beyond Degree Requirements.

Elementary and Secondary Specializations: Drama 216A (in residence), 316A (in residence) may be taken to satisfy lower division Drama 216A.

Junior College Specialization: Unless completed prior to the bachelor's degree, Drama 348, 426 and 476 are required.

Minor Requirements. A minimum of 20 units which must include:

Lower Division: Drama 114, 124, 242.

Upper Division: Drama 314, 372, or 374; elementary candidates, seven units which must include Drama 352, 354 and approved drama electives; secondary candidates, seven units selected from Drama 321, 322, 340A (one unit), 342A, 346, 348, 474.

Economics

Minor Requirements.

Elementary and Secondary Specialization. 20 units which must include:

Lower Division: Economics 200, 201 or 300.

Upper Division: From the following groups select one course from (a), one from (b) and one from (c) plus additional electives from any group to total at least 20 units in economics. (a) Economics 310, 330, 332, (b) Economics 311, 320, 350, 420, (c) Economics 368, 412, (d) Economics 340, 361, 365, 366, 370, 380, 480.

Junior College Specialization. 20 units which must include:

Lower Division: Economics 200, 201 or 300.

Upper Division: Economics 310, 311, 368 or 412; three courses selected from Economics 320, 330, 332, 340, 350, 361, 365, 366, 370, 380, 420, 480.

English

Minor Requirements. A minimum of 20 units which must include: (a) six units selected from English 100, 101, 202, 204, 300, 405, 406, (b) three units selected from English 320, 321A-B, (c) elementary candidates, English 481; secondary candidates, English 482, (d) six units selected from English 250A,B, 370A,B, (e) English electives to total 20 units except that English 316, 317, 413, and 483 will not be accepted.

French

Minor Requirements. A minimum of 20 units which must include: French 312, 313, 314.

Geography

Minor Requirements. A minimum of 21 units which must include:

Lower Division: Geography 100, 140, 152 or equivalents.

Upper Division: Geography 306, 380, 440; one course selected from Geography 304, 444, 452, 466, 470.

Geology

Minor Requirements.

Elementary and Secondary Specializations: 20 units which must include:

Lower Division: Geology 101, 220.

Upper Division: Eight units of geology.

Junior College Specialization: Requirements are the same as listed above except four additional upper division units in geology are required to make 20 units.

German

Minor Requirements. A minimum of 20 units which must include: German 312, 313, 314.

Health Education

Minor Requirements. A minimum of 20 units which must include:

Lower Division: Microbiology 101.

Upper Division: Health Education 323, 325, 327, 430, 440; Home Economics 430; Safety Education 330.

History

Minor Requirements. A minimum of 21 units which must include:

Lower Division: A minimum of six units selected from History 131A,B, 151A,B, 181A,B.

Upper Division: A minimum of 12 units (six units each selected from two of the following areas), (a) ancient and medieval, (b) modern European, (c) British, (d) United States, (e) Latin American, (f) Far Eastern, (g) Russian history.

Home Economics

Minor Requirements. The minor in home economics requires a minimum of 20 units including one course in each of the following areas: (a) child development and family relations, (b) family finance and management, (c) food and nutrition, (d) housing and home furnishings, (e) textiles and clothing. Additional courses must be taken in one or more of these areas. Students selecting this minor must consult an adviser in the Home Economics Department to plan the sequence of courses.

Industrial Arts

Additional Requirements in the Major for the Secondary Specialization. The major in industrial arts for the secondary specialization is the same as for the bachelor of arts degree, with the additional requirement that the candidate must select one area of concentration, 13 upper division units, from the following: (a) woods, (b) metals, (c) electronics, (d) drafting, (e) graphic arts, (f) automotive, (g) industrial crafts. For a student who majors in industrial arts, his minor of 20 units must be selected from an academic subject, 12 units of which must be upper division and/or graduate work.

Minor Requirements. The minor in industrial arts requires a minimum of 20 units of technical courses selected in the general area of industrial arts to provide a well-balanced program. The 20-unit program should include work in at least three of the seven areas specified for the major. It is recommended that there be concentration in two areas of work. Students must consult with their department adviser. The student must include a minimum of nine upper division units after attaining upper division standing.

Journalism

Requirements in the Major for the Secondary Specialization. The major in journalism for the secondary specialization requires a minimum of 24 units of upper division work including courses required for the bachelor's degree major.

Minor Requirements. A minimum of 20 units (12 units in upper division) which must include:

Lower Division: Journalism 110, 120, 140.

Upper Division: Journalism 330; three units selected from 322A,B, 342A,B and 422A,B; three units selected from 350, 355, and 470; Journalism 410.

Mathematics

Minor Requirements.

Elementary and Secondary Specializations: When accompanied by an academic major the mathematics minor requires 20 units, excluding Mathematics 100, 101 and 102. When accompanied by a nonacademic major, the mathematics minor shall include Mathematics 122 and 123; 12 units of upper division mathematics.

Junior College Specialization: Mathematics 122, 123, 224; 12 units of upper division mathematics.

Microbiology

Minor Requirements. A minimum of 21 units which must include:

Lower Division: Microbiology 210, 211.

Upper Division: Microbiology 320, 330, 471 and any one of the following four unit sequences: (a) Microbiology 322 and 496 or (b) 360A-B or (c) 452 and 453.

Music

Recommended Electives for the Major in Music.

If a student plans to teach music, it is highly recommended that he complete the eight units of electives in the degree pattern from one of the following three areas: (a) secondary vocal music—Music 222A-B or 322, 421, 422, 462, (b) secondary instrumental music—Music 425A and six units of Music 125 and/or 325, (c) elementary school music—Music 382, 383, and four units selected from Music 222A-B or 322, 320, 323, or 421.

Minor Requirements.

Elementary and Secondary Specializations: A minimum of 20 units, nine of which must be upper division. (If the major is in a nonacademic area, 12 units of upper division and/or graduate courses in the minor must be taken.) Course work should include Music 100 and/or 300, six units selected by advisement from 120A-B, 220A-B, 280, 360B or 390, 421 or 425A and 125, 320, 322, 325. Elementary candidates should also take Music 382.

Philosophy

Minor Requirements. A minimum of 20 units which must include:

Lower Division: Nine–12 philosophy units.

Upper Division: Courses, selected in consultation with an adviser, to total 20 units. Philosophy 301 and 302 are recommended.

Physical Education

Minor Requirements.

Elementary Specialization: 20–21 units as follows: Physical Education 270, 271, 273, 278, 374, 470; Health Education 430; one of the following: Women's Physical Education 321 or Men's Physical Education 488; two of the following: Women's P.E. 421, 330, Men's P.E. 315, 390.

Women's Physical Education

Secondary and Junior College Specializations. 24 units which must include: Physical Education 160, 241; Women's Physical Education 120, 121 or 421 for upper division transfer students, 140, 150, 151, 243, 244, 261, 321; one of the following: Women's P.E. 360, 460, 461; one of the following: Women's P.E. 350, 351; two of the following: Women's P.E. 340, 442, 443, 444.

Men's Physical Education

Secondary and Junior College Specializations. 22 units which must include: Men's Physical Education 111, 140, 141, 142, 143, 242, 243, 244, 245, 246, 247, 310; Physical Education 160, 241; one from each of the following groups: (a) Men's P.E. 311, 312, 313, 433, (b) Men's P.E. 484, 485, 486, 487. Adequate performance levels for admission to upper division courses are required through proficiency tests or lower division work.

Physics

Minor Requirements.

Elementary and Secondary Specializations.

Lower Division: Physics 110, 120, 230, 240 (12 units).

Upper Division: A minimum of eight units (or 12 if the major is in a nonacademic area); Physics 310A, 320, 330, 380, 496.

Junior College Specialization: Requirements are the same as listed above, except 12 units of the upper division courses listed must be taken.

Political Science

Minor Requirements.

Elementary Specialization. A minimum of 21 units which must include: Political Science 200A, 425, 430; Political Science 100 or 421 is required within the 21 units.

Secondary Specialization. A minimum of 21 units which must include: five courses selected from Political Science 300, 330, 375, 400, 425, 430, 460 or 461; Political Science 100 or 421 is required within the 21 units.

Junior College Specialization. A minimum of 24 units which must include: five courses selected from Political Science 300, 330, 375, 400, 425, 430, 460 or 461; Political Science 100 and 421 are required within the 24 units.

Psychology

Minor Requirements. A minimum of 20 units which must include:

Lower Division: Psychology 100, 210, 220.

Upper Division: Psychology 351 or 370, 401; one course selected from 331, 333, 337, 341; one course selected from 315, 343, 356, 433.

Recreation

Minor Requirements. A minimum of 20 units which must include: Recreation 311, 312, 315, 316, 317, 341, 425; Women's Physical Education 360; one of the following: Recreation 484, 485, 486; Music 281 and Art 304 are recommended.

Safety Education

Minor Requirements. A minimum of 20 units which must include:

Lower Division: Physical Education 130; Safety Education 220.

Upper Division: Health Education 327; Safety Education 325, 330, 335, 440, 445, 460.

Sociology

Minor Requirements. A minimum of 20 units which must include:

Lower Division: Sociology 100, 142.

Upper Division: Sociology 335, a minimum of 11 units selected from Sociology 320, 336, 345, 350, 368, 410, 419, 420, 422, 425, 430, 435, 441, 442, 445, 455, 456.

Spanish

Minor Requirements. A minimum of 20 units which must include: Spanish 312, 313, 314.

Speech

Major Requirements. The student seeking the standard elementary credential must elect the general speech concentration. However, upon admission to the Elementary Teacher Education Program and with the consent of his adviser, the student may petition the department to substitute six units from Speech 352, 358, 359 and Drama 352 for Group A of the general speech concentration.

Minor Requirements. For the elementary specialization the student must complete a minimum of 22 units which must include:

Lower Division: Speech 130, 271.

Upper Division: Speech 352, 358, 361; one course from each of the following: (a) Speech 332 or 333, (b) 371 or 448, (c) an additional course from (a) or (b) or Speech 330 or 335.

Major Requirements. The student seeking the standard secondary credential must elect the general speech concentration. In addition, secondary and junior college credential candidates must select Speech 331 and 440 within the major program. In addition it is strongly recommended that credential candidates select courses in group discussion, parliamentary procedure, play production and oral interpretation.

Minor Requirements. For the secondary or junior college specialization the student must complete a minimum of 21 units which must include:

Lower Division: Speech 130, 271.

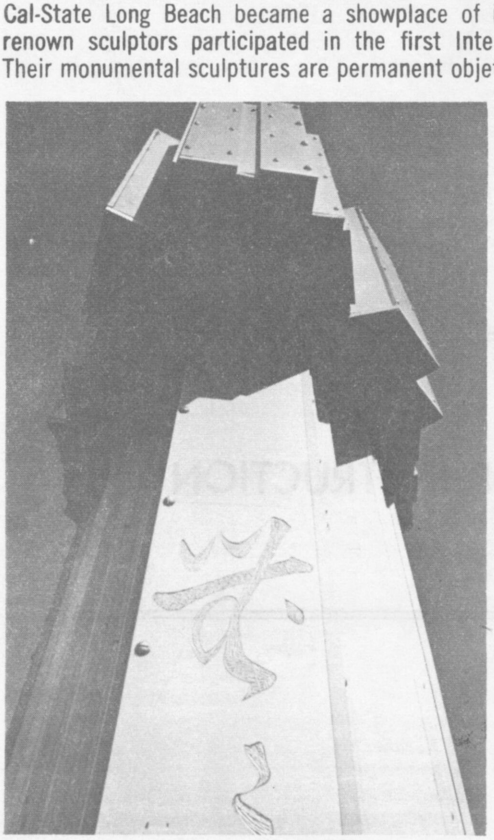
Upper Division: Speech 331, 440 and one course from each of the following: (a) Speech 332 or 333, (b) 335, 443, 444, 446A-B, 449, (c) 371 or 448.

Recommended Courses: Sec. Ed. 450S, Drama 372, Speech 236 or 336.

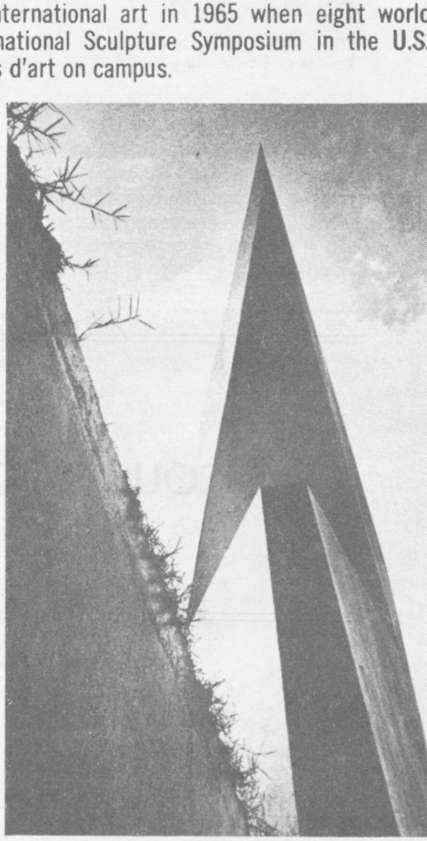
COURSES OF INSTRUCTION

GATHERING OF GIANTS

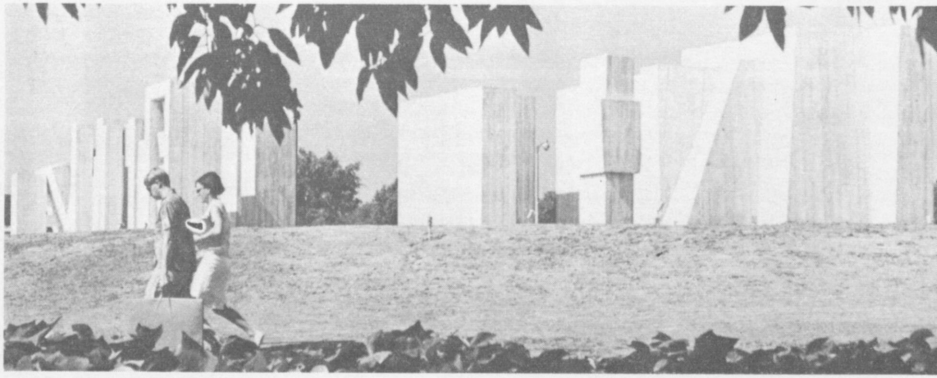
Cal-State Long Beach became a showplace of international art in 1965 when eight world renown sculptors participated in the first International Sculpture Symposium in the U.S. Their monumental sculptures are permanent objets d'art on campus.



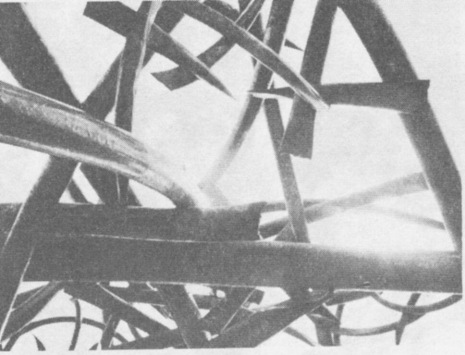
Kengiro Azuma **MU 464**



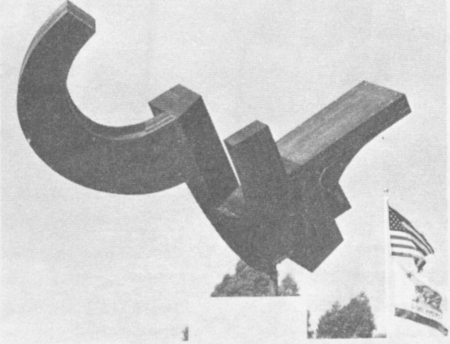
Kosso Eloul **Hard Fact**



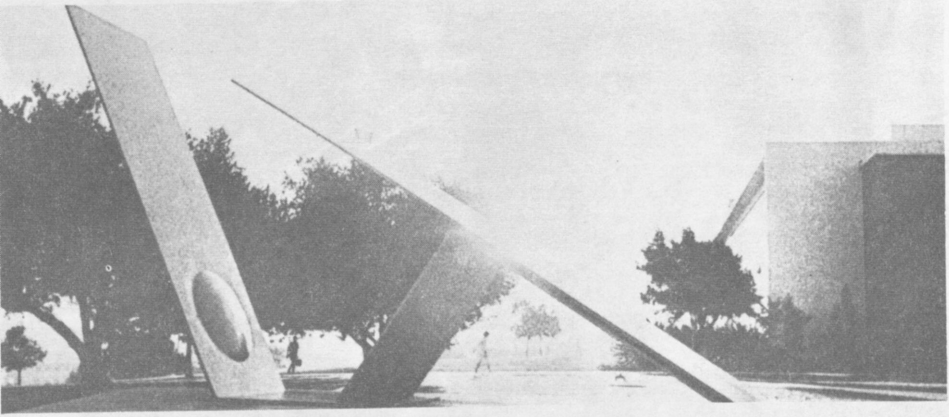
J. J. Beljon **Homage to Simon Rodia**



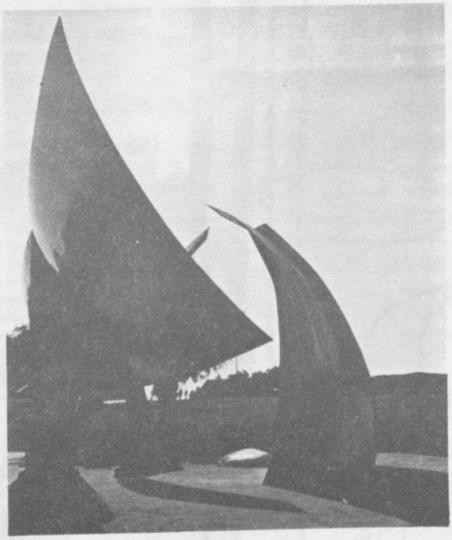
Claire Falkenstein **U as a Set**



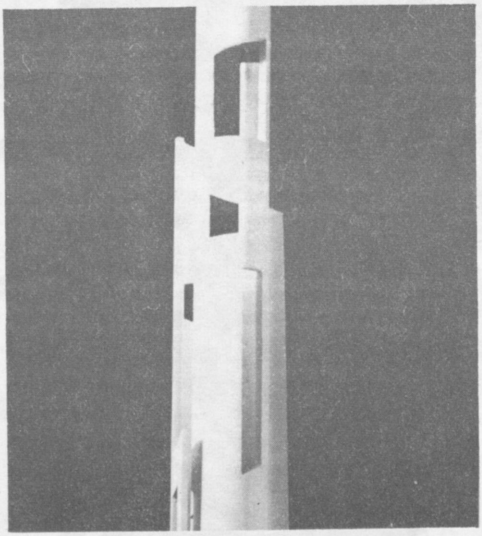
Gabriel Kohn **Long Beach Contract**



Robert Murray **Duet**



Piotr Kowalski **Now**



Andre Bloc **Bell Tower** (Incomplete)

COURSES OF INSTRUCTION

Accounting (See Business Administration)
Anatomy
Anthropology
Art
Astronomy
Biology
Botany
Business Administration
Business Education (See Business Administration)
Chemistry
Civil Engineering
Comparative Literature
Criminology
Drama
Economics
Education
Electrical Engineering
English
Entomology
Finance (See Business Administration)
Foreign Languages (See Specific Language)
French
Geography
Geology
German
Health Education
History
Home Economics
Industrial Arts
Industrial Technology
Journalism
Latin
Library Education
Management (See Business Administration)
Marketing (See Business Administration)
Mathematics
Mechanical Engineering
Microbiology
Music
Nursing
Operations Research and Statistics (See Business Administration)
Philosophy
Photography
Physical Education
Physical Science
Physical Therapy
Physics
Physiology
Political Science
Psychology
Public Administration (See Political Science)
Radio-Television (See Speech)
Recreation
Russian
Safety Education
Social Science
Sociology
Spanish
Speech
Zoology

322. (182) Indians of California (3) S
Origin, physical characteristics, languages, history and cultures of the Indians of California.

323. Cultures of Latin America (3) F, S
Comparative analysis of the Indian cultures of Middle and South America from Colonial times to the present, including problems of relations with the dominant national cultures and the emergence of peasant societies.

332. Cultures of China and East Asia (3) F
Development of traditional Chinese culture, its analysis, spread to surrounding areas, and the trends of modernization. Patterns of technology, social organization and configurations.

333. Cultures of India and Southeast Asia (3) S
Development of traditional Indian culture, its analysis, influence in surrounding areas and the trends of modernization. Patterns of technology, social organization and configurations.

334. Cultures of the Middle East (3) F
Development of traditional Moslem culture, its analysis and the trends of modernization. Patterns of technology, social organization and configurations.

336. Cultures of Africa (3) S
Origins, physical characteristics, languages, traditional cultures and acculturation problems of African peoples, south of the Sahara.

341. (183) Prehistoric Cultures of Europe (3) S
European archaeology from the earliest Stone Age; varying cultural adaptations to different environments, migrations of peoples, influences from Asia and Africa; problems of culture reconstruction from ancient remains.

342. (188) Early Civilizations of the Old World (3) F
Interrelated growth of the civilizations of Egypt, Mesopotamia, India and the Mediterranean from agricultural villages to urban centers and empires; the significance of increasing complexity in social organization, technology, art and accumulation of knowledge.

345. (181) Ancient Civilizations of the New World (3) S
Origin and growth of the Aztec, Maya, Inca and other civilizations of Mexico and South America with emphasis upon their changing social systems, economic patterns, art and intellectual achievements.

346. Peoples of the Pacific (3) F
Origins, prehistory, physical characteristics, languages and culture patterns of Oceania; influence of island ecology on the development of cultural patterns; trends in acculturation.

347. Prehistoric Cultures of North America (3) F
Origin, growth and prehistory of American Indian cultures north of Mexico; changing economic patterns through time; development of agriculture and changes in population densities.

411. (165) Personality and Culture (3) S
Relationships between cultural, social and personality factors in human behavior; development of personality in representative cultures; changing viewpoints in culture-personality studies.

413. (178) Language and Culture (3) F
Prerequisite: Anthropology 270 or consent of instructor. Linguistic patterns and their relation to other aspects of culture, such as social organization and ways of thinking; use of language as a tool in the study of culture.

415. (190) The Dynamics of Cultural Change (3) S
Analysis of the processes of cultural change such as invention, diffusion and culture contact; the impact of Western civilization upon primitive and peasant cultures; emphasis on major theories and case studies of cultural change.

450. (130) Methods in Archaeology (3) S
Prerequisite: Consent of instructor. Excavation of a local archaeological site; recording field data and cataloging specimens; related laboratory methods of preservation, description and interpretation of archaeological materials. (Saturday sessions required.)

460. (166) Methods in Ethnology and Social Anthropology (3) F
Prerequisite: Consent of instructor. Methods used in the study of other peoples and cultures; field techniques and supervised practice in observation, interviewing, securing and interpreting data; related theory.

471. Linguistic Methodology in Phonetics and Phonemics (3) F
Prerequisite: Anthropology 270 or consent of instructor. Identification and distribution of the sound units of language with emphasis on unwritten languages.

472. Linguistic Methodology in Morphology and Syntax (3) S
Prerequisites: Anthropology 270, 471 or consent of instructor. Identification and distribution of the morphological, word, phrase and clause units of language with emphasis on non-Indo-European languages.

480. Methods in Physical Anthropology (3) F
Prerequisites: Anthropology 110 and laboratory biological science, or consent of instructor. Techniques and methods of description and analysis of anthropometric and genetic data; theories of classification. (Lecture 2 hours, laboratory 3 hours.)

495. (195) History and Theory of Anthropology (3) F
Prerequisites: Six upper division units in anthropology and senior or graduate standing. A systematic survey of the development of anthropology as a scientific field; an examination of the principal ideas and theories of leading anthropologists, past and present.

499. Guided Studies in Anthropology (1-3) F, S
Prerequisite: Consent of department. Selected topics in anthropology and preparation of a research report. May be repeated for a maximum of 6 units.

GRADUATE DIVISION

697. Directed Research (1-3)

ART

Professors: Archer, Biro, Crafts, Dillingham, Glenn, Krause, Martin, Merlino, Schultz, J., Thompson, C., Youry.

Associate Professors: Ferreira, Gross, Hitchcock, Johnson, J., Leland, Ramsey, Swift, Tyrnauer, Van Eimeren, Wallin.

Assistant Professors: Borders, Click, Covell, Graff, Moryl, Oden, Pine, Purcell, Shaak, Spille, Werlick, White.

Instructors: Brisker, Dame, Turnbull.

Lecturers: Lyon, M., Shechter.

LOWER DIVISION

100. Introduction to Art Studio (3) F, S
Visual and structural concepts through studio experiences in color, drawing, painting, design and three-dimensional form. Not open to students who have had Art 121, 131, 187 or equivalent.

110. (51) Introduction to Art (3) F, S
Media, methods of analysis and stylistic development in the visual arts. A lecture course with field trips. Not open for credit to art majors.

111. (11) Fundamentals of Art (2) F, S
Comparative study, through lecture, discussions and readings, of the considerations which are basic to an understanding of art and its relation to society.

112A,B. (59A,B) Survey of Art History (2,2) F, S
Development of art as an integral part of human culture from prehistoric times to the present day.

121. (9C) Two-Dimensional Design (3) F, S
Investigation and problems in the organization of two-dimensional visual phenomena.

131. (9A) Three-Dimensional Design (3) F, S
Prerequisites: Art 121, 181. Investigation and problems in the organization of three-dimensional phenomena.

151. (15) Beginning Ceramics (2) F, S
Handbuilding techniques used in the design, forming, glazing and firing of ceramic materials.

161. (17B) Life Modeling (2) F, S
Prerequisites: Art 181, 184. Modeling based on the human figure.

181. (7A,B) Beginning Drawing (3) F, S
Introduction to drawing with emphasis on perspective, light, shadow and volume in composition using a variety of media.

184. (17A,C,D) Beginning Life Drawing (3) F, S
Prerequisite: Art 181. Drawing from the human figure.

187. (9B) Beginning Painting (3) F, S
Prerequisites: Art 121, 181. Introduction to painting problems using opaque and transparent water color.

223. (23A) Lettering (2) F, S
Prerequisites: Art 121, 181. Theory and techniques of lettering.

224. Perspective (2) F, S
Prerequisite: Art 181. Use of measuring devices and the mechanical development of volume, space and shadow projection.

237. (54) Applied Design (2) F, S
Prerequisites: Art 121, 131, 181. Form in design and an introduction to the varying applied aspects of design.

251. (16) Intermediate Ceramics (2) F, S
Prerequisite: Art 151. Ceramic materials and design emphasizing the use of the potter's wheel to develop forms.

263. Beginning Sculpture (2) F, S
Prerequisites: Art 121, 131, 181. Principles of sculpture.

271. (57) Rendering (2) F, S
Prerequisites: Art 121, 181. Graphic visualization for convincing representation.

277. Beginning Printmaking (2) F, S
Prerequisites: Art 121, 181, 184. Fundamental printmaking processes.

281. Intermediate Drawing (2) F, S
Prerequisite: Art 181. Drawing in various media with emphasis on space and form.

284. Intermediate Life Drawing (2) F, S
Prerequisites: Art 181, 184. Drawing from the human figure.

287. (67) Beginning Life Painting (2) F, S
Prerequisites: Art 184, 187. Painting from the figure.

UPPER DIVISION

300. (180A,B) Elementary Art Education (3) F, S
Art concepts essential for visual communication in the elementary schools including related laboratory projects.

301. (130) Art Appreciation for Teachers (2) F, S
Concepts in art appreciation with their application to the school art programs.

303. (120) Crafts for Teachers (2) F, S
Creative use of art materials for school programs.

304. (140) Art for Recreational Leaders (2) F, S
Prerequisites: Art 100 or equivalent. Creative use of art materials for recreation programs and leisure time activities.

305A-B. (160A,B) Clay Modeling for Teachers (2,2) F, S
Clay as an expressive medium for school programs.

306A-B. (170A,B) Arts and Crafts for Mentally Retarded (2,2) F, S
Materials and methods for the teaching of the mentally retarded.

308A-B. (150A,B) Painting for Teachers (2,2) F, S
Variety of painting media and visual concepts for school art programs.

312. (131) Ancient Art (3) F
History of near Eastern and European art from the stone age to the beginning of the middle ages.

313. (132) Medieval Art (3) S
History of Western art from late antiquity to the beginning of the Renaissance.

314. (111) Renaissance Art (3) F, S
History of art in Europe from 1300 to 1600.

315. Baroque and Rococo Art (3) F
History of Western art from 1600 to 1800.

316. (151) Nineteenth Century Art (3) F, S
History of European art of the 19th century.

317. (152) Twentieth Century Art (3) F, S
History of 20th century art of the Western world.

318. History of Prints (2) F
Printmaking and printmakers in Eastern and Western cultures from their origins to contemporary developments in the 20th century.

322A-B. (123, 124) Graphic Design (3,3) F, S
Prerequisites: Art 121, 181, 187. Layout and ideas appropriate to specific graphic design problems.

323A-B. (129A,B) Graphic Design Production Processes (3,3) F, S
Prerequisites: Art 121, 181, 223. Printing processes relative to the needs of the graphic designer from typographic design to reproduced form.

324A-B. (177A,B) Film Animation (2,2) F, S
Prerequisite: Consent of instructor. Design and production of animated films. (Field trips to film studios.)

325. Packaging Design (2) F
Prerequisites: Art 322B, 323B. Materials, processes and the design of packaging and point-of-sales pieces.

327A-B. (154A) Surface Design (2,2) F, S
Prerequisites: Art 121, 181, 187. Variety of media and processes appropriate to both hand and commercial production on textiles and papers.

328A-B. (154B) Weaving (3,3) F, S
Prerequisites: Art 121, 181, 187; consent of instructor for 328B. Weaves, techniques, and materials of structural textile design.

330A-B. (164A-B) Industrial Design Technology (2,2) F, S
Application of design principles to specific problems in the fields of industry. Not open to art majors or art minors.

331A-B. (133, 134) Industrial Design (2,2) F, S
Prerequisites: Art 121, 131, 181; Art 331B: Art 224, 237, 271. Planning and design of useful products for industrial production.

332. Rapid Visualization (2) F, S
Prerequisites: Art 271. Visual presentation of concepts with emphasis on qualitative and quantitative techniques of communication as used in contemporary industrial design.

333A-B. Industrial Design Production (2,2) F, S
Prerequisite: Mechanical Engineering 172 or consent of instructor. Non-technical examination of industrial design production methods.

341A-B. (113, 114) Interior Design (2,2) F, S
Prerequisites: Art 111, 112A,B, 121, 131, 181, 187. Design problems concentrating on domestic architecture and interiors.

342A-B. (138A,B) Architectural Drawing and Rendering (2,2) on demand
Prerequisites: Art 121, 131, 181, 187, 224, 271. Drawing and rendering for interior designers.

344A-B. (183A,B) Display and Exhibition Design (1,1) F, S
Prerequisites: Art 111, 112A,B, 121, 131, 181, 187. Use of materials, processes, and design concepts in the planning and preparation of displays and exhibits.

347A-B. (173, 174) Theatre Design (2,2) F, S
Prerequisites: Art 112A,B, 121, 131, 181, 187. Sets, costumes and properties for the contemporary theatre in education.

351A-B. (135A,B) Ceramic Processes (3,3) F, S
Prerequisites: Art 131, 251. Design problems with ceramic materials emphasizing wheel thrown forms.

352A-B. (145, 146) Technical Ceramics (3,3) F, S
Prerequisite: Art 251. The nature of raw materials as they relate to the development of clay bodies and ceramic glazes, and specific problems involving commercial production and techniques.

353. Ceramic Sculpture (3) F, S
Prerequisites: Art 131, 151. Modeling and sculpturing of clay into non-utilitarian expressive forms and consideration of the technical problems inherent to the process and material.

354A-B. (106) General Crafts (3,3) F, S
Prerequisites: Art 121, 131, 181. Crafts processes, techniques and concepts in the design and making of utilitarian art objects.

357A-B. (125A,B) Jewelry (3,3) F, S
Prerequisite: Art 131. The design and creation of jewelry.

358A-B. Metalsmithing (3,3) F, S
Prerequisites: Art 357A, Industrial Arts 282. The design and creation of flatware and holloware.

361. Life Sculpture (3) F, S
Prerequisite: Art 161. Sculpture based on the human figure.

362A,B. Sculpture Processes (3,3) F, S
Prerequisites: Art 161, 263. Traditional and non-traditional sculpture processes.

363. Sculpture (3) F, S
Prerequisite: Art 362A or B. Composition in sculpture.

371A-B. (127A,B) Illustration (3,3) F, S
Prerequisites: Art 111, 112A,B, 121, 131, 161, 181, 184, 187. Creative magazine and book illustration.

372. Anatomy for Artists (2) F, S
Prerequisites: Art 181, 184. Skeletal and muscle structure emphasizing the development of skill in depicting the human figure.

373. (143) Fashion Illustration (2) S
Prerequisites: Art 371A, 372. Fashion drawing for reproduction.

378. (147A) Intaglio and Relief Printmaking (3) F, S
Prerequisites: Art 121, 181, 184. The intaglio process of etching, drypoint, aquatint and the relief processes of woodcut, linocut and collograph.

379. Lithography and Serigraphy (3) F, S
Prerequisite: Art 277. Black and white and color lithography and silk screen processes.

380. Painting for the Non-Art Major (3) F, S
Prerequisite: Art 100. Work with various painting media indoors and on location. Not open for credit to art majors or art minors.

381. Drawing (3) F, S
Prerequisite: Art 181. Problems and concepts in drawing using a variety of media.

384A-B. (117, 118) Advanced Life Drawing (3,3) F, S
Prerequisite: Art 284. Continued study in drawing from the human figure.

385. Watercolor Painting (2) F, S
Prerequisites: Art 121, 181, 187. Nature and use of the water color media.

387A-B. (107, 108) Painting (3,3) F, S
Prerequisites: Art 121, 181, 187. Painting with emphasis on representation, organization and expression.

389. Materials and Craft of Drawing and Painting (2) F, S
Prerequisites: Art 121, 181, 387A. Theory and practice in the craft of drawing and painting.

400. Advanced Art Studio (3) F, S
Prerequisite: Art 100. Advanced studio experience in color, drawing, painting, design and three dimensional form.

401A,B. (119A,B) Theory of Creative Development in Art (1,1) F, S
Prerequisite: Consent of instructor. Application of theory through observation of on-campus art classes for young people of various school levels.

411. (191) Primitive Art (3) S
Art of Africa, Oceania, and pre-colonial North and South America.

412. (161) Oriental Art (3) F, S
History of the art of India, China, Japan and the Mohammedan World.

413. (171) North American Art (3) F
History of the art of the United States from Colonial period to the present.

414. (172) Latin American Art (2) S
History of art in Central and South America from Colonial period to the present.

416. (181) History of Ceramics (2) S
Materials and techniques as they relate to the historical development of pottery styles and forms.

417. (141) History of Interiors and Architecture (3) F, S
Style, ornament and function of the architectural environment with emphasis on the interior.

418. History of Design (3) S
Development of design as an independent creative activity including a consideration of both pre-technological and technological culture.

422A-B. (163A,B) Advanced Graphic Design (3,3) F, S
Prerequisites: Art 322B, 323B.

423. Design Practices (1) S
Prerequisite: Senior standing in design or consent of instructor. Special problems related to professional design including portfolio, pricing, billing, the designer and taxes, legal problems and ethics of designing.

428A-B. Advanced Weaving (3,3) F, S
Prerequisites: Art 328B and consent of instructor. Fabric design and weave structures with emphasis divided between commercial application and personal expression within the contemporary idiom.

431A-B. (193A,B) Advanced Industrial Design (4-4) F, S
Prerequisite: Art 331B. Advanced planning and design of projects in the area of mass produced objects, packaging, traffic, transportation, mechanical design and shelter.

441A-B. (194A,B) Advanced Interior Design (4,4) F, S
Prerequisites: Art 341B, 342A. Design problems in residential, commercial, institutional and contract interiors.

451A-B. (175A,B) Advanced Ceramics (3,3) F, S
Prerequisite: Art 351B. Individual problems in ceramics.

452. (176) Ceramic Shop Planning (2) F odd years
Prerequisite: Art 351B. Ceramic equipment including kilns, their design and construction.

458A-B. Advanced Metalsmithing and Jewelry (3,3) F, S
Prerequisites: Art 357B or 358B and consent of instructor. Individual problems in metalsmithing and jewelry.

461. Advanced Life Sculpture (3) F, S
Prerequisites: Art 361, 362A or B.

463. Advanced Sculpture (3) F, S
Prerequisites: Art 361, 362A,B, 363.

471A-B. (167A,B) Advanced Illustration (3,3) F, S
Prerequisite: Art 371B.

477A-B. (147B) Advanced Intaglio and Relief Printmaking (3,3) F, S
Prerequisite: Art 378.

478A-B. Advanced Lithography and Serigraphy (3,3) F, S
Prerequisite: Art 379.

487A-B. (137A,B) Advanced Life Painting (3,3) F, S
Prerequisites: Art 287, 384A, 387A.

499. Special Studies in Art (3) F, S
Prerequisite: Consent of Art Department. Opportunity for extensive work with faculty supervision on individual problems in an area of art specialization. Limited to six units in one area. Area will be designated by letter at the time of registration as: (a) Ceramics, (b) General Crafts, (c) Display and Exhibition, (d) Drawing, (e) Graphic Design, (f) Illustration, (g) Industrial Design, (h) Interior Design, (i) Life Drawing, (j) Metalsmithing and Jewelry, (k) Painting, (l) Printmaking, (m) Sculpture, (n) Textile Design, (o) Theatre Design, (p) Art Education and (q) Art History. (Replaces Art 153A,B,C,D,E,F,G,H; 155A,B,C,D; 157A,B,C,D; 159; 190.)

GRADUATE DIVISION

509A-B. (250A,B) Studio Problems in Art Education (2,2)

599. (203, 205, 207) Studio Problems in Art (3)

601A-B. (210) Seminar in Art Education (3,3)

611. (201) Seminar in Art History (3)

696. (297) Research Methodology (2)

697. Directed Studies (1-3)

698. (298) Thesis or Project (2-6)

ASTRONOMY

See Physics faculty listing.

LOWER DIVISION

100. (55) Astronomy (3) F, S

Introductory course in astronomy. The earth moon system and the planets, the stars and their constitution. Survey of the methods of astronomical observation.

BIOLOGY DEPARTMENT

ANATOMY AND PHYSIOLOGY

Professor: Johnson, K. L.

Associate Professors: Beekman, Schatzlein.

Assistant Professors: Alender, Biedebach, Keating.

LOWER DIVISION

200. (50) Anatomy and Physiology (3) F, S

Prerequisite: Biology 200. Brief survey of structure and function of human systems. Designed for those who desire basic understanding of the body. Not open for credit to biology majors. (Lecture 2 hours, laboratory 3 hours.)

201. (52) Human Anatomy (4) F, S

For physical education majors. General introduction to the structure of human body systems with emphasis on skeletal and muscular systems. (Lecture 2 hours, laboratory 6 hours.)

202. (53) Human Physiology (4) F, S

Prerequisite: Anatomy and Physiology 201. For physical education majors. General introduction to the functional integration of human body systems. (Lecture 3 hours, laboratory 3 hours.)

203A-B. (40A,B) Anatomy and Physiology (4,4) F, S

Prerequisites: Chemistry 100, Physics 104, Biology 200. Chemistry 100 may be taken concurrently with 203A. Integrated course in the principles of anatomy and physiology of the human body. Designed primarily for majors in nursing or related disciplines. (Lecture 2 hours, laboratory 6 hours.)

240. (60) Vertebrate Physiology (3) F, S

Prerequisites: Zoology 210A-B, Chemistry 111A-B. Chemistry 111B may be taken concurrently. Fundamental principles of vertebrate physiological systems. (Lecture 2 hours, laboratory 3 hours.)

UPPER DIVISION

340. (160) Comparative Animal Physiology (3) S

Prerequisite: Anatomy and Physiology 240. Recommended: Zoology 310 and 330. Comparison of the fundamental physiological processes of the major animal phyla, including time devoted to unique and special physiological phenomenon exhibited by some animals. (Lecture 2 hours, laboratory 3 hours.)

341. Endocrinology (3) F

Prerequisites: Zoology 210A-B; Chemistry 111A-B. Role of the endocrines in vertebrate and invertebrate adjustment to changes in the internal and external environment. (Lecture 3 hours.)

440. (180) General and Cellular Physiology (4) F, S

Prerequisites: Six units of biological sciences, Chemistry 327, Physics 100A-B. Physiological processes of plant and animal cells and tissues basic to understanding the function of the whole organism. (Lecture 3 hours, laboratory 3 hours.)

441. Cardiovascular and Renal Physiology (3) On demand
Prerequisites: Anatomy and Physiology 240, consent of instructor. Function of the circulation and kidney in the vertebrate animal. (Lecture 2 hours, laboratory 3 hours.)

442. Neuromuscular Physiology (3) On demand
Prerequisites: Anatomy and Physiology 240, consent of instructor. (Lecture 2 hours, laboratory 3 hours.)

444. Special Topics in Physiology (2) On demand
Prerequisites: Zoology 210A-B, Chemistry 327, consent of instructor. Selected topics from recent advances in animal physiology. Course content will vary from year to year and may be repeated for credit with the consent of instructor. (Maximum credit 4 units.)

GRADUATE DIVISION

540. Experimental Endocrinology (3)

BIOLOGY

Professors: Baird, Durbin, Hrubant, Kluss, Shipley.
Associate Professors: Kroman, Wellhouse.
Assistant Professor: Nelson.
Instructor: Renshaw.

LOWER DIVISION

200. (10) General Biology (3) F, S
Survey of living organisms, including studies of the cell, metabolism, classification, life histories and heredity. Not open to majors or minors in biological science or to those with credit in Biology 202. (Lecture 2 hours, laboratory 3 hours.)

201. (45) Marine Natural History (3) F
Prerequisite: Biology 200. Native plants and animals of the coast; emphasis on identification and life history of local forms. Collecting of specimens for study in laboratory an integral part of course. Not open for credit to biological science majors. (Lecture 2 hours, laboratory and field 3 hours.)

202. (50) Principles of Biology (3) F, S
Prerequisites: Chemistry 111A-B. Principles of biology in relationship to the physical world. Emphasis on human biology and man's effects on the environment. For engineering and non-teaching physical science majors; not open for credit to biological science majors. (Lecture 2 hours, laboratory 3 hours.)

203. (52) Conservation of Natural Resources (2) F, S
Prerequisite: Biology 200. Natural resources of world; extent, value, wise utilization and conservation of these resources for future generations. Not open for credit to biological science majors. (Lecture 2 hours.)

204. (56) Heredity (3) F, S
Prerequisite: Biology 200. Principles of inheritance; role of heredity in improvement of plants and animals; implications in human genetics. Not open for credit to biological science majors. (Lecture 3 hours.)

UPPER DIVISION

300. (101) California Natural History (3) F, S
Prerequisites: One course in biology, one course in physical science. Common plants, animals, rocks, and minerals; the solar system; emphasis on local species and environments. Not open to biological science majors. (Lecture 2 hours, laboratory and field 3 hours.)

301. (106) Science in the Elementary School (3) F, S
Prerequisites: Nine units of science, including one physical and one biological science. Survey of the broad fields of science and their sequential development in the elementary school. Student participation in planning and demonstrating unit and serial presentations of the concepts of science is an integral part of the course. Not open to science majors.

302. (128) Elementary School Science Workshop (2) SS
Prerequisites: Six units of biological and/or physical sciences. Program in carrying out science activities in grades one through eight. Not open for credit to biological science majors or minors. (Lecture 1 hour, laboratory 3 hours.)

305. Unifying Concepts of Science (3) F, S
Prerequisites: Biology 200, 300, Physical Science 112, Geology 310. Major branches of science with emphasis on the interrelationships of the scientific disciplines. Not open to science majors.

310. (102) Conservation (3) F
Prerequisites: Zoology 210A-B or Botany 212. Wise utilization of natural resources in the United States; historical development, economics, water, soils, minerals, forests, grasslands, wildlife, recreational resources, planning and the conservation of man. (Lecture 2 hours, laboratory and field 3 hours.)

311. (126) Genetics (4) F, S
Prerequisites: Six units of biological science including Zoology 210A or Botany 212 or 210, Mathematics 102. Mathematics 120 or 122 recommended. Detailed study of classical transmission genetics and an introduction to the principles of human and microbial genetics, radiation biology, and the current observations and concepts of the nature, organization and action of the genetic material. (Lecture 3 hours, laboratory 3 hours.)

312. (185) Biology and Human Affairs (3) F
Prerequisites: Six units of biological sciences. Major contributions of biology to human welfare, health, eugenics, conservation, economics, and philosophy with a consideration of the resulting aspects and problems to the citizen.

350. (105) General Ecology (3) S
Prerequisites: Zoology 210A-B; Botany 212. Chemistry and physics recommended. Relationships of plants and animals to environment, both physical and biotic; distribution and interrelationship of land forms; visits to typical local plant and animal communities. (Lecture 2 hours, laboratory and field 3 hours.)

360. (130) Microtechniques (3) S
Prerequisites: Six units of biological science including Zoology 210A or Botany 210. Principles and methods employed in preparation of plant and animal tissue for microscopic study. (Lecture 1 hour, laboratory 6 hours.)

361. (172) Biometry (3) F
Prerequisite: Mathematics 102. Mathematics 120 or 122 recommended. Introduction to statistical analysis and experimental design, emphasizing biological problems. (Lecture 2 hours, laboratory 3 hours.)

410. Population Genetics (3) on demand
Prerequisites: Biology 311 and consent of instructor. Behavior of genes in populations, and the microevolutionary changes in populations due to the effects of mutation, selection, migration, and various mating systems upon gene frequencies. (Lecture 2 hours, laboratory 3 hours.)

411. Mammalian Genetics (3) on demand
Prerequisites: Biology 311, Chemistry 327, and consent of instructor. Heredity of mammals with special emphasis on man. Physiogenetic and cytogenetic basis of normal and abnormal development and metabolism in the mammal.

415. Special Topics in Biology (2) On demand
Prerequisites: Zoology 210A-B, Botany 212, consent of instructor. Topics from selected areas of biology. Course content will vary from year to year. May be repeated for credit with the consent of instructor. (Maximum credit 4 units.)

430. (155) Cytology (2) F
Prerequisites: Zoology 210A-B or Botany 212. Structure, organization and function of protoplasm at the microscopic and submicroscopic levels, including techniques of study.

431. (157) Cytology Laboratory (2) S
Prerequisites: Biology 430, consent of instructor. Experimental approaches to problems of cell structure and function, using electron microscopy, phase microscopy, tissue culture and other methods. (Laboratory 6 hours.)

432. (156) Cytogenetics (4) F
Prerequisites: Biology 311, consent of instructor. Intensive study of the cytological basis of generic phenomena involved in mitosis, meiosis, crossing over, euploidy, aneuploidy and aberrant chromosomal behavior, with their role in evolution. (Lecture 2 hours, laboratory 6 hours.)

450. (145) Marine Ecology (3) S
Prerequisites: Zoology 310 or Geology 341, Chemistry 111A-B. Introduction to physical, chemical and biological aspects of marine environment. Ecology of organisms of littoral, deep sea and pelagic zones; their economic implication. (Lecture 2 hours, laboratory and field 3 hours.)

451. (151) Field Natural History (2-6) SS
Prerequisites: Six units of upper division biological science and consent of instructor. Studies of the flora and fauna of a specific area or habitat type such as deserts, mountains or marine zones. (Lecture, laboratory and field arranged.)

461. (175) Radio-chemical Techniques in Biology (4) S
Prerequisites: Chemistry 327, 6 units of biological science. Chemistry 251 and 251L strongly recommended. Experience in use and handling of radioactive tracers in the biological sciences. (Lecture 2 hours, laboratory 6 hours.)

462A-B. (193A,B) Laboratory Techniques (1,1) F, S
Prerequisites: Senior or graduate standing, major in a biological science, consent of instructor. Experience for advanced students in the organization and techniques in a basic science laboratory. (Conference 1 hour, laboratory 3 hours.)

496. (199) Investigations in Biology (1-3) F, S
Prerequisite: Consent of instructor. Research in a specific subject in biology, such as anatomy and physiology, biology, botany, entomology or zoology. Topic of study to be approved and directed by a staff member in the Department of Biology. May be repeated to a maximum of 3 units.

GRADUATE DIVISION

500A,B. (100A,B) Topics in Biology (3,3)
512. (226) Organic Evolution (3)
560. (225) Biological Literature (2)
561. (290) History of Biology (2)
650. (252) Field Biology and Ecology (3)
660. (200) Seminar (1)
696. (297) Seminar in Biology (2)
697. Directed Studies (1-3)
698. (298) Thesis (2-4)

BOTANY

Professors: Cox, Lincoln, Miner.
Assistant Professors: Bourret, Calvin, Carpenter, Mansfield-Jones.

LOWER DIVISION

200. (62) Trees and Shrubs (3) F, S
Prerequisite: Biology 200 or Botany 210. Identification and culture of principal trees and shrubs found in Southern California. Not open for credit to biological science majors. (Lecture 2 hours, laboratory 3 hours.)

201. (180) Plant Production (3) S
Prerequisite: Biology 200 (may be satisfied by one year of high school biology). Basic principles of plant production; the reproduction, propagation, environmental influences and cultural practices employed in maintaining the more important local horticultural plants. Not open for credit to biological science majors. (Lecture 2 hours, laboratory and field 3 hours.)

210. (1A) General Botany (3) F
The development of structures, functions, and genetics of flowering plants. Some applications of the physical sciences to botany are presented. (Lecture 2 hours, laboratory 3 hours.)

211. (1B) General Botany (2) S
Prerequisite: Botany 210. The morphology and life history of the major groups of plants. (Lecture 1 hour, laboratory 3 hours.)

212. (1) General Botany (5) F, S
A course combining Botany 210 and 211. (Lecture 3 hours, laboratory 6 hours.)

UPPER DIVISION

310. (106) Botany of Economic Plants (3) F
Prerequisite: Botany 212. History, nature and use of the more common plants and plant products. (Lecture 2 hours, laboratory 3 hours.)

320. (110) Algae (3) S
Prerequisite: Botany 212. Systematics, morphology, ecology, and phylogeny of marine and freshwater algae, emphasis on forms of Southern California. (Lecture 1 hour, laboratory and field 6 hours.)

321. (126) Taxonomy of Vascular Plants (4) S
Prerequisite: Botany 212. History of taxonomy; relationships and identification of native and introduced vascular plants of Southern California. (Lecture 2 hours, laboratory and field 6 hours.)

330. (115) Plant Anatomy (3) F
Prerequisite: Botany 212. Structural study of developing and mature seed plants; microscopic determination of commercial woods to be correlated with industrial uses. (Lecture 2 hours, laboratory 3 hours.)

331. (116) Plant Morphology (4) S
Prerequisite: Botany 212. Comparative structure, life history and phylogenetic relationships of plants. (Lecture 2 hours, laboratory 6 hours.)

341. (120) Plant Pathology (3) F
Prerequisites: Botany 212 and Chemistry 111A-B. Principles and practices of plant pathology. Structure, development and classification of fungi. Emphasis on diagnosis, treatment and control of diseases affecting cultivated plants. (Lecture 2 hours, laboratory and field 3 hours.)

440. (130) Plant Physiology (4) F, S
Prerequisites: Botany 212 and Chemistry 327. Photosynthesis and other anabolic syntheses, respiration, mineral nutrition, water relationships, growth and development of plants. (Lecture 3 hours, laboratory 3 hours.)

450. (176) Plant Ecology and Systematics (3) S
Prerequisite: Botany 321. Relationship of plants to their environment and principles of plant distribution. (Lecture 2 hours, laboratory and field 3 hours.)

GRADUATE DIVISION

540. Plant Growth and Development (3)

ENTOMOLOGY

Professors: Sleeper, Stockton.
Associate Professors: Maxwell, Menees.

LOWER DIVISION

200. (55) Insects and Human Welfare (3) F, S
Prerequisite: Biology 200. General investigation on insects and close relatives; beneficial and destructive forms, emphasis on role in health and disease. Not open for credit to biological science majors. (Lecture and demonstration 3 hours.)

UPPER DIVISION

310. (103) General Entomology (3) F, S
Prerequisites: Zoology 210A-B. Characteristics, structures, habits, life cycles of insects and their importance to man. (Lecture 2 hours, laboratory and field 3 hours.)

311. (110) Medical Entomology (3) F, S
Prerequisite: Zoology 210A. Collection, preparation, identification, habits, life cycle and control of insects and other arthropods of medical importance. (Lecture 2 hours, laboratory and field 3 hours.)

312. (111) Medical Entomology Laboratory and Field Procedures (1) F
Introduction to epidemiological and field survey methods, examination of arthropods for pathogens, methods of collecting, preparing and rearing medically important arthropods. (Laboratory and field 3 hours.)

320. (125) Terrestrial Arthropods (3) F
Prerequisites: Zoology 210A-B. Common representatives of the groups of terrestrial arthropods exclusive of the insects. Emphasis on forms of local occurrence and on those which are important in gaining an understanding of relationships within the phylum and of relationships of the arthropods to other phyla. (Lecture 2 hours, laboratory 3 hours.)

410. (130) Economic Entomology (3) F
Prerequisite: Entomology 310 or equivalent. Bionomics of injurious insects and arachnids affecting plants and animals; recognition, life history and habits; the manipulation of insect and mite populations by chemical, mechanical, legislative and environmental means. (Lecture 2 hours, laboratory and field 3 hours.)

420. (105) Immature Insects (3) S
Prerequisite: Entomology 310. Morphology and taxonomy of immature insects of all major orders; emphasis on identification of larvae of economically important orders; Coleoptera, Lepidoptera, Diptera and Hymenoptera. (Lecture 2 hours, laboratory 3 hours.)

421. (106) Classification of Insects (3) S
Prerequisite: Entomology 310. Major groups of insects, with classification to the family level. (Lecture 2 hours, laboratory and field 3 hours.)

430. (108) Insect Morphology (3) F
Prerequisite: Entomology 310. Comparative anatomy of insects, structure of mouth parts, the mechanisms of feeding, locomotion, flight, and reproduction. Emphasis on the relationships of musculature to external forms. (Lecture 2 hours, laboratory 3 hours.)

431. (128) Insect Embryology and Histology (3) S
Prerequisites: Entomology 310 and Chemistry 111B. A study of the normal development and structure of the tissues and organs of the insect body. Some emphasis placed on histochemical and microscopic techniques as a means of studying tissue function and fine structure in insects. (Lecture 2 hours, laboratory 3 hours.)

440. (138) Insect Physiology (3) S
Prerequisite: Entomology 430. Muscle contraction, digestion, nutrition and metabolism, circulation, excretion, reproduction, molting, endocrine glands and hormones, and enzyme systems of insects. (Lecture 2 hours, laboratory 3 hours.)

460. (134) Biological Control of Insects (3) S
Prerequisite: Entomology 421. Natural and artificial control of pest species of insects and other arthropods through use of predators, parasites, fungi, virus, and bacterial diseases. (Lecture 2 hours, laboratory and field 3 hours.)

461. (116) Toxicology of Pesticides (3) S
Prerequisite: Chemistry 327 or equivalent. Invertebrate and mammalian toxicity of materials used for protection of food, fiber, and human health; mode of action, chemical properties, bio-assay, phytotoxicity, poison residues, hazards, legal aspects, effect on aquatic and terrestrial wildlife, and environment. (Lecture 2 hours, laboratory 3 hours.)

ZOOLOGY

Professors: Hardy, R., Loomis, Rainey, Reish.
Associate Professors: Lockley, Stephens, L.
Assistant Professors: Dailey, Gupta, Vallee, Warter, S.

LOWER DIVISION

200. (50) Animal Life in California (3) F, S
Prerequisite: Biology 200 or Zoology 210A. Identification and appreciation of common terrestrial vertebrates in California. Not open for credit to biological science majors. (Lecture 2 hours, laboratory and field 3 hours.)

201. (54) Birds (3) S
Prerequisite: Biology 200 or Zoology 210A. General identification and life histories of local birds. Not open for credit to biological science majors. (Lecture 2 hours, laboratory and field 3 hours.)

210A-B. (1A,B) General Zoology (4,4) F, S
210A deals with the principles of animal biology and survey of invertebrate phyla; emphasis on metabolism and physiology. 210B deals with genetics, embryology, and evolution and survey of the vertebrates. (Lecture 2 hours, laboratory 6 hours.)

UPPER DIVISION

310. (100) Invertebrate Zoology (4) F, S
Prerequisites: Zoology 210A-B or Zoology 210A and Geology 101. Basic taxonomy, morphology, ecology, and distribution of the invertebrates. Protozoa through Arthropoda, excluding Insecta, but including Protochordates; emphasis on local marine forms. (Lecture 2 hours, laboratory and field 6 hours.)

311. (166) Biology of the Protozoa (4) F
Prerequisites: Zoology 210A-B or Botany 212; Chemistry 111A. A comparative study of certain morphological, physiological and life history features of representative protozoan species. Emphasis in the laboratory on optical, cytochemical, nutritional and other experimental techniques. (Lecture 2 hours, laboratory 6 hours.)

312. (167) General Animal Parasitology (4) S
Prerequisites: Zoology 210A-B. The comparative morphology, systematics, and life history of protozoan, helminth, and other invertebrate parasites, excepting higher arthropods. Study not restricted to parasites of man. Emphasis on life cycles, the host-parasite interaction, and host examination and staining. (Lecture 2 hours, laboratory 6 hours.)

320. (115) Ichthyology (3) F,S
Prerequisites: Zoology 210A-B. Taxonomy, morphology and distribution of fish; emphasis on local forms and their economic importance. (Lecture 2 hours, laboratory and field 3 hours.)

321. (110) Herpetology (3) S
Prerequisites: Zoology 210A-B. Taxonomy, natural history, ecology and distribution of amphibians and reptiles; emphasis on local forms. (Lecture 2 hours, laboratory and field 3 hours.)

322. (104) Ornithology (3) F, S
Prerequisites: Zoology 210A-B. Morphology, taxonomy, ecology and behavior of birds; emphasis on laboratory and field study of adaptations of local forms. (Lecture 2 hours, laboratory and field 3 hours.)

323. (130) Mammalogy (3) F, S
Prerequisites: Zoology 210A-B. Taxonomy, ecology and distribution of mammals; emphasis on field work and use of mammal collections of western forms. (Lecture 2 hours, laboratory and field 3 hours.)

330. (135) Comparative Anatomy (4) F, S
Prerequisites: Zoology 210A-B. Comparison of structures in vertebrate classes; homologous, analogous and prototype structures of lower forms in relation to mammalian, including human, structure. (Lecture 2 hours, laboratory 6 hours.)

331. (140) Vertebrate Embryology (4) F, S
Prerequisites: Zoology 210A-B. Steps in development of an organism to hatching or birth; starfish, amphioxus and frog development; emphasis on chick and human development. (Lecture 2 hours, laboratory 6 hours.)

332. (165) Histology (3) F
Prerequisites: Six units of biological science including Zoology 210A. Microscopic anatomy of animals; nature and characteristics of tissues, organs and organ systems; emphasis on human histology. (Lecture 2 hours, laboratory 3 hours.)

350. (190) Dynamics of Animal Populations (3) F
Prerequisites: Zoology 210A-B, Mathematics 100 or 102 or equivalent. Response to components of the physical environment, distribution, density, dispersal rates, reproduction, growth, regulation and social behavior of natural animal populations. Experimentation and quantitative information stressed. (Lecture and demonstration 3 hours.)

351. Animal Behavior (4) F
Prerequisites: Zoology 210A-B. Introduction to vertebrate and invertebrate ethology; innate and learned behavior, social and reproductive behavior, sensory adaptation, orientation, migration and communication. Emphasis on ecological and evolutionary aspects. (Lecture 3 hours, laboratory and field 3 hours.)

420. (102) Invertebrate Systematics (3) S
Prerequisite: Zoology 310. Systematics of invertebrates, excluding insects. (Lecture 1 hour, laboratory and field 6 hours.)

430. (170) Vertebrate Paleontology (3) S
Prerequisite: Zoology 330 or Geology 101. Stratigraphic history of skeletal modifications in vertebrates. (Lecture 2 hours, laboratory and field 3 hours.)

431. (141) Experimental Embryology (3) S
Prerequisites: Zoology 331, Biology 360, Chemistry 327. Selected topics in developmental biology; emphasis on gastrulation, determination, differentiation, regeneration and the influence of peripheral structures on the central nervous system. (Lecture 1 hour, laboratory 6 hours.)

450. (186) Ecology of Fishes (3) S
Prerequisite: Anatomy and Physiology 240 or Zoology 320. Selected studies in the physiological ecology of marine and freshwater fishes using techniques of environmental analysis. (Lecture 2 hours, laboratory 3 hours.)

GRADUATE DIVISION

520. (215) Advanced Ichthyology (2)
521. (210) Advanced Herpetology (2)
522. (204) Advanced Ornithology (2)
523. (230) Advanced Mammalogy (2)
524. (240) Principles of Taxonomy (2)
530. Adaptive Vertebrate Morphology (3)
532. Invertebrate Embryology (4)
550. (235) Zoogeography (2)
590. Advanced Animal Behavior (2)

BOTANY (See Biology Department)

BUSINESS ADMINISTRATION

ACCOUNTING

Professor: Pickel.

Associate Professors: LaPage, McKinnon, Martinelli, Williamson, D.

Assistant Professors: Andrews, Golden, Gunter, Hickerson, Lewis, A., Suttle, Tunder, Wilson, W.

LOWER DIVISION

200A-B. (53A,B) Elementary Accounting (3,3) F, S

Introduction to accounting theory and practice, including analyzing, recording and summarizing transactions which are ultimately presented in financial statement form; treatment of special journals, voucher system, and subsidiary ledgers; payroll, property and miscellaneous taxes; partnership and corporate accounts; financial statement analysis; preliminary cost accounting. Accounting 200A not open to students with credit in Accounting 201. Accounting 200A or 201 is prerequisite to Accounting 200B.

201. (53H) Elementary Accounting (3) F, S

Prerequisite: Mathematics 100 or 102. Accelerated elementary accounting course which combines Accounting 200A-B into a 3-unit course. Not open to students with credit in Accounting 200A-B. (Students receiving a grade of "C" or better in this course will be exempt from Accounting 200B.)

UPPER DIVISION

300A-B. (130A,B) Intermediate Accounting (3,3) F, S

Prerequisite: Accounting 201 with grade of "C" or higher or Accounting 200A-B. Preparation of accounting statements and study of accounting theory, including recording, valuation, and presentation of assets, liabilities, paid-in capital and retained earnings. Statement analysis. Statement of application of funds.

320. (132) Cost Accounting (3) F, S

Prerequisite: Accounting 201 with grade of "C" or higher or Accounting 200B. Theory of cost accounting and cost control, including job order, process costs, joint-product and by-product costs, budgeting, standard costs, direct costing, distribution costs, differential cost analysis, profit-volume relationships and break-even analysis. Emphasis on standard costs as a cost-control device.

400. (134) Advanced Accounting (3) F, S

Prerequisites: Accounting 300B. Specialized problems in partnership and corporation accounting; accounting for joint ventures, agencies and branches; consolidated balance sheets and income statements; statement of affairs, receivership accounting, estate and trust accounting, realization and liquidation statements.

430. (167) Governmental and Institutional Accounting (3) S

Prerequisite: Accounting 300A or 320. Principles and procedures of accounting for governmental and institutional units; financial and budgetary accounts; accounting for various funds, including financial and statistical statements.

450. (164) Federal Tax Accounting (3) F, S

Prerequisite: Accounting 300A or 320. Federal income tax structure as related to individuals, partnerships and corporations, including problems intended to provide an understanding of the laws and regulations.

470. (165) Auditing (3) F, S

Prerequisites: Accounting 300B, 320. Problems of verification, valuation and presentation of financial information in reports covered by the opinion of an independent public accountant. Responsibilities of the public accountant and rules of professional conduct.

490. (169) Advanced Accounting Problems (3) F, S

Prerequisites: Accounting 320, 400, 450, 470. Applications of accounting theory to advanced problems of the type contained in examinations for C.P.A. certification.

GRADUATE DIVISION

520. (232) Advanced Cost Accounting, Budgeting and Control (3)
550. (264) Advanced Tax Accounting (3)
600. (230) Seminar in Accounting Theory (3)

BUSINESS EDUCATION

Professor: Burras.
Associate Professors: Barber, Henderson, Nelson, D.
Assistant Professors: Albro, King, R.

LOWER DIVISION

100A-B. (1A,B) Typewriting (2,2) F, S

Fundamentals of typewriting. Operation of various kinds of typewriters, special adaptations of each, basis of speed and accuracy development. (100A not available to students with any credit in typing.)

110A-B. (2A,B) Shorthand (3,3) F, S

Fundamentals of shorthand. Various techniques used in the mastery of technical vocabularies and speed in writing and reading shorthand from dictation (110A not available to students with one year of high school credit in shorthand.)

130. (51) Introduction to Business (3) F, S

General survey of business organization and management, factors influencing establishment, location and operation of business units; functional business areas of accounting, finance, management, marketing and personnel. Economic and legal framework, including regulation and taxation, within which modern American business activities are conducted.

UPPER DIVISION

302. (183) Business Communications (2) F, S

Prerequisite: English 100 and Business Education 100B, or equivalent. Development of skill in composing administratively sound business communications with particular application to their production on the typewriter; study of the organization, format and typewritten production of business reports.

312. (184) Advanced Shorthand (3) F, S

Prerequisite: Business Education 110B or equivalent. Increased skill in taking dictation at high speed; building of vocabulary; shorthand theory and phrasing skill; emphasis on correct use of English; increased ability to read shorthand notes.

320. (102) Office Machines and Filing (2) F, S

Operation, purposes and adaptations of rotary calculators, adding machines, transcribing and duplicating machines. Procedures and practices in filing and indexing.

321. (103) Machine Transcription and Duplication (2) F, S
Prerequisite: Business Education 100B or equivalent. Extensive training in dictating to and transcribing from both disc and belt transcription machines; duplicating machines, both liquid and ink process with attention to particular characteristics of products of various manufacturers. (Meets four clock hours.)

413. (188) Secretarial Procedures (3) F, S
Prerequisites: Business Education 100B and 110B or equivalent. Principles underlying editing and arrangement of dictated letters and reports; development of expert skill and ability in shorthand transcription.

431. (189) Office Organization and Management (3) F, S
Organization and functions of office departments, layout, equipment and appliances; selection and supervision of office personnel, methods of improving operating efficiency, techniques for performing office duties.

FINANCE

Professors: Reep, Rhoads, Schultz.
Associate Professors: Beecher, Belt, Farrell, George, B., Kearney.

LOWER DIVISION

222. (55) Business Law I (3) F, S
Elements of contracts used in business; fundamental factors governing negotiable instruments, and the laws dealing with agency.

224. (56) Business Law II (3) F, S
Prerequisite: Finance 222. Fundamental laws of corporations, sales, sales contracts and partnerships.

UPPER DIVISION

302. (121) Insurance Principles (3) F, S
Fundamentals upon which the insurance industry is based. Types of carriers; internal and field organization of carriers; economic aspects; insurance needs of the individual and the business firm; analysis of typical insurance contracts.

304. (122) Life Insurance (3) F, S
Prerequisite: Finance 302 or consent of instructor. Structure of life insurance and annuity contracts and their application to personal and business situations; calculation of premiums, reserves. Financial management of life insurance carriers; contract provisions and legal principles; marketing, underwriting and regulation.

306. (123) Multiple-Lines Insurance (3) S
Prerequisite: Finance 302. All lines of property and casualty insurance are examined, including fire and allied lines, inland and ocean marine, automobile, general liability, suretyship, workmen's compensation, theft, accident and sickness. Contract analysis of specific lines of insurance; loss prevention and settlement, ratemaking, underwriting, marketing, regulation, reinsurance and carrier organization.

326. (107) Business Law III (3) F
Prerequisite: Finance 224. Analysis of business problems involving the law of contracts, negotiable instruments, sales, corporations and partnerships, fundamental laws of real property, fiduciary relationships, bankruptcy and insurance.

342. (141) Real Estate Principles (3) F, S
Major forces affecting real property values and the real estate industry including production of real estate resources, marketing and financing of land based on valuation processes as related to location and development; effects of business trends and government regulation; rural and urban real estate development and transfer. Role of residential, commercial and individual construction in the health of American economic system is closely examined.

344. (142) Legal Aspects of Real Estate (3) F, S
Prerequisite: Finance 342. Basic principles of the law of real estate as related to conveyances, titles, private and public restrictions on the use of land, escrows, community property and financial transactions.

346. (143) Real Estate Appraisal (3) F, S
Prerequisites: Accounting 200B, Finance 342. Development of the capacity for selection of criteria for establishing real property values and the determination of alternative uses and locations.

348. (144) Real Estate Finance (3) S
Prerequisites: Accounting 200B, Finance 342, 362. Institutions, techniques and instruments involved in real estate finance. Equity financing, mortgage origination, servicing and foreclosure; construction financing, and the role of government in real estate finance.

360. (178) Financial Institutions and the Money Market (3) F, S
Institutional approach to the field of finance; comparative analysis of American financial institutions, including nature and character of the money market; emphasis on (1) differentiating functions and practices, (2) interrelations of financial institutions and business firms, (3) interest rates and yields resulting from demand-supply relationships, (4) character and economic significance of financial specialization.

362. (118) Business Finance (3) F, S
Prerequisites: Economics 200 or 201 or 300; Accounting 200B or equivalent. Different forms of ownership organization emphasizing significance of corporate form. Methods, instruments, control factors in raising, administering, distributing funds of business firms; working and fixed capital requirements; internal and external fund sources; financial aspects of promotion, growth, reorganization, liquidation.

364. (190) Business Financial Management (3) F, S
Prerequisites: Finance 362 and Accounting 300A or 320. Classification of major problems and policies in business finance with emphasis on financial framework within which business operates. Management of flow-of-funds through the firm including sources, uses and controls; alternative policies of working capital, capital budgeting, dividends, retained earnings and income management are explored.

382. (153) Investment Principles (3) F, S
Prerequisite: Finance 362. Types of investment media centering attention on stocks for investment and commodities for speculation; technical approach to analysis of price patterns, trends and turning points. Analysis of objectives, risk patterns, values in investments; development of a rational investment philosophy.

384. (154) Investment Security Analysis (3) F, S
Prerequisite: Finance 362. Application of quantitative techniques in evaluating business management from investor's viewpoint. Analytic methods and transaction timing are detailed and applied to securities of governments, public utilities, railroads, industrials and financial institutions. Framework established for personal investment administration.

386. (191) Security Markets (3) F, S
Prerequisite: Finance 362. Examination of purposes and functions of over-the-counter markets and organized exchanges for securities marketing. Operations of New York Stock Exchange and Chicago Board of Trade are reviewed. Fundamental and technical aspects of securities industry required of individuals in qualifying for certificates as customers brokers, security salesmen and analysts, and other registered positions of finance and investment.

GRADUATE DIVISION

602. (221) Seminar in Insurance and Risk Management (3)

662. (278) Seminar in Business Finance (3)

682. (254) Seminar in Investments (3)

MANAGEMENT

Professors: Cox, T., Gregory, Laufer, Metzger, Stewart, Yoder.
Associate Professors: Harris, Heise, Simons, Stephenson.
Assistant Professors: Smith, Stanton.

UPPER DIVISION

300. (170) Industrial Management (3) F, S
Prerequisite: Operations Research and Statistics 320 or equivalent. Introduction to theory and practice of industrial management; problems of internal industrial organization and control; systems and procedures; materials control; production control; motion and time study; industrial statistics; industrial safety; and industrial research.

360. (100) Human Relations in Business (3) F, S
Human relations concepts and problems in the administration, organization and supervision of business enterprise. Topics include authority systems and chain of command, information theory, leadership and organizational performance, incentives and worker productivity, unions in business enterprise, minority groups in industry and unions, human problems in foreign operations, management of the handicapped and older workers and current trends in human relations in business enterprise.

361. (151) Personnel Management (3) F, S
Prerequisite: Operations Research and Statistics 320 or equivalent. Importance of employee-employer relationships, personnel policies, procedures, operations and training; techniques of personnel administration, interviewing and testing; wages and salary administration; recruitment; inductions, transfers, promotion and merit rating.

400. (171) Production Planning and Control (3) F, S,
Prerequisite: Operations Research and Statistics 320 or equivalent. Problems and fundamentals in managing manufacturing operations. Examination of inventory management; equipment utilization; optimal scheduling; quality and cost control; development of information and control systems of production.

401. (172) Motion and Time Study (3) F, S
Prerequisite: Operations Research and Statistics 320 or equivalent. The laws of motion and economy; work place motions and movements; equipment layout; and the theory and practice of time study.

425. (175) Business Organization and Policy (3) F, S
Prerequisite: Senior standing or consent of instructor. Analytical study of administrative organization, business plans and policies and their formulation. Consideration of budgeting and other executive control techniques of management. Problems and cases will be examined.

440. (163) Collective Bargaining (3) F, S
Fundamentals and problems of collective bargaining in American industry. Labor agreements, conciliation, mediation and arbitration of labor disputes.

462. (162) Job Analysis and Evaluation (3) F, S
Prerequisites: Management 361 or Psychology 381; Mathematics 117. Processes, methods and fundamentals used in preparing job descriptions, making job evaluations, and administering wage and salary programs. Case studies from organizations and industries will be clinically examined.

463. (173) Management and Employee Development and Training (3) F, S
Determination of goals for management, supervisory and employee development and training. Special emphasis to emerging problems of upgrading and retraining incident to the impact of technological change. Identification of criteria and procedures for evaluating, guiding and implementing educational programs for employees, supervisors and managers within industrial and business establishments.

GRADUATE DIVISION

525. (275) Business Problems and Policies (3)

526. (276) Organization Analysis and Management Auditing (3)

600. (270) Seminar in Advanced Industrial Management (3)

640. (251) Seminar in Labor Relations (3)

660. (253) Seminar in Personnel Management (3)

MARKETING

Professor: Wolff.
Associate Professors: Ash, Cotta, Holmes, Palubinskas.
Assistant Professors: Hall, Stuteville.
Instructor: Teague.

UPPER DIVISION

300. (125) Marketing (3) F, S
Prerequisite: Economics 200 or 201 or 300. Distribution of goods from the producer to the ultimate user. Topics include retailing, wholesaling, pricing, cost to the consumer and government regulation. Emphasis on principles, policies and trends in marketing.

305. (160) International Marketing (3) S
Prerequisite: Marketing 300. Basic principles of foreign trade and finance; analysis of character and importance to United States; theory of comparative costs; balances of trade and of international payments; tariffs; quotas, exchange, and other trade barriers, dumping and export subsidies.

310. (126) Retailing (3) F, S
Principles of store operation and management including store's location and layout; retail buying and merchandising; sales promotion, advertising and customer service; retail accounting and control; the management viewpoint toward operations, policies and integration of the various functional areas.

320. (128) Salesmanship (3) F, S
Economic aspects of consumer demand as related to selling. Individual and company objectives in selling from the business and social point of view; contributions of psychology, sociology and other behavioral sciences of salesmanship; evaluation of selling techniques and practices including recruiting, training and compensation.

325. Sales Management (3) F
Prerequisite: Marketing 300. Planning, organizing, evaluation and control of the sales organization. Evaluation and measurement of sales opportunity. Defining and analyzing sales tasks. Control of sales results through sales forecasting, determination of market potentials, sales territories, and quotas of achievement.

330. (157) Advertising (3) F, S
Principles and practices of advertising including the social importance of advertising, its economic significance and relation to modern business organization; the preparation of advertisements, copy writing, layout and media selection.

335. Creative Advertising Strategy (3) F
Prerequisite: Marketing 330. Creative strategies and decision-making in planning and writing retail and national advertising. Designed to integrate elements of marketing and communications that constitute a modern advertising program. Evaluation of media, copy content and advertising costs.

340. (140) Traffic and Transportation (3) F, S
Economic and financial aspects of transportation facilities, services and patterns of public regulation; analysis of major traffic management principles and problems including rates, tariffs, and new developments in rail, motor, air, water and pipeline transportation.

350. (127) Credits and Collections (3) F, S
Prerequisite: Accounting 200B or equivalent. Mercantile and consumer credit; methods of evaluating the credit of individuals, partnerships and corporations; rights and equities of debtors and creditors; debtor-creditor relationship; sources of credit information; analysis of financial statements for credit purposes.

360. (155) Industrial Purchasing (3) F, S
Procurement and commercial buying in relation to wholesale and industrial marketing. Purchasing policies and organization; coordination with production schedules and materials planning; optimum quantity and price; vendor relations, following up and expediting receiving and inspections, purchasing research.

365. Industrial Marketing (3) S
Prerequisite: Marketing 300. Characteristics of demand and supply of industrial products, planning and control of new product development, the sales function, special problems of selling to defense industries, industrial marketing research.

408. (180) Marketing Management (3) F, S
Prerequisites: Marketing 300 and senior standing. Marketing policies and marketing management techniques. Marketing management methods include distribution decisions, product and promotional policies, regulatory legislation, competition, pricing and selling policies. Major emphasis on the development of a total marketing strategy for the firm.

410. (161) Retail Management and Policies (3) F

Prerequisite: Marketing 310 or graduate standing. Various phases of retail operation and management, using case problems and readings to illustrate retail decisions and policies in the areas of store location, merchandising of staple and fashion goods, buying for resale, sales promotion, store operations and control.

430. (159) Advertising Management and Policies (3) S

Prerequisite: Marketing 330. Advertising as a tool of marketing management. Major problems of policy formulation faced by advertising management, including advertising budgets, agency compensation, advertising account management, evaluation of media, advertising testing and coordination with other marketing efforts.

470. (182) Marketing Research (3) F, S

Prerequisites: Operations Research and Statistics 320 or equivalent, Marketing 300. Fundamentals of marketing and industrial research as an approach to problem-solving in business. Cases are used to develop the student's analytical ability and demonstrate the application of business research fundamentals.

GRADUATE DIVISION

608. (280) Seminar in Marketing Policies (3)

630. (284) Seminar in Advertising Policies (3)

670. (282) Seminar in Marketing Research (3)

OPERATIONS RESEARCH AND STATISTICS

Professors: Romig, Stone.

Associate Professors: Chao, Hamburger, Napoli, Patel.

Assistant Professor: Brown.

LOWER DIVISION

240. Introduction to Computer Programming (1) F, S

Computer programming fundamentals designed to provide a basic understanding of command and control techniques for modern stored program digital computers. Includes flow charting and programming for some relatively simple problems.

UPPER DIVISION

305. (115) Finite Mathematical Analysis for Business (3) F, S

Prerequisite: Mathematics 117. Theory and applications of modern mathematical topics as a management tool. Includes compound statements, sets and functions, linear algebra, matrices, vector spaces.

320. (110) Introduction to Statistical Inference (3) F, S

Prerequisite: Mathematics 117. Principles of statistical inference with applications to problems of a business nature. Includes probability, theoretical distributions (binomial, hypergeometric, normal, t, poisson, chi-square and F), estimation and tests of hypothesis concerning means, proportions, variances, regression and correlation.

321. (111) Elementary Decision Theory (3) F, S

Prerequisites: Mathematics 117, Operations Research and Statistics 320. Decision making and consistent behavior in terms of personal utilities and probabilities. Includes Bayes strategies, minimax, value of information, probability models.

342. (117) Computer Programming (3) F, S
Prerequisite: Operations Research and Statistics 320. Logic of digital computers; elements of coding and operation. Cases will emphasize coding for computer applications to decision making problems.

422. (112) Advanced Statistical Inference (3) F, S
Prerequisites: Mathematics 117, Operations Research and Statistics 305, 320, Elements of experimental design including analysis of variance, multiple and partial correlation, nonparametric methods.

445. Computer Applications to Operations Research Models (3) F
Prerequisites: Rudiments of computer programming and either Operations Research and Statistics 460 or Management 400. Computer coding of operations research models including programming models, static and dynamic probability models, and simulation of complex systems.

460. (116) Introduction to Operations Research (3) F, S
Prerequisites: Operations Research and Statistics 305, 320; Mathematics 122. Theory and applications of operations research as an aid to management decision making. Includes programming (linear, non-linear, dynamic, distribution models), simulation, waiting lines, etc., as they apply to inventory, scheduling, transportation, portfolio selection problems.

463. Topics in Operations Research (3) S
Prerequisite: Operations Research and Statistics 460. Selected topics in operations research. Includes additional work in some of the topics studied in Operations Research and Statistics 460.

GRADUATE DIVISION

510. (210) Economic Theory of Decision (3)

511. (211) Theory of Information and Organization (3)

522. Probability and Stochastic Processes (3)

524. Statistical Inference (3)

532. Topics in Multivariate Analysis (3)

535. Experimental Design (3)

BUSINESS ADMINISTRATION

THESIS AND RESEARCH

GRADUATE DIVISION

696. (297) Seminar in Research Methodology (3)

697. Directed Studies (1–3)

698. (298) Thesis (2–4)

CHEMISTRY

Professors: Becker, E., Henderson, R., Mayfield, Simonsen, Tharp.

Associate Professors: Bauer, Greenstadt, Harris, Kalbus, Kierbow, Marsi, Reeds, Stern.

Assistant Professors: Brooks, Freeman, Goldish, Hunt, R., Osborne, C., Perlgut, Wynston.

Lecturers: Baumgartner, Lutz.

LOWER DIVISION

100. (2) Fundamentals of Chemistry (4) F, S

Prerequisite: One year of high school algebra or consent of instructor. General course including elementary inorganic, organic and biological chemistry. Not open to majors in the physical sciences or to students with credit in Chemistry 111A. (Lecture 3 hours, laboratory 3 hours.)

111A-B. (1A,B) General Chemistry (5,5) F, S

Prerequisite: High school chemistry and physics recommended; Mathematics 101 or 102 may be taken concurrently. Principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester. (Lecture 3 hours, laboratory and problem session 6 hours.)

251. (5) Quantitative Analysis (2) F, S

Prerequisites: Chemistry 111B and 251L or concurrent registration in 251L. Introduction to the theories and techniques of gravimetric and volumetric analysis, with emphasis on the latter. This course, together with 251L, meets the requirements of most medical schools. (Lecture 2 hours.)

251L. (5L) Quantitative Analysis Laboratory (2) F, S

Prerequisite: Chemistry 251 or concurrent registration in 251. Laboratory work in which the principles taught in 251 are applied to the analysis of unknown samples. (Laboratory 6 hours.)

UPPER DIVISION

321A-B. (112A,B) Organic Chemistry (5,5) F, S

Prerequisite: Chemistry 111B. Recommended: Chemistry 251, 251L. Designed primarily for chemistry majors, but open to other students who desire a broader background in this field. Emphasis is upon the application of modern principles to structure, reactivity, methods of synthesis, and physical properties of organic compounds. (Lecture 3 hours, laboratory and quiz section 6 hours.)

327. (108) Organic Chemistry (3) F, S

Prerequisite: Chemistry 100 or 111B. Lecture course in the chemistry of the carbon compounds. Meets the requirements of most medical schools. Not applicable to a degree in chemistry. (Lecture 3 hours.)

328. (109) Organic Chemistry Laboratory (3) F, S

Prerequisite: Chemistry 327 which may be taken concurrently. Designed to provide training in the basic techniques of the organic chemistry laboratory. Not applicable to a degree in chemistry. (Lecture 1 hour, laboratory 6 hours.)

371A-B. (170A,B) Physical Chemistry (3,3) F, S

Prerequisites: Chemistry 111B, Physics 240 and Mathematics 224. Fundamental physical laws, theoretical principles, and mathematical relations of chemistry. (Lecture 3 hours.)

373. (171) Physical Chemistry Laboratory (3) F, S

Prerequisites: Chemistry 251, 251L, 371A, and Chemistry 371B which may be taken concurrently. Introduction to basic apparatus and techniques of physicochemical experimentation and research and application of the principles discussed in 371A-B. Reference to chemical literature is required. (Lecture 1 hour, laboratory 6 hours.)

377. (172) Fundamentals of Physical Chemistry (3) S

Prerequisites: Chemistry 111B, Physics 100B and Mathematics 101. Introductory study of the principles of physical chemistry. Not applicable to a degree in chemistry. (Lecture 3 hours.)

381. Chemical Engineering Fundamentals (3) S
Prerequisite: Chemistry 111A. Dimensional analysis of units, steady and transient balances of mass and energy.

382. Transport Phenomena (3) F
Prerequisite: Chemistry 381 or consent of instructor. Momentum transport in the flow of fluids, energy transport in the transfer of heat and mass transport in the diffusion of gases and liquids.

383. Mass Transfer (3) S
Prerequisite: Chemistry 382. Computational techniques for the behavior of chemical engineering equipment. Examples include the operation of crystallization, distillation, drying, extraction, reverse osmosis and sorption processes.

384. Chemical Engineering Thermodynamics I (3) S
Prerequisite: Chemistry 371A. Thermodynamics of real gases and liquids including statistical concepts.

385. Chemical Applications of Computers (1) S
Prerequisite: Mathematics 370A. Use of digital computers for chemical applications. Problems, including partial differential equations, are solved by polynomial approximation, iterative solution and numerical quadrature.

421. (126) Physical Organic Chemistry (3) F
Prerequisites: Chemistry 321B; 371B or 377. Theoretical interpretations of the chemical and physical properties of organic compounds. Introduction to methods of determining organic reaction mechanisms.

422. (115) Identification of Organic Compounds (3) S odd years
Prerequisites: Chemistry 251, 251L and 321B. Characterization of organic compounds through study of their chemical and physical properties. (Lecture 1 hour, laboratory 6 hours.)

431. (130) Advanced Inorganic Chemistry (3) S even years
Prerequisites: Chemistry 371A or consent of instructor. Detailed study of the atomic structure of elements and relationships to chemical behavior; review of the properties of elements and compounds. (Lecture 3 hours.)

432. (131) Inorganic Chemistry Laboratory (3) F even years
Prerequisite: Chemistry 431. Preparation and properties of inorganic compounds. Reference to chemical literature is required. (Lecture 1 hour, laboratory 6 hours.)

435. (136) Radiochemistry (3) F even years
Prerequisites: Chemistry 371A or consent of instructor. Properties and uses of natural and artificial radioactive isotopes. (Lecture 3 hours.)

436. (137) Radiochemistry Laboratory (3) S odd years
Prerequisite: Chemistry 435. Laboratory course in experimental nucleonics. (Lecture 1 hour, laboratory 6 hours.)

441A-B. (145A,B) Biological Chemistry (3,3) F, S
Prerequisite: Chemistry 321A or 327; one biology or microbiology course recommended. Dynamic metabolic process involved in the maintenance of life; a comparison of these processes in the major species of living organisms. (Lecture 3 hours.)

443. (146) Biological Chemistry Laboratory (3) F, S
Prerequisites: Chemistry 251, 251L, and 441A which may be taken concurrently. Laboratory study of the chemical process of life. (Lecture 1 hour, laboratory 6 hours.)

447. (140) Clinical Chemistry (3) F, S

Prerequisites: Chemistry 251, 251L, and 441A which may be taken concurrently. Methods of analysis and chemical properties of foodstuffs, blood, urine and other biological materials. Required in medical technology curriculum; not available for credit to majors in the physical sciences. (Lecture 1 hour, laboratory 6 hours.)

448. Fundamentals of Biological Chemistry (3) F

Prerequisite: Chemistry 327. Concise consideration of the major principles of biochemistry including metabolic processes, biological control mechanisms and nutrition of animals, plants and microorganisms. Not open to chemistry majors. Open to majors in the biological sciences only with the consent of the major department and the instructor. (Lecture 3 hours.)

451. (155) Instrumental Methods of Analysis (4) F, S

Prerequisites: Chemistry 251, 251L. Theory and application of instrumental methods in chemical problems. Laboratory work includes experiments in colorimetry, spectrophotometry, polarography, refractometry and other modern techniques. (Lecture 2 hours, laboratory 6 hours.)

461. (161) Glass Blowing (1) S

Demonstrations and practice in elementary laboratory glass manipulation. Open only to natural science majors. (Laboratory 3 hours.)

471. (176) Chemical Thermodynamics (3) S

Prerequisites: Chemistry 371B and consent of instructor. Derivation and application of thermodynamic relationships of particular importance in all fields of chemistry. (Lecture 3 hours.)

481. (160) Introductory Industrial Chemistry (3) F

Prerequisite: Chemistry 321B or 327. General survey of applied chemistry, designed to show the application of chemistry to industry and to present the fundamental principles and methods of designing chemical processes. (Lecture 3 hours.)

496. (169) Special Problems in Chemistry (1-3) F, S

Prerequisite: Consent of instructor. Problems selected for considered and mature analysis. May be repeated to a maximum of six units.

GRADUATE DIVISION

521. (226) Advanced Physical Organic Chemistry (3)

522. (227) Special Topics in Organic Chemistry (3)

531. (230) Advanced Inorganic Chemistry I (3)

532. (231) Advanced Inorganic Chemistry II (3)

541. (245) Modern Biochemistry (3)

542. (246) Special Topics in Biochemistry (3)

571. (276) Advanced Thermodynamics (3)

572. (277) Advanced Physical Chemistry (3)

695. (295) Seminar in Chemistry (1)

697. Directed Research (1-3)

698. (298) Research and Thesis (2-6)

COMPARATIVE LITERATURE

Associate Professors: Carr, Coppola, Hubble.

LOWER DIVISION

230. (53) Introduction to World Literature (3) F, S
Readings in translation from masterpieces of world literature with emphasis on the technique and form of literary art as developed in various cultures.

232. (54) Folklore and Mythology (3) F, S
Introduction to mythology and folklore, with emphasis on myths of Eastern and Western civilization and their application in literature.

UPPER DIVISION

330A,B. (176, 177) Survey of European Literature (3,3) F, S
Representative selections, in translation, from European writers to and since 1600, in relation to the development of Western civilization.

332. (150) Classical Drama (3) F
Greek and Roman drama, in translation.

340. (197) Methods in Comparative Literature (3) S
History and theory of comparative analysis, including objectives and methods of research and the interrelations of the various artistic media.

346. (173) Readings in World Poetry (3) F
Representative selections, in translation, from the poetry of the world, from the earliest examples to the present.

431. (139) Medieval Literature (3) S
Representative selections, in translation, from writings of the medieval period, reflecting dominant ideas of the time.

432. Continental Renaissance Literature (3) F
Major themes, authors and works of Renaissance Europe.

438. Twentieth Century European Literature (3) S
European literature, in translation, from about 1900 to the present.

439. Oriental Literature (3) S
Representative selections, in translation, from literature of the Near East, India, China and Japan.

447. (174) Nineteenth Century Continental Novel (3) F
Representative European novels, in translation, of the 19th century, excluding British.

448. (152) Continental Drama to Ibsen (3) S
European drama, in translation, from the Middle Ages to Ibsen, excluding British.

449. Critical Studies in Major Continental Writers (3) S
Recommended for seniors in comparative literature, English and foreign languages. Intensive study of one to three major Continental authors. Authors to be studied will be announced in the *Schedule of Classes*.

CRIMINOLOGY

Professors: Germann, Guthrie, Kenney.
Associate Professor: Becker, H.
Assistant Professors: Felkenes, Pace, Whisenand.

LOWER DIVISION

101. (11) Introduction to Law Enforcement (3) F, S,
Philosophy and history of law enforcement; agencies involved in the administration of criminal justice; processes of justice from detection of crime to parole of offender; evaluation of modern police services; survey of professional career opportunities.

102. (83) Police Safety Procedures (2) S
Police defense tactics including protection against dangerous weapons, methods of disarming, use of baton and subject control. Firearms training including legal, moral, and safety aspects, range firing of sidearms and riot guns at stationary and combat targets.

143. Fire Protection Laws (3) on demand
Authority for fire department operations; federal, state and local laws affecting fire department operations; fire department liability; member's liability; citizen liability; fire department trial boards.

151. (51) Criminal Law (3) F
Elements of criminal law with definitions and general penalties; laws of arrest, search and seizure, rights and duties of officers and citizens.

155. (56) Criminal Evidence (3) S
Origin, development and philosophy of rules of evidence; tests of admissibility; weight and value of types of evidence.

157. (61) Administration of Justice (3) F
General court procedure and judicial process. Principles of constitutional and civil law as applicable to police operations. Preparation for trial, courtroom testimony, moot court.

261. (66) Criminal Investigation (3) S
Fundamentals of investigation; techniques of crime scene recording and search; collection and preservation of physical evidence; *modus operandi* processes; sources of information; interview and interrogation; follow-up and case preparation.

271. (71) Patrol Procedure (3) F
Techniques of patrol and observation; handling complaints and called-for service; mechanics of arrest; techniques of field interrogation; officer's notebook procedure; essentials of police report writing.

276. (76) Traffic Control (3) S
Traffic problem; accident investigation; traffic regulation; enforcement; direction; pedestrian, intersection and parking control; records and analysis; engineering and education. Traffic law and traffic court procedure.

281. (81) Juvenile Control (3) F
Techniques of handling juvenile offenders and victims; prevention and repression of delinquency; diagnosis and referral; organization of community resources. Juvenile law and juvenile court procedures.

286. (86) Vice Control (3) S
Detection, repression and control of vice; gambling, narcotics, prostitution, liquor law and sex-offender violations. Vice law and court procedures.

UPPER DIVISION

311. (111) Basic Criminalistics (3) F, S
Scientific analysis, comparison and identification of physical evidence. Crime scene and other types of photography. Basic fingerprint and firearms identification. Use of impressions and prints of tire tracks, footprints and tool marks. (Lecture 2 hours, laboratory 3 hours.)

312. (112) Intermediate Criminalistics (3) F, S
Prerequisite: Criminology 311. Applications of comparative microscopy, serology, spectrography, chemical and microchemical techniques to fibers, hairs, poisons, textiles, stains, dust, dirt and debris. Chemical tests for intoxication and narcotic addiction. Examination of questioned documents and the instrumental detection of deception. (Lecture 2 hours, laboratory 3 hours.)

321. (121) Police Administration I (3) F
Organization and management of police line, staff and auxiliary service units from a traditional point of view. Formulation of policy and procedures. Coordination and control activities.

322. (126) Police Administration II (3) S
Prerequisite: Criminology 321. Behavioral approach to the study of police administration. The organization and the individual. Planning, research and development in police administration. Effect of group dynamics on the police administrator.

323. (131) Police Administration III (3) On demand
Prerequisite: Criminology 322. Individual and group studies in the dynamics of police administration. Social and psychological aspects of organization and management. Policy formulation and decision making in management from a human relations and organizational point of view. Electronic data processing in law enforcement.

324. (116) Police Supervision (3) S
Techniques of police supervision; problems of policy and procedure; field problems; instructional and disciplinary methods; motivation; supervisory investigations and reports; performance rating.

411. (171) Advanced Criminalistics (3) On demand
Crime laboratory organization and management. Training of laboratory personnel. Transportation, storage and security of physical evidence. Preparation of courtroom exhibits. Use and care of special equipment such as X-ray and photospectrometer. Special problems of identification and classification. (Lecture 2 hours, laboratory 3 hours.)

421. (136) Specialized Problems in Police Administration (3) F
Policy and procedure in specialized situations; labor-management disputes; minority group relations; crowd, public gathering, mob and riot control; mental cases; subversives; civil defense and disaster planning. Special problems involved in licensing, inspections, animal regulation, ambulance service and other specially assigned police activities. Integration of public safety functions. Problem of organized crime.

422. (141) Comparative Police Administration (3) S
Survey of nationwide and worldwide police philosophy and technique. Evaluation of current major hypotheses; review of recent developments and contributions by agencies and academic institutions; review of current literature in the field.

424. Advanced Supervision in Law Enforcement (3) On demand
Prerequisite: Criminology 324. Behavioral science approach to police supervision. Includes sensitivity training, individual and group interview rehearsals and group dynamics.

431. (146) Industrial Security Administration (3) On demand
Organization and management of industrial security and plant protection units. Security, police, administrative, legal and technical problems. Special problems of government contract security. Specialized programs in retail security, insurance and credit investigation, transportation security and private guard and alarm services.

441. (156) Fire Services Administration (3) On demand
Organization and management of fire services. Line, staff and auxiliary functions. Problems of policy, procedure and technique. Fire service supervision. Special methods and equipment.

442. Fire Prevention Administration (3) On demand
Organization of the fire prevention bureau; laws and regulations affecting fire prevention; coordination with governmental and other public organizations; planning and training.

443. Fire Protection Administration (3) On demand
Application of the American Insurance Association's evaluation to fire protection administration; objectives of the evaluation; assessment of deficiency points; factors affecting rating; administrative use of evaluation results; evaluation procedures.

444. Fire Disaster Administration (3) On demand
Fire disaster protection organization; disaster laws; establishment of central and field control centers; communications; support groups; manpower and equipment; overhaul and security; disaster and civil defense relationships.

451. (161) Advanced Legal Problems in Law Enforcement (3) S
Prerequisite: Consent of instructor. Examination of searches, seizures, arrests, police procedures for civil law, medico-legal problems, administrative law and similar legal topics. Original research of state and federal court decisions required.

455. (162) Traffic Laws and Procedures (3) F
Development, purpose and examination of the Vehicle Code from a legal aspect. Case studies and court-made rules regarding interpretation of the Code. Exploration of the responsibilities, rights and duties of law enforcement officials.

461. (151) Interviewing in Law Enforcement (3) S
Prerequisite: Consent of instructor. Theory and applications of behavioral sciences to interviewing techniques. Includes legal, ethical and instrumental aspects of interviewing. Includes role-playing, practical exercises. (Lecture 2 hours, laboratory 3 hours.)

481. Police-Community Relations (3) F, S
Individual and group study of relationships between law enforcement agencies and the public. Exploration of areas of conflict and cooperation.

483. (166) Jail Administration (3) On demand
Organization and management of police detention facilities. Security, custody and discipline as applicable to pretrial detention. Operation of programs for sentenced misdemeanants. Special problems relative to first offenders, female prisoners, juveniles, narcotic addicts, sick prisoners, homosexuals, the mentally disturbed and the alcoholic prisoner.

490. (176) Case Studies in Police Administration (1-3) F, S
Prerequisite: Majors only, junior standing. Individual research and study approved by major professor. May be repeated for credit not to exceed a total of 3 units.

495. (191) Police Internship Program (3) F, S
Prerequisite: Majors only, junior standing. Supervised work experience in a law enforcement agency in the immediate area. May be repeated for a maximum of six units. (Not open to employed law enforcement officers.)

DRAMA

Professors: Green, Stiver.
Associate Professors: Camburn, Duckwall, Kahan, MacArthur.
Assistant Professors: Lyman, Rugg.
Instructors: Eggers, Ford, Miner, J.
Lecturer: Wright.

LOWER DIVISION

110A,B. (10) Drama-Activity—Cast (1,1) F, S
Participation in acting; open to students who expect to be cast in either afternoon or evening College sponsored productions; major cast assignment or equivalent required.

112. (33) Stage Diction (3) F, S
Theory and practice in developing command of oral techniques for stage. (Lecture 2 hours, laboratory 2 hours.)

114. (35) Elementary Acting (3) F, S
Introduction to problems of acting; lectures, readings and exercises in developing and projecting a character through voice, emotion and physical movement.

122. (37) Appreciation of Theatre Arts (3) F, S
Appreciation and understanding of the arts of the theatre for the non-drama major; standards for critical evaluation of contemporary theatre including stage, screen and TV; lecture, discussion, field trips and written critiques; not open to students with credit in Drama 124.

124. (47) Introduction to the Theatre Arts (2) F, S
Background and foundation for appreciation and evaluation of dramatic arts of the theatre; introductory course for the drama major. Not open to students with credit in Drama 122.

140A,B. (10) Drama Activity—Crew (1,1) F, S
Participation in technical play production activities of either afternoon or evening College sponsored productions; specific assignments determined at initial meeting; 45 hours minimum participation time plus major crew assignment or equivalent required.

210A,B. (10) Drama Activity—Cast (1,1) F, S
Prerequisite: Sophomore class standing. Participation in acting; open to students who expect to be cast in either afternoon or evening College sponsored productions; major cast assignment or equivalent required.

216A,B. (57) Rehearsal and Performance (2,2) F, S
Prerequisite: Drama 114 or equivalent. Preparation and rehearsal laboratory of short scenes and one-act plays for performance; no more than 4 units of Drama 216 and/or Drama 316 may be applied for graduation credit.

231. Acting for the Musical Theatre (3) F
Prerequisite: Drama 114 or consent of instructor. Problems of performing in opera, operetta and musical comedy. (Not open to students with credit in Drama 230A-B, formerly 66A,B.)

240A,B. (10) Drama Activity—Crew (1,1) F, S
Prerequisite: Sophomore class standing. Participation in technical play production activities of either afternoon or evening College sponsored productions; specific assignments determined at initial meeting; 45 hours minimum participation time plus major crew assignment or equivalent required.

242. (55) Elementary Stagecraft (2) F, S
Basic physical equipment of the theatre; elementary scenic drafting, construction, assembly and scene painting. One crew assignment required as practical experience on actual College sponsored productions. May not be taken concurrently with Drama 246. (Laboratory 6 hours.)

244. (56) Stage Make-up (1) F, S
Practical introduction to techniques of theatrical make-up; crew assignment required in College sponsored productions.

246. (77) Costume Crafts (2) F, S
Techniques of costume and accessory construction for the stage; use of fabrics, materials and equipment; crew assignment required in College sponsored productions. (Not to be taken concurrently with Drama 242.)

UPPER DIVISION

310A,B. (121) Drama Activity—Cast (1,1) F, S
Prerequisite: Junior class standing. Participation in acting; open to students who expect to be cast in either afternoon or evening College sponsored productions. Major cast assignment or equivalent required.

314. (135) Intermediate Acting (3) F, S
Prerequisite: Drama 114 or equivalent. Advanced problems of acting; developing a character through emotional, vocal and bodily expression.

316A,B. (157) Rehearsal and Performance (2,2) F, S
Prerequisite: Drama 114 or equivalent. Preparation and rehearsal laboratory of short scenes and one-act plays for performance. No more than 4 units of Drama 216 and/or Drama 316 may be applied for graduation credit.

321. (152) History of the Theatre and Drama to 1660 (3) F
Development of theatre arts from primitive origins through Moliere.

322. (152) History of the Theatre and Drama Since 1660 (3) S
Prerequisite: Drama 321 or consent of instructor. Development of theatre arts from the Restoration to the present.

340A,B. (121) Drama Activity—Crew (1,1) F, S
Prerequisite: Junior class standing. Participation in technical play production activities of either afternoon or evening College sponsored productions; specific assignments determined at initial meeting; 45 hours minimum participation time plus major crew assignment or equivalent required.

342A-B. (124A,B) Advanced Technical Theatre (2,2) F, S
Prerequisite: Drama 242 or equivalent. Scene painting; scenic drafting; problems of rigging and mounting various stage productions. Supervision in the practical application of these elements in College sponsored productions. (Lecture, laboratory.)

346. (174) History of Costume for the Stage (3) F, S
Prerequisite: Drama 246 or equivalent. Chronological study of fashions and textiles of major historical periods; suitability and adaptation of fashions and fabrics for contemporary stage productions.

348. (176) Stage Lighting (2) F, S
Theory and practice of modern stage lighting; functions of light; design of lighting layout; properties of various instruments; crew assignment required in College sponsored productions.

352. (129) Creative Dramatics for Children (3) F, S
Theory and techniques of developing creative capacities of children through original dramatizations; participation and leadership in creative dramatics; application or principles to elementary school and recreational programs.

354. (128) Theatre for Children (2) F, S
Problems of presenting plays for children; examination of organizations for children's theatre productions.

358. Recreational Dramatics (3) F, S
Problems of staging theatrical productions, puppet shows, variety programs, plays at community recreation centers. Story dramatization, dramatic games, simplified staging techniques appropriate to recreation programs.

359. Directing for Children's Theatre (3) F, S
Prerequisites: Drama 354, 374, or consent of instructor. Technical problems, production experience in College sponsored children's theatre productions, recreational dramatics, field work. (Lecture 2 hours, laboratory 4 hours.)

362. (136) Dance Movement for the Theatre (2) F, S
Fundamentals of movement, modern dance and choreography for the actor, teacher and director of drama and musical theatre.

370. (188) Summer Theatre Workshop (4-6) SS
Participation in organized summer theatre similar to professional stock company; students devote full time to rehearsal, technical work, management and performance in College sponsored productions; enrollment by consent of the staff.

372. (112) Play Production (3) S
Techniques of selecting, planning and staging plays and assembly programs in high school and junior high school. Creative approach in working with actors; effective utilization of simplified scenery, lighting, costuming and make-up in College sponsored productions. Not open for credit to drama majors. (Lecture 2 hours, laboratory 3 hours.)

374. (122) Fundamentals of Play Direction (3) F, S
Interpretation of the play; casting; composition and movement; vocal techniques; tempo and climax; organization of production staff; coordination of entire production for educational and community theatre. (Lecture 2 hours, laboratory 4 hours.)

380. (180) Playwriting (2) F
Creative writing for the stage.

410A,B. (121) Drama Activity—Cast (1,1) F, S
Prerequisite: Senior class standing. Participation in acting; open to students who expect to be cast in either afternoon or evening College sponsored productions. Major cast assignment or equivalent required.

414. (137) Advanced Acting (3) F, S
Prerequisite: Drama 314. Advanced study and exercises; familiarity with historical acting styles. Factors of costume, socio-cultural attitudes and dramatic forms.

426. (172) Dramatic Theory and Criticism (3) F
Basic principles of dramatic theory and criticism; study of dramatic types including tragedy, comedy and melodrama; major historical and modern criticism.

431. Directing for the Musical Theatre (3) F
Prerequisites: Drama 114 and 374 or 372. Analysis and practice in the staging of opera, operetta and musical comedy. (Not open to students with credit in Drama 430A, formerly 166A.)

432. Lyric Theatre (3) F
History and production techniques of musical theatre including the dramatic content and staging of the lyric drama: opera, operetta, ballet, musical comedy and musical drama.

433. Production of Musical Theatre (3) S
Prerequisite: Drama 242. Analysis and practice in the production elements of design, costuming, setting and lighting for opera, operetta and musical comedy; crew assignment required in College sponsored productions. (Not open to students with credit in Drama 430B, formerly 166B.)

440A,B. (121) Drama Activity—Crew (1,1) F, S
Prerequisite: Senior class standing. Participation in technical play production activities of either afternoon or evening College sponsored productions; specific assignments determined at initial meeting; 45 hours minimum participation time plus major crew assignment or equivalent required.

443. Advanced Stage Makeup (3) F Even years
Prerequisite: Drama 244 or equivalent. Makeup techniques for characterization, style and technical processes. (Lecture, laboratory.)

444. (175) Scene Design (3) F
Prerequisite: Drama 342A or consent of instructor. Creative planning and projects of designs for specific College sponsored productions.

446. (177) Costume Design (3) F, S
Prerequisite: Drama 246 or equivalent. Technique of designing stage costumes of various historical periods; creative planning and projection of designs for specific College sponsored productions.

462. (136) Advanced Dance Movement for the Theatre (2) F, S
Prerequisite: Drama 362. Movement, modern dance and choreography for the actor, teacher and director of drama and musical theatre.

474. (126) Advanced Play Direction (3) F, S
Prerequisites: Drama 114, 242, and 374 or equivalent. Lecture and workshop in directing scenes and producing all College one-act plays. (Lecture 2 hours, laboratory 4 hours.)

476. (132) Theatre Management (3) F
Prerequisite: Drama 374 or consent of instructor. Examination of administration, management and promotion of a producing theatre organization; practical application required in College sponsored productions.

480. (180) Advanced Playwriting (2) F
Prerequisite: Drama 380 or consent of instructor. Creative writing for the stage.

498A,B. (199) Special Studies in Theatre Arts (3,3) F, S
Prerequisite: Consent of instructor and Drama Department chairman (consent of instructor and graduate coordinator if taken for graduate credit), 3.0 GPA or higher in drama. Independent projects and research of advanced nature in any area of theatre arts under supervision of one or more members of the Drama Department.

499. (200) Introduction to Graduate Study in Drama (3) F
Methods and scope of research including form and style of thesis writing and project recording. (Must be in progress or completed prior to approval of subject for project or thesis.)

GRADUATE DIVISION

542. Architecture of the Theatre (3)
621A,B. (252) Seminar in Theatre History and Dramatic Literature (3,3)
623A,B. (253) Seminar in Contemporary Theatre (3,3)
626. Seminar in Dramatic Theory and Criticism (3)
642. (224) Seminar in Technical Theatre (3)
694A,B. (275) Advanced Studies in Theatre Practice (3,3)
698. (298) Thesis or Project (2-4)

ECONOMICS

Professors: Palmer, P., Powell, J. R., Strain.
Associate Professors: Atherton, Dvorak, Madison, R., Simonson.
Assistant Professors: Anderson, R. C., Braslow, Cheung, Puckett, Segelhorst, Wheeler.
Lecturer: Billings.

LOWER DIVISION

160. (54) American Economic Institutions (3) F, S
Survey of the development, functioning and significance of economic institutions in the American way of life. Designed for nonmajors who desire to get economic perspective without an intensive or technical investigation.

200. (1A) Principles of Economics (3) F, S
Money and banking, price changes, national income analysis, business cycles, fiscal and monetary policy, international trade. (Macro Economics.)

201. (1B) Principles of Economics (3) F, S
Business organization, price theory, allocation of resources, distribution of income, public economy. (Micro Economics.)

UPPER DIVISION

300. (100) Fundamentals of Economics (3) F, S
Designed for nonmajors. Presents basic training in economics for social studies teachers or citizens who wish to exercise a reasoned judgment about economic issues in public affairs. Content generally same as Economics 200, 201 in condensed form, with technicalities minimized. Not open to students with credit in Economics 200 or 201.

309. (126) Consumer Education (3) F, S
Consumer's expenditure out of a limited income; his preferences; his budget allocation for food, clothing, housing, insurance, entertainment, etc.; efforts to influence his choice through advertising; the place of habit in purchasing; the consumer movement; and the consumer and public policy.

310. (112) Microeconomic Theory (3) F, S
Prerequisites: Economics 200, 201. Analysis of economic concepts and their applications to business situations. Emphasis on supply and demand analysis, costs of production, variations of competition and monopoly, revenues, prices, profits and losses, and other aspects of the operations of the business enterprise.

311. (113) Macroeconomic Theory (3) F, S
Prerequisites: Economics 200, 201. Determinants of levels of income, employment, and prices; of secular and cyclical changes in economic activity; and of the effects of public policies upon aggregative economic experience.

320. (130) Money and Banking (3) F, S
Prerequisite: Economics 200 or 300. Nature and functions of money and its relation to prices; the monetary system of the United States; the functions of banks, bank credit, foreign exchange and monetary control.

330. (120) Government and Business (3) S
Prerequisite: Economics 201 or 300. Basic American policy of maintaining competition to control economic behavior, with some consideration of alternative policies. Case studies of specific industries.

331. (154) Economics of Transportation (3) F
Prerequisite: Economics 201 or 300. Economic, institutional and historical factors determining the transportation system of the United States, the various agencies of transport, their rates and rate structure. Problems and policies of railroad, highway, water, air and pipeline transportation. Current development of a national policy for transportation.

332. (192) Public Utilities (3) S
Prerequisite: Economics 201 or 300. Theory of public utility rate-making. Valuation and the rate of return. Rate-making techniques. Special problems of electric, gas, telephone and urban transit utilities. Federal and state regulatory agencies. The Tennessee Valley Authority and other regional multiple-purpose projects.

335. (136) Agricultural Economics (3) Offered on adequate demand
Prerequisite: Economics 201 or 300. Description and analysis of the continuing economic problems which face the American farmer, such as: financing, marketing, overproduction, conservation, pricing and regionalism. Investigation of the organizations and government policies to aid the farmer.

462. (136) Advanced Dance Movement for the Theatre (2) F, S
Prerequisite: Drama 362. Movement, modern dance and choreography for the actor, teacher and director of drama and musical theatre.

474. (126) Advanced Play Direction (3) F, S
Prerequisites: Drama 114, 242, and 374 or equivalent. Lecture and workshop in directing scenes and producing all College one-act plays. (Lecture 2 hours, laboratory 4 hours.)

476. (132) Theatre Management (3) F
Prerequisite: Drama 374 or consent of instructor. Examination of administration, management and promotion of a producing theatre organization; practical application required in College sponsored productions.

480. (180) Advanced Playwriting (2) F
Prerequisite: Drama 380 or consent of instructor. Creative writing for the stage.

498A,B. (199) Special Studies in Theatre Arts (3,3) F, S
Prerequisite: Consent of instructor and Drama Department chairman (consent of instructor and graduate coordinator if taken for graduate credit), 3.0 GPA or higher in drama. Independent projects and research of advanced nature in any area of theatre arts under supervision of one or more members of the Drama Department.

499. (200) Introduction to Graduate Study in Drama (3) F
Methods and scope of research including form and style of thesis writing and project recording. (Must be in progress or completed prior to approval of subject for project or thesis.)

GRADUATE DIVISION

542. Architecture of the Theatre (3)
621A,B. (252) Seminar in Theatre History and Dramatic Literature (3,3)
623A,B. (253) Seminar in Contemporary Theatre (3,3)
626. Seminar in Dramatic Theory and Criticism (3)
642. (224) Seminar in Technical Theatre (3)
694A,B. (275) Advanced Studies in Theatre Practice (3,3)
698. (298) Thesis or Project (2-4)

ECONOMICS

Professors: Palmer, P., Powell, J. R., Strain.

Associate Professors: Atherton, Dvorak, Madison, R., Simonson.

Assistant Professors: Anderson, R. C., Braslow, Cheung, Puckett, Segelhorst, Wheeler.

Lecturer: Billings.

LOWER DIVISION

160. (54) American Economic Institutions (3) F, S
Survey of the development, functioning and significance of economic institutions in the American way of life. Designed for nonmajors who desire to get economic perspective without an intensive or technical investigation.

200. (1A) Principles of Economics (3) F, S
Money and banking, price changes, national income analysis, business cycles, fiscal and monetary policy, international trade. (Macro Economics.)

201. (1B) Principles of Economics (3) F, S
Business organization, price theory, allocation of resources, distribution of income, public economy. (Micro Economics.)

UPPER DIVISION

300. (100) Fundamentals of Economics (3) F, S
Designed for nonmajors. Presents basic training in economics for social studies teachers or citizens who wish to exercise a reasoned judgment about economic issues in public affairs. Content generally same as Economics 200, 201 in condensed form, with technicalities minimized. Not open to students with credit in Economics 200 or 201.

309. (126) Consumer Education (3) F, S
Consumer's expenditure out of a limited income; his preferences; his budget allocation for food, clothing, housing, insurance, entertainment, etc.; efforts to influence his choice through advertising; the place of habit in purchasing; the consumer movement; and the consumer and public policy.

310. (112) Microeconomic Theory (3) F, S
Prerequisites: Economics 200, 201. Analysis of economic concepts and their applications to business situations. Emphasis on supply and demand analysis, costs of production, variations of competition and monopoly, revenues, prices, profits and losses, and other aspects of the operations of the business enterprise.

311. (113) Macroeconomic Theory (3) F, S
Prerequisites: Economics 200, 201. Determinants of levels of income, employment, and prices; of secular and cyclical changes in economic activity; and of the effects of public policies upon aggregative economic experience.

320. (130) Money and Banking (3) F, S
Prerequisite: Economics 200 or 300. Nature and functions of money and its relation to prices; the monetary system of the United States; the functions of banks, bank credit, foreign exchange and monetary control.

330. (120) Government and Business (3) S
Prerequisite: Economics 201 or 300. Basic American policy of maintaining competition to control economic behavior, with some consideration of alternative policies. Case studies of specific industries.

331. (154) Economics of Transportation (3) F
Prerequisite: Economics 201 or 300. Economic, institutional and historical factors determining the transportation system of the United States, the various agencies of transport, their rates and rate structure. Problems and policies of railroad, highway, water, air and pipeline transportation. Current development of a national policy for transportation.

332. (192) Public Utilities (3) S
Prerequisite: Economics 201 or 300. Theory of public utility rate-making. Valuation and the rate of return. Rate-making techniques. Special problems of electric, gas, telephone and urban transit utilities. Federal and state regulatory agencies. The Tennessee Valley Authority and other regional multiple-purpose projects.

335. (136) Agricultural Economics (3) Offered on adequate demand
Prerequisite: Economics 201 or 300. Description and analysis of the continuing economic problems which face the American farmer, such as: financing, marketing, overproduction, conservation, pricing and regionalism. Investigation of the organizations and government policies to aid the farmer.

340. (165) Labor Economics (3) F, S
Prerequisites: Economics 200 and 201 or 300. Manpower resources and their utilization, with particular reference to labor unions, collective bargaining, and related public policies. Effects of these institutions on production, employment, prices, and patterns of income distribution.

350. (151) Public Finance (3) F
Prerequisites: Economics 200 and 201 or 300. Sources of revenues and types of expenditures of our federal, state and local governments. Emphasis on government taxing and spending policies and their effect upon production, employment, price level and distribution of income.

361. (108) Development of European Economic Institutions (3) F, S
Economic processes in the development of Western economic institutions. Particular emphasis on private property, the profit motive, the price system, free enterprise and the corporation. Application of economic principles to the study of the development of capitalism.

365. (122) Economic Development (3) S
Prerequisite: Economics 200 or 300. Principal determinants of economic development. Influence of these determinants in the past. Problems associated with the acceleration of development in poor countries and the maintenance of a suitable rate of development in rich countries.

366. Regional Economics (3) S
Prerequisites: Economics 200 and 201, or 300. Analysis of international regions, determination of regional income levels, stability, economic growth, specialization and trade. Application of analytical tools to the problems of the Los Angeles region.

368. (147) Comparative Economic Systems (3) F, S
The three primary economic systems: socialism, communism and capitalism. Emphasis is placed upon the making of economic decisions, the organization of production, the mechanism of exchange, the banking and investment institutions, the status of labor and the distribution of income.

370. (137) International Economics (3) F
Prerequisites: Economics 200 and 201 or 300. International trade and exchange rate theory. Types of trade control: tariffs, quotas, exchange manipulation, monopolies. Basic U.S. and European commercial policies since 1930.

380. (110) Economic Statistics (3) F, S
Prerequisites: Economics 200, 201. Elementary statistical analysis of economic data, probability theory, sampling, distributions, statistical inference, testing of hypotheses, simple linear regression and correlation, time series, index numbers.

412. (145) History of Economic Thought (3) F, S
Prerequisite: Economics 200 and 201 or 300. Evolution of economics as a science. Doctrines of the different schools of thought by a study of the contributions of outstanding economists.

420. (141) Business Cycles (3) F, S
Prerequisite: Economics 200 or 300. Business cycle, its characteristics and economic consequences; forecasting general business conditions; proposals for modifying the business cycle.

440. (167) Labor Legislation (3) F

Prerequisite: Economics 340. Legal institutions aimed at control of relations between employers and employees, with particular reference to the changing legal status of labor unions. Emphasis on analysis of the economic effects of public policies.

442. (138) Social Insurance (3) S

Prerequisites: Economics 200 and 201 or 300. Analysis of institutions developed as protection against major hazards to family income, including death, sickness or disability, retirement, and unemployment, with particular reference to economic effects of existing or proposed social insurance systems.

480. (114) Introduction to Econometrics (3) F

Prerequisites: Economics 310, 311, Mathematics 100 or equivalent, and Economics 380 or equivalent. Elementary mathematical expression of economic theory. Combined use of mathematics and statistics to solve economic problems. Use of econometric models for formulating economic policy.

GRADUATE DIVISION

510. (299) Advanced Price Analysis (3)

520. (230) Monetary Theory (3)

697. Directed Research (1-3)

EDUCATION

EDUCATIONAL ADMINISTRATION

Professors: Bratton, Dotson, Sehmann, Williams, S., Young, W.

GRADUATE DIVISION

541. (201) Principles and Organization of School Administration (3)

543. (207) Legal Aspects of School Administration (2)

545. (208) Financial Aspects of School Administration (2)

547. (219) Techniques of Public School Personnel Management (2)

549. (220) School Housing Administration (2)

551. (203) Organization and Administration of Elementary Schools (3)

553. (241) Instructional Aspects of Administration in Elementary Schools (3)

561. (228) Organization and Administration of Secondary Schools (3)

563. (239) Instructional Aspects of Administration in Secondary Schools (3)

571. (248) Organization and Administration of the Junior College (3)

573. (243) Instructional Aspects of Administration in Junior Colleges (3)

590. Special Problems in Educational Administration (1-4)

681. (291) Field Work in Administration and Supervision of Elementary Education (3)

682. (292) Field Work in Administration and Supervision of Secondary Education (3)

683. (293) Field Work in Administration and Supervision of the Junior College (3)

EDUCATIONAL PSYCHOLOGY AND SOCIAL FOUNDATIONS

Professors: Christensen, Crossan, Davis, B., Fogg, Graetz, Johnson, C., Peck, Poole, Russell, K., Stacker, Tilden, Warner.

Associate Professors: Blackman, Demos, Glasser, Hamel, Orpet, Revie, Shaver.

Assistant Professors: Britton, Currie, Forst, Gibbs, T., Kozuma, Swan.

Lecturers: Ghosh, Hillesheim, Jacobson, Lee.

EDUCATIONAL FOUNDATIONS

UPPER DIVISION

470. (112) History and Philosophy of Education (3) F, S

Historical and philosophical foundations of education, from ancient times to the present.

480. (190) School and Society (3) F, S

Relationships between the school and community; economic and social backgrounds of school populations; current social trends and issues as they effect education; democratic ideology and the school; education as a social function.

485. Education of Culturally Different Child (3) F, S
Prerequisite: Ed. Found. 480. Problems of cultural and educational deprivation; implications for teaching.

GRADUATE DIVISION

550. Social Foundations of Special Education (3)

575. (212) Philosophy of Education (3)

582. (214) Comparative Education (3)

585. (265) Group Processes in Education (3)

677. (270) Seminar in Curriculum Development (3)

680. (213) Seminar in Current Problems and Issues in Education (3)

EDUCATIONAL PSYCHOLOGY

UPPER DIVISION

301. (105) Child Development and Learning (3) F, S
Physical, mental, emotional and social growth and development of the child with emphasis on the learning process.

302. (106) Adolescent Development and Learning (3) F, S
Prerequisite: General psychology. Physical, social, emotional and mental development during adolescence; learning processes.

305. (107) Educational Psychology (3) F, S
Prerequisite: Ed. Psych. 301 or 302. Modifiability and educability of the human organism at different levels of maturity; psychology of learning applied to teaching.

311. (132) Mental Hygiene (3) F, S
Psychological factors important for the development of mental health; implications for teaching, group work and interpersonal relationships in home and school; behavior disorders and educational practice.

319. Educational Statistics (3) F, S
Prerequisite: Elementary algebra. Introduction to statistical methods with application to educational research problems.

320. (110) Tests, Measurements and Evaluations (3) F, S
Prerequisite: Ed. Psych. 319. Determination, meaning and use of fundamental statistical concepts applied to problems of measurement and evaluation; construction, interpretation and use of standardized and teacher-made tests.

350. (168) Education of Exceptional Children (3) F, S
Prerequisite: Ed. Psych. 305. Psychology and education of mentally retarded, gifted, physically handicapped, emotionally disturbed and other exceptional children.

355. (171) Education of the Gifted Child (3) F
Prerequisite: Ed. Psych. 301 or 302. Characteristics of the intellectually gifted child; curriculum planning, program development, work with parents, community resources and guidance.

416. (183, 184) Child Welfare and Attendance (3) F, S
Prerequisites: Ed. Psych. 305, 430. Child welfare and attendance services in the school; accounting, recording and referral services; community agencies; interview techniques; truancy and maladjustment; laws and legal procedures relating to children.

430. (178) Principles of Counseling and Guidance (3) F, S
Prerequisite: Ed. Psych. 305. Purposes, functions, legal aspects and administration of the pupil personnel program.

435. (188) Counseling and Guidance for the Handicapped (3) S
Prerequisites: Ed. Psych. 305, 350, 430. Educational and vocational needs of handicapped children; methods of counseling; rehabilitation and guidance programs.

451. Learning Disabilities in Exceptional Children (3) F, S
Prerequisite: Ed. Psych. 350. Etiology and diagnostic problems; emphasis in dyslexia, language and perceptual motor dysfunction; role of teacher specialist.

461. (187) Mental Deficiency (3) F
Prerequisite: Ed. Psych. 350. Causes, diagnostic problems and procedures, required care, and appropriate educational provisions for mentally deficient children.

462. (170) Teaching the Mentally Retarded (3) F
Prerequisites: El. Ed. 310 or Sec. Ed. 310, Ed. Psych. 350, 461. Methods of teaching academic subjects to the mentally retarded; development of special skills and curriculums; experimental program development.

463. (186) Education of the Severely Retarded (3) S
Prerequisite: Ed. Psych. 462. Characteristics, growth and development, and educational needs of the severely mentally retarded child; methods of working with parents; observation and participation at different levels of training.

469. (169) Workshop in Education of Mentally Retarded Children (6) SS
Prerequisite: Teaching experience with mentally retarded children. Education, psychological evaluation, medical diagnosis and social adjustment of the mentally retarded; observations in community agency programs; supervised teaching.

484. (195) Student Teaching of Exceptional Children (4) F, S
Open only to students who have completed all other requirements for a standard teaching credential with specialized preparation in one of the areas of teaching exceptional children. Application shall be made by October 1 for the spring semester and by March 1 for the fall semester. Letter suffix designates the special area of the preparation.

484A. (195A) Student Teaching—Deaf and Hard of Hearing (4) F, S

484C. (195C) Student Teaching—Orthopedically Handicapped and Cerebral Palsied (4) F, S

484E. Student Teaching—Educationally Handicapped (4) F, S

484M. (195M) Student Teaching—Mentally Retarded (4) F, S

484S. (195S) Student Teaching—Speech and Hearing Handicapped (4) F, S

484V. (195V) Student Teaching—Visually Handicapped (4) F, S

GRADUATE DIVISION

520. (210) Educational Measurement and Research (3)

525. (280) Individual Pupil Diagnosis (3)

526. (284) Educational Diagnosis (3)

527. (285) Clinical Practice in Educational Remediation (3)

533. Counseling Theory (3)

536. Guidance Practices in the Elementary School (3)

537. Guidance Practices in the Secondary School (3)

541. (281) General Case Practice and Field Work (3)

542. (282) Specialized Case Practice and Field Work (2-4)

542A. (282A) Field Work—School Counseling (2-4)

542B. (282B) Field Work—Child Welfare and Attendance (2-4)

542C. (282C) Field Work—School Psychology (2-4)

545. Pupil Personnel Practicum (3)

546A-B. Practicum in Special Education (3,3)

554A,B. Principles of Educational Remediation (3,3)

605. (217) Seminar in Advanced Educational Psychology (3)

615. (276) Seminar in Home-School-Community Relations (3)

631. (277) Seminar in Techniques of Counseling and Guidance in the Elementary School (3)

632. (278) Seminar in Techniques of Counseling and Guidance in the Secondary School (3)

639. (283) Seminar in Organization of Pupil Personnel Services (3)

650. Seminar in Special Education (3)

ELEMENTARY EDUCATION

Professors: Burk, Johnston, M., Johnstone, Nagle, Perry, L., Phearman, Roster, Thompson, O.

Associate Professors: Gensley, Jackman, Mugge, Myers, Pollach, Reince, Rolfe.

Assistant Professors: Beiderman, Canfield, Gold, Jones, Krebs, Leigh, Propeck, Squire, Woodfin.

Instructor: Smyth.

LOWER DIVISION

040. (S) Fundamentals of Spelling (0) F, S

Diagnosis and remediation of weaknesses in spelling and handwriting. Counts 1 unit toward semester load; no credit toward graduation.

060. (A) Fundamentals of Arithmetic (0) F, S

Diagnosis and remediation of weaknesses in computation and problem solving. Counts 1 unit toward student's semester load; no credit toward graduation.

UPPER DIVISION

310. (100) The Elementary School in American Society (3) F, S

Role of the school in American society and its historical, philosophical and sociological development. Includes the role of the teacher, the learning process, problems, issues and curricula.

321. Education of Young Children (2) F

Prerequisite: Ed. Psych. 301 (may be taken concurrently). Foundations of education for children from 3 to 5; principles of concept formation; current research; early education as a bridge between cultures; types of establishments; legal provisions; qualifications of teachers.

322. Curriculum for Young Children (2) S
Prerequisite: Ed. Psych. 301 (may be taken concurrently). Curriculum for children from 3 to 5; the teacher's role; long term objectives for learning; systematic evaluation of progress; preparation of appropriate instructional media; analysis of community resources; building cultural foundations; criteria for learning opportunities for young children. Observation.

420. (160) Kindergarten-Primary Methods (2) F, S
Prerequisites: El. Ed. 310, Ed. Psych. 301, admission to elementary teacher education. Current programs and activities, instructional materials and teaching procedures in the kindergarten-primary grades. Includes observations in public schools. Prerequisite to or must be taken concurrently with student teaching in kindergarten. Recommend concurrently with El. Ed. 480.

440. (155) Language Arts in the Elementary School (2) F, S
Prerequisites: El. Ed. 310, Ed. Psych. 301, admission to elementary teacher education. Objectives, trends, teaching procedures and evaluation related to oral and written expression. Includes handwriting, spelling, listening, creative writing, linguistics, usage and vocabulary.

441. (129) Teaching Foreign Languages in the Elementary Schools (3) F, S
Methods of teaching foreign languages and of supervising curricular foreign language activities in the elementary schools.

450. (151) Reading in the Elementary School (2) F, S
Prerequisites: El. Ed. 310, Ed. Psych. 301, admission to elementary teacher education. Objectives, principles, materials and teaching procedures of modern developmental reading programs. Includes word recognition, phonics and structural analysis, comprehension and interpretation, locational skills, personal reading, evaluation and the use of adopted texts.

460. (158) Arithmetic in the Elementary School (2) F, S
Prerequisites: El. Ed. 310, Ed. Psych. 301, admission to elementary teacher education. Concepts and principles of modern school mathematics. Includes methods and media that contribute to its meaning and understanding.

461. (143) Foundations in Mathematics: Emphasis in Geometry (2) S
Geometric configurations, interpretation of their relationships and applications. Includes geometrical construction, use of instruments, and simple applications of logic in geometry.

462. (144) Unifying Concepts in the Mathematics of Number (2) F
Unification and integration of mathematical ideas and procedures. Includes the development of sets, number and number systems, mathematical conditions and mathematical relations.

463. (145) Implications of New Mathematics for the Elementary School Mathematics Curriculum (2) SS
Prerequisite: El. Ed. 460. Improvement of mathematics programs and teaching procedures with emphasis on understanding. Includes recent curriculum proposals, field experiences, and demonstrations of accepted teaching procedures.

470. (157) Social Studies in the Elementary School (2) F, S
Prerequisites: El. Ed. 310, Ed. Psych. 301, admission to elementary teacher education. Objectives, content, scope, sequence, materials and teaching procedures in the social studies. Includes analysis of the trends, research and evaluative devices utilized in the social studies.

471. (196E) Field Study of Mexico (4) SS
Study tour of Mexico by air from Tijuana, through Mexican centers of culture by land as far south as Oaxoca, returning from Mexico City by air. An on-the-site study of all important aspects of life in Mexico, ancient and modern.

473. (153) Aerospace Education (4) SS
Principles of aviation and space exploration with the application of such knowledge to the school curriculum at the elementary or secondary level. Includes the development of resource units and instructional aids and field trips to aerospace industries.

480. (150) Observation and Participation in the Elementary School (2) F, S
Prerequisites: El. Ed. 310, Ed. Psych. 301, admission to elementary teacher education. Observation and participation in the guidance of learning activities. A half-day is spent each week in a classroom. Includes a weekly seminar meeting on campus. (Recommendation: two basic methods courses should be taken concurrently.)

481. (192) Student Teaching in the Elementary Grades (8) F, S
Prerequisites: Ed. Psych. 301, El. Ed. 310, 440, 450, 460, 470, 480, and approval by the Elementary Teacher Education Committee upon application made by October 15 for the spring semester and by March 1 for the fall semester. Includes five morning teaching sessions per week in assigned public schools with an accompanying weekly seminar.

GRADUATE DIVISION

520. (260) Problems in Kindergarten-Primary Education (2)

540. (257) Problems in Teaching the Language Arts in the Elementary School (2)

550. (255) Problems of Teaching Reading (2)

551. Diagnosis and Correction of Reading Disabilities (3)

552. Reading Curriculum and Supervision (2)

560. (256) Problems of Teaching Arithmetic in the Elementary School (2)

570. (272) Problems of Teaching the Social Studies in the Elementary School (2)

621. (262) Seminar in Kindergarten-Primary Education (2)

653. Seminar and Practicum in Remedial Reading (3)

INSTRUCTIONAL MEDIA

Professors: Cockrum, Gramlich, Timmons.
Associate Professors: Brent, Johnson, R., Vaughan.
Instructor: Sun.

UPPER DIVISION

300. (185) Instructional Media (2) F, S
Role of learning materials in the development of concepts including problems of preparation and presentation.

301. (196) Curricular Integration of Instructional Media (2) F, S
Prerequisite: I.M. 300 or consent of instructor. Experimental approaches to the use of media involving multi-screen presentation, programmed learning, telemation, cooperative teaching and student response systems.

410. (189) Preparation of Graphic Media (2) F, S
Prerequisite: I.M. 300 or consent of instructor. Advanced problems in visualization including the preparation of transparency materials, charts and graphs, and use of mechanical lettering devices, layout and design.

411. (182) Programmed Instruction (2) F
Prerequisite: I.M. 300 or consent of instructor. Primitive, modern and experimental formats. Integration of programmed learning with modern system approaches to instruction.

GRADUATE DIVISION

510. (236) Preparation of Photographic Media (2)

511. (238) Preparation of Audio Media (2)

512. (242) Instructional Film Production (3)

520. (234) Administration of Learning Resource Centers (2)

630. (240) Seminar in Instructional Media (2)

LIBRARY EDUCATION

400. Organization of the Library Collection (3) F
Theoretical principles involved in the structure and application of the major classification systems for books; cataloging principles and bibliographic description, both historical and current. Philosophy governing subject cataloging and subject headings.

410. Selection of Materials (3) F
Criteria for evaluating and selecting books and other materials appropriate to the varying types of libraries with an examination of the publishing industry. Study and evaluation of aids; review media; censorship.

420. Basic Reference (3) F
Philosophy of reference service and study of criteria for evaluation of reference and bibliographic resources; study of selected standard reference works and bibliographic cooperation and control.

430. Non-Book Materials (3) F
Selection, acquisition, organization of all non-book materials in all types of libraries. Evaluation of aids and sources and coordination of use with the instructional program.

440. Book Selection for School and Public Libraries (3) S
Book selection principles applied to school courses, as well as public library. Reading guidance, evaluation of needs, development needs and interests of young people.

450. School Library Administration (3) S
Philosophy, principles and problems of school library service and relationship of library to education program; objectives, standards and their implementation.

460. Advanced Problems in Technical Services (3) S
Current problems and developments in acquisition and cataloging of all types of library materials. Organization and administration of technical processing divisions.

490. Field Work in School Libraries (3) S
Prerequisite: Consent of instructor. Participation in the operations of selected school libraries under the supervision of a credentialed librarian (minimum of 90 clock hours required). Preparation sequence: individual conference scheduled.

SECONDARY EDUCATION

Professors: Anderson, R., Fisher, Gorow, Kinsman, McNaughton, Moore, W.

Associate Professors: Davison, Popham.

Assistant Professors: Franklin, Haines, Merrill.

Instructor: Jersin.

UPPER DIVISION

NOTE: 350 and 450 series courses with letter suffixes are required for majors in the respective subject areas who are seeking the secondary credential. Minors may take these courses for elective credit subject to the approval of the minor department.

310. (104) American Secondary Schools (3) F, S
Historical, sociological and philosophical foundations of secondary education; includes organization and curriculum of secondary schools.

350A. (167) Curriculum and Methods of Art Education (3) F, S
Objectives, curriculum, materials and procedures in art education. Includes a survey of historical and current practices in art teaching with emphasis on the relationship of art to the total school program. Must be completed prior to student teaching.

410. (161) Principles and Curriculum in Business Education (2) F, S
Principles, trends and curriculum development in business education; work experience education programs including techniques of evaluating pupil occupational performance and of relating such performance to classroom instruction.

421. (147) Instruction and Evaluation in Secondary Schools (3) F, S
Prerequisite: Sec. Ed. 310 (may be taken concurrently). Includes evaluation of student achievement and construction of classroom tests; classroom management and discipline; lesson planning; individualized and group instruction; discussion, lecture, assignments, questioning and other instructional procedures. Should be taken the semester prior to student teaching.

440. (116) Organization and Administration of Distributive Education (3) Offered on adequate demand
Prerequisites: Economics 200, 201; Marketing 300. Philosophy and objectives of distributive education, Federal and State relationships. Includes administration, development, leadership and supervision of the program.

441. (117) Curriculum Development in Distributive Education (3) Offered on adequate demand
Prerequisites: Economics 200, 201; Marketing 300. Curriculum construction and content organization of distributive education. Includes evaluation, preparation and selection of instructive materials, application of instructional techniques and analysis of distributive curriculum in high school, junior college and adult programs.

442. (139) Foreign Language Workshop (4) SS
Materials and procedures for teaching foreign languages. Includes literary and cultural movements as related to foreign language teaching, basic philology and general linguistics. Elective credit only. (Lecture, laboratory.)

450D. (173) The Teaching and Observation of Drama in the Secondary Schools (2-4) F, S

Prerequisites: Major or minor in drama and Drama 374. Methods and observation of teaching and directing dramatics in the junior and senior high schools. Students fulfilling requirements for observation should enroll for 4 units.

450E. (180) Teaching English (3) F, S

Methods of teaching literature and composition in junior high school, senior high school and junior college, including planned observations in public school classrooms as well as instruction in techniques of teaching. Must be completed before student teaching.

450H. (156) Methods and Curriculum in Home Economics Education (3) F, S

Prerequisite: Home Economics 400 or consent of instructor. Objectives, curriculum, materials and procedures in teaching home economics. Includes development of home economics programs, trends in home economics education and observation and participation in public school classrooms. Must be taken by majors the semester prior to student teaching. Recommended for home economics minors.

450I. (163) Curriculum and Methods in Industrial Arts (3) F

Objectives, curriculum, materials and procedures in teaching industrial arts with emphasis on current practices and the relationship of industrial arts to the total school program. Includes observation in the secondary school. Must be taken prior to student teaching.

450L. (127) Methods of Teaching Foreign Languages (3) F, S

Procedures for teaching French, German, Latin or Spanish. Includes supervision of co-curricular foreign language activities. Should be taken the semester prior to student teaching.

450M. Teaching and Observation of Music (4) F, S

Prerequisite: Major or minor in music. Philosophy, objectives, curriculum, materials, procedures and current practices in teaching music in secondary schools. Classroom music, instrumental and vocal music methods are presented. Observation assignments of from 42 to 48 hours per semester are required. Should be taken the semester prior to student teaching.

450N. (128) Teaching the Social Sciences (2) F, S

Scope and content of social science curriculums. Includes teaching procedures in the social sciences. Should be taken concurrently with student teaching.

450S. (173) Teaching Speech (2-4) F, S

Philosophy, principles, methods of teaching speech; course planning; evaluating oral performances. Four unit block required of majors includes observation-participation of curricular and extra-curricular speech and fulfills observation requirement. Should be taken semester prior to student teaching.

451R. (164) Methods in Bookkeeping and General Business (2) F, S

Secondary school instructional methods and materials used in bookkeeping, general business and general business subjects. Includes preparation of a resource unit, new developments in business education including use of advisory committees, cooperative programs and current research in the field.

452R. (176) Methods of Teaching Office Practice and Business Machines (1) F

Prerequisite: Business Education 320. Instructional methods and materials in the teaching of office practice and business machines. Includes class organization plans, equipment needs, cooperative training, standards and evaluation.

453R. (177) Methods of Teaching Secretarial Subjects (2) F

Prerequisites: Business Education 110A-B, English 316. Instructional methods and materials in the teaching of shorthand, transcription, business English, filing and secretarial procedure. Includes factors affecting speed building and standards and grading in shorthand and transcription.

454R. (174) Methods of Teaching Typewriting (1) F, S

Instructional methods and new developments in the teaching of typewriting. Includes methods for building accuracy and speed and increasing production; work standards, classroom equipment and materials. (Meets two periods weekly.)

455P. (175) Curriculum and Methods in Teaching Physical Education (Men) (3) F, S

Limited to students qualified to enroll in student teaching the following semester. Two hours lecture in philosophy, curriculum, legal aspects and public relations as they pertain to physical education. Students are assigned to physical education activity courses as cadet teachers. Students must meet minimum activity skill performance standards.

456P. (175) Curriculum and Methods in Teaching Physical Education (Women) (3) F, S

Curriculum and procedures in teaching physical education. Two hours lecture (including evaluation in physical education); three hours laboratory experience in supervised teaching. Should be taken the semester prior to student teaching.

457. Reading in the Secondary School (2) F, S

Prerequisites: Sec. Ed. 310, Ed. Psych. 302. Objectives, principles, procedures, materials and evaluation in developmental reading programs in junior and senior high schools. Includes application of word and basic study skills in the content areas; practical classroom methods of diagnosis and remediation.

480. (148) Observation and Participation in the Secondary School (2) F, S

Taken concurrently with Sec. Ed. 421; scheduled assignments to observe and participate in learning activities in secondary schools; students make written reports and hold discussion and conferences with instructor.

481A-B. (193) Student Teaching in Secondary Schools (3, 3) F, S

Open only to students accepted by the Secondary Teacher Education Committee (see Credential section for detailed requirements). Application for student teaching shall be made by October 1 for the spring semester or by March 1 for the fall semester. Students will teach two classes per day for a semester under the guidance of a supervising teacher. In addition, the student will have a daily observation period throughout the semester.

The student will register for three units of 481A for his first assignment of student teaching and for three units of 481B for his second assignment (as approved by the Secondary Teacher Education Committee). The two assignments will be in different subjects, different phases of a subject or in different schools. With the approval of the Committee, the two assignments may be taken in two semesters.

483A-B. (193C) Student Teaching in the Junior College (2, 2) F, S

Open only to Junior College Credential candidates accepted by the Secondary Teacher Education Committee. (See Credential Section for detailed requirements). Application shall be made by October 1 for the spring term and by March 1 for the fall term. The student will teach two assignments of three semester hours each (or equivalent) of classes in a junior college, in different phases of his major field and have an additional assignment of three hours per week for scheduled observation or consultation with students. The student will register for two units of 483A for his first assignment and two units of 483B for his second assignment. With the approval of the Secondary Teacher Education Committee, the two assignments may be taken in two semesters.

GRADUATE DIVISION

510. (224) The Junior College (2)

520. (286) Advanced Studies in Secondary School Instruction (3)

540. (271) Advanced Studies in Secondary School Curriculum (3)

560. (222) The Junior High School (2)

EDUCATION

GRADUATE DIVISION

696. (297) Research Methods (3)

697. Directed Studies (1-3)

698. (298) Thesis or Project (2-4)

ENGINEERING

CIVIL ENGINEERING

Professor: Neidengard.

Associate Professors: Al-Chalabi, Alexander, Chambers, Chelapati, Dudley, King, C., McIlvaine, Reed, W., Yen.

Assistant Professors: Chryssafopoulos, Eshett, Gouvis, Ying.

LOWER DIVISION

101. (Engr. 1) Introduction to Engineering (1) F, S

Required of all first semester engineering freshmen. Engineering as a profession and its historical development, function, opportunities and responsibilities. Education, experience and personal characteristics necessary for success in the profession. Lectures by staff and by engineers from industry.

151. Fundamentals of Architecture I (2) S

Prerequisites: Art 121, C.E. 101, M.E. 172 (may be taken concurrently). Imaginative experiments with special forms involving line, plane, volume, mass, color and material. Three dimensional exploration. (Lecture 1 hour, practicum 3 hours.)

200. (52) Engineering Materials (2) F, S

Prerequisites: Chemistry 111A and Physics 110 (Physics 110 may be taken concurrently). Physical and chemical properties of engineering materials. Sources of raw materials and methods of extraction, beneficiating and processing of materials for industrial use. Not open for credit to majors in engineering. (Lecture 2 hours.)

205. (80) Analytical Mechanics I (Statics) (3) F, S

Prerequisites: Mathematics 122 and Physics 110. Application of the mechanics of equilibrium to force systems using analytical and graphical solutions of problems involving structures and machines. (Lecture-problems 3 hours.)

206. Computer Programming and Civil Engineering Applications (1) F, S

Prerequisites: Mathematics 122, Physics 110. Introduction to Fortran programming and application of computers to elementary civil engineering problems.

225. (85) Surveying and Mapping (3) F, S, SS

Prerequisite: M.E. 172. Theory and practice of plane surveying including the use of instruments. Measurement and keeping field notes of distances, angles, elevations, traversing and plane tabling. Plotting of surveying data as related to profiling contours and topography. Study and interpretation of maps relating to civil cartography. (Lecture 2 hours, field work 3 hours.)

UPPER DIVISION

301A,B. (Engr. 101A,B) Engineering Activities (0,0) F, S

Lectures and discussions by faculty and invited speakers and occasional motion pictures. Participation by students in activities of engineering organizations. Required of junior engineering students.

305. (159) Engineering Reports (2) F, S

Prerequisites: English 100 and general education speech requirement. Engineering technical report writing, preparation, presentation, techniques and practices. (Lecture 2 hours.)

328. Transportation Engineering Materials (3) F, S
Prerequisites: Mathematics 224, M.E. 373. Properties and behavior of highway and other civil engineering materials emphasizing portland cement, asphalt and plastics used as binders. Solutions to simple linear viscoelastic problems using differential equations. (Lecture 2 hours, laboratory 3 hours.)

335. (140) Fluid Mechanics (3) F, S
Prerequisites: M.E. 330, 371. Properties of fluids, compressible and incompressible; fluid statics; measurements of flow in pipes, open channels; fluid machinery. (Lecture-problems 3 hours.)

336. Fluid Mechanics Laboratory I (1) F, S
Prerequisite or co-requisite: C.E. 335. Experiments in and the study of the phenomena of fluid flow. (Laboratory 3 hours.)

340. (148) Engineering Geology (2) F, S
Prerequisites: C.E. 200, 225. Physical geology, application to engineering structures, projects, earth movement and construction materials. (Lecture 2 hours, special field trips by arrangement.)

345. (157) Soils and Foundations (3) F, S
Prerequisites: M.E. 373, 374, C.E. 340. Soil mechanics applied to engineering structures. Soil exploration, identification, classification, drainage stability and bearing capacity. (Lecture-problems 3 hours.)

346. Soils and Foundation Laboratory (1) F, S
Prerequisite or co-requisite: C.E. 345. Laboratory investigation and experiments in the phenomena of soil mechanics.

358. (185) Structural Analysis (2) F, S
Prerequisites: M.E. 373, 374. Determinations of shear, moment and deflections in statically determinate beams, trusses and bents. (Lecture-problems 3 hours.)

400. (187) Engineering Contracts and Specifications (2) F, S
Prerequisite: Senior standing. Principles of contracts and specifications, codes, drawings, and estimates. Application of business law to engineering. (Lecture 2 hours.)

401. Engineering Analysis I (3) F, S
Prerequisite: Mathematics 370A. Cross referenced and described under Mechanical Engineering 401. (Lecture-problems 3 hours.)

402. Engineering Analysis II (3) F, S
Prerequisite: Mathematics 370A. Analysis of engineering mechanics by matrix theory and complex variables; introduction to numerical techniques. (Lecture-problems 3 hours.)

406. (198) Engineering Economy and Administration (3) F, S
Prerequisite: Senior standing. Evaluation of engineering projects, construction costs, amortization, depreciation and operating costs. Industrial and professional relations and ethics. (Lecture-problems 3 hours.)

407. (197) Municipal Engineering (2) F, S
Prerequisite: Senior standing. City engineering problems of coordination, administration, inspection, supervision. Basic theory of city planning, administration, zoning, defense and safety.

408. (Engr. 190) Special Problems (1-3) F, S
Prerequisite: Senior standing in civil engineering. Assigned topics in technical literature or laboratory projects and reports on same.

409. (Engr. 199) Professional Practice (1) F, S
Prerequisite: Senior standing in civil engineering. Written and oral technical reports on current engineering developments. Licensing and other problems of the professional engineer.

420. (145) Higher Surveying (2) F, S
Prerequisite: C.E. 225. Surveying computations, mapmaking, photogrammetry. Public lands, route and topographic surveying. (Lecture 1 hour, fieldwork 3 hours.)

426. (196) Transportation Engineering (2) F
Prerequisite: Senior standing. Transportation history, theory, development methods and equipment. Basic course in all areas of physical communication. Not open to students with credit in C.E. 407.

427. (191) Highway Engineering (2) F, S
Prerequisite: Senior standing. Introduction to highway planning, location, design, economics, drainage, construction and maintenance of highways, streets and pavements. Basic types of pavements and paving methods and equipment. (Lecture 2 hours.)

428. (188) Engineering Photogrammetry (2) F, S
Prerequisite: Senior standing or consent of instructor. Aerial photogrammetry, principle and interpretation as related to cartography, triangulation, highway design, soil surveys, city planning and route location. (Lecture 2 hours, laboratory 2 hours.)

435. (186) Hydrology (2) F, S
Prerequisite: C.E. 335. Fundamentals of hydrology; survey procedure in developing a water source, either surface or underground; basic economy problems in land acquisition; design of the system including impounding and transmission of the supply. (Lecture-problems 2 hours.)

437. (180) Open Channel Flow (2) F, S
Prerequisite: C.E. 335. Theory and analysis of flow in open channels. Effect of transitions and other structures, back water curves and energy relationships. (Lecture-problems 2 hours.)

438. (194) Hydraulic Engineering (2) F, S
Prerequisite: C. E. 437. Introduction to the application of hydraulic principles to the design of dams, water courses, water systems and their related structures and devices. (Lecture-problems 2 hours.)

454. Computer Methods in Structural Mechanics (3) F
Prerequisites: C.E. 206, 455, 458. Stiffness and flexibility matrix methods, moment distribution, solution of practical problems of trusses and frames by using digital computers. (Lecture 2 hours, problems 3 hours.)

455. (155) Structural Design (3) F, S
Prerequisites: M.E. 373, 374. Detailed design of structural components in accordance with typical codes and specifications. (Lecture 2 hours, Design Session 3 hours.)

456. (167) Timber Design (2) F, S
Prerequisite: C.E. 455. Application of timber to structural design. Characteristics, advantages and limitations of wood as related to structural members. Design of members and their related connectors. (Lecture 1 hour, laboratory 3 hours.)

458. (168) Statically Indeterminate Structures (3) F, S
Prerequisite: C.E. 358. Methods of determining shear, moment and deflections in statically indeterminate structures. (Lecture-problems 2 hours.)

459. (189) Reinforced Concrete (3) F, S
Prerequisite: C.E. 426. Theory and design of structural elements of reinforced concrete, analysis by working stress and ultimate strength design theories. (Lecture 2 hours, design-problem session 3 hours.)

465. (169A) Water Supply (3) F, S
Prerequisite: C.E. 335. Impounding, transmission, treatment and distribution of public and industrial water supplies. (Lecture-problems 3 hours, field trips.)

466. (169B) Sewerage (3) F, S
Prerequisite: C.E. 335. Collection, treatment and disposal of domestic and industrial sewage and dry wastes. Analysis of treatment processes; hydraulic design. (Lecture-problems 3 hours, field trips.)

482. City Planning (2) F
Prerequisite: Senior standing in civil engineering or consent of instructor. History and analysis of events influencing the physical growth of cities. Evolution of city planning. (Lecture 2 hours.)

GRADUATE DIVISION

500. (220) Numerical Analysis in Applied Mechanics (3)
522. (222) Advanced Highway Engineering and Planning (3)
524. (224) Geometry of Highway Design (3)
526. (226) Advanced Highway Materials and Laboratory (3)
531. Flow in Porous Media (3)
546. (216) Theory and Design of Foundation Structures (3)
548. (228) Advanced Soil Mechanics (3)
551. Prestressed Concrete (3)
552. (212) Theory of Plates and Shells (3)
554. (214) Similitude in Engineering (3)
556. (218A) Advanced (Determinate) Structural Analysis (2)
557. (218B) Advanced (Indeterminate) Structural Analysis (3)
558. Dynamics of Structures (3)
560. (230) Sanitary Engineering Laboratory (2)
561. (231) Advanced Sanitary Engineering Laboratory (2)
562. (232) Advanced Sanitary Engineering Design I (3)
563. (233) Advanced Sanitary Engineering Design II (3)
564. (234) Public Health Engineering (3)
602. Seminar in Civil Engineering (3)
697. Directed Studies (1-6)
698. (298) Thesis and/or Project (2-4)

ELECTRICAL ENGINEERING

Professors: Lewis, R., Washburn.

Associate Professors: Cain, G., Hill, J., Houde, MacMillan, Williams, C., Winchell.

Assistant Professors: Aggarwal, Frankland, Goldman, Hammer, Jordanides, Lane, Mahrouyan, Robinson, D., Shawaf.

LOWER DIVISION

210. (110) Electric Circuits I (3) F, S
Prerequisites: Physics 240, Mathematics 123. Electric and magnetic circuits, instruments, transformers and rotating machinery. (Lecture-problems 3 hours.)

210L. (111) Electric Circuits I Laboratory (1) F, S
Prerequisite or co-requisite: E.E. 210. Laboratory study of electric and magnetic circuits, instrumentation, transformers and rotating machinery. (Laboratory 3 hours.)

240. Computer Methods in Electrical Engineering (1) F, S
Prerequisites: Mathematics 122, Physics 100. Digital computer. Language, programming and applications to electrical engineering problems. (Lecture-problems.)

UPPER DIVISION

310. Electric Circuits II (3) F, S
Prerequisites: E.E. 210, Mathematics 370A. Continuation of circuit analysis including LaPlace transform technique. Not open to students with credit in E.E. 132 or E.E. 162. (Lecture-problems 3 hours.)

320. (142) Fundamentals of Electron Devices (3) F, S
Prerequisites: Mathematics 370A, Physics 240. Electrostatic and electromagnetic fields, electron ballistics, semi-conductors, characteristics of vacuum tubes, diodes and transistors. (Lecture-problems 3 hours.)

321. (150) Introduction to Properties of Matter (3) F, S
Prerequisites: Mathematics 370A, Physics 120, 230, 240. Introduction to the basic concepts of the structure of matter and its properties. (Lecture-problems 3 hours.)

330. (130) Engineering Electronics I (3) F, S
Prerequisites: E.E. 210, 210L. Co-requisite: E.E. 330L. Electron tube characteristics, equivalent circuits, rectifier, amplifier and oscillator circuits, introduction to transistors and crystal diodes. (Lecture-problems 3 hours.)

330L. (131) Engineering Electronics I Laboratory (1) F, S
Co-requisite: E.E. 330. Laboratory study of electron tubes, transistors and crystal diodes, electronic circuits and instruments. (Laboratory 3 hours.)

360. (140) Electrical Engineering Fields (3) F, S
Prerequisite: Mathematics 370A, Physics 240. Electric and magnetic static and dynamic field theory through Maxwell's Equations. (Lecture-problems 3 hours.)

410. (166) Electric Circuits III (3) F, S
Prerequisite: E.E. 310. Filter theory, application of matrix algebra to circuit analysis, distributed parameter circuits. (Lecture-problems.)

420A-B. (170A,B) Electrical Properties of Matter (3,3) F, S
Prerequisite: E.E. 321. Electrical properties and characteristics of materials which comprise engineering devices and systems. (Lecture-problems 3 hours.)

430. (160) Engineering Electronics II (3) F, S
Prerequisites: E.E. 310, E.E. 320, E.E. 330. Co-requisite: E.E. 430L. Analysis of vacuum tube and transistor electronic devices, small and large signal amplifiers, rectifiers and oscillators. (Lecture-problems 3 hours.)

430L. (161) Engineering Electronics II Laboratory (1) F, S
Co-requisite: E.E. 430. Laboratory study of amplifiers, rectifiers and oscillators. (Laboratory 3 hours.)

431. (180) Engineering Electronics III (3) F, S
Prerequisite: E.E. 430. Co-requisite: E.E. 431L. Analysis of detection, modulation, wave shaping circuits, non-linear waveform generation, continuation of Electronics II applied to UHF and VHF systems. (Lecture-problems 3 hours.)

431L. (181) Engineering Electronics III Laboratory (1) F, S
Co-requisite: E.E. 431. Laboratory study of detection, modulation, signal generators, UHF and VHF systems. (Laboratory 3 hours.)

432. (191A) Engineering Semi-Conductor Electronics I (3) F
Prerequisite: E.E. 431. Co-requisite: E.E. 432L. Small and large signal analysis and design of specific circuits. Applications of transistors, parametric amplifiers and tunnel diodes. Recent developments in semi-conductor devices. (Lecture-problems 3 hours.)

432L. (192A) Engineering Semi-Conductor Electronics I Laboratory (1) F
Co-requisite: E.E. 432. Laboratory study of transistor, parametric amplifier, tunnel diodes and other semi-conductor devices and circuits. (Laboratory 3 hours.)

433. (191B) Engineering Semi-Conductor Electronics II (3) S
Prerequisite: E.E. 432. Co-requisite: E.E. 433L. Continuation of small and large signal analysis and design of specific circuits. Applications of transistors, parametric amplifiers and tunnel diodes. Recent developments in semi-conductor devices. (Lecture-problems 3 hours.)

433L. (192B) Engineering Semi-Conductor Electronics II Laboratory (1) S
Co-requisite: E.E. 433. Continuation of laboratory study of transistor, parametric amplifier, tunnel diodes and other semi-conductor devices and circuits. (Laboratory 3 hours.)

440. (195) Logical Design of Digital Computers (3) F, S
Prerequisites: E.E. 330, 330L and senior standing. Number systems, Boolean algebra, minimal functions, logic and design of sequential circuits. (Lecture-problems.)

441. (197) Circuit Design of Computer Components (3) F, S
Prerequisite: E.E. 432. Analysis and design of flip-flop circuits and trigger generators. Gating circuit considerations. Design of memory devices. Component integration. Comparison of tubes, transistors and tunnel diode circuits. (Lecture-problems 3 hours.)

441L. (198) Computer Components Design Laboratory (1) F, S
Prerequisite: E.E. 432L. Co-requisite or prerequisite: E.E. 441. Laboratory study and design of computer circuits and components. (Lecture-problems 3 hours.)

450. (163) Electromagnetics (3) F, S
Prerequisite: E.E. 310. Co-requisite: E.E. 450L. Analysis of operating principles of electro-mechanical devices, concepts of energy conversion, variable frequency transformers, permanent magnets, introduction to magnetic amplifiers. (Lecture-problems 3 hours.)

450L. (164) Electromagnetics Laboratory (1) F, S
Co-requisite: E.E. 450. Laboratory study of electro-mechanical devices, transformers and magnetic amplifiers. (Laboratory 3 hours.)

451. Power Systems I (3) S
Prerequisite: E.E. 410, 450. Power systems in the steady state, short circuit calculations, equipment characteristics. (Lecture-problems 3 hours.)

452. Power Systems II (3) S
Prerequisite: E.E. 451. Power transmission line and terminal equipment parameters and characteristics, system performance. (Lecture-problems 3 hours.)

460. (182) Guided Waves and Antennas (3) F, S
Prerequisite: E.E. 410. Characteristics of transmission lines, wave guides and antennas, using Maxwell's equations. (Lecture-problems 3 hours.)

470. (183) Control Systems (3) F, S
Prerequisite: E.E. 310. Co-requisite: E.E. 470L. Principles of analysis, block diagrams, open and closed loop systems, stability criteria, application to electromechanical servo-systems. (Lecture-problems 3 hours.)

470L. (184) Control Systems Laboratory (1) F, S
Prerequisites: E.E. 430L, E.E. 450L. Co-requisite: E.E. 470. Laboratory study of control systems. (Laboratory 3 hours.)

480. (194) Engineering Statistical Analysis (3) F, S
Prerequisite: E.E. 310 or consent of instructor. Modern statistical methods applied to the solution of current engineering problems. (Lecture-problems 3 hours.)

481. Random Processes (3) F, S
Prerequisite: E.E. 310. Introduction to probability, random variables and stochastic processes. (Lecture-problems.)

482. Communication Theory (3) F, S
Prerequisites: E.E. 410, 420. Modern theory of communication with emphasis on noise processes and their effect on transmission of information.

490. Special Problems (1-3) F, S
Prerequisite: Consent of instructor. Assigned topics in technical literature or laboratory projects and reports on same. Not open to students with credit in Engineering 190.

GRADUATE DIVISION

510. (212) Linear Network Synthesis (3)
520. (204) Physical Electronics I (3)
521. (206) Physical Electronics II (3)
540. (215) Digital Computer System Analysis (3)
542. (226) Systems Engineering (3)
544. (216) Analog Analysis (3)
560A-B. (217A,B) Applied Electromagnetic Theory (3,3)
570A-B. Advanced Control Systems I (3,3)
572. (223) Electronic Instrumentation and Control (3)
580. (214) Information Theory (3)
581. Communication Systems Optimization (3)
670. Seminar in Control Systems (3)
697. Directed Research (1-6)
698. (298) Thesis and/or Project (2-4)

MECHANICAL ENGINEERING

Professors: Arnell, Leutwiler, Nielsen.
Associate Professors: Gilpin, Kundis, Kyle, Roman, Sungu, Tsao, Unt.
Assistant Professors: Dyer, Healy, J., Mijares, Torby, VanderMeyden.
Lecturers: Brind, Jorgensen.

LOWER DIVISION

172. (12) Engineering Graphics I (3) F, S
Principles of graphical expression through sketching, instrumental drawing, orthographic projection, auxiliary views, dimensions, working drawings. Descriptive geometry methods of points, lines, planes, warped surfaces, intersections and development. (Lecture-laboratory 6 hours.)

205. Computer Methods in Mechanical Engineering (1) F, S
Prerequisites: Mathematics 122, Physics 110. Digital computer programming with applications to mechanical engineering problems. (Lecture-problems.)

222. (92) Manufacturing Processes (2) F, S
Prerequisite or co-requisite: M.E. 172. Machines and equipment and processes used in modern manufacturing and fabrication operations, with field trips to industrial plants. (Lecture-problems 2 hours.)

272. (22) Engineering Graphics II (2) F, S
Prerequisite: M.E. 172. Graphical expression with emphasis on sketching, machine drawing, detail and assembly drawing, gears, cams, fastenings, piping, welding. Graphical mathematics and nomographical charts. (Lecture-laboratory 4 hours.)

UPPER DIVISION

322. (124) Engineering Metallurgy I (3) F, S
Prerequisite: Chemistry 111B, M.E. 222. Structure and properties of crystalline materials, interatomic forces, crystal lattices, phase equilibria and transformation, nucleation and grain growth. Effects of crystal imperfections, crystal boundaries, mechanical working, heat treatment, diffusion, ferromagnetism and corrosion. (Lecture-problems 2 hours, laboratory 3 hours.)

330. (120) Engineering Thermodynamics I (3) F, S
Prerequisites: Mathematics 224, Physics 120, Chemistry 111B. Co-requisite: M.E. 331. First and second laws of thermodynamics; properties of liquids, gases and vapors; sources of energy and its conversion to work. Introduction to heat transfer and psychrometry. (Lecture-problems 3 hours.)

331. (121) Engineering Thermodynamics I Laboratory (1) F, S
Co-requisite: M.E. 330. Measurements of thermodynamic properties, fluid flow and heat transfer; calorimetry. (Laboratory 3 hours.)

336. (170) Engineering Thermodynamics II (3) F, S
Prerequisites: M.E. 330, 331. Co-requisite: M.E. 337. Gas processes; relation of entropy to the second law; gas cycles; vapor cycles; mixtures of gases and vapors. (Lecture-problems 3 hours.)

337. (171) Engineering Thermodynamics II Laboratory (1) F, S
Co-requisite: M.E. 336. Measurements of energy and power. Testing and evaluation of the performance of thermodynamic equipment. (Laboratory 3 hours.)

371. (105) Analytical Mechanics II (Dynamics) (3) F, S
Prerequisite: C.E. 205 or Mathematics 370A. Engineering application of fundamentals of kinematics and kinetics to problems involving translation, rotation, and plane motion. Work and energy, impulse and momentum, and mechanical vibrations. (Lecture-problems 3 hours.)

373. (125) Mechanics of Materials (3) F, S
Prerequisite: C.E. 205; co-requisite: M.E. 374. Application of the principles of mechanics to design of structural and machine members and connections; stress analysis of beams and columns. Properties and strength of engineering materials. (Lecture-problems 3 hours.)

374. (126) Mechanical Properties of Materials (1) F, S
Co-requisite: M.E. 373. Laboratory course in the physical and mechanical properties of engineering materials, and the relationship of structure to these properties. (Laboratory 3 hours.)

375. (172) Machine Design I (3) F, S
Prerequisite: M.E. 222, 272, 371. Fundamentals of linkages, cams, gears and gear trains. Velocity and acceleration analysis of machines. (Lecture 2 hours, design application 3 hours.)

401. Engineering Analysis I (3) F, S
Prerequisite: Mathematics 370A. Vector and tensor analysis, differential equations, elements of calculus of variations. Applications to setting up and solving problems in engineering. (Lecture-problems 3 hours.)

402. Engineering Analysis II (3) F, S
Prerequisite: Mathematics 370A. Cross referenced and described under Civil Engineering 402.

421. (173) Metallurgy II (3) F, S
Prerequisite: M.E. 322. Heat treatment of steels and non-ferrous alloys. Properties and uses of engineering alloys, such as carbon and alloy steels, aluminum-base and copper-base alloys. (Lecture-problems 2 hours, laboratory 3 hours.)

423. Crystallography of Metals (3) F, S
Prerequisites: Mathematics 224, Chemistry 111A. Perfect and imperfect crystalline states in metals; point, line and aggregate defects, including dislocation defects; preferred orientation, pole figures, ordering. (Lecture-problems 3 hours.)

425. Metallurgical Thermodynamics (3) F, S
Prerequisites: Chemistry 371A-B, M.E. 330. Development of thermodynamic relations and application to solid state phenomena, including phase equilibria, phase transformations and solid solution thermodynamics. (Lecture-problems 3 hours.)

431. (178) Heat Transfer (3) F, S
Prerequisites: M.E. 330, C.E. 335, Mathematics 370A. Principles of heat transfer by conduction, radiation, and convection. Steady state conduction in one, two, or three dimension. Introduction to transient heat flow, mass transfer. (Lecture-problems 3 hours.)

437. (174) Intermediate Fluid Mechanics (3) F
Prerequisites: C.E. 335, Mathematics 370A. Dynamics of ideal and real fluids; potential flow, vortex flow; the Navier-Stokes equations; boundary layer theory, turbulence; compressible flows; applications of theory to practical systems involving fluid motion. (Lecture-problems 3 hours.)

438. (192) Air Conditioning and Refrigeration (3) F, S
Prerequisite: M.E. 330. Basic concepts in air conditioning psychrometry; calculation of heating and cooling loads in buildings; design of heating and air conditioning systems; principles of refrigeration and cryogenic engineering. (Lecture-problems 3 hours.)

450. Special Problems (1-3) F, S
Prerequisite: Senior standing. Assigned topics in technical literature or laboratory projects and reports on same.

471. (177) Machine Design II (3) F, S
Prerequisites: M.E. 373, 375. Application of the principles of mechanics and physical properties of materials to the proportioning of machine elements, including consideration of function, production and economic factors. (Lecture 2 hours, design application 3 hours.)

473. (179) Dynamics of Machinery (3) F, S
Prerequisite: M.E. 471. Inertia effects of machine parts; balancing of rotating and reciprocating parts; gyroscopic effects; critical speeds; energy variation in machinery; mechanical vibration. (Lecture 2 hours, design application 3 hours.)

475. (123) Analytical Mechanics III. Particle and Rigid Body Mechanics (3) F, S
Prerequisites: M.E. 371, Mathematics 370A. Detailed study of particle and rigid body mechanics using vector methods and three dimensional analysis emphasizing vibrating systems, planetary and satellite motions, variable mass, the gyroscope and gyrocompass. (Lecture-problems 3 hours.)

476. (176) Engineering Vibrations (3) F, S
Prerequisites: M.E. 371, Mathematics 370A. Introduction to fundamentals of mechanical vibrations, types of oscillatory motions. Free, forced and transient vibrations; damping, vibration isolation, vibration measuring instruments. Coupled oscillations of lumped systems; use of Lagrange's equations; Rayleigh and matrix-iteration method. (Lecture-problems 3 hours.)

477. (175) Advanced Mechanics of Deformable Bodies (3) F, S
Prerequisites: M.E. 373, 374. Stress concentration; photoelastic method of stress analysis. Failure theories. Fatigue. Flexure and shear of unsymmetrical sections; shear center. Deformations beyond the elastic limit. Energy methods; Castigliano's theorem. (Lecture-problems 3 hours.)

GRADUATE DIVISION

531. (225) Heat and Mass Transfer (3)
532. (221) Mechanics of Ideal Fluids (3)
533. (223) Mechanics of Real Fluids (3)
536. (224) Analytical Thermodynamics (3)
537. (222) Gas Dynamics (3)
541. (231) Engineering Aerodynamics (3)
542. (232) Supersonic Aerodynamics (3)
543. (233) Aircraft and Missile Structures (3)
544. (234) Bioengineering in Flight Vehicle Design (3)
546. (236) Flight Vehicle Propulsion Systems (3)
572. (211) Stress Analysis in Design (3)
573. (212) Theory of Elasticity (3)

575. (213) Advanced Dynamics (3)
576. (214) Engineering Vibrations II (3)
577. (235) Creep and Fatigue (3)
695. Seminar in Mechanical Engineering (2)
697. Directed Research (2-6)
698. (298) Thesis and/or Project (2-4)

ENGLISH

Professors: Allen, C., Allen, R., Aspiz, Baker, C., Brooks, Buckland, Cerveny, Darbee, Day, Foote, Hermann, Lee, Lubbe, Nielsen, E., Orgill, Rodabaugh, Sawyer, Smith, H., Stephens, G., Wilder, Williams, L., Wilson, S., Wylder.

Associate Professors: Crane, Gilde, Lyon, Mittleman, Purcell, Schwab, Skarsten, Wilford.

Assistant Professors: Avni, Axelrad, Betar, Black, A., Crawford, W., Cumpiano, Evans, Hipkiss, Knafel, Lawson, Locklin, Lothamer, Makkai, Masback, Niva, Peterson, A., Rose, S., Silverman, Skov, Taylor, C. R., Williams, J.

Instructors: Ball, Ballard, Bell, Bishop, Brainerd, Dinielli, Fuller, Millhizer, O'Toole, Plourde, Ryan, J., Samuelson.

Lecturers: Bonazza, Feeley, Nemanic, Razdan.

LOWER DIVISION

001. (A) Fundamentals of English (0) F, S
Basic grammar and composition. (Undergraduates who score lower than 18 on the ACT must pass this course before enrolling in English 100. Counts 3 units toward the student's semester load but does not give unit credit toward graduation.)

011. (B) Remedial English (0) F, S
Review of basic grammar and composition. (Limited to graduate students who have failed advanced screening tests in English proficiency. Counts 3 units toward the student's semester load but does not give unit credit toward graduation.)

080. (R) Developmental Reading (0) F, S
Emphasis on increasing speed and comprehension, with practice in other specific reading skills needed. (Entering students who do not make a satisfactory score in reading on the entrance examination may be advised to enroll in this course. Meets two periods per week. Counts 1 unit toward the student's semester load but does not give unit credit toward graduation.)

100. (1) Composition (3) F, S
Writing expository prose. (Open to students who score 18 or above on the ACT.)

101. (2) Composition (3) F, S
Prerequisite: English 100. Writing expository prose, with emphasis on the research paper.

110A,B. (5A,B) English for Foreign Students (3,3) F, S
For foreign students with limited skill in American usage, idiom, and colloquial and written language structures. (Four hours of lecture and laboratory activity per week. Open only to students assigned to this course by the Foreign Student Adviser.)

180. (40) Appreciation of Literature (3) F, S
Study of works representing the scope and variety of themes and types of imaginative literature. (Not applicable toward an English major. Not open to students with credit in English 184.)

184. (49) Introduction to Literature (3) F, S
Prerequisite: English 100. Methods of analysis and interpretation of the different types of imaginative literature. (Designed for English majors.)

202. (35) Narrative and Descriptive Writing (3) S
Prerequisite: English 100. Practice in the basic elements of fiction writing: character sketch, plot developments, description, dialog.

204. (60) Introduction to Creative Writing (3) F, S
Prerequisite: English 100. Theory and techniques of fiction and poetry. Practice in creative work, with group discussions and individual conferences.

250A,B. (50, 51) Survey of English Literature (3,3) F, S
Prerequisite: English 100. Representative selections from English writers to and since the mid-eighteenth century.

294. (66) Contemporary Literature (3) S
Prerequisite: English 180 or 184. Twentieth-century literature, primarily of England and the United States, emphasizing poetry, drama and short fiction since World War I.

297. (55) Readings in the Novel (3) S
Prerequisite: English 180 or 184. Reading and discussion of selected novels.

UPPER DIVISION

300. (110) Advanced Composition (3) F, S
Prerequisite: English 101. Writing expository prose, with emphasis upon organization, style, and diction.

316. (116) Business Writing (3) F, S
Prerequisite: English 101. Development of skills in exposition and the writing of business reports, articles, and letters, with emphasis on longer research paper or report.

317. (117) Technical Writing (3) F, S
Prerequisite: English 100. Expository writing on technical subjects dealt with in industry, science, and government. Long and short forms including reports, proposals, manuals, and journal articles, with emphasis on the longer research paper or technical report.

320. (171) English Grammar (3) F, S
Advanced study of the principles of English grammar.

321A-B. (101, 102) Structure of Modern English (3,3) F, S
Phonology, morphology and syntax of American English studied by the methods of scientific linguistics.

323. (109) Development of Modern English (3) F, S
Development of the English language from its beginnings to the present day.

331. (157) Classical Background of English Literature (3) F
Greek and Roman literature, in translation, in relation to English literature; the interrelations of classical literature with philosophy and art.

370A,B. (124, 125) Survey of American Literature (3,3) F, S
Representative selections from American writers to and since about 1865.

385. (135) The Short Story (3) F
The short story as a literary genre, with emphasis on analysis of individual stories.

386. (156) Poetry (3) S
Poetry as a literary genre, with emphasis on analysis of individual poems.

398. (181) Modern Drama (3) S
Continental, English, and American drama from Ibsen to the present.

405. (160) Creative Writing: Short Story (3) F, S
Prerequisite: English 202 or 204 or consent of instructor. Writing short stories, with a detailed study of published models and with emphasis on the creative process. (May be repeated for credit to a maximum of 6 units by consent of instructor.)

406. (161) Creative Writing: Poetry (3) F, S
Prerequisite: English 204 or consent of instructor. Wrtiing poetry, with a detailed study of published models and with emphasis on the creative process. (May be repeated for credit to a maximum of 6 units by consent of instructor.)

407. (162) Creative Writing: Novel (3) S
Prerequisite: Consent of instructor. Writing long fiction, with a detailed study of published models and with emphasis on the creative process. (May be repeated for credit to a maximum of 6 units by consent of instructor.)

409. Writing Literary Criticism (3) S
Prerequisite: English 101. Critical writing, with attention to published models of scholarly and evaluative essays.

413. (111) Workshop in Teaching Composition (3) SS
Prerequisite: Teaching credential. Techniques of teaching composition; includes observing classes, preparing and presenting lessons, and evaluating student work under supervision. May be included in units required beyond 24 in major for M.A. degree.

428. Applied Linguistics (3) F
Prerequisite: English 321B. Linguistic research applied to the study and teaching of the English language.

451. (163) English Literature to 1500 (3) F
English literature before 1500, including Old and Middle English in translation.

452. (190) English Literature 1500–1603 (3) F
English literature of the Tudor period, excluding drama.

453. (164) English Literature 1603–1660 (3) S
English literature of the Stuart and Commonwealth periods, including Milton but excluding drama.

454. (165) English Literature 1660–1740 (3) F
English literature of the Restoration and Augustan periods, excluding drama.

455. (166) English Literature 1740–1798 (3) S
English literature of the Johnsonian and pre-Romantic periods, excluding drama.

456. (120) English Literature 1798–1832 (3) S
English literature of the Romantic period, excluding drama.

457. (189) English Poetry 1832–1900 (3) F
English poetry of the Victorian period.

458. (188) English Prose 1832–1900 (3) S
English prose of the Victorian period, excluding drama and the novel.

459. (145) Twentieth Century English Literature (3) F
English literature from about 1900 to the present.

462. (195) Chaucer (3) S
Works of Geoffrey Chaucer in Middle English.

464. (140) Shakespeare (3) F, S
Plays of William Shakespeare.

467A,B. (137, 138) The English Novel (3,3) F, S
History and development of long prose fiction in the British Isles to and since 1832.

468A,B. English Drama (3,3) F, S
History and development of English drama, to and since 1642, excluding Shakespeare.

469. (192) Critical Studies in Major English Writers (3) F, S
Prerequisites: Senior standing, 12 units of upper division English. Intensive study of one to three major English authors. The authors to be studied will be announced in the Schedule of Classes. May not be repeated for credit. Not open to graduate students for graduate credit.

472. (105) Literature of the American West (2) F
Literary expression of the impact of the West on American culture and the development of literary symbols associated with the West.

474. (126) Twentieth Century American Literature (3) S
American literature from about 1914 to the present.

476. American Poetry (3) F
History and development of poetry and its criticism in the United States.

477. (127) The American Novel (3) F
History and development of the novel and its criticism in the United States.

478. American Drama (3) S
History and development of drama and its criticism in the United States.

479. (194) Critical Studies in Major American Writers (3) F, S
Prerequisites: Senior standing, 12 units of upper division English including English 370A,B. Intensive study of one to three major American authors. The authors to be studied will be announced in the Schedule of Classes. May not be repeated for credit. Not open to graduate students for graduate credit.

481. (112) Children's Literature (3) F, S
Prerequisite: one college course in literature. Survey of literature suitable for children.

482. (179) Literature for Adolescents (3) F, S
Prerequisite: one college course in literature. Survey of literature suitable for adolescents.

483. (113) Workshop in Literature for Youth (3) SS
Prerequisite: English 481, 482, or consent of instructor. Exploration of literary materials suitable for youth, emphasizing problems involved in presenting these materials. May be included in units required beyond 24 in major for M.A. degree.

489. (198) History of Literary Criticism (3) F
Works of representative critics, ancient and modern.

499. (199) Directed Studies (1-3) F, S
Independent study undertaken under the supervision of a faculty member. Limited to senior English majors with a 3.0 grade point average in the major and to senior comparative literature majors.

GRADUATE DIVISION

521. (201) Historical Linguistics (3)
550. (203) Old English Literature (3)
623. Seminar in Dialect Geography (3)
652. (205) Seminar in the English Renaissance (3)
653. (290) Seminar in the Age of Milton (3)
654. (291) Seminar in Restoration Literature (3)
655. (209) Seminar in Eighteenth Century Literature (3)
656. (293) Seminar in Romantic Literature (3)
657. (294) Seminar in Victorian Literature (3)
659. Seminar in Twentieth Century English Literature (3)
661. Seminar in Beowulf (3)
662. (239) Seminar in Chaucer (3)
664. (240) Seminar in Shakespeare (3)
672. (212) Seminar in Nineteenth Century American Renaissance (3)
673. (211) Seminar in American Realism (3)
674. (213) Seminar in Twentieth Century American Literature (3)
691. (260) Seminar in Satire (3)
696. (297) Seminar in Techniques of Literary Study (3)
698. (298) Thesis or Project (2-4)

ENTOMOLOGY (See Biology Department)

FINANCE (See Business Administration)

FOREIGN LANGUAGE (See Specific Language)

FRENCH

Professor: Baltzell.

Associate Professor: Swensen.

Assistant Professors: Abel, Kelly, Madden, Perla, Quillen, Thomas, L., Winter, H., Yperman.

LOWER DIVISION

101A-B. (1A,B) Fundamentals of French (4,4) F, S

Practice in grammar, reading, pronunciation, writing and conversation.

101A. For those who are beginning the study of French or who have had one year of high school French.

101B. Prerequisite: French 101A or two years of high school French. Continuation of French 101A.

201A-B. (60A,B) Intermediate French (3,3) F, S

Readings of representative modern writers with oral and written practice and reports.

201A. Prerequisite: French 101A-B or three years of high school French or equivalent.

201B. Prerequisite: French 201A or four years of high school French or equivalent.

UPPER DIVISION

312. (102) Advanced French I (3) F, S

Prerequisite: French 201B or equivalent. Extensive reading of French writings, review of grammatical principles, and a general consolidation of the four language skills: Reading, comprehension, composition and conversation.

313. (103) Advanced French II (3) F, S

Prerequisite: French 312 or equivalent. Sequel to French 312, with continuing emphasis on extensive reading of French texts and periodicals, regular composition work based on these readings, and the development of increased mastery of the spoken language through student discussions of the readings.

314. French Conversation (3) S

Prerequisite: Upper division standing in French. Functional course in conversation. Intended to meet specific, everyday situations and to provide help to those who intend to speak French in travel, work or classroom instruction.

335. (105) Survey of French Literature I (3) F

Prerequisite: Upper division standing in French. From the Middle Ages to the Nineteenth Century.

336. (106) Survey of French Literature II (3) S

Prerequisite: Upper division standing in French. Nineteenth and Twentieth Centuries.

358. (118) The French Short Story (3) SS

Prerequisite: Upper division standing in French. Most representative short story writers as Flaubert, Daudet, Maupassant, Maurois, Sartre, and Aymé.

411. (111) Advanced French Syntax and Composition (3) F

Prerequisites: French 312 and 313 or equivalent. Special emphasis on the writing of short compositions and commercial letters.

414. French Phonetics (3) S
Prerequisites: French 312 and 313 or consent of instructor. Articulatory phonetics as a means to form native French pronunciation habits with emphasis upon the difficulties encountered by speakers of American English.

415. Introduction to Romance Linguistics (3) F
Prerequisites: French 312 and 313 or consent of instructor. Basic concepts of linguistic science; techniques of structural analysis with illustrations taken primarily from Romance languages; their application in teaching foreign languages.

440. French Civilization (3) F
Prerequisites: French 335 and 336 or consent of instructor. Characteristic feaures of French culture with special attention to the various institutions, economy, social organization, customs, and ways of thinking.

455. (115) Modern French Drama (3) S
Prerequisite: Upper division standing in French. Survey of contemporary French theatre.

456. (116) Contemporary French Novel (3) SS
Prerequisite: Upper division standing in French. Readings in contemporary French writers, such as Gide, Rolland, Proust, Romains and Sartre for understanding of current literary trends.

471. French Literature of the Renaissance (3) F
Prerequisites: French 335 and 336 or consent of instructor. Most important writers of the 16th Century and their works, notably Rabelais, Montaigne and the poets of Pléiade.

472. (112) French Literature of the Seventeenth Century (3) S
Prerequisite: Upper division standing in French. Study of such classical dramatists as Corneille, Racine, Molière and of classical poetry and typical prose of the century. Examination of such literary theories as the three unities, of French classical drama and of the Court, the economic situation and the social structure.

474. (113) The Age of Enlightenment (3) F
Prerequisite: Upper division standing in French. Most representative French writers of the 18th century. Readings from such writers as Fontenelle, Montesquieu, Diderot, Voltaire and Rousseau.

476. (114) French Romanticism (3) F
Prerequisite: Upper division standing in French. Most representative French writers in the Romantic movement, from Chateaubriand to Victor Hugo, with readings in prose, drama and poetry.

478. (117) French Realism and Naturalism of the Nineteenth Century (3) S
Prerequisite: Upper division standing in French. Most representative French writers in the movements of Realism and Naturalism. Readings from such writers as Balzac, Flaubert, Maupassant and Zola.

GRADUATE DIVISION

510. History of the French Language (3)
551. French Poetry from Baudelaire to Saint-John Perse (3)
575. Medieval French Literature (3)
655. Seminar in the French Novel (3)
685. Seminar in French Literary Masters (3)
697. Directed Research (1-3)
698. Thesis (2-6)

GEOGRAPHY

Professors: Ericksen, Kennelly, Steiner, Wilson, J.
Associate Professors: Anderson, B., Foster, Karabenick.
Assistant Professors: Dykema, Scantling.

LOWER DIVISION

100. (11) World Regional Geography (3) F, S
An introductory regional geography of the world, treating the major countries in terms of their population, resources, economic development, physical environment and geographic problems. Especially recommended for elementary teaching majors.

140. (10) Introduction to Geography (3) F, S
Introduction to the study of geography, including maps and globes, the major physical and cultural elements of geography and the distribution of the world's population and resources.

152. (18) Economic Geography (3) F, S
Location and organization of the world's major types of production, including agriculture, mining, forest products, fisheries, manufacturing and associated service industries.

UPPER DIVISION

304. (185) Geography of California (3) F, S
Physical patterns in relation to natural resources, resource utilization, transport and population distribution. Not open to students with credit in Social Science 104.

306. (111) Geography of the United States and Canada (3) F, S
Common social, economic and political interests of the major human use regions of the United States and Canada. The study describes and interprets the culture patterns of each region in relation to the natural settings in which they have developed.

310. (161) Geography of Africa and the Near East (3) F, S
Natural conditions and resources of Africa and the Near East as a background for the several types of civilization which have developed there. Recent economic trends in Africa are stressed.

312. (171) Geography of Asia (3) F, S
Human and economic resources and problems of Asiatic nations are examined. Traditional land use, real and potential industrial development, political problems and the relation of these areas to current world affairs, are studied.

316. (136) Geography of Western Europe (3) F, S
Physical and cultural geography revealed through a regional study. Present-day conditions and problems as related to the physical conditions. Comprises Western Europe, Scandinavia, and the Mediterranean.

320. (181) Geography of Latin America (3) F, S
Regional study of Latin America including physical environment, population, social structure and economic conditions with emphasis on sources of raw materials, present problems and industrial outlook.

324. (137) Geography of the Soviet Union and Eastern Europe (3) F, S
Systematic and regional study of the physical, economic and cultural geography of the Soviet Union and the satellite states of Eastern Europe.

326. (151) Geography of the Pacific Ocean Area (3) S
Regional synthesis of the physical and cultural patterns of the Pacific Basin and Pacific Rim. Trans-Pacific migration patterns, social customs, economic conditions and geo-political problems are examined. Australia and New Zealand as well as the Pacific island groups are studied.

350. (100) Human Geography (3) F, S
Introduction to the study of geography, including the physical and cultural elements of geography and the manner in which man's activities are adjusted to conditions in the various regions of the world. Not open to students with credit in Geography 100 or 140.

380. (124) Map Reading and Interpretation (3) F, S
Prerequisite: At least one course in geography. Introduction to the use and preparation of maps, including the basic map elements, projections, representation of data, and practice in map preparation.

386. (126) Field Methods in Geography (3) F
Prerequisite: Geography 140 or 350. Introduction to field techniques, including formulation of field plans, recording direct field observation, field mapping, sampling techniques, interviewing and compilation of data. One two-hour class period and one two-hour field period per week.

396. (121) Geographic Materials and Projects (1) SS
Construction and use of maps, charts and displays related to systematic and regional concepts of geography. Not open to students with credit in Geography 380. (Laboratory 2 hours.)

440. (141) Physical Geography (3) F, S
Prerequisite: Geography 140 or 350 or consent of instructor. An explanatory description of climate, landform, vegetation and soil distributions; physical location processes; distributions at world and local levels; physical interrelations, and man as an agent in physical change.

444. (143) Climatology (3) S
Prerequisite: Geography 140, 350, or Geology 463. The elements, world patterns and classifications of climates and the relationship of climate to the other major elements of geography.

452. (118) Industrial Geography (3) F
Prerequisite: Geography 152 or consent of instructor. Systematic study of the distribution of industrial activities, analysis of their locations and application of location theory.

466. (153) Urban Geography (3) F, S
Examination of cities; their location, shape, structure and function. Selected world population clusters, theoretical and practical application of urban planning and the evolution of cities are studied.

470. (156) Political Geography (3) F, S
Prerequisite: Geography 100 or 350 or consent of instructor. Influence of geographic factors upon the world's major political developments. Application of basic geographic concepts will be made in selected areas.

482. (125) Elements of Cartography (3) F, S
Prerequisites: Geography 380, consent of instructor. Advanced techniques in construction of maps, charts and diagrams, including study of their construction and experience in the use of lettering guides and other cartographic tools.

496. (197) Literature and Methods in Geography (3) F

Prerequisites: Geography 140 and 380 or consent of instructor. Methods, theory and techniques of geographic investigation. Emphasis is placed upon classical and contemporary literature in geography.

497. Directed Studies (1-3) F, S

Prerequisite: Consent of instructor. Individually directed studies of special problems in geography.

GRADUATE DIVISION

500. (200) Regional Geography (3)

640. (210) Seminar in Physical Geography (3)

650. (211) Seminar in Cultural Geography (3)

652. (208) Seminar in Economic Geography (3)

697. Directed Research (1-3)

698. Thesis (2-6)

GEOLOGY

Professor: Conrey.

Associate Professors: Dennis, Ehrreich, Lumsden, Walker, C.

Assistant Professors: Fritts, Winchell.

Lecturer: Warter.

LOWER DIVISION

100. (50) General Geology (3) F, S

Elementary study of the earth particularly the structure, composition, origin, distribution and modification of materials upon and within the earth. (Lecture 2 hours, laboratory 3 hours.)

101. (5) Historical Geology (3) F, S

Prerequisite: Geology 100. History of the earth and evolution of plants and animals. (Lecture 2 hours, laboratory 3 hours.)

220. (8) Rocks and Minerals (4) F, S

Prerequisite: one year of high school chemistry or equivalent. Origin, occurrence and association of rocks and minerals, mineral and rock uses; determination of common minerals by physical properties, blowpipe and chemical tests. (Lecture 2 hours, laboratory 6 hours, field trips.)

UPPER DIVISION

310. (101) Life of the Past (3) F, S

Prerequisites: Semester of physical science and a semester of biological science; not open to majors in biology, botany, zoology or geology. A history of life as obtained through study of the fossil record and the relating of evolution, stratigraphy and paleoecology to this record.

330. (116) Structural Geology (4) S

Prerequisites: Geology 220, Civil Engineering 225 (may be taken concurrently). Deformation of earth's crust, fracturing, folding and flow of rocks; graphic solutions of structural problems. (Lecture 2 hours, laboratory 6 hours.)

331. (117) Geomorphology (3) S
Prerequisite: Geology 100. Nature, evolution and classification of land forms; physiographic provinces of U.S.A. (Lecture 2 hours, discussion session 2 hours.)

340. (106) Principles of Stratigraphy (3) F
Prerequisite: Geology 220. Geologic, paleontologic, biologic and climatic principles to the studies of stratigraphic rocks. Problems of chronologic significance. (Lecture 2 hours, laboratory 3 hours, field trips.)

341. (111) Principles of Paleontology (4) F
Prerequisites: Zoology 210A, Geology 100 or Zoology 210B. Morphologic, systematic, and ecologic aspects of invertebrate fossils; uses of fossils in stratigraphic work. (Lecture 2 hours, laboratory 6 hours, field trips.)

350. (102) Introduction to Field Geology (3) S
Prerequisites: Geology 220, 330 and Civil Engineering 225 (may be taken concurrently). Geologic mapping; interpretation of geologic maps and aerial photographs, preparation of geologic illustrations. (Laboratory 3 hours, field 8-5 Saturdays.)

370. (148) Engineering Geology (2) F, S
Prerequisites: Mechanical Engineering 172, Civil Engineering 200, 225. Earth processes and materials which influence the design, construction, and operation of engineering works; construction materials. (Lecture 2 hours, field trips.)

380. Earth Science Techniques (3) S
Prerequisites: Geology 100, 101, 220. Models, methods and materials of earth science. (Lecture 2 hours, laboratory 3 hours.)

420. Igneous and Metamorphic Rocks and Minerals (4) F
Prerequisites: Geology 100, 220 and Chemistry 111B. Characteristics, origins, mode of occurrence and nomenclature of igneous and metamorphic rocks and minerals. Not open to students with credit in Geology 103. (Lecture 2 hours, laboratory 6 hours, field trips.)

421. (104) Optical Crystallography (4) S
Prerequisites: Geology 220, Mathematics 122 or upper division standing in chemistry or physics. Optical properties of crystals. Laboratory study of crystals in immersion liquids and thin sections with polarizing microscope. (Lecture 2 hours, laboratory 6 hours.)

422. (150) General Crystallography (3) F
Prerequisites: Physics 100B or equivalent, Chemistry 111B. Introduction to geometrical, structural, chemical and physical crystallography. (Lecture 3 hours.)

440. (112) Sedimentary Techniques (3) F
Prerequisites: Geology 100, 220; Chemistry 111B. Processes involved in the formation of sedimentary rocks; methods of sedimentary analyses; description and interpretation of sediments and sedimentary rocks. (Lecture 2 hours, laboratory 3 hours.)

450. (118) Advanced Field Geology (6) SS
Prerequisites: Geology 330, 340, 350, 420. Six weeks of geological mapping at a selected area. Preparation of a geological report of the field problem which is to be turned in to the instructor not later than two weeks following the completion of the field work. (Lectures as needed, field 6 days per week, 8-5.)

460. (120) Introduction to Geophysics (3) F
Prerequisites: Physics 100B, Mathematics 117. Introduction to geophysics; principles and processes; methods of investigation.

461. (130) Introduction to Geochemistry (3) S
Prerequisites: Chemistry 111B, Mathematics 123. Abundance, migration and concentration of the elements in the earth; chemical processes in the evolution of the earth and its crust.

462. Oceanography (3) F
Prerequisites: Chemistry 111B, Physics 100B. Physical and chemical oceanography; properties of seawater; water masses of the oceans; ocean circulation; measurement techniques. (Lecture 2 hours, laboratory 3 hours.)

463. General Meteorology (3) S
Prerequisites: Mathematics 117, Physics 100B or consent of instructor. Composition, structure, and circulation of the atmosphere, including elementary theory of storms and other weather disturbances, meteorological instruments and observations. (Lecture 3 hours.)

470. (110) Economic Mineral Deposits (3) F
Prerequisites: Geology 330, 420. Introduction to the geology, geochemistry and economics of mineral concentrations in the earth's crust.

471. (105) Petroleum Geology (2) F
Prerequisites: Geology 330, 350. Application of geology to the exploration and production of petroleum; includes use of both surface and sub-surface geologic methods. (Lecture 1 hour, laboratory 3 hours, field trip.)

490. (160) Current Topics in Geological Sciences (3) F, S
Prerequisite: Consent of instructor. Topics of current interest in the geological sciences selected for intensive development. Topics to be selected from such areas as (a) Geochronology, (b) Ground water geology, (c) Marine geology, (d) X-ray crystallography (e) Micropaleontology, (f) Aerial photo interpretation, (g) Paleoecology, (h) Photogeology, (i) Planetary geology, (j) Tectonics. May be repeated for a maximum of 6 units. (3 hours.)

496. (199) Investigations in Geology (1-4) F, S
Prerequisite: Consent of instructor. Open only to seniors majoring or minoring in geology. Problems selected by instructor for mature analysis. May be repeated for a maximum of 4 units.

GERMAN

Professor: Walter.
Associate Professor: Swensen.
Assistant Professors: Bartenbach, Kendall, Roden, Winter, H.

LOWER DIVISION

101A-B. (1A,B) Fundamentals of German (4,4) F, S
Practice in grammar, reading, pronunciation, writing and conversation.
101A. For those who are beginning the study of German or who have had one year of high school German.
101B. Prerequisite: German 101A or two years of high school German. Continuation of German 101A.

201A-B. (60A,B) Intermediate German (3,3) F, S
Reading of representative modern German literature and technical material. Deeper penetration into problems of German grammar.
201A. Prerequisites: German 101A-B or three years of high school German or equivalent.
201B. Prerequisites: German 201A or four years of high school German or equivalent.

203A-B. (61A,B) Scientific German (3,3) F, S
Readings of German scientific materials. Meets the preprofessional requirements of students entering science or medicine. Not applicable toward the 14 units prerequisite for upper division courses.
203A. Prerequisites: German 101A-B or three years of high school German or equivalent.
203B. Prerequisites: German 203A or four years of high school German or equivalent.

UPPER DIVISION

312. (102) Advanced German I (3) F, S
Prerequisite: German 201B or equivalent. Extensive reading of German writings, review of grammatical principles, and a general consolidation of the four language skills: reading, comprehension, composition and conversation.

313. (103) Advanced German II (3) F, S
Prerequisite: German 312 or equivalent. Sequel to German 312 with continuing emphasis on extensive reading of German texts and periodicals, regular composition work based on these readings and the development of increased mastery of the spoken language through student discussions of the readings.

314. German Conversation (3) S
Prerequisite: Upper division standing in German. Functional course in conversation. Intended to meet specific, everyday situations and to provide help to those who intend to speak German in travel, work or classroom instruction.

335. (105) Survey of German Literature I (3) F
Prerequisite: Upper division standing in German. Development of German literature from the oldest extant works to the middle of the 17th Century.

336. (106) Survey of German Literature II (3) S
Prerequisite: Upper division standing in German. From the middle of the 17th Century to the present.

411. (111) Advanced German Syntax and Composition (3) F
Prerequisites: German 312 and 313 or equivalent. Emphasis on the writing of reports and essays.

440. German Civilization (3) F
Prerequisite: Upper division standing in German. Historical development of important German institutions of social organization, customs and ways of thinking.

450. (110) German Drama in the Nineteenth Century (3) S
Prerequisite: Upper division standing in German. German drama from Tieck to Hauptmann with emphasis upon Kleist, Grillparzer and Hebbel.

451. German Lyric Poetry (3) S
Prerequisite: Upper division standing in German. Lyrical works of important poets of the 18th and 19th Centuries.

452. (114) The German Novelle (3) S
Prerequisite: Upper division standing in German. Reading and discussion of German Novellen, as set up in theory and practice as a specific literary genre, by such significant authors as Goethe, Tieck, Kleist, Spielhagen, Fontane, Heyse, Stefan Zweig, Kafka and Thomas Mann.

455. (118) Contemporary German Drama (3) F
Prerequisite: Upper division standing in German. Development of the German drama from Naturalism to the present day. Reading and discussion of significant playwrights of the 20th Century, such as Gerhart Hauptmann, Wedekind, Toller, Brecht, Zuckmayer, Duerrenmatt and Frisch.

456. (116) The Modern German Novel (3) S
Prerequisite: Upper division standing in German. Development of the German novel from Goethe to Kafka and Mann against a background of the literary, philosophical and historical currents of the times.

463. (115) Literary Movements in Modern German Literature (3) SS
Prerequisite: Upper division standing in German. Reading and discussion of short stories and novels of outstanding writers in the period between 1880–1950, such as Gerhart Hauptmann, Arthur Schnitzler, Hermann Hesse, Franz Kafka, Robert Musil.

471. (108) The Golden Age of German Literature (3) F
Prerequisite: Upper division standing in German. Reading and discussion of the most significant authors of the Enlightenment, the Storm and Stress Period, and the Classical Age. Writers such as Lessing, Klinger, Lenz, and especially Goethe and Schiller will be considered.

476. (109) German Romanticism (3) S
Prerequisite: Upper division standing in German. Development and growth of German Romanticism from its earliest proponents and representatives on through to its period of fruition and expansion. Emphasis will be placed upon the close relationships of Romanticism with music and philosophy. Reading and discussion of authors such as Novalis, Tieck, Hoffmann, Hoelderlin, Schlegel, Eichendorff, Chamisso, Heine, Schopenhauer, Wagner, Nietzsche.

478. (113) German Realism (3) F
Prerequisite: Upper division standing in German. Selected prose, poetic and dramatic writings of German Realism (1830–1890) against the background of the historical, philosophical and cultural movements of the times.

HEALTH EDUCATION

Associate Professors: Beegle, Farber, Irwin, Torney.
Assistant Professor: Pollock.
Instructors: Campbell, C., Petersen, R.

LOWER DIVISION

110. (20) Health Education and Safety (2) F, S
Development of modern health knowledge, habits and attitudes; concerns mental health, alcoholism, narcotics, nutrition, public safety, communicable diseases and family life.

UPPER DIVISION

320. (127) Community Health Problems (3) F
Prerequisite: Health Education 110. Community aspects of pertinent health problems and the organization of health resources; emphasis on philosophy, services, administration and interrelationships of public, private and voluntary health agencies as they function in the community.

323. (128) Health Protection (3) F
Prerequisite: Health Education 110. Environmental health; civil defense; housing and health; occupational health; consumer health; and related protection agencies.

325. The School and Sex Education (3) S
Prerequisites: Anatomy and Physiology 200, Health Education 110, and Psychology 100; or equivalent. Development and conduct of sex education in American schools; factors in human growth and sexual maturation; family health problems; parenthood; family planning.

327. (130) Stimulants and Depressants (3) F, S
Prerequisite: Health Education 110. Narcotics and addiction; alcohol and alcoholism; smoking and health; dangerous drugs; and related laws.

430. (125) Public School Health Program (3) F, S
Prerequisite: Health Education 110. Organization, administration, philosophy and legal aspects of the school health program with emphasis on school health services and healthful school living. Role of teacher, health coordinator, nurse and other specialized personnel examined. Home and community relationships considered.

435. (129) School Health Counseling (3) S
Prerequisite: Health Education 430. School health counseling as related to personal and group health problems. Role and relationships of pupil, teacher, nurse, parent, physician and health educator; and relationships of school-community environment.

440. (126) Methods and Materials of School Health Education (3) F, S
Prerequisite: Health Education 430. Methods in school health education; selection of materials; use of various resources, tests, measurements and evaluation.

GRADUATE DIVISION

540. (225) Curriculum Development and Construction in School Health Education (3)

550. (200) Trends in School Health Education (2)

553. (227) Problems in Teaching Health Education in Elementary and Secondary Schools (2)

580. (220) Evaluation and Measurement in School Health Education (2)

HISTORY

Professors: Ahlquist, Appelgate, Frazer, Hardeman, Kimball, Lindgren, Lipski, Melom, Nichols, Peters, Wilde.

Associate Professors: Asher, Higgins, Ragland, Tarr.

Assistant Professors: Abou-el-Haj, Barsky, Brownsword, Carrott, Christopher, Cohen, H., Fitzgerald, Foley, Furth, Grele, Harris, C. H., Hood, LaBelle, McFaul, McNeally, Mahar, Mazaraki, Miller, D., Svec, Walzer, Williams, D., Wolff, Woody.

Instructors: Byers, Kranz.
Lecturer: Israels.

LOWER DIVISION

131A,B. (4A,B) Western Civilization (3,3) F, S
Political, economic, social, cultural, religious and intellectual history of western civilization from its origins to the present. Stresses persons, ideas, movements and institutions that have had the greatest impact upon the modern world.

151A,B. (5A,B) History of England and Great Britain (3,3) F, S
Survey and analysis of the cultural, economic and political growth of Great Britain and the Commonwealth from earliest times to the present. Emphasis is placed on the evolution of Anglo-American institutions and cultural heritage.

161A,B. (8A,B) History of the Americas (3,3) F, S
Comprehensive study of the colonizing activities of the Spanish, Portuguese, French, Dutch and English in Latin America and Anglo-America; movement for independence among colonial peoples of the western hemisphere; social, intellectual, political and economic developments of the Latin American republics, Canada and the United States. Meets the graduation requirement in United States history. Not open to students with credit in History 171A,B.

171A,B. (7A,B) History of the United States (3,3) F, S
Survey of the political, social, economic and cultural development of the United States from discovery to the present. Attention given to the rise of the new nation, sectional and national problems, disunion and reconstruction, rise of industrial America, the United States as a world power, welfare democracy and postwar problems. Meets the graduation requirement in United States history. Not open to students with credit in History 161A,B.

181A,B. (19A,B) History of Asia (3,3) F, S
Historical development of the Indian and Chinese civilizations and of their extensions in Indonesia, Indo-China, Japan, Korea and Central Asia; relations between East and West; contemporary problems in Asia.

UPPER DIVISION

ANCIENT AND MEDIEVAL

313. (125A) Ancient Greece (3) F
History of the Greeks and the Greek world from the earliest times to the Roman Conquest.

314. (125B) Roman History (3) S
History of Rome and the Roman world from the Eighth Century B.C. to the Fifth Century A.D.

316. (126A) Early Middle Ages (3) F
History of Western Civilization from the fall of the Roman Empire in the West to the Crusades. Germanization of the West, evolution of Christian institutions, Slavic expansion, Byzantinization of the Eastern Empire, Islamic civilization, Carolingian age, feudal and manorial institutions.

317. (126B) High Middle Ages (3) S
History of Western Civilization from the Crusades to the end of the Middle Ages. Revival of trade, growth of towns and of capitalism; origins of modern political institutions; and medieval learning and art.

MODERN EUROPEAN

332. (141A) The Age of Renaissance (3) F
Europe in transition. Precocious flowering of Italian culture and decline of northern medieval civilization; emergence of the renaissance state in Italy, France and Spain; genius of Florence and Venice; crisis of the Church and popular faith; versatility of humanism.

333. (141B) The Age of Reformation (3) S
Europe in transition. Resolution of the religious crisis by Protestantism and Catholic renewal; defusion and adaptation of renaissance culture; changing relations between government, society and religion on the Continent; commercial and industrial capitalism and the Price revolution.

334. (142) The Age of Absolutism (3) F
Rise of the French Imperium in Europe and decline of the Spanish; triumph of science and mechanistic philosophy; growth of statism and its increasing separation from religious sectarianism; impact upon warfare, society, economic enterprise and culture.

336. (143) The French Revolution and Napoleon (3) S
End of the Old Regime and the French Revolution. Decline of the feudal monarchy, failure of enlightened despotism, the rise of revolutionary thought, French Revolution, and Napoleonic imperialism.

337. (105) Europe in the Nineteenth Century (3) F
Apogee of European power, influence and confidence. Recovery from French Revolutionary and Napoleonic disturbances, reaction and revolution, nationalism, unification of Germany and Italy, triumph of liberalism, challenge of socialism, outburst of imperialism, alliances and alignments leading to World War I.

339. (140) Europe Since 1914 (3) F, S
World War I; outstanding changes in Europe after the first World War with particular stress on the rise of Fascism in Italy, Nazism in Germany, Communism in Russia, and Social Democracy in Scandinavia and Great Britain; the failure of the League of Nations and the collapse of collective security, World War II; the United Nations; postwar problems.

431A. (182) Early Balkan and Near Eastern History (3) F
The rise of Islam; establishment and organization of the Ummayyad and Abbasid caliphates; the Turkish invasion and Crusades. Origin and development of the Ottoman and Safavid empires; Islamic society and culture in 16th Century, decay of the Islamic empires and expansion of Europe.

431B. (182) Recent Balkan and Near Eastern History (3) S
Rise of Nationalism in the Balkan and Near Eastern areas. Growth of Western Imperialism; Westernization of Turkey and Iran; independent development of Balkan and Arab states since World War I, establishment of Israel; Soviet impact on the Balkans and the Near East.

RUSSIAN

341A. (177) Foundations of Russia (3) F
Foundations of the Russian state in Kiev; rise of Moscow; westernization and expansion of Imperial Russia. Emphasis on the evolution of autocracy, orthodoxy and serfdom.

341B. (178) Modern Russia (3) S
Era of great reforms and revolutionary movements; downfall of Imperial Russia; establishment of the Soviet regime; chief political, social, economic and cultural developments in the Soviet era; role of the Soviet Union in world affairs.

441. (179) Russian and Soviet Cultural History (3) F
Cultural development of Russia from Peter the Great to the present. Major conservative, liberal and radical trends of thought. Conflict between Russian tradition and Communism.

BRITISH

353. (112) Tudor and Stuart England (3) F
New Monarchy; Renaissance and Reformation; rise of commercial, capitalism; foundations of empire; age of Elizabeth I and Shakespeare; experiment in Divine Right Monarchy; triumph of Puritan, Parliament and Common Law; the age of the Puritan and Milton; the Restoration; and the beginnings of party and cabinet government.

355. (111) Hanoverian England (3) S
Revolution of 1688, rise of party and cabinet government, Whig supremacy, Johnsonian England, Second Hundred Years War, agricultural and industrial revolutions, evangelical and humanitarian movements, England and the French Revolution, reaction and reform.

356. (114) Britain Since Victoria (3) F
British history from the accession of Queen Victoria to the present. Special emphasis on economic and social conditions, intellectual ferment, advance of democracy, rise of labor and socialism, and Britain's changing world position.

451A,B. (113A,B) British Empire and Commonwealth (3,3) F, S
British expansion overseas from the earliest times to the present. 451A deals with Irish plantations, Elizabethan sea dogs, trading companies and settlement colonies, mercantilism, wars for trade and commerce. Fall of the First Empire. 451B deals with rise of crown colonies and the colonial office, humanitarianism and free trade, evolution of Canada, New Zealand, Australia, and South Africa toward dominion status, British rule in India and tropical lands, rise of colonial nationalism.

455. (116) Constitutional History of England (3) S
Origin and evolution of the basic English political and legal institutions from the earliest times to the present.

LATIN AMERICAN

360. (163) Latin American Peoples (3) F, S
Integrated study of the land, history, people's government, economics, way of life and international relationships of the Latin American nations, trends in terms of broad groups with stress laid on important similarities and outstanding differences among the Latin American peoples. Not open for credit to majors in history.

362. Colonial Latin America (3) F
Spanish and Portuguese conquest and colonization in America; the development of colonial life and institutions; international rivalry, Bourbon reforms, revolts, intellectual currents in the 18th Century.

363. The Emerging Latin American Nations (3) S
Wars of independence; problems of the new nations; struggle for political and economic stability; social and intellectual developments; international relations in the 19th Century. Emphasis on comparisons rather than individual national histories.

364. (167) Modern Latin America (3) F, S
History of the independent Latin American nations, with emphasis on common characteristics and developments which have emerged in the 20th Century.

461. (161) The A B C Powers (3) F
History of Argentina, Brazil and Chile, with brief attention to Uruguay and Paraguay; their role in the Americas and in the world.

462. (162) History of Mexico (3) S
Indian Mexico; Spanish conquest; War of Independence; the age of Santa Ana; the Period of Reform; the Reign of Diaz; the Revolution of 1910; the Period of Reconstruction; contemporary Mexico with its cultural, social, political and economic trends.

463. (164) The Caribbean Area (3) F
History of the West Indies, Central America and northern South America. Economic, political and cultural development of these regions and their relations with the United States.

UNITED STATES

372. (107A) United States: Colonial Period (3) F
Discovery and settlement of the new world; European institutions in a new environment; development of colonial government, economy and social institutions; European dynastic rivalry and colonial America.

373. (107B) United States: Age of Revolution (3) S
Clash between British attempts to control and tax the colonies and colonial distaste for both; growth of an independent spirit; the American Revolution; problems of the new nation; the Constitution.

374. (109A) United States: Early National Period (3) F
Establishing the federal government; origins of the party system; foundations of American foreign policy; and expanding economy; changing social scene; spread of democracy; national self-discovery.

375. (109B) United States: Jacksonian Democracy and Sectional Crisis (3) S
Social and economic expansion; rebirth and development of political parties; politics of slavery; Manifest Destiny and the Mexican War; growth of sectional feeling; the disruption of American democracy.

376. (110) United States: Civil War and Reconstruction (3) F, S
Sectional rivalry, manifest destiny, mid-century divisive forces, Civil War and reconstruction.

377. (130A) United States: Emergence of an Industrial Society (3) F, S
Growth of American industry from the post-Civil War period to the close of the 19th Century, effect of industrialism on the businessman, farmer, laborer and politician, rise of the city and the characteristics of immigration.

378. (130B) United States: The Progressive Period and the Twenties (3) F, S
Progressive movement from Theodore Roosevelt's administration; its various manifestations and accomplishments on the city, state and national levels. Rise of America to world power. Analysis of the 1920s from an economic, social and political point of view.

379. (131) United States: The Great Depression, War and Its Aftermath (3) F, S
Depression and the beginnings of welfare democracy; United States in World War II; post-war problems and world affairs.

471A,B. (150A,B) History of the Westward Movement (3,3) F, S
Analysis of the frontier experience of the American people; expansion across the American continent and its influences on American ideas and institutions; special attention given to explorations, movement of populations, effects of sectionalism and the geographical bases for American development.

472. (158) History of the South (3) F
Survey of the economic, social, intellectual and political development of the South from colonial times, with emphasis on the period from 1820 to the present.

473A. (185) Early California History (3) F
Spanish and Mexican periods of California history. Political, economic and social development of California from its discovery and occupation by the Spanish to the middle of the 19th Century.

473B. (186) Recent California History (3) S
American period of California history; political organization, progressivism, recent political, social and cultural developments.

475A,B. (108A,B) Economic History of the United States (3,3) F, S
Survey of American economic development from its European backgrounds to the present. Emphasis placed on agriculture, transportation, labor, manufacturing, capital accumulation and corporate structures.

476A,B. (135A,B) Social History of the United States (3,3) F, S
Development of American society from the beginnings of settlement to the present, with particular emphasis upon the modification of European institutions in the American environment. Includes social structure, nature of the family, ethnic tensions, Americanization of the immigrant, the changing character of urban and rural life and the social background of major political events.

477A,B. (133A,B) American Intellectual History (3,3) F, S
Main intellectual currents in American history as expressed in the political and economic thought, theology, philosophy, literature and science. Comment on the economic background and the interaction between ideas and social structure.

478A,B. (155A,B) Diplomatic History of the United States (3,3) F, S
American foreign relations since the Revolution, giving special attention to the concepts of manifest destiny, isolationism and the Monroe Doctrine; the increasingly important role of the United States in international affairs.

479A,B. (147A,B) Constitutional History of the United States (3,3) F, S
Constitutional history in the chronological framework of American history from colonial beginnings to post-World War II. Emphasis on the sources of constitutional change in America—social, economic, intellectual, political—and on the ways constitutional government have influenced American society.

FAR EASTERN AND SOUTH ASIAN

482A. (173) Imperial China (3) F
Background of the establishment of the Chinese empire, development and crystallization of traditional institutions, expansion and contraction of the empire, impact on adjacent areas, and the rise and fall of dynasties. Emphasis on institutions and attitudes which produced the greatest impact on recent Chinese history.

482B. (174) Modern China (3) S
Impact of the west and disintegration of the traditional order in the 19th Century, revolutionary changes in the 20th Century, nature and problems of the Republic, and the rise and establishment of communist power.

483A. (175) Traditional Japanese Civilization (3) F
Japanese civilization from its origins to the 19th Century. Emphasis on intellectual and cultural developments on the selective adoption and modification of Chinese culture.

483B. (175) Modern Japan (3) S
Japan from the late Tokugawa period to the present. Western impact on traditional Japan and the Japanese response; the development of a modern state; liberalism and totalitarianism; the rise and fall of imperialism.

485A. The Early History of India (3) F
History of the Indian subcontinent from the time of the Indus Valley civilization through the Mughal empire; the impact of invasions, from the Aryans to the Moslems; formation and diffusion of Hindu culture; emphasis on social and intellectual history.

485B. History of Modern India (3) S
Impact of the West on India since the 16th Century; the British period, Indian renaissance and independence movements; India and Pakistan since independence.

GENERAL

491A. (118) Africa Before Partition (3) F
Egyptian, Greek, and Roman influence; early African states; Muslim invasion, Islamic influences, and Arab settlements; Ethiopia; Mamluk Egypt and the Barbary states; early Portuguese and Dutch activities; era of firearms and the slave trade; Christian missions and the 19th Century explorations.

491B. (119) Modern and Contemporary Africa (3) S
Conquest of Africa by European states, contrasting colonial systems as they evolved, anti-colonial movements and progress towards self-government or independence, problems of economic and political development, and race tensions in areas of white settlement.

495. Colloquium (3) F, S
Prerequisite: Senior standing with "B" average and consent of instructor. Analysis and interpretation of significant documents and works of history. Individual works discussed will center about a general theme selected by the instructor. May be repeated for a maximum of 6 units.

499. (199) Historians and Historiography (3) F, S
Introduction to historical methods with a discussion of major historians and problems of historical interpretation. Required of history majors. To be taken in the senior year.

GRADUATE DIVISION

631. (210) Seminar in European History (3)

651. (211) Seminar in British and Empire History (3)

661. Seminar in Latin American History (3)

672. (204) Seminar: The United States to 1900 (3)

673. (209) Seminar in Twentieth Century United States (3)

697. Directed Research (1-3)

698. (298) Thesis or Project (2-4)

HOME ECONOMICS

Professors: Bates, Z., Gillaspie, Williamson, L.
Associate Professors: Buckwalter, Hamilton, Hoff, Hupfield, Kefgen, Lare, Vanderwarf, Wharton.
Assistant Professors: Baker, D., Beacom, Christian.

LOWER DIVISION

100. (50) Introduction to Home Economics (1) F, S
History, development and professional career opportunities in the field of home economics.

111. (66) The Preschool Child (3) F, S
Prerequisites: Psychology 100, Sociology 100 (may be taken concurrently), or equivalent. Patterning of behavior in home and nursery school, and interaction of parents, children and teachers. (Lecture, laboratory.)

142. (78) Housing Design (2) F, S
Architectural, constructural and artistic factors of housing as related to family needs. (Lecture, laboratory.)

151. (61) Clothing Construction and Consumer Problems (2) F, S
Principles of clothing construction and their application; consumer problems; textiles. Not open to home economics majors. (Lecture and laboratory.)

221. (53) Management of the Modern Home (2) F, S
Management theory related to consumer problems; food, clothing, shelter, time, energy, money. Not open for credit to home economics majors.

231. (51) Food Selection and Meal Preparation (2) F, S
Food selection and buying; meeting individual and family food needs; principles of food preparation, family meals. Not open to home economics majors. (Lecture, laboratory.)

232. (52) Basic Nutrition, Food Buying, and Meal Preparation (2) F, S
Basic principles of human nutrition; application to the selection of an adequate diet; preparation of various types of food and some opportunity for the planning, preparing and serving of simple meals. Designed for nurses and elective students. (Lecture, laboratory.)

235. (70) Principles of Food Preparation (3) F, S
Prerequisites: Chemistry 100 or 111A; 327 (may be taken concurrently) or equivalent. Scientific principles and techniques in food preparation; factors that contribute to quality of food products; judging quality of prepared foods. (Lecture, laboratory.)

241. (54) Planning and Furnishing the Modern Home (3) F, S
Guides in planning, furnishing and managing an attractive home as the center of family life. Not open to home economics majors. (Lecture, demonstration.)

251. (62) Principles of Clothing Selection (2) F, S
Prerequisite: Art 100 or equivalent (may be taken concurrently). Analysis of principles of apparel selection in relation to the economic and aesthetic aspects of clothing.

254. (75) Fundamentals of Clothing Design (3) F, S
Prerequisite: Home Economics 251 or equivalent. Analysis of theories and methods of clothing construction. (Lecture, laboratory.)

UPPER DIVISION

313. (131) Field Work with Preschool Children (2) F, S
Prerequisite: Home Economics 111 or Educational Psychology 301 or consent of instructor. Participation in group care of young children in nursery schools. Analysis of nursery curriculum and techniques in terms of basic objectives of various programs. (Lecture, laboratory.)

321. (144) Home Management (3) F, S
Principles and philosophy of management in the home; decision making as affected by family values, standards, goals, resources, and socio-economic conditions.

323. (147) Personal and Family Economics (3) F, S
Theory and procedures in planning, controlling and evaluating resources.

327. (146) Household Equipment Technology (3) F, S
Scientific principles underlying the selection, care and operation of household equipment. (Lecture, laboratory.)

331. (105) Fundamentals of Nutrition (3) F, S
Prerequisites: Anatomy and Physiology 200, Home Economics 235 or equivalent. Foundations of nutrition and its relation to health; application to feeding the individual and family.

333. (110) Meal Management (2) F, S
Prerequisite: Home Economics 331 or equivalent. Analysis of factors which influence meal plans, food selection, preparation and service in relation to management of time, energy and money.

334. (110A) Quantity Meal Management (1) F, S
Meal planning and related activities for institutions and other large groups; required of students following the dietetic program. May be taken concurrently with Home Economics 333.

335. (136) Quantity Food Production (3) F, S
Prerequisite: Home Economics 331 or consent of instructor. Principles of menu planning, food purchasing and preparation for large groups; cost control. Experience in large quantity food production. (Lecture, laboratory.)

337. Food Service Management (3) F
Prerequisite: Accounting 200A or consent of instructor. Principles, organization and management of the food service department. (Not open to students with credit in Home Economics 336.)

338. Institution Equipment and Layout (3) S
Prerequisite: Home Economics 337 or consent of instructor. Selection, layout and maintenance of institution food service equipment. (Not open to students with credit in Home Economics 336.)

341. (101) Decorating and Furnishing Today's Home (3) SS
Color and the fundamentals of design as applied to the home. Homemaking teachers will develop projects for home furnishings units on the secondary level. Other students will work on related projects. (May not be substituted for Home Economics 344.)

342. (140) Housing: Study of Environmental Factors (2) F, S
Problems of developing effective housing and communities for families in various cultural situations. Sociological, financial, psychological and legislative factors of housing are investigated.

344. (141) Interiors and Furnishings (3) F, S
Prerequisites: Art 100 or 111, Home Economics 353 (may be taken concurrently), or consent of instructor. Design principles as applied to interiors; analysis of materials and elements used in home furnishings. (Lecture, laboratory.)

353. (107) Textile Selection (3) F, S
Prerequisites: Home Economics 251; Chemistry 100 or 111A, 327 (may be taken concurrently) or equivalents; or consent of instructor. Recent developments in textiles; natural and synthetic fibers, yarn and fabric construction, dyes and finishes as they influence fabric selection, performance and care.

354. Analysis of Tailoring Processes (3) F, S
Prerequisite: Home Economics 254 or equivalent. Analysis of processes applied to construction of suits and coats. (Lecture, laboratory.)

355. (176) Current Trends in Clothing, Textiles and Fashion Design (2) F, S
New textile developments; new techniques in teaching clothing; principles and application of fashion design.

357. (115) Creative Pattern Design (3) F, S
Prerequisite: Home Economics 254 or equivalent. Experimental approach to analysis of factors influencing clothing synthesis and design. (Lecture, laboratory.)

400. (171) Procedures and Demonstration Techniques (2) F, S
Prerequisite: Speech 130 or 132 or equivalent, basic courses in major areas of home economics. Procedures in presenting subject matter in the various areas of home economics including principles and techniques of demonstration. (Lecture, laboratory.)

409. (190) Special Studies (2) F, S
Prerequisites: Home economics major, senior standing. Investigation and discussion of significant problems and issues in home economics. Emphasis in contemporary literature relating to home economics, individual investigation and group discussion of selected problems.

411. (102) Individual Child Study (Preschool years) (3) SS
Prerequisites: Psychology 100, Educational Psychology 301 or consent of instructor. Designed for homemaking teachers. Study of an individual child in a family and community setting as a basis for formulating guidance practices in the home. Evaluating current materials in child care and development for use at the secondary level.

413. (195) The Family in the Community (3) F, S
Prerequisites: Psychology 100 and Sociology 100 or Educational Psychology 301, or consent of instructor. Exploration of key concepts underlying contemporary American family life and community agencies serving the urban family.

419. (165) Family Life Education (3) F, S
Concepts of family development and interaction in the modern American family with special emphasis on leadership opportunities for professional persons. Not open to students with credit in Sociology 475.

423. (145) Home Management Project (3) F, S
Prerequisites: Home Economics 321, 323 or equivalent. Analysis of family goals and values in a rapidly changing culture; principles and concepts of management developed through field work with families. Individual and group conferences arranged.

430. (150) Nutrition and Health (3) F, S
Intensive study of nutrition including evaluation of current trends in food and nutrition. Designed for students in health education, elementary and secondary education, social service and other elective students. Not open to home economics majors.

431. Advanced Foods (3) S
Prerequisite: Home Economics 235. Specific food preparation problems. Use of additives, prefabrications, processing and sanitation. (Lecture, laboratory.)

432. (128) Experimental Foods (3) F, S
Prerequisite: Home Economics 331 or equivalent. Scientific principles and experimental procedures applied to food processes. (Lecture, laboratory.)

433. Nutrition of Infants and Children (3) F, S
Prerequisite: Home Economics 331 or equivalent. Nutritional needs specifically related to the development of the embryo, the infant and the child through adolescence. Methods of judging nutritional status of children and evidences of malnutrition.

434. Recent Developments in Food (3) S
Prerequisite: Must be preceded by courses in food or consent of instructor. Analysis of recent developments and current research in food.

435. (120) Techniques for Teaching Foods (3) SS
Prerequisite: Consent of instructor. Suggested techniques for teaching foods on the meal basis in the 50-minute class period in the junior or senior high school. Emphasis on use of the all-purpose room; time management; arrangement of equipment in the units; work simplification; demonstration techniques; freezing as related to meal preparation; appealing food experiences for teen-agers as related to nutrition.

436. (161) Advanced Nutrition (3) F, S
Prerequisites: Home Economics 331 or equivalent; Chemistry 448 (may be taken concurrently), or consent of instructor. Metabolism of protein, fats, carbohydrates, minerals and vitamins; interrelationships of nutrients; procedures for determining nutritional requirements of individuals; cultural aspects of food as they relate to nutrition.

437. Cultural and Aesthetic Aspects of Food (3) F, S
Prerequisites: Psychology 100, Sociology 100, Home Economics 331 or equivalents. Science and art of food preparation in relation to historical, national, regional, racial and religious customs; consideration of economic conditions. (Lecture, laboratory.)

438. (170) Diet in Health and Disease (3) F, S
Prerequisites: Home Economics 331 or equivalent; Anatomy and Physiology 200, or consent of instructor. Nutritional requirements of specific phases of normal growth and development; dietary modification for abnormal and disease conditions.

441. (142) Advanced Interiors and Furnishings (3) F, S
Prerequisite: Home Economics 344 or consent of instructor. Advanced study of home furnishings design with emphasis upon functional planning for residences. Includes applied interior design, historic periods, interior lighting, color theory and textiles.

443. (143) Recent Developments in Housing and Home Furnishings (2) F, S
Prerequisites: Home Economics 342, 344, or consent of instructor. Recent trends in materials, construction and care of housing and home furnishings. Research in the evaluation and care of new products.

451. Fashion Analysis (3) S
Prerequisite: Home Economics 251 or consent of instructor. Factors affecting fashion trends, patterns of clothing consumption, consumer acceptance or rejection of European and American fashions. Organization and structure of the fashion industry.

452. (177) Costume Design and Draping (3) F, S
Prerequisite: Home Economics 357 or consent of instructor. Creating original design through French draping. (Lecture, laboratory.)

453. (175) Advanced Textiles (3) F, S
Prerequisite: Home Economics 353 or equivalent. Investigation of chemical and physical structure of fibers and physical properties of yarns and fabrics in relation to fabric serviceability.

454. Experimental Clothing (3) F
Prerequisites: Home Economics 254, 353 or consent of instructor. Experimental approach to apparel construction; evaluation of appropriate construction techniques as related to fabric geometry, garment appearance and serviceability. (Lecture, laboratory.)

459. (179) Psychological, Sociological and Economic Aspects of Clothing (3) S
Prerequisites: Home Economics 251, Psychology 100, Economics 200 or 300, Sociology 100 or 142 or consent of instructor. Analysis and interpretation of psychological, sociological and economic influences on the selection of individual and family clothing.

461. Community Nutrition (3) F
Prerequisite: Home Economics 331. Nutritional status and factors responsible for the nutrient intake of all people. Communication techniques in community nutrition education.

462. Recent Developments in Nutrition (3) F
Prerequisite: Must be preceded by courses in nutrition or consent of instructor. Analysis of recent developments and current research in nutrition. (Not open to students with credit in Home Economics 439.)

GRADUATE DIVISION

511. (225) Family Development (3)
561. (215) Curriculum Development in Home Economics (3)
563. (220) Evaluation in Home Economics (3)
587. (265) Trends and Perspective in Home Economics (3)
605. (260) Seminar in Organization and Administration of Home Economics (3)
615. (240) Seminar in Child Development (3)
625. (235) Seminar in Family Finance and Management (3)

635. (250) Seminar in Food and Nutrition (3)
645. (230) Seminar in Housing and Home Furnishings (3)
655. (245) Seminar in Clothing and Textiles (3)
665. (255) Seminar in Home Economics Education (3)
696. (297) Research Methods (3)
698. (298) Thesis or Project (2-4)

INDUSTRIAL ARTS

Professors: Dean, Genevro, Grainge, Lathrop, Powell, P., Ryan, Torres.
Associate Professors: Farr, Nicholson, Rawson, Schmidt.
Assistant Professors: Brandstatt, Gietl, Graham, La Cour, Macon, Patcha, Quinones, Smith, D., Trout, Williams, W.

LOWER DIVISION

111. (1) Introductory Wood (2) F, S
Survey of basic wood processes, practices and apparatus with emphasis on the understanding of current principles and procedures. (Laboratory included.)

121. (11) General Metals I (2) F, S
Properties of ferrous and non-ferrous metals, characteristics of hand and machine tools, and the basic processes of forging, foundry, art metal, machining, sheet metal and welding. (Laboratory included.)

131. (21) General Electricity (2) F, S
Basic principles of electricity, Direct and Alternating current theory, batteries, rotating machinery and test equipment. (Laboratory included.)

141. (30) Industrial Drawing I (2) F, S
Basic principles of instrument and freehand drawing. Use and care of drawing instruments, lettering, sketching, pictorials, orthographics and working drawings. (Laboratory included.)

151. (41) Graphic Arts I (2) F, S
Principles of elementary typographic design and layout, type composition and presswork. Discussions and activities emphasize letterpress and offset lithographic printing processes. (Laboratory included.)

161. (56) Automotive I (2) F, S
Principles of operation of the various components and the economics of selection and use of the modern automobile. Practical experience in maintenance and repair at the owner-operator level. (Laboratory included.)

181. (80) Industrial Arts Orientation (1) F, S
Evaluation of students' academic, social and mechanical aptitudes and abilities determined through standardized tests. Personal cumulative records started. Orientation in industrial arts philosophy, credential requirements and opportunities in teaching included. (Required course for all industrial arts majors.)

211. (3) Industrial Coatings (2) F, S
Development, manufacture and use of modern industrial coatings, with emphasis on their application as protective and decorative substances for wood, metal and other materials. (Laboratory included.)

241. (35) Introductory Graphics (3) F, S
Prerequisite: Industrial Arts 141 or equivalent. Use of graphical techniques as a means of presenting data. Graphical representation will include multiview, basic machine and schematic drawings. Representation of data with graphs and the solution of arithmetical problems graphically. (Laboratory included.)

281. (60) Exploratory Woodwork (2) F, S
General woodworking designed to provide a broad background of information related to woodworking processes involving both hand and machine tools. Skills and safe work habits developed through individual solutions to given problems. Certification of safety instructions provided. Not open to industrial arts majors. (Laboratory included.)

282. (61) Exploratory Metalwork (2) F, S
Metalworking in the areas of bench work, forging, casting, art metal, sheet metal and welding processes. Designed: (1) to give a broad background and understanding in the technology of materials; (2) to develop skills through individual solutions for given problems; and (3) to develop safe habits in working with metals and equipment associated with metal work. Not open to industrial arts majors. (Laboratory included.)

283. (62) Home Mechanics (2) F, S
Experiences in solving maintenance and improvement problems in the home. Simple home repairs performed with emphasis on the use and care of common tools and materials. Not open to industrial arts majors. Recommended for students in home economics. (Laboratory included.)

284. (70) Development of Industry and Technology (2) F, S
Development of modern industry and technology from prehistoric times to the present. Discovery, invention and application of man's development in technology stressed. (Lecture and field trips.)

UPPER DIVISION

312. (101) Machine Wood (3) F, S
Prerequisite: Industrial Arts 111 or equivalent. Basic principles and study of the proper care, selection, maintenance of power equipment, with emphasis on safety and proper technique and use of power machines as they relate to the industrial arts program. (Laboratory included.)

313. (100) Wood Technology (2) F, S
Prerequisite: Industrial Arts 111 or equivalent. Applications, implications and values of wood and woodworking in our technological society, with emphasis upon understanding through study and experiment. (Laboratory included.)

321. (116) Patternmaking and Foundry (2) F
Prerequisite: Industrial Arts 111 or equivalent. Basic principles and practice in the making of wood patterns, molding and casting of nonferrous metals. (Laboratory included.)

322. (117) Forging and Welding (2) F
Oxy-acetylene and electric welding principles and practice, welding equipment and principles of ferrous metallurgy. (Laboratory included.)

323. (111) Machine Shop I (3) F, S
Basic principles and practices in machining operations including bench, drilling, lathe, milling, grinder and shaper work with emphasis on several practices and tool set-ups applicable to the industrial arts program. (Laboratory included.)

324. (115) Sheet Metal (2) S
Basic principles of pattern layout and development properties of coated metals, and hand and machine tool operations in sheet metal construction. (Laboratory included.)

325. (118) Art Metal (2) S
Principles, practices and concepts in the design and construction of art metal objects, with emphasis on non-ferrous materials. (Laboratory included.)

331. (121) Electronics I (3) F, S
Prerequisite: Industrial Arts 131 or equivalent. Basic Electronic theory. Vacuum tubes and their characteristics; nature and function of circuit components, circuit analysis and use of test equipment. (Laboratory included.)

332. (127) Electronics II (3) F, S
Prerequisite: Industrial Arts 331 or equivalent. Theory of solid semi-conductor materials, unilateral and amplifying devices. Circuit analysis relative to component functions and failures. Advanced study and use of test equipment. (Laboratory included.)

333. (122) Electronic Circuits and Systems (3) F, S
Prerequisites: Industrial Arts 331, 332, or equivalent. Analysis of electronic and electromechanical systems and circuits, relays, gaseous rectifiers, multivibrators, photo electric circuits and timing devices. (Laboratory included.)

342. (132) Technical Sketching (2) F
Principles and practice of freehand sketching of projects on paper and on the blackboard. (Laboratory included.)

343. (136) Industrial Arts Design (2) S
Prerequisite: Industrial Arts 141 or equivalent. Utilization of design principles, sketches, working drawings, renderings and models in the development of functional design for industrial arts projects. (Laboratory included.)

344. (131) Architectural Drawing (2) F
Prerequisite: Industrial Arts 141 or equivalent. Architectural principles, conventions and codes. Special techniques and methods used in developing working drawings and specifications for a residence. (Laboratory included.)

345. (130) Industrial Drawing II (3) S
Prerequisite: Industrial Arts 141 or equivalent. Theories and graphic solutions in rotation, isometric, oblique projections. Intersections, curved surfaces, developments, space problems of angle and distance. (Laboratory included.)

346. (133) Small Boat Design (2) F
Prerequisite: Industrial Arts 141 or equivalent. Development of lines and table of offsets, displacement and buoyancy calculations, developable surfaces, sails planning, engine placement, preparation of specifications. (Laboratory included.)

351. (140) Graphic Arts II (3) S
Prerequisite: Industrial Arts 151 or equivalent. Advanced typographic design and layout. Discussions and activities emphasize the silk screen printing, gravure printing and bookbind-areas. New techniques and developments in graphic arts introduced. (Laboratory included.)

352. (147) Graphic Arts Photography (2) F, S
Prerequisite: Photography 210 or equivalent. Photographic theory and operations related to graphic arts. Study of process camera in making line and halftone negatives. Darkroom, printing and finishing operations presented. (Laboratory included.)

353. (142) Design and Composition of Printing Forms (2) F
Prerequisite: Industrial Arts 151 or equivalent. Principles of printing layout, type estimating and typographical specifications. Experience offered in designing typical display and commercial printing forms. (Laboratory included.)

354. (145) Graphic Arts Handicrafts (2) F
Methods of producing printing designs with minimum equipment and facilities. Activities and projects specifically designed for recreation and junior high school graphic arts instructional programs. (Laboratory included.)

361. (151) Auto Engines (3) F, S
Prerequisite: Industrial Arts 161 or equivalent. Design and theory of construction and operation of engines. Types of materials used and tolerances of component parts. Testing, trouble diagnosis and rebuilding of an engine. (Laboratory included.)

362. (152) Auto Electricity (2) F, S
Prerequisite: Industrial Arts 131 or 161, or equivalent. Principles and theory of operation of electrical system components that are common to automotive type vehicles. Latest methods of testing and trouble shooting are stressed. (Laboratory included.)

363. (153) Auto Chassis (2) F
Prerequisite: Industrial Arts 161 or equivalent. Theories of design and operation of chassis units affecting stability, power flow, suspension and steering. Common to most automotive type vehicles. Includes testing, trouble diagnosis and modern methods of servicing. (Laboratory included.)

364. (156) Auto Body Repair (2) F, S
Prerequisites: Industrial Arts 161 and 322, or equivalents. Techniques and practices of body rebuilding, refinishing and styling. (Laboratory included.)

371. (170) Industrial Crafts I (3) F
Materials of industry through creative experiences in the crafts media. Historical and industrial related information is included. (Laboratory included.)

381. (166) Shop Maintenance (2) F, S
Prerequisite: Majors only in the senior year. Systems used in the maintenance of records, tools and equipment. (Laboratory included.)

382. (175) The Comprehensive General Shop (3) F, S
Experiences in planning, organizing and teaching a multiple activity program of industrial arts combined with utilization of tools, materials and processes as applied to public school practice.

383. (180) Safety Education (1) F, S
Safety as it applies to the industrial arts education program with an analysis of accidents in relation to causes, prevention and liability.

388. (160) Industrial Arts for Elementary Teachers I (2) F, S
Developing and fabricating teaching aids and integrated hand work units for elementary schools. Basic skills in the use of simple construction materials and tools. (Laboratory included.)

389. (162) Industrial Arts for Elementary Teachers II (2) S
Prerequisite: Industrial Arts 388 or equivalent. Further studies in integrating construction with the social studies, science and other areas of the elementary school program. Wide variety of tools and materials used. (Laboratory included.)

411. (106) Furniture (3) F, S
Prerequisite: Industrial Arts 312 or equivalent. Analysis of characteristics and principles of furniture designs, with emphasis on selection and construction of furniture, employing advanced hand and machine tool operations. (Laboratory included.)

412. (107) Carpentry (2) F, S
Prerequisite: Industrial Arts 111 or equivalent. Planning and techniques of estimating construction costs of building with the study of techniques involved in laying out and framing a structure. (Laboratory included.)

413. (105) Upholstery (2) S
Methods of upholstery practices and use of tools and equipment employed in the process of upholstery. (Laboratory included.)

414. (108) Boat Construction (2) S
Prerequisite: Industrial Arts 312 or consent of instructor. Interpretation of line drawings and specifications, design and construction of forms, molds and hulls of straked, molded plywood and fiberglass systems. (Laboratory included.)

415. Industrial Wood (2) F, S
Prerequisite: Industrial Arts 312. Comprehensive study of modern industrial woodworking, its production and management, from skilled hand craftsmanship to numerical automation, with emphasis on the operational functions and technical procedure involved. (Laboratory included.)

422. (119) Welding II (2) S
Prerequisite: Industrial Arts 322 or equivalent. Principles and practice of fusion, brazing and resistance welding processes with emphasis on alloy metals. (Laboratory included.)

423. (112) Machine Shop II (3) F, S
Prerequisite: Industrial Arts 323 or equivalent. Continuation of Machine Shop I with emphasis on advanced machining and tooling operations, basic machine design, and machine, tool and cutter maintenance. (Laboratory included.)

424. (110) General Metals II (2) S
Prerequisite: Industrial Arts 121. Continuation of General Metals I with emphasis on related information, design, development and tooling principles for metal products. (Laboratory included.)

431. (125) Audio Systems (2) F, S
Prerequisite: Industrial Arts 331 or equivalent. Audio amplifier design and testing, speaker enclosure design, recording and reproduction of high fidelity sound including stereophonic applications. (Laboratory included.)

432. (126) Amateur Radio Licensing (2) S
Prerequisite: Industrial Arts 331 or equivalent. Code practice and theory to prepare student to sponsor amateur radio in schools; to qualify for federal amateur radio license. (Laboratory included.)

433. (128) Television and FM Principles (2) F, S
Prerequisite: Industrial Arts 331, 332, or equivalent. Theory of FM and TV systems. Analysis of circuit operation and service techniques of modern receivers. (Laboratory included.)

441. (135) Machine Drawing (2) S
Prerequisite: Industrial Arts 141 or equivalent. Sketching and drawing of machine parts in detail and in assembly. Use of nomenclature, standard tables and empirical formulae. (Laboratory included.)

442. (134) Architectural Design (2) S
Prerequisite: Industrial Arts 344 or equivalent. Design and study of structures that are architecturally accepted. Extended study of pictorial drawing. Designs based on studies of styles, building codes and site development. Models required of approved designs. (Laboratory included.)

451. (141) Duplicating Methods for Teachers (2) F, S
Principles and utilization of duplicating machines and methods commonly found in school systems and how they may be used in preparing instructional materials. (Laboratory included.)

452. (149) Letterpress Presswork (2) F, S
Prerequisite: Industrial Arts 151 or equivalent. Principles and techniques of locking-up forms and plates for letterpress presses and in operating platen and cylinder printing presses. (Laboratory included.)

453. (148) Photo-Offset Lithographic Presswork (2) F, S
Prerequisite: Industrial Arts 154 or equivalent. Principles and techniques of preparing original copy, processing lithographic negatives and plates and operating offset printing presses. (Laboratory included.)

461. (154) Auto Tuneup (2) F, S
Prerequisite: Industrial Arts 362 or equivalent. Theories of design and operation of fuel system components. Multiple carburetion, progressive carburetion and fuel injection are studied. Techniques for trouble shooting and engine tuneup using advanced type testing equipment. (Laboratory included.)

462. (155) Automatics (2) F, S
Prerequisite: Industrial Arts 362, 363, or equivalents. Theories of design and operation of fluid couplings, torque converters, automatic transmissions and power activated units. Latest methods of testing, servicing and repair are stressed. (Laboratory included.)

471. (171) Industrial Crafts II (3) S
Prerequisite: Industrial Arts 371. Advanced studies of industrial crafts media. Emphasis on ceramics and lapidary. (Laboratory included.)

472. (174) Model Making (2) S
Individual or team research and development of mock-ups and models. Activities include technical applications of mathematical, scientific and industrial principles and concepts. Consideration given to design, industrial production methods and exploration of mechanisms and materials. (Laboratory included.)

481. (137) House Construction (1) F, S
Designed for the homemaker desiring knowledge of materials and methods used in house construction. Not open to industrial arts majors.

482. (164) Teaching Aids (2) F, S
Planning, development and construction of teaching aids for the individual student and/or teacher. (Laboratory included.)

483. (181) Organization and Management of Industrial Arts Facilities (2) F, S
Area planning problems with emphasis on general architectural specifications, auxiliary spaces and selection of tools, equipment and supplies. Plans and specifications for an instructional area are developed by each student. (Laboratory included.)

484. (182) History of Industrial Arts Education (2) F, S
Historical and present-day development in industrial arts education with emphasis on educational movements and leaders in the field.

485. (190) Problems in Teaching Industrial Arts Education (2) F, S
Must be taken concurrently with Education 481I. Comprehensive course including research in the development of instructional units and evaluative devices and methods. Program organization and administration for the beginning teacher is emphasized.

491. (192) Special Problems in Industrial Arts Education (1-5) F, S
Prerequisite: Consent of instructor. Advanced work within an area of specialization done on an experimental or research basis. The area designated by letter at the time of registration as: (a) woodworking; (b) metalworking; (c) electricity and electronics; (d) industrial drawing; (e) graphic arts; (f) automotive; (g) industrial crafts; (h) professional.

492. (195) Advanced Technical Studies (2) F, S
Prerequisite: Consent of instructor. Advanced work done within an area of specialization designed for the present industrial arts teacher who wants upgrading in his field of concentration. Covers new industrial processes and materials that may be related to teaching in the secondary schools. May be repeated for a maximum of 4 units. (Laboratory included.)

GRADUATE DIVISION

590. (220) Supervision and Administration in Industrial Arts Education (3)

591. (221) Curriculum Construction in Industrial Arts Education (3)

592. (222) Evaluation in Industrial Arts Education (3)

593. (223) Techniques in Teaching Industrial Arts Education (3)

594. (212) Modern Concepts in Industrial Education (3)

696. (200) Research Methods (2)

697. Directed Research (2)

698. (298) Thesis or Project (2-4)

INDUSTRIAL TECHNOLOGY

Professor: Kleintjes.
Associate Professor: Robinson, H.
Assistant Professors: Darm, Wood, A., Young.

UPPER DIVISION

300. (130) Industrial Drawing Geometry (2) F, S
Space relations of points, lines and surfaces, and their application to the graphic solution of space problems. (Laboratory included.)

302. Industrial Electricity (3) F, S
Prerequisite: Physics 100B. Current practices in transmission, utilization and application of electrical power in industry.

303. (167) Materials and Processes of Industry (3) F, S
Prerequisites: Physics 100B, Chemistry 100. Properties and applications of industrial materials and the processes, machines and methods of modern production.

304. (170) Mechanics of Materials (2) F, S
Prerequisites: Mathematics 122, Physics 100B, or equivalent. Structural shapes of members, and mechanical, physical, and other properties of engineering materials. Analysis of failures, stresses and deformation of structural and machine members.

305. (137) Kinematics and Machine Design (3) F, S
Prerequisite: Introductory graphics. Velocities and accelerations, problems in drafting involving linkages, cams, gears, relative linear velocities, introduction to stress analysis. (Laboratory included.)

307. (169) Industrial Safety (2) F, S
Industrial safety, including scope, history, economic factors, objectives, responsibility, organization and present-day trends.

309. (168) Foremanship and Supervision (3) F, S
Prerequisite: General psychology. Types of industrial organizations and supervisory systems; responsibilities, duties and qualifications of the supervisor.

321. (131) Construction Cost Estimating (3) F, S
Prerequisite: Consent of instructor. Principles and practices in making quantity surveys and labor estimates for construction projects.

323. (132) Building Codes (2) F, S
Theory and application of laws and codes as they affect construction.

325. (133) Landscape Design and Drawing (3) F, S
Prerequisite: Architectural drawing. Principles of landscape design and the application of these principles in solving landscape design problems, designing of several small home plots. (Laboratory included.)

340. (120) Electronic Circuit Analysis (2) F, S
Prerequisites: Physics 100B, Mathematics 122 and departmental consent. RLCM network problems and their applications to typical industrial electronic devices and systems.

341. (121) Electronic Testing and Troubleshooting (2) F, S
Prerequisites: Physics 100B, Mathematics 122 and departmental consent. Modern testing requirements, procedures and instrumentation; and logical troubleshooting of industrial electronic circuitry. (Laboratory included.)

345. (125) Transistor Theory (2) F, S
Prerequisites: Industrial Technology 340, 341. Semiconductor devices, integrated circuitry and their application. (Laboratory included.)

361. (114) Applied Metallurgy (2) F, S
Prerequisites: Chemistry 100 and Physics 100A-B. Current and emergent applications of physical metallurgy to manufacturing of modern hardware. Present commercial designations, structure, costs and properties of the alloy systems are studied in theory as applied in large quantity production and in effect on manufacturing processes. (Metallographic laboratory included.)

362. (115) Heat Treating (2) F, S
Prerequisite: Industrial Technology 361. Theory and applications of thermal treatment processes to non-ferrous and ferrous metals with resulting changes in properties as used in current production. (Laboratory included.)

364. (139) Tool Design (3) F, S
Prerequisite: Industrial Technology 304 or consent of instructor. Must be taken concurrently with Industrial Technology 364L. Design of tools for production. Typical tooling problems will include working drawings, production plans and tool drawings. (Laboratory included.)

364L. (113) Tool Design Lab (2) F, S
Prerequisite: To be taken concurrently with Industrial Technology 364. Modern machine tools and their functions in present-day manufacturing processes. (Laboratory included.)

365. (116) Foundry Technology (2) F, S
Foundry practices and casting techniques used in industry. (Laboratory included.)

402. (171) Production Analysis (2) F, S
Prerequisite: Industrial Technology 303. Machine utilization and operator manipulation with emphasis on improvement of methods for purposes of maximum production economy and maintenance of standards.

405. Plant Layout and Planning (3) F, S
Prerequisites: Industrial Technology 303, 307. Current practices and procedures of the phases and problems that must be coordinated in planning manufacturing facilities.

406. Industrial Proposals and Specifications (3) F, S
Prerequisite: English 317. Analysis of requests to bid and bidding instructions, techniques and procedures used in the preparation of technical specifications and proposals.

408. (172) Production Technology (2) F, S
Prerequisite: Industrial Technology 402. Modern manufacturing processes and equipment; operation sequence planning; economic aspects of equipment selection, tooling and processing a product from design to final assembly for production.

409. (195) Senior Problems in Industrial Technology (1-3) F, S
Prerequisite: Senior standing in industrial technology and consent of instructor. Advanced work of a technical nature within an area of specialization done on an experimental or research basis. Problem involved must have industrial significance.

421. (134) Utilities Design (3) F, S
Prerequisite: Industrial Arts 344 or equivalent. Current practices in utilities design and the application to industry. Planning and drawing of specific problems. (Laboratory included.)

423. (135) Site Analysis and Development (3) F, S
Prerequisites: Civil Engineering 225, or equivalent, Physics 100B. Current practices in site analysis and development including soil mechanics, mapping, earth movement and placement, equipment utilization and proposal preparation. (Laboratory and field trips included.)

425. (136) Construction Methods (3) F, S
Prerequisites: Industrial Arts 442 or equivalent, Industrial Technology 304, 421. Current practices in structural design, fabrication, and erection; materials, methods and equipment used in industrial and commercial building construction.

442. (124) Computer Circuits (2) F, S
Prerequisites: Industrial Technology 345, Philosophy 170. Analog and digital computers, with emphasis on digital systems, number systems and computer logic, control, arithmetic and memory devices. (Laboratory included.)

446. (123) Industrial Electronic Automation (2) F, S
Prerequisite: Industrial Technology 442. Advanced problems in electronic automation pertaining to industrial production. (Laboratory included.)

447. (122) Electronic Production Techniques (2) F, S
Prerequisite: Industrial Technology 442. Modern production practices and techniques used in the electronics industry. Field trips will be arranged. (Laboratory included.)

466. (117) Welding Metallurgy (2) F, S
Prerequisite: Industrial Technology 361. Theory and applications of current and emergent joining processes with consideration of weldability of metals and effects on properties. Welding techniques in selected processes exercised in laboratory.

468. (119) Quality Inspection (3) F, S
Prerequisites: Industrial Technology 303, 402. Quality assurance practices in industry including samples, tolerances, metrology, destructive and nondestructive testing, surface quality, mechanical, physical and chemical properties control systems. (Laboratory and field trips included.)

JOURNALISM

Professor: James.
Associate Professors: Bliss, Gayer, Steffes.
Lecturer: McKnight.

LOWER DIVISION

110. (50) Introduction to Mass Communications (3) F, S
Survey of fundamentals. Develops an understanding of news structure and the role of newspapers, radio and television in mass communication. Recommended as a general elective. (Lecture, discussion and some practice in fundamentals.)

120. (55) News Writing and Reporting (3) F, S
Exploring news sources; news gathering and writing of various kinds of news copy for the press. News story structure. Human interest stories. (Lecture and laboratory.)

140. (49) Yearbook and School Magazine Fundamentals (2) F
Foundation for students desiring to participate in the production of yearbooks or school magazines. Includes a study of, and practice in, planning and layout, copy, methods of printing, covers and binding, and financing. (Lectures and laboratory demonstrations.) Journalism 242 may be taken concurrently.

222A,B. (58) Newspaper Activity (1,1) F, S
Prerequisite: Any previous or concurrent journalism course. Participation in the publication of the College semi-weekly newspaper, *The Forty-Niner*, or the bi-weekly *Lantern*. Maximum credit 2 units.

242A,B. (59) Yearbook Activity (1,1) F, S
Participation in the publication of the College yearbook—*The Prospector*. (May be taken concurrently with Journalism 140.) Maximum credit 2 units.

280. (52) Press Photography (2) S
Prerequisite: Photography 210 or consent of instructor. Introduction to press cameras and photography, with emphasis on news values in pictures. Some darkroom techniques included. Valuable for reporters, free-lance writers and prospective teachers who may be asked to supervise publications or school publicity. (Lecture, demonstrations and practical assignments.)

UPPER DIVISION

320. Advanced News Writing and Reporting (3) S
Prerequisite: Journalism 120 or consent of instructor. Theory and practice of news writing and reporting. General assignment news for the city desk of a daily newspaper. Interpretive reporting and news features.

322A,B. (108) Newspaper Production (2,2) F, S
Prerequisite: Any previous or concurrent journalism course. Advanced practice in reporting, feature writing, copy reading, editing, news photography and other journalistic activities through participation in the publication of the College newspaper. (Theory 1 hour, laboratory and assigned field work 3 hours.) Maximum credit 4 units.

330. (150) Copyreading and News Editing (3) F, S
Techniques of correcting copy and galley proof, with clarity and precision; review of news elements and news writing; principles of page make-up and headline writing; laws of libel and copyright; newspaper ethics and responsibility. (Recommended as a general education elective.)

342A,B. (109) Yearbook Production (2,2) F, S
Prerequisite: Any previous or concurrent journalism course. Practical experience in page layout, copy editing, art, photography and related activities in yearbook publications. Especially valuable to prospective teachers who may be given supervision of school annuals. (Theory 1 hour, laboratory and assigned field work 3 hours.) Maximum credit 4 units.

350. (English 118) Current Periodicals (3) F
Development of the magazine and its significance in American life. Periodical types, editorial policies, and literary stature, with criteria for evaluation. Special study of magazines in a field of the student's particular interest.

355. (158) Magazine Article Writing (3) S
Study and practice in the techniques of writing feature stories with a view toward potential markets such as magazines, syndicates and Sunday supplements.

410. (128) Journalism for Teachers (3) F
Survey course for elementary and secondary teachers, as well as prospective advisers interested in school publications and publicity. Includes the study of journalistic writing as a form of English composition.

420. (133) Radio and Television News (3) F
Theory and practice in reporting, writing and editing news for radio and television newscasts and special events. Form and content of radio and television newscasts, as well as preparation and presentation of news programs in laboratory.

422A,B. (118) School Newspaper Activity (1,1) F, S
Prerequisite: Any previous or concurrent journalism course. Limited practice in school newspaper techniques—reporting and feature writing, copyreading, proofreading and news editing. Laboratory activity. Maximum credit 2 units.

460. (160) Newspaper Advertising (3) S
Advertising principles, layout and copy writing as they apply to the professional newspaper. Theory of retail and national display advertising, classified advertising and legal advertising. Practice in the preparation of newspaper advertising.

470. (161) Public Relations and the Press (3) F, S
Techniques of public relations, with emphasis on educational public relations for teachers and school administrators. Included will be a study of various press and public relations tools, techniques of publicity and the planning of a public relations program.

499. (199) Special Projects (1-3) F, S
Prerequisite: Consent of the department. Research in the field of journalism and/or internships in newspaper or magazine situations, public relations, advertising or other related fields.

LATIN

Assistant Professor: Spring.

LOWER DIVISION

101A-B. (1A,B) Fundamentals of Latin (3,3) F, S
101A. Beginning course with emphasis upon the rapid mastery of a reading knowledge of Latin.
101B. Prerequisite: Latin 101A or two years of high school Latin. Continuation of Latin 101A.

201A-B. (60A,B) Intermediate Latin (3,3) F, S
Reading and translation of classical and post-classical texts of literary or historical values.
201A. Prerequisites: Latin 101A-B or three years of high school Latin, or equivalent.
201B. Prerequisite: Latin 201A or four years of high school Latin. Continuation of 201A.

UPPER DIVISION

331. (101) Virgil (3) F
Prerequisite: Two years of college Latin or its equivalent. Translation and literary study of Virgil's poetry.

332. (102) Plautus (3) S
Prerequisite: Two years of college Latin or its equivalent. Recommended: Working knowledge of French, Spanish, Portuguese or Italian as well. Translation and literary study of representative plays. Special attention to the Latin vocabulary of everyday life as it survives in the Romance languages.

MARKETING (See Business Administration)

MATHEMATICS

Professors: Albrecht, Kulik, Smith, A.

Associate Professors: Austin, Butter, Cohen, F., Froyd, James, W., Lyche, Mardellis, McLeod, Mosher, Norman, Sett, Verdina, Wenjen.

Assistant Professors: Baugh, Black, S., Conroy, Cooke, Eylar, Fatt, Gittleman, McCullough, Maltz, Smoke, Turner, Wilson.

Instructors: Afflack, Martinez.

LOWER DIVISION

100. (1) Intermediate Algebra (3) F, S

Prerequisite: One year of high school algebra. Study of linear and quadratic equations, factoring, fractions, exponents, radicals, variation and logarithms.

101. (2) Trigonometry (2) F, S

Prerequisite: Mathematics 100 or equivalent determined by examination in algebra. Trigonometric functions and applications. Complex numbers.

102. (7) Unified Introductory Mathematics (4) F, S

For secondary school teachers who desire a content course covering algebra, plane geometry and trigonometry. Not open to students with credit in Mathematics 100 or 101.

110. (6A) Fundamentals of Mathematics I (3) F, S

Prerequisites: One year of high school algebra, one year of high school geometry. Meets elementary education credential requirements. Theory of the structure, arithmetic and algebra of the real number system. Not open for credit to mathematics majors.

111. (6B) Fundamentals of Mathematics II (3) F, S

Prerequisite: Mathematics 110. Elements of logic and the basic concepts of informal geometry; introduction to trigonometry. Not open for credit to mathematics majors.

114. (12) Finite Mathematics (4) F, S

Prerequisites: Two years of high school algebra and passing of placement test. Selected applications to the behavioral sciences. Logic, sets and set operations. Combinatorial techniques and probability theory. Vectors and matrices.

117. (3A) College Algebra and Elementary Functions (4) F, S

Prerequisites: At least 3½ years of high school mathematics including at least 2 years of algebra and ½ year of trigonometry, to be confirmed by qualifying examination. Critical study of the algebra of real and complex numbers for students who intend to study calculus. Exponential, logarithmic, trigonometric, and polynomial functions, binomial theorem, progressions and selected topics. (Lecture 3 hours, problem session 2 hours.)

120. (8) Survey of Analytic Geometry and Calculus (4) F, S

Prerequisites: At least three years of high school mathematics including at least 1½ years of algebra and ½ year of trigonometry, to be confirmed by qualifying examination. Topics in analytic geometry and calculus. Intuitive concepts and handbook techniques, particularly in integration, are emphasized throughout. Not open to students with credit in Mathematics 122.

122. (3B) Analytic Geometry and Calculus I (4) F, S
Prerequisite: Mathematics 117 or equivalent as determined by examination. Analytic geometry of the plane. Notion of limit. Differentiation and integration of polynomial functions and applications. (Lecture 3 hours, problem session 2 hours.)

123. (3C) Analytic Geometry and Calculus II (4) F, S
Prerequisite: Mathematics 122. Extension of work in analytic geometry. Differentiation and integration of transcendental functions. (Lecture 3 hours, problem session 2 hours.)

224. (3D) Analytic Geometry and Calculus III (4) F, S
Prerequisite: Mathematics 123. Solid analytic geometry and introductory vector analysis in three dimensions. Functions of two and more variables. Partial derivatives and multiple integrals. Introduction to infinite series and linear differential equations. (Lecture 3 hours, problem session 2 hours.)

270. (127) Coding for Digital Computers (3) F, S
Prerequisite: Mathematics 117 or consent of the instructor. Basic course designed to provide an understanding of how problems are solved in a modern stored-program digital computer. Since an IBM 1620 Digital Computer is available for this course, nearly all programming is done on it. Three phases of coding are presented: FORTRAN, Machine Language and the 1620 Symbolic Programming System (SPS).

UPPER DIVISION

310. (190) History of Mathematics (3) S
Prerequisites: Mathematics 122 or 120 and 355. Designed to trace the continuous growth and development of mathematical thought and practices from the primitive origins to the present. Fundamental concepts, methods and developments are studied; evolution of areas in mathematics is traced. Recommended for all mathematics majors and minors preparing to teach.

312. Survey of Modern Mathematics (3) F, S
Prerequisite: Mathematics 114 or 120. General nontechnical survey of selected topics in mathematics intended for the liberal arts student with minimal preparation in mathematics. Recommended for those who wish to teach high school mathematics. Not open for credit to mathematics majors.

330. (102) Introduction to Mathematical Logic (3) F
Prerequisite: Mathematics 120 or 122. Symbolic methods of propositional calculus, general theory of inference, transition from formal to informal proofs, theory of definition, elementary set theory and axiomatic method.

331. (103) Set Theory (3) S
Prerequisite: Mathematics 224. Intuitive set theory; sets and relations, proof and definition by induction, cardinal arithmetic, well-ordered sets and ordinal numbers, axiom of choice, well-ordering principle and Zorn's Lemma. Axiomatic set theory: the standard axioms of set theory and the Von Neumann-Bernays-Gödel Theory of Sets.

340. (108) Theory of Algebraic Equations (3) F
Prerequisite: Mathematics 120 or 123. Complex numbers, general theorems on algebraic equations, the discriminant, location and approximation of roots of equations, solution of the cubic and quartic equation; determinants and their application to simultaneous linear equations, symmetric functions.

344. (114) Introduction to Higher Algebra (3) F, S
Prerequisite: Mathematics 224. Groups, rings, fields, algebra of classes, transfinite arithmetic.

346. (113) Linear Algebra (3) S
Prerequisite: Mathematics 224. Vector spaces. Linear transformations. Matrices and matrix algebra. Characteristic vectors and characteristic values; Cayley-Hamilton theorem. Quadratic forms; diagonalization of matrices and reduction of quadratic forms.

350. (130) Projective Geometry (3) S
Prerequisite: Mathematics 224 or consent of instructor. Homogeneous coordinates. Projectivities. Collineations and correlations. Polarities. Projective properties of conics. Linear and quadratic transformations. Introduction to differential geometry.

352. Introduction to Topology (3) F, S
Prerequisite: Mathematics 224. Introduction to the basic concepts of point set topology such as topological spaces, continuous functions, compactness and metric spaces. Recommended for those who intend to study analysis, complex analysis or differential geometry.

355. (100) College Geometry (3) F, S
Prerequisite: Mathematics 224 or consent of instructor. Transformations, motions, similarities, geometric objects, congruent figures, the axioms of geometry, and selected topics in advanced Euclidean geometry.

360. (101) Fundamental Concepts of Analysis (3) F, S
Prerequisite: Mathematics 120 or 123. Modern approach to the concepts of calculus. Introductory set theory, elementary logic, the real number system, relations, functions, cardinality of sets, metric sets, limits, continuity, differentiation and integration.

364A-B. Ordinary Differential Equations (3,3) F, S
Prerequisite: Mathematics 224. A. General theory of linear differential equations, variation of parameters, the Wronskian, first, second and third order equations with variable coefficients. Not open to students with credit in Mathematics 363. B. Fundamental existence theorems, systems of equations, general theory of first order equations. Special functions defined by differential equations, nonlinear equations.

370A-B. (110A,B) Applied Mathematics I and II (3,3) F, S
Prerequisite: Mathematics 224. Mathematics 370A: ordinary differential equations, functions of several variables, algebra and geometry of vectors, vector field theory. Mathematics 370B: applications of partial differentiation, Taylor's formula, infinite series, complex variables.

375. (124) Vector Analysis (3) F
Prerequisite: Mathematics 224. The algebra and calculus of vectors; applications to geometry. Vector and scalar fields; gradient, divergence, and curl. Applications in mechanics and electromagnetism. Introduction to tensor analysis.

380A-B. Mathematical Statistics (3,3) F, S
Prerequisite: Mathematics 224. Sample space, random variable, distribution function. Empirical and theoretical distributions of one variable. Elementary sampling theory for one variable. General principles for testing hypotheses and for estimation. Small sample distributions. Correlation and regression. Goodness of fit tests. Design and analysis of experiments. Nonparametric methods.

382A-B. Introduction to Probability and Random Processes (3,3) F, S
Prerequisite: Mathematics 224. Discrete probability. Basic concepts of combinatorial analysis. Axioms for a general probability space. Random variables. Distribution functions. Density functions. Expectation and variance. Dependent and independent events. Conditional probability and limit theorems. Recurrent events and the renewal equation; discrete parameter Markov chains; elementary time-dependent stochastic processes.

440A-B. (115A,B) Number Theory (3,3) F, S
Prerequisite: Mathematics 344 or consent of instructor. Divisibility, congruences, primitive roots, continued fractions, algebraic numbers, partitions.

450. (140) Differential Geometry (3) F, S
Prerequisite: Mathematics 363. Frenet formulas and natural equations of curves. First and second fundamental forms. Meusnier's theorem. Dupin's indicatrix, the Gauss-Weingarten equations, geodesics, parallel displacement, the Gauss-Bonnet theorem. Surfaces of constant curvature or other special topics.

460A-B. (122A,B) Advanced Calculus (3,3) F, S
Prerequisite: Mathematics 224; Mathematics 360 is recommended. Rigorous analysis of the calculus and its foundations, functions of one variable, and of several variables.

461. (126) Complex Variables (3) S
Prerequisite: Mathematics 460A. Theory and applications of complex variables. Analytic functions, integrals, power series and applications.

470. (120) Introduction to Partial Differential Equations (3) S
Prerequisite: Mathematics 370A, or 363 and 375. Linear first and second order equations, characteristics, elliptic, hyperbolic, and parabolic equations. Introduction to the boundary and initial value problems of mathematical physics.

471A,B. (121A,B) Fourier Series and Laplace Transform (3,3) F, S
Prerequisite: Mathematics 363 or 370A. Mathematics 471A deals with the theory of Fourier Series and its application to boundary value problems. Mathematics 471B deals with the theory of the Laplace transform and its application to linear problems in electrical, mechanical and thermal systems.

476. (129) Numerical Calculus (3) S
Prerequisite: Mathematics 363. Mathematical methods of computation suitable for desk or large scale digital calculating machines. Polynomial interpolation. Numerical integration and differentiation. Numerical solution of differential equations. Linear algebraic systems and the elements of matrix inversion.

485. Mathematical Programming (3) S
Prerequisite: Mathematics 346 and senior standing. Linear programming and introduction to nonlinear programming: theory of graphs, simplex and revised simplex methods, duality, and integer and dynamic programming.

495. (195) Topics in Modern Mathematics (3) F, S
Prerequisite: Consent of instructor. Topics of current interest from mathematics literature in the following fields: (a) foundations, (b) algebra and number theory, (c) geometry and topology, (d) analysis, (e) applied mathematics, (f) probability and statistics. May be repeated once for credit.

GRADUATE DIVISION

530A-B. (210A,B) Foundations of Mathematics (3,3)

540A-B. (221A,B) Higher Algebra (3,3)

550A-B. (231A,B) Topology (3,3)

554. (240) Modern Differential Geometry (3)

561A-B. Real Analysis (3,3)

562A-B. (215A,B) Theory of Functions (3,3)

570. (245) Advanced Applied Mathematics (3)

575. Calculus of Variations (3)

580A-B. Advanced Mathematical Statistics (3,3)

584. Multivariate Analysis (3)

695. (295) Seminar in Mathematics (3)

697. Directed Studies (1-3)

698. (298) Thesis (2-4)

MICROBIOLOGY

Professors: Kazan, Swatek.

Associate Professor: Raj.

Assistant Professors: Anselmo, Brodetsky, Carlberg, Fung, Kim, J., Russell, R.

Instructor: Logan.

LOWER DIVISION

100. (50) Microbiology (3) F, S

Prerequisite: Biology 200 or Zoology 210A. Role of unicellular and microscopic organisms in nature; classification, morphology, life processes and interrelationships with other organisms. Not open for credit to majors in microbiology. (Lecture and demonstrations 3 hours.)

101. (55) Man and Disease (3) F, S

Prerequisite: Biology 200 or Zoology 210A. Cause and prevention of the common diseases of man. (Lecture 3 hours.)

210. (60) General Microbiology (4) F, S

Prerequisite: Biology 200 or Zoology 210A and Chemistry 111B. Introductions to micro-organisms, their morphology, metabolism and cultural characteristics. (Lecture 2 hours, laboratory 6 hours.)

211. (65) Microbiological Techniques (1-2) F, S

Prerequisite: Microbiology 210. Experience in preparation of cultural media, sterilizing procedures, tissue techniques, and maintenance of reagents used in microbiological laboratory. (3–6 hours, time arranged.)

UPPER DIVISION

320. (101) Medical Bacteriology (5) F, S

Prerequisites: Microbiology 210 and Chemistry 327. Pathogenic bacteria of man and animals; emphasis on isolation and identification of micro-organisms by morphological and cultural characteristics; their reaction to various antibiotics. (Lecture 3 hours, laboratory 6 hours.)

321. (135) Public Health and Sanitation (2) SS
Prerequisite: Six units of biological science. Public health and sanitary problems in the community; emphasis on problems such as communicable disease control, narcotic addiction and nutritional deficiencies, under jurisdiction of local or national public health agencies. (Lecture 2 hours.)

322. (168) Medical Parasitology (3) F, S
Prerequisites: Six units of biological science including Zoology 210A. Survey of parasitic protozoa and helminths of animals; emphasis on human parasites. Identification of fresh and preserved specimens. (Lecture 2 hours, laboratory 3 hours.)

323. (130) Hematology (3) F, S
Prerequisites: Six units of biological science. Physiology and pathology of blood; preparation of blood for counts, hemoglobin determination, and related procedures. (Lecture 2 hours, laboratory 3 hours.)

330. (107) Immunology and Serology (4) F, S
Prerequisites: Microbiology 320, Chemistry 327 or consent of instructor. Principles of immunity. Immune response in vivo and in vitro; immunohematology, forensic serology, syphilis serology, and the principles and uses of serologic methods for the qualitative and quantitative evaluation of the immune response. (Lecture 2 hours, laboratory 6 hours.)

340. (145) Microbial Taxonomy (3) F odd years
Prerequisites: Microbiology 210, Zoology 210A-B, Chemistry 327. Principles and theories of naming organisms. Advanced laboratory procedures in differentiation of micro-organisms. (Lecture 1 hour, laboratory 6 hours.)

360A-B. (115AB) Medical Mycology (2,2) F, S
Prerequisites: Microbiology 210, Chemistry 111B. Introduction to pathogenic fungi commonly responsible for mycotic infections of man. (Lecture 1 hour, laboratory 3 hours.)

412. (198) Laboratory Techniques (2) F, S
Prerequisite: Consent of instructor. Experience for advanced students in organization and techniques of a microbiology laboratory. (Conference 1 hour, laboratory 3 hours.)

424. (150) Advanced Hematology (2) F
Prerequisite: Microbiology 323 or laboratory technologist's license. Investigation into blood cell formation in bone marrow and the reticuloendothelium system. Response of these cells to disease processes. (Lecture and demonstration 2 hours.)

425. (120) Public Health Microbiology and Diagnostic Procedures (4) F
Prerequisite: Microbiology 320. Standard methods for the examination of food, water, sewage and dairy products. Diagnostic procedures for viral, rickettsial, spirochaetal, bacterial and mycobacterial agents of public health importance. (Lecture 2 hours, laboratory 6 hours.)

431. (165) Principles of Immunobiology (3) S even years
Prerequisites: Microbiology 330, Chemistry 441A-B, consent of instructor. Integrated biological and chemical consideration of immunology. Host-parasite-relationships and immune response of antigens and antibodies, their physical, chemical and biological properties and the mechanisms, dynamics and kinetics of the antigen-antibody reaction. (Lecture 1 hour, laboratory 6 hours.)

441. (155) Microbiology of Soil and Sea (3) F
Prerequisites: Microbiology 360A-B or 461, 470, Chemistry 327. Survey of the interaction of micro-organisms in the soil and sea. Emphasis on elements, cycles and metabolic conversion of environmental materials. (Lecture 1 hour, laboratory 6 hours.)

450. (160) Microbial Genetics (2) F, S
Prerequisites: Microbiology 210, Zoology 210B, Chemistry 441A, consent of instructor. Biochemical and cytological bases of microbial genetics; nature, replication, and modification of genetic material. (Lecture 2 hours.)

451. (161) Microbial Genetics Laboratory (2) F, S
Prerequisite: Microbiology 450 (may be taken concurrently). Laboratory study of microbial genetics. (Laboratory 6 hours.)

452. (110) Viruses (2) F, S
Prerequisites: Microbiology 210, Chemistry 111B, 327. Consideration of principles in virus and rickettsial diseases of man and animals. (Lecture 2 hours.)

453. (111) Virology Laboratory (2) S
Prerequisite: Microbiology 452 (may be taken concurrently). Laboratory study of the bacterial and animal viruses. Techniques for growth, titration of infectious units, cytopathological changes produced by the viruses. Physical and chemical prospectus of the viruses studied. (Laboratory 6 hours.)

461. (119) Mycology (3) F
Prerequisite: Microbiology 210. Structural development and classification of the important genera and species of fungi. (Lecture 2 hours, laboratory 3 hours.)

470. (100) Bacterial Anatomy and Cytochemistry (2) F, S
Prerequisites: Microbiology 210, Chemistry 327 or 441A (may be taken concurrently). Bacterial cell anatomy and its chemical composition; cellular physiology as related to growth, nutrition, physico-chemical environments, and phenotypic and genotypic adaptations. (Lecture 2 hours.)

471. (140) Bacterial Physiology (3) F, S
Prerequisites: Microbiology 470, consent of instructor. Metabolic and chemical activities of the bacteria as related to problems of growth, reproduction and maintenance of life. (Lecture 3 hours.)

472. (141) Bacterial Physiology Laboratory (2) S
Prerequisites: Microbiology 471, Chemistry 441A (may be taken concurrently). Laboratory techniques used in the study of bacterial physiology. (Laboratory 6 hours.)

473. (125) Industrial Microbiology (3) F
Prerequisites: Microbiology 471, consent of instructor. Role of micro-organisms in selected industrial processes; emphasis on bacteria, yeasts and molds. (Lecture 2 hours, laboratory 3 hours.)

480. (195) Proseminar in Microbiology (2) F, S
Prerequisites: Senior in microbiology, consent of instructor. Faculty and student presentation and analysis of current topics in microbiology.

496. (199) Investigations in Microbiology (1-3) F, S
Prerequisite: Consent of instructor. Research in a specific subject in microbiological sciences to be approved and directed by a faculty member.

321. (135) Public Health and Sanitation (2) SS

Prerequisite: Six units of biological science. Public health and sanitary problems in the community; emphasis on problems such as communicable disease control, narcotic addiction and nutritional deficiencies, under jurisdiction of local or national public health agencies. (Lecture 2 hours.)

322. (168) Medical Parasitology (3) F, S

Prerequisites: Six units of biological science including Zoology 210A. Survey of parasitic protozoa and helminths of animals; emphasis on human parasites. Identification of fresh and preserved specimens. (Lecture 2 hours, laboratory 3 hours.)

323. (130) Hematology (3) F, S

Prerequisites: Six units of biological science. Physiology and pathology of blood; preparation of blood for counts, hemoglobin determination, and related procedures. (Lecture 2 hours, laboratory 3 hours.)

330. (107) Immunology and Serology (4) F, S

Prerequisites: Microbiology 320, Chemistry 327 or consent of instructor. Principles of immunity. Immune response in vivo and in vitro; immunohematology, forensic serology, syphilis serology, and the principles and uses of serologic methods for the qualitative and quantitative evaluation of the immune response. (Lecture 2 hours, laboratory 6 hours.)

340. (145) Microbial Taxonomy (3) F odd years

Prerequisites: Microbiology 210, Zoology 210A-B, Chemistry 327. Principles and theories of naming organisms. Advanced laboratory procedures in differentiation of micro-organisms. (Lecture 1 hour, laboratory 6 hours.)

360A-B. (115AB) Medical Mycology (2,2) F, S

Prerequisites: Microbiology 210, Chemistry 111B. Introduction to pathogenic fungi commonly responsible for mycotic infections of man. (Lecture 1 hour, laboratory 3 hours.)

412. (198) Laboratory Techniques (2) F, S

Prerequisite: Consent of instructor. Experience for advanced students in organization and techniques of a microbiology laboratory. (Conference 1 hour, laboratory 3 hours.)

424. (150) Advanced Hematology (2) F

Prerequisite: Microbiology 323 or laboratory technologist's license. Investigation into blood cell formation in bone marrow and the reticuloendothelium system. Response of these cells to disease processes. (Lecture and demonstration 2 hours.)

425. (120) Public Health Microbiology and Diagnostic Procedures (4) F

Prerequisite: Microbiology 320. Standard methods for the examination of food, water, sewage and dairy products. Diagnostic procedures for viral, rickettsial, spirochaetal, bacterial and mycobacterial agents of public health importance. (Lecture 2 hours, laboratory 6 hours.)

431. (165) Principles of Immunobiology (3) S even years

Prerequisites: Microbiology 330, Chemistry 441A-B, consent of instructor. Integrated biological and chemical consideration of immunology. Host-parasite-relationships and immune response of antigens and antibodies, their physical, chemical and biological properties and the mechanisms, dynamics and kinetics of the antigen-antibody reaction. (Lecture 1 hour, laboratory 6 hours.)

441. (155) Microbiology of Soil and Sea (3) F
Prerequisites: Microbiology 360A-B or 461, 470, Chemistry 327. Survey of the interaction of micro-organisms in the soil and sea. Emphasis on elements, cycles and metabolic conversion of environmental materials. (Lecture 1 hour, laboratory 6 hours.)

450. (160) Microbial Genetics (2) F, S
Prerequisites: Microbiology 210, Zoology 210B, Chemistry 441A, consent of instructor. Biochemical and cytological bases of microbial genetics; nature, replication, and modification of genetic material. (Lecture 2 hours.)

451. (161) Microbial Genetics Laboratory (2) F, S
Prerequisite: Microbiology 450 (may be taken concurrently). Laboratory study of microbial genetics. (Laboratory 6 hours.)

452. (110) Viruses (2) F, S
Prerequisites: Microbiology 210, Chemistry 111B, 327. Consideration of principles in virus and rickettsial diseases of man and animals. (Lecture 2 hours.)

453. (111) Virology Laboratory (2) S
Prerequisite: Microbiology 452 (may be taken concurrently). Laboratory study of the bacterial and animal viruses. Techniques for growth, titration of infectious units, cytopathological changes produced by the viruses. Physical and chemical prospectus of the viruses studied. (Laboratory 6 hours.)

461. (119) Mycology (3) F
Prerequisite: Microbiology 210. Structural development and classification of the important genera and species of fungi. (Lecture 2 hours, laboratory 3 hours.)

470. (100) Bacterial Anatomy and Cytochemistry (2) F, S
Prerequisites: Microbiology 210, Chemistry 327 or 441A (may be taken concurrently). Bacterial cell anatomy and its chemical composition; cellular physiology as related to growth, nutrition, physico-chemical environments, and phenotypic and genotypic adaptations. (Lecture 2 hours.)

471. (140) Bacterial Physiology (3) F, S
Prerequisites: Microbiology 470, consent of instructor. Metabolic and chemical activities of the bacteria as related to problems of growth, reproduction and maintenance of life. (Lecture 3 hours.)

472. (141) Bacterial Physiology Laboratory (2) S
Prerequisites: Microbiology 471, Chemistry 441A (may be taken concurrently). Laboratory techniques used in the study of bacterial physiology. (Laboratory 6 hours.)

473. (125) Industrial Microbiology (3) F
Prerequisites: Microbiology 471, consent of instructor. Role of micro-organisms in selected industrial processes; emphasis on bacteria, yeasts and molds. (Lecture 2 hours, laboratory 3 hours.)

480. (195) Proseminar in Microbiology (2) F, S
Prerequisites: Senior in microbiology, consent of instructor. Faculty and student presentation and analysis of current topics in microbiology.

496. (199) Investigations in Microbiology (1-3) F, S
Prerequisite: Consent of instructor. Research in a specific subject in microbiological sciences to be approved and directed by a faculty member.

GRADUATE DIVISION

513. (205) History of Microbiology (2)

514. (210) Microbiological Instrumental Methods and Analysis (3)

526. (215) Biochemical Diagnostic Procedures in Microbiology (3)

527. (225D) Experimental Microbiology: Medical Parasites (3)

532. (225E) Experimental Microbiology: Immunochemistry (3)

542. (260) Microbial Ecology (3)

554. (225C) Experimental Microbiology: Viruses (3)

562. (225B) Experimental Microbiology: Eumycetes (3)

574. (225A) Experimental Microbiology: Schizomycetes (3)

575. (255) Microbial Metabolism (3)

694A,B. (200A,B) Seminar in Principles and Theories of Microbiology (1,1)

695. (220) Seminar in Immunogenetics (2)

697. Directed Research (1-3)

698. (298) Thesis (2-4)

MUSIC

Professors: Dallin, Helm, McGarrity, Neiswender, Peterson, Squire, Strang, Temianka, Tyndall, Winslow.

Associate Professors: Anderson, R. E., Becker, Gibson, Lampl, Musafia, Pooler, Reynolds, Stroud.

Assistant Professors: Sindelar, Wilcox.

Lecturer: Hardester.

MUSIC PERFORMANCE

Opportunities to participate in various instrumental and vocal ensembles are available to all students in Music 100, 200, 300, 400. Before enrolling in a performing group the student should apply to the director of the organization in which he wishes to participate. Music performance courses may be repeated; up to 8 units of credit may be counted toward a B.A. degree. Simultaneous enrollment in more than one section is permitted.

LOWER DIVISION

020. (R) Semester Recital (0) F, S

Recital attendance and performance on principal instrument or voice. Required of undergraduate music majors each semester.

100. Performance (1) F, S

Prerequisite: Consent of instructor. Major performance groups, including a cappella choir, oratorio chorus, women's chorus, band, orchestra, etc. (See note on Music Performance.)

120A-B. (21A,B) Class Piano (1,1) F, S

Technique, tone production, rhythm, sight-reading, interpretation and keyboard facility. Meets piano requirement for music majors and minors.

121A-B. (22A,B) Piano for Elementary Teachers (1,1) F, S

Techniques, rhythm, sight-reading, keyboard facility. Piano materials for the classroom teacher.

122A-B. (23A,B) Class Voice (1,1) F, S
Fundamental technique of singing, tone production, voice placement, breathing, diction. Repertoire and song interpretation.

125. Beginning Instruments (1) F, S
Class instruction in applied music. Areas include: flute, oboe, clarinet, bassoon, horn, trumpet, trombone, baritone, tuba, percussion, violin, viola, 'cello, bass, or groups such as woodwinds, brass, strings. May be repeated for credit.

129. (15) Individual Instruction (1-2) F, S
Individual instruction in voice, piano, organ, harp and the various instruments of the band and orchestra. Information regarding registration procedure must be obtained at the Music Office.
Sixteen one-half hour lessons per semester are required for each unit of credit. The College assumes no obligation respecting fees, which must be paid directly to the teacher. Grades will be assigned by a faculty jury at the end of each semester after the regular semester auditions. May be repeated for credit.

130. (65) Opera (1) F, S
Preparation, rehearsal and public performance of traditional and contemporary opera. May be repeated for credit.

140. Basic Music Theory (2) F, S
Notation and reading of music. Written, aural and performance experience with scales, intervals, chords, and melodies.

141A-B. (41, 43) Musicianship (2,2) F, S
Prerequisite: Music 140 or a satisfactory score on a placement examination. Music 142A-B to be taken concurrently. Sight singing, keyboard harmony, melodic and harmonic dictation through chromatic harmony and modulation.

142A-B. (42, 44) Harmony (3,3) F, S
Prerequisite: Music 140 or a satisfactory score on a placement examination. Music 141A-B to be taken concurrently. Traditional harmony: chord choice, part writing and analysis.

180. (36) Exploring Music (3) F, S
Fundamentals of music and essentials of music listening. Performance skills in singing and playing music.

190. (91) Listener's Approach to Music (3) F, S
Nontechnical course open to all students except music majors. Materials, forms and styles of music with extensive listening.

200. Performance (1) F, S,
Prerequisite: Consent of instructor. Specialized performance groups, such as madrigal singers, chamber music, brass or woodwind ensembles, string quartet, etc. (See note on Music Performance.)

220A-B. (21C,D) Class Piano (1,1) F, S
Continuation of 120A-B.

222A-B. (23C,D) Class Voice (1,1) F, S
Continuation of 122A-B.

228. (92) Piano Accompanying (2) S
Prerequisite: Piano major or consent of instructor. For students desiring proficiency and experience in accompanying singers, instrumental soloists and music ensembles.

241. (83) Counterpoint (3) F, S
Prerequisites: Music 141B and 142B. Counterpoint in two, three and four parts.

280. (38) Music Theory for Classroom Teachers (3) S
Prerequisites: Music 120A-B or Music 180 or consent of instructor. Scale and chord construction, melodic and harmonic design, rhythmic analysis; keyboard applications; original writing of simple song forms.

281. (86) Community and Recreational Music (2) F, S
Singing for enjoyment. Survey, singing and directing of song materials used in camps, scouting, schools, church youth groups, banquets. Techniques of song leading.

290. (90) Music in General Culture (3) F, S
Artistic and socio-economic bases of music in the contemporary scene with emphasis on Southern California. Not open to music majors.

UPPER DIVISION

300. Performance (1) F, S
Prerequisite: Consent of instructor. Major performance groups, including a cappella choir, oratorio chorus, women's chorus, band, orchestra, etc. (See note on Music Performance.)

320. (170) Advanced Piano (2) F, S
Prerequisite: Music 220B or consent of instructor.

321. (145) Piano Methods (2) F
Prerequisite: Consent of instructor. Procedures in piano teaching. Review of graded materials and literature on methods; creative work, technical procedures, interpretation; teaching students of various levels.

322. (171) Advanced Voice (2) S
Prerequisite: Music 222B or consent of instructor.

323. (134) Voice Class for Teachers (1) S
Basic vocal techniques particularly applicable in teaching public school music.

324. (121) Introduction to Organ Technique (2) F
Prerequisite: Music 220B or consent of instructor. Acquaints pianists with organ-playing technique; registration, pedal technique, repertoire; performance of simple compositions, accompaniments and hymns.

325. Intermediate Instruments (1) F, S
Prerequisite: Music 125 or consent of instructor. Class instruction in applied music. May be repeated for credit.

329. (115) Individual Instruction (1-2) F, S, SS
Procedures same as for Music 129. May be repeated for credit.

330. (165) Opera (1) F, S
See Music 130.

341. (104, 144) Musical Form (3) F, S
Prerequisites: Music 142B, 241. Small, large, multimovement, variation, and contrapuntal forms in instrumental and vocal music.

342. (178) Materials of Modern Music (3) F, S
Prerequisites: Music 142B, 241. Melodic, harmonic, rhythmic and contrapuntal materials of 20th Century music. Analysis of representative compositions and writing in typical contemporary styles.

360A,B. (163, 164) History of Music (3,3) F, S
Primarily for music majors and minors, but open to others who read music. Chronological study of music from the earliest times to the contemporary scene. Selected readings, recordings and scores intensively studied.

380. Foundations for Musical Growth (3) F, S
Prerequisite: Music 142A or Music 180. Psychological principles and sequence of music learning. Music literature and its relation to aural experience, kinesthetic sensitivity, performance skill, and the development of creativity.

381. Foundations of Music Education (3) F, S
Analysis of the nature of music experiences and their development through the use of elementary and junior high school music literature. Psychological principles, processes and sequences involved in the acquisition of musical skills, understandings and attitudes and their interrelationships. Open to music majors and minors only. Required for elementary student teaching in music.

382. (147) Children's Literature in Music (2) F, S
Music materials designed for children's listening and singing, together with principles of presentation.

383. (179) Problems in Elementary School Music (2) SS
Prerequisite: Music 380 or consent of instructor. Procedures and materials used in elementary school music. Specific projects based upon individual needs.

390. (180) Music in Western Civilization (3) F, S
Music from the Renaissance to the present; lectures, readings and listening. Not open to music majors.

395. (195) Field Study in Music (6) SS
Field study tour of six weeks in Europe. Compares music and the other arts among the respective peoples and countries visited.

400. Performance (1) F, S
Prerequisite: Consent of instructor. Specialized performance groups, such as madrigal singers, chamber music, brass or woodwind ensembles, string quartet, etc. (See note on Music Performance.)

421. (160) Choral Conducting (2) F, S
Principles and techniques of choral conducting and organization. Study and interpretation of choral materials, using the class as a laboratory group. Three periods per week.

422. (185) Advanced Choral Conducting and Literature (2) F
Prerequisite: Music 421 or consent of instructor. Choral technique, style and interpretation; choral schools and composers since the 16th Century; contemporary secular and sacred choral compositions. Class used as laboratory group.

423. (183) Organist's Practicum (2) S
Prerequisite: Music 324 or consent of instructor. Analysis and performance of selected organ works; playing church services; organ construction and maintenance.

424A-B. Advanced Organ (2,2) F, S
Prerequisite: Music 324 or consent of instructor. Technique, registration, repertoire. Recitals, workshop and field trips to outstanding organs.

425A-B. Instrumental Conducting (2,2) F, S
Three hours weekly. (425A not open to students with credit in Music 420.)

428. (198) Senior Recital (1) F, S
Standard literature for solo instrument or voice and performance of a balanced program in solo recital. Enrollment restricted to music majors passing the qualifying examination.

429. (1155) Advanced Individual Instruction (1) F, S
Upper division music majors may receive private lessons in their major performance medium for a period not exceeding four semesters. Application must be made to the chairman of the Music Department during the semester prior to registration. Registration is subject to his approval.

441. (176) Studies in Musical Analysis (2) F
Prerequisite: Music 341. Intensive individual and class analysis of representative compositions of various periods and styles.

442. Instrumentation (3) F, S
Prerequisites: Music 142B, 241. Range, characteristics, technical capabilities and limitations of orchestral and band instruments. Scoring for string, woodwind, brass and percussion ensembles.

443. Scoring and Arranging (3) F, S
Prerequisite: Music 442. Scoring and arranging for orchestras of various sizes, for band and symphonic wind ensemble, and for voices.

444A,B. (188, 189) Composition (2,2) F, S
Prerequisite: Music 341 or consent of instructor.

460. (157) Keyboard Literature (2) F
Prerequisites: Music 360A,B or Music 390 or consent of instructor.

461. (153) Organ Literature (2) S
Prerequisites: Music 360A,B or Music 390 or consent of instructor. Organ music from the Renaissance to the present.

462. (159) Song Literature (2) S
Prerequisites: Music 360A,B or Music 390 or consent of instructor. Music for solo voice composed after 1600. Vocal proficiency not required.

463. (156) Music of the Theater (2) F
Prerequisites: Music 360A,B or Music 390 or consent of instructor. History and development of music for the stage from 1600 to the present, its conventions and styles. Analysis of representative masterworks.

464. (152) Chamber Music Literature (2) S
Prerequisites: Music 360A,B or Music 390 or consent of instructor. Music for various instrumental ensembles representative of various periods and composers.

465. (154) Symphonic Literature (2) F
Prerequisites: Music 360A,B or Music 390 or consent of instructor. Symphony and symphonic poem from their inception to the present time.

466. (181) Church Music (2) F
Prerequisites: Music 360A,B or Music 390 or consent of instructor. History of western church music, noting its roots in the Jewish and Greek cultures. Concludes with a survey of church music of the United States.

480. (182) Marching Band Techniques (2) S
Marching fundamentals, charting formations, precision drills, parade technique and half-time pageantry.

481. (184) Instrumental Organization and Literature (3) F
Procedures for organization and development of instrumental programs and literature for performing groups.

490. (187) Musical Cultures of the World (3) F, S
Musical cultures of the world (excluding Western art music); the role of music in society and its relationship to other arts. Scale structure, instruments, musical forms and performance standards. For music majors or non-music majors.

491. Acoustics of Music (3) S
Prerequisites: Music 342, Physics 104, or consent of instructor. Nature and propagation of sound; acoustics of musical instruments; tuning and temperament; behavior of sound in enclosed spaces, acoustics of music rooms; acoustical aspects of sound recording and reproduction.

499. Special Studies (1-3) F, S
Prerequisite: Consent of instructor. Individual research or group investigation of selected topics. (May be repeated for maximum of six units of credit.)

GRADUATE DIVISION

520. (210) Advanced Instrumental Conducting (3)
541. (260) Studies in Homophonic Music (3)
542. (261) Studies in Polyphonic Music (3)
561. (265) Music of the Renaissance (3)
562. (266) Music of the Baroque Period (3)
563. (267) Music of the Classic Era (3)
564. (269) Music of the Romantic Era (3)
565. (268) Twentieth Century Music (3)
641. (276) Seminar in Musical Analysis (2)
645. (278) Seminar in Advanced Composition (2)
680. (206) Seminar in Instrumental Music Teaching (2)
696. (297) Research Methods (2)
698. (298) Thesis or Project (2-6)

NURSING

Professor: Walsh.
Associate Professors: Hoffman, Sucher.
Assistant Professors: Blaylock, Caskey, Darling, Kaufman, Lackey, Pentecost, Schmidt, M., Terry, Traber.
Instructors: Elser, Gray, A., Russell, B.

LOWER DIVISION

100. (10) Introduction to Nursing (1) S
Nursing as a profession. Attitudes, ethics and responsibilities expected of nursing students.

210. (50) Clinical Nursing (5) F, S
Prerequisites: Nursing 100, Anatomy and Physiology 203B, Home Economics 232, Psychology 100, Microbiology 210, (Chemistry 327 may be taken concurrently). Basic principles of total patient care with applied practice in patient-centered nursing with emphasis on communication. (Lecture 2 hours, laboratory 9 hours.)

260. (53) Community Health Patterns (2) F, S
Introduction to health and social agencies and their relationship to community health needs. To be taken concurrently with Nursing 210.

UPPER DIVISION

300. (101) Family Health, Safety, and Home Nursing (1) F, S
Designed to provide understanding and limited experience in using the practical skills of home nursing, health and home safety. Open to home economics majors only.

321. (179) Trends in Nursing (2) F, S
Consideration of the development of modern nursing and its evolution until the present day. Emphasis on factors affecting its progress. Current problems, studies and trends in the field of nursing service and nursing education, as well as in social legislation, professional organization, and developments influencing nursing.

331. (55) Maternal and Child Health I (5) F, S
Prerequisites: Nursing 210, 260, Chemistry 327, Sociology 100. Focus on maintaining the maximum safety, health and welfare for each mother and expected infant and the enhancement of the childbearing experience for each mother, father and child. (Lecture 2 hours, laboratory 9 hours.)

332. (126) Maternal and Child Health II (5) F, S
Prerequisites: Nursing 331, 341, Educational Psychology 301, 305. Emphasizes nursing care based on the realistic evaluation of the individual needs and health problems of the parents and child. Consideration given to the effects of illness and hospitalization upon the individual needs of the family.

341. (140) Medical-Surgical Nursing I (5) F, S
Prerequisites: Nursing 210, 260, Educational Psychology 301, 305. Nursing care of general medical and surgical patients; based on a knowledge (theoretical and practical) of surgical and medical asepsis, nutritional therapy, human relationships and principles of rehabilitation.

342. (141) Medical-Surgical Nursing II (5) F, S
Prerequisites: Nursing 341, Chemistry 327. Emphasis is on comprehensive nursing care of specialized medical-surgical patients in the hospital and family setting. Guided assistance is given to solving health problems of selected patients.

351. (160) Psychiatric-Mental Health Nursing (6) F, S
Prerequisite: Nursing 342. Psychiatric and mental health concepts in nursing and care of mentally ill with rehabilitation stressed. Theory and practice offered in mental hospitals and mental health clinics. (Lecture 2 hours, laboratory 12 hours.)

361. (185) Epidemiology (2) S
Prerequisite: Nursing 342. Principles of epidemiology and their application to health; fundamentals of biomedical statistics; basic factors in classic epidemiological studies and the prevention and control of infectious diseases.

420. (149) Nursing Studies (2) S
Students to select a nursing problem and apply appropriate techniques and methods in the investigation and solution of this problem.

441. (165) Adult Clinical Nursing (6) F, S
Prerequisites: Nursing 332, 342. Principles and practices of nursing concepts of adult level problems in a changing society. Emphasis on nursing problems in long term illness and rehabilitation. (Lecture 2 hours, laboratory 12 hours.)

442. (180) Concepts of Team Nursing (3) F, S
Philosophy and principles of team nursing and the functioning of team members as a small group. (Lecture 1 hour, laboratory 6 hours.)

462. (186) Public Health Nursing (8) F, S
Prerequisites: Nursing 260, 332, 342, 361 (may be taken concurrently), 441. Provides a knowledge and understanding of basic principles and good current practice in public health nursing. Laboratory experience offered in public health agencies, homes, public schools and occupational health agencies. (Lecture 3 hours, laboratory 15 hours.)

471. (174) Teaching in Nursing (2) S
Prerequisites: Educational Psychology 301, 305. Principles of teaching patients, families and community groups.

481. (182) Legal Aspects of Nursing Practice (2) F
Prerequisite: Political Science 100 or 421. Legal responsibilities of registered nurses, legal control of nursing practice, discussion of court cases which involve nurses.

491. (194) The Nurse in the School Health Program (8) F, S
Prerequisite: Nursing 462 or equivalent. Philosophy, functions and responsibilities of the nurse in the school health program; current practices and their relationship to health needs of school children. Participation under supervision in health services of schools in the community. Open only to students working on credential. Not open to students with credit in Nursing 184 and 191. (Lecture 2 hours, laboratory 18 hours.)

OPERATIONS RESEARCH AND STATISTICS (See Business Administration)

PHILOSOPHY

Professors: Strickler, Wegener, Wiley.
Associate Professors: Massey, Maue, Ringer.
Assistant Professors: Berberelly, Bonis, Fels, Johnson, W., Kim, H., Quest, Thomas, J.
Lecturer: Peccorini.

LOWER DIVISION

100. (51) Introduction to Philosophy (3) F, S
Scope, basic principles and a brief analysis of the major problems of philosophy.

160. (65) Introductory Ethics (3) F, S
Concepts of right and wrong, good and bad, and the application of moral principles to problems of everyday life.

170. (75) Traditional Logic (3) F, S
Elements of clear, straight, orderly thought, including deductive and inductive reasoning; and the accurate use of language.

202. (90) Readings for Philosophical Analysis (3) S
Prerequisite: One lower division philosophy course. Designed to follow Philosophy 100 and to extend the student's acquaintanceship with primary philosophical writings both ancient and modern.

270. Symbolic Logic (3) F, S
Introduction to the formal techniques of evaluating arguments.

UPPER DIVISION

301. (101) History of Early Philosophy (3) F, S
From Thales to the Renaissance including the systems of Socrates, Plato and Aristotle, and their influence on European philosophy through the medieval period.

302. (102) History of Modern Philosophy (3) F, S
From the Renaissance to the 20th Century, including the development of modern scientific processes, and the philosophical systems of empiricism, rationalism, idealism, etc.

304. (120) Philosophies in America (3) S
Prerequisite: One lower division philosophy course. Background and development of philosophical ideas, including puritanism, pragmatism, logical empiricism, naturalism, humanism.

305. (145) Philosophy in Literature (3) F
Discovery and exploration of philosophical ideas in selected literature.

306. Philosophies of China and Japan (3) S
Prerequisites: Six units of philosophy or consent of instructor. Historical and critical study of the philosophical thought of China and Japan.

307. Philosophies of India (3) F
Prerequisites: Six units of philosophy or consent of instructor. Historical and critical survey with emphasis on basic ideas and traditions.

313. (158) Development of Existentialism (3) F
Prerequisites: Six units of philosophy. From Kierkegaard to Sartre.

330. (170) Philosophy of Religion (3) F, S
Prerequisite: Three units of philosophy. Nature and function of religion and of fundamental religious concepts and ideals.

331. (168) Religions of the World (3) F
Origin, history, and tenets of the leading occidental and oriental religions including Christianity, Judaism, Islam, Hinduism, Buddhism, Taoism, Confucianism and Shinto.

351. (110) Philosophy of the State (3) F
Democracy, individualism, socialism, cooperativism, communism and authoritarianism in terms of their underlying philosophical principles and beliefs.

353. (152) Philosophy of History (3) F
Prerequisites: Six units of philosophy or consent of instructor. Theories of history, and an examination of the basic concepts, categories, and presuppositions.

361. (140) Aesthetics (3) F
Prerequisite: One lower division philosophy course. Art as a cultural phenomenon, emphasizing the relation of the fine arts to each other, to the practical arts, to science, and to the good life. Exploration of the philosophic bases of criticism and creativity.

381. (131) Philosophy of Science (3) F
Prerequisites: Nine units of natural science. Problems, methods and fundamental concepts of the sciences, including the relationships of the sciences to each other, to mathematics and to philosophy.

403. Medieval Philosophy (3) F
Prerequisites: Philosophy 301 and three additional units of philosophy or consent of instructor. From St. Augustine to Ockham with emphasis on the problems of knowledge, nature of God and theories of society.

407. (155) Trends in Contemporary Philosophy (3) F
Prerequisite: Six units of philosophy or consent of instructor. Patterns of philosophical thought in our age.

413. (138) Continental Rationalism (3) F
Prerequisites: Six units of philosophy. Descartes, Spinoza and Leibnitz, and some significant contributions of their successors.

414. (135) British Empiricism (3) S
Prerequisites: Six units of philosophy. Locke, Berkeley, Hume, and some significant contributions of their successors.

416. (150) Nineteenth Century German Idealism (3) S
Prerequisites: Two courses in philosophy, other than Philosophy 170. Absolute idealism from the critical philosophy of Kant to the systems of Hegel and his followers.

418. (157) Philosophies of Process (3) S
Prerequisites: Six units of philosophy. Philosophical thought of Bergson, James, Whitehead and others in contrast to traditional substance philosophies.

419. Contemporary Analytic Philosophy (3) F
Prerequisites: Philosophy 100, 170 and at least one upper division philosophy course. Major ideas and philosophers in linguistic and logical analysis with emphasis on theory of knowledge.

420. Pre-Socratic Philosophy (3) F
Prerequisites: Six units of philosophy including Philosophy 301. Main philosophical thinkers from Hesiod to the Socratic schools.

421. (184) Plato (3) F
Prerequisites: Six units of philosophy. Thought of Plato based primarily on readings from his dialogues.

422. (185) Aristotle (3) S
Prerequisites: Six units of philosophy. Thought of Aristotle based primarily on readings from his works.

442. (175) Metaphysics (3) S
Prerequisites: Six units of philosophy or consent of instructor. Problems of ontology and cosmology including such concepts as matter and energy, time and space, evolution and causality.

463. (165) Ethics (3) F
Prerequisite: Philosophy 100 or 160. Selected ethical systems using primary source materials.

464. Theories of Value (3) S
Prerequisites: Six units of philosophy including Philosophy 100 or 160. Clarification and exploration of common features shared by moral, aesthetic, social, religious, and intellectual norms.

472. (180) Advanced Logic (3) S
Prerequisite: Philosophy 170. Introduction to symbolic logic through the logic of identity and relations. Considerations of formal deductive systems.

482. (160) Epistemology (3) S
Prerequisite: Philosophy 100 or 170. Examination of the phenomena of knowing, and of concepts involved in knowledge.

490. (195) Special Problems (3) S
Prerequisites: Six units of upper division philosophy courses. Exploration of special and significant philosophical problems. May be repeated for a maximum of six units.

PHOTOGRAPHY

Associate Professor: Schmidt.
Assistant Professor: La Cour.

LOWER DIVISION

210. (10) Basic Photography (2) F, S
A beginning course to familiarize students with the fundamentals of photography. Units on cameras, exposure meters, films, darkroom technique, lighting, portraiture, optics and cinematography. Printing-out, papers, contact and projected prints. (Laboratory included.)

UPPER DIVISION

310. (110) Advanced Photography (3) F, S
Prerequisite: Basic Photography 210. Practical application of advanced camera and laboratory techniques. Microphotography, macrophotography, and photomicrography. Special lens applications, distortion and perspective control, Infra Red photography, reversal processing, specialized development, print toning, salon prints, panoramas and murals. An introduction to color photography. Advanced assignments directed toward student's major field of study.

PHYSICAL EDUCATION

General Education Physical Education

103, 104, 105, 106. Physical Education Activity (.5) Men, Women F, S, SS
Selected activities; games, sports, aquatics and rhythmic activities designed to provide an opportunity for students to meet their health, physical and recreational needs and interests. Required of all lower division students. Read the following information carefully.

General Education Requirement in Physical Education

All undergraduate students except those over 25 years of age at time of entrance to the College must successfully complete four consecutive semesters of physical education activity courses starting with the first semester of attendance as partial fulfillment of the general education requirements for the bachelor's degree. These need not be taken in numerical order. Students will be allowed to take summer session activity courses in lieu of one semester of the physical education general education requirement. Upper division students who have completed the general education requirement in physical education are encouraged to take additional activities. A total of eight activity units is allowed toward graduation.

All new or re-entering students must be classified by the College Student Health Service as a part of the registration procedure.

Classification will be according to the following system:

Class A—No restrictions

Class B—May participate in all except one or two specified activities

Class C—Will be assigned to adapted or other physical education activities suitable to individual needs

Class D—No physical activity

Students claiming medical exemption will present to the Admissions Office a verification from the director of the College Student Health Service.

Assignment to physical education activities is elective in that students may select from a variety of activities within each of three required areas. This provides opportunity for students to have experiences in the areas of individual and dual sports; aquatics (unless excused by waiver test); movement fundamentals, dance, and combatives (for men). One semester of the student's physical education may be completely elective in that he may select an activity from any of the three required areas or the fourth area which contains purely elective activities. Physical education majors and minors satisfy this requirement through specified lower division pre-professional courses.

General education physical education activity courses for men and women may be offered at the beginning, intermediate and advanced levels. The areas offered are:

PE 103 Required

Archery
Badminton
Fencing
Fly and Spin Casting
Folk Dance (PE 105 for Women)
Golf
Social Dance (PE 105 for Women)
Tennis
Advanced Tennis (W)

PE 104 Required

Diving
Swimming
Advanced Swimming (W)
Advanced Swimming, Life Saving and Water Safety (may be substituted)
Synchronized Swimming (W)

PE 105 Required
Adapted (M)
Adapted (W)
Ballet
Folk Dance (PE 103 for Men)
Gymnastics and Trampoline (M)
Gymnastics and Trampoline (W)
Handball (M)
Modern Dance
Posture and Carriage (W)
Social Dance (PE 103 for Men)
Weight Training and Conditioning (M)
Wrestling (M)

PE 106 Elective
Advanced Team Sports (W)
Basketball (M)
Soccer (M)
Softball
Volleyball
Intercollegiate Team Sports (M) (PE 180)
Elem. School Games and Rhythms (PE 270, 271)

118. (10) Intercollegiate Team Sports (1) F, S
Enrollment subject to approval of the coach of the sport in season. A student may apply one semester of Physical Education 180 to the four-semester general education requirement in physical education activities (P.E. 106). However, he must enroll concurrently in a section of Physical Education Activity until squad membership has been verified by the coach. Physical Education Activity may then be dropped at the student's discretion. Those enrolled in Physical Education 180 for credit who fail to qualify for the squad must withdraw from the course.

PHYSICAL EDUCATION PROFESSIONAL COURSES

LOWER DIVISION

130. (13) First Aid (2) F, S
Theory and practice of first aid for the injured. Successful completion of course requirements leads to the American National Red Cross "Standard" and "Advanced" first aid certificate. Authorization for the "Instructor's" certificate is possible for teachers and prospective teachers. (Most school systems require all elementary and secondary school teachers either to have a valid standard first aid certificate, or to acquire one during their first year of teaching.) Open to all students. (Lecture, activity.)

160. (50) Fundamental Rhythms (1) F, S
Designed to acquaint men and women physical education majors and minors with fundamental rhythms, folk, square, social and modern dance. Provides opportunities for developing acceptable performance as preparation for techniques of teaching.

241. (56) Aquatics (1) F, S
Instruction and practice in the fundamental skills basic to successful performance in aquatics. Open only to physical education majors and minors.

248. (55) Advanced Swimming, Life Saving and Water Safety (2) F, S
Prerequisite: Satisfactory completion of Physical Education 104 intermediate swimming course or waiver test. Advance swimming skills, life saving and water safety, including the opportunity to qualify for the American National Red Cross Senior Life Saving Certificate and Water Safety Instructor's Certificate. Open to all students. (Lecture, activity.)

270. (25A) Games for the Elementary School (1) F, S
Instruction and practice in the fundamental game skills commonly taught in the elementary schools. May be substituted for one semester of general education physical education activity (Physical Education 106) by elementary education majors. Required prerequisite to Physical Education 470 for elementary education majors. Not open to physical education majors.

271. (25B) Rhythms for the Elementary School (1) F, S
Instruction and practice in the fundamental rhythm skills commonly taught in the elementary schools. May be substituted for one semester of general education physical education activity (Physical Education 106) by elementary education majors. Required prerequisite to Physical Education 470 for elementary education majors. Not open to physical education majors.

273. Fundamental Motor Skills for the Elementary School Child (2) S
Analysis and practice in the fundamental, ball handling skills, gymnastics, combatives, track and field, and outdoor activities in the elementary school physical education program.

278. Dance for Children (2) F
Exploration of movement and accompaniment in the learning and creating of dances as it relates to the elementary school child.

UPPER DIVISION

333. (123) Applied Principles of Kinesiology (2) F, S
Prerequisite: Anatomy and Physiology 201, 202. Structure, function and mechanical principles relating to human motion, including analytical application. (Lecture, laboratory.)

335. (123) Physiology of Exercise (2) F, S
Prerequisite: Physical Education 333 (may be taken concurrently). Physiological effects of exercise on the human body. Significance of these effects for health and performance in physical activity. (Lecture, laboratory.)

374. Activity Analysis and Exercise Design (2) F
Prerequisite: Anatomy and Physiology 200. Application of principles of anatomy and physiology to the motor performance of children. (Lecture, laboratory.)

437. (135) Corrective Physical Education (2) F, S
Prerequisites: Physical Education 333 and 335 or equivalent. Analysis and evaluation of aims, techniques and procedures in developmental, preventive and corrective measures. Basic problems and methods of procedure for teaching adapted physical education classes. (Lecture, laboratory.)

438. Physical Restoration (3) S
Prerequisite: Physical Education 437 or consent of instructor. Advanced "special" physical education and clinical physical restoration procedures. (Lecture, laboratory.)

439. (136) Field Work in Corrective Therapy (3) F, S
Prerequisites: Physical Education 438 and consent of instructor. Supervised clinical experience in corrective therapy procedures at the Veteran's Administration Hospital, Long Beach, or at other suitable agencies. May be repeated once for credit.

470. (125) Elementary School Physical Education (2) F, S
Prerequisite: Physical Education 270 and 271 or equivalent, for elementary education majors; Physical Education 160 or equivalent for physical education majors. Principles, aims and objectives of physical education in the elementary schools. Practice in the teaching techniques used in elementary school physical education. (Lecture, laboratory.)

GRADUATE DIVISION

521. (206) Administration and Supervision in Physical Education (3)

523. (275) Curriculum Development and Construction in Physical Education (3)

533. (233) Scientific Bases for Physical Education (3)

573. (205) History and Philosophy of Physical Education (3)

577. Sport in U.S. Culture (3)

590. (220) Statistical Analysis and Measurement in Physical Education (3)

630. Seminar in Motor Learning (3)

637. (235) Seminar in Adapted Physical Education (3)

671. (201) Seminar in Current Trends and Issues in Physical Education (3)

685. (209) Seminar in Athletics (3)

696. (297) Research Methods (3)

697. Directed Studies (1-3)

698. (298) Thesis or Project (2-4)

PHYSICAL EDUCATION—MEN

Professors: Bok, Boring, Crowe, DeLotto, Klafs, McConnell, Montgomery, Patterson, Rose, J., Schwartzkopf.

Associate Professors: Arnheim, Bartlett, Clegg, Kidd, Miller, F., Perry, R., Pestolesi, Reed, D., Schultz, J., Wuesthoff.

Assistant Professors: Campbell, DeLuca, Pullman, Reese, Sandefur.

Lecturer: Johnson, C., Morgan.

LOWER DIVISION

011. (130) Orientation and Guidance in Physical Education (0) F, S

Required of all transfer students who have completed in another institution a course comparable to Physical Education 111. Designed to orient and guide students who transfer from other institutions. Includes degree and credential requirements, responsibilities of physical education majors, and motor ability evaluations.

111. (30) Introduction to Men's Physical Education (2) F, S

Orientation to physical education, including skill testing in areas basic to the professional program. Provides the major and minor the opportunity, through performance testing, to waive one or more of the following: Men's Physical Education 142, 143, 242, 243, 244, 245, 246, 247 and Physical Education 160. (Lecture, activity.)

140. Conditioning (1) F, S

Instruction, practice and evaluation in weight training and other conditioning activities. (Laboratory)

141. Individual and Dual Sports (1) F, S

Instruction, practice and evaluation of archery, badminton, golf, handball and tennis. (Laboratory)

142. (63) Gymnastics I (1) F, S

Beginning and intermediate instruction and practice in floor exercise, tumbling, side horse, parallel bars and vaulting. (Laboratory)

143. (63) Wrestling I (1) F, S
Beginning and intermediate instruction and practice in escapes, reversals, breakdowns, pin holds and their counters. Confined to wrestling down on the mat. (Laboratory)

242. Gymnastics II (1) F, S
Prerequisite: Men's Physical Education 142 or equivalent. Intermediate and advanced instruction and practice in trampoline, horizontal bar, rings, balancing, rope climb. (Laboratory)

243. Wrestling II (1) F, S
Prerequisite: Men's Physical Education 143 or equivalent. Intermediate and advanced instruction and practice in takedowns and their counters, as well as more advanced skills emphasizing effective use of the legs. (Laboratory)

244. (60) Football and Speedball (1) F, S
Instruction and practice in the fundamental skills basic to successful performance in these activities. Open only to physical education majors and minors. (Laboratory)

245. (61) Basketball and Volleyball (1) F, S
Instruction and practice in the fundamental skills basic to successful performance in these activities. Open only to physical education majors and minors. (Laboratory)

246. (62) Cross Country, Track and Field (1) F, S
Instruction and practice in the fundamental skills basic to successful performance in these activities. Open only to physical education majors and minors. (Laboratory)

247. (59) Baseball and Softball (1) F, S
Instruction and practice in the fundamental skills basic to successful performance in these activities. Open only to physical education majors and minors. (Laboratory)

UPPER DIVISION

310. Organization and Conduct of Physical Education (3) F, S
Prerequisite: Men's Physical Education 011 or 111. Organization and conduct of activities taught in secondary schools, including skills analysis and class deployment. (Lecture, laboratory)

311. (159) Analysis of Aquatics (2) F, S
Prerequisite: Physical Education 241 or equivalent. Theory of coaching and teaching aquatics. (Lecture, laboratory.)

312. (162) Analysis of Gymnastics (2) F, S
Prerequisites: Men's Physical Education 142 and 242 or equivalent. Theory of coaching and teaching gymnastics. (Lecture, laboratory.)

313. (159) Analysis of Wrestling (2) F, S
Prerequisites: Men's Physical Education 143 and 243 or equivalent. Theory and practice of teaching wrestling. (Lecture, laboratory.)

315. (106) History and Principles of Men's Physical Education (3) F, S
History and principles which provide a basis for the development of a sound modern program.

317. Organizing and Officiating Intramural Sports (3) F, S
Officiating skills and the organization and administration of intramural sports programs. (Lecture, laboratory)

390. Tests and Measurements in Physical Education (2) F, S
Organization, administration, interpretation and development of measurement devices used in physical education. (Lecture, laboratory)

420. Workshop in Advanced Analysis of Football (3) SS 1967
Prerequisite: Upper division or graduate standing. Principles of advanced football theory including offensive and defensive skills and systems.

421. Workshop in Advanced Analysis of Wrestling (2) SS 1967
Prerequisite: Upper division or graduate standing. Principles, techniques and strategy used in wrestling. (Lecture, laboratory.)

433. Analysis of Human Performance (2) F, S
Psychological factors related to human performance including motion and motor learning.

480. (180) Prevention and Care of Athletic Injuries (2) F, S
Prerequisites: Physical Education 437 or equivalent. Prevention and care of athletic injuries (Lecture, laboratory)

484. (160) Coaching Football (3) F, S
Prerequisite: Men's Physical Education 244 or equivalent. Theories of coaching, principles and organization of interscholastic tackle football.

485. (161) Coaching Basketball (3) F, S
Prerequisite: Men's Physical Education 245 or equivalent. Theories of coaching, principles and organization of interscholastic basketball.

486. (162) Coaching Cross Country, Track and Field (3) F, S
Prerequisite: Men's Physical Education 246 or equivalent. Theories of coaching, principles and organization of interscholastic cross country, track and field.

487. (163) Coaching Baseball (3) F, S
Prerequisite: Men's Physical Education 247 or equivalent. Theories of coaching, principles and organization of interscholastic baseball.

488. (106) Administration of Secondary School Physical Education and Athletics (3) F, S
Prerequisite: Senior standing. Organization and administration of the physical education, recreation, and athletic programs in the secondary schools. Observation in the secondary schools of the physical education, recreation and athletic administrative practices.

PHYSICAL EDUCATION—WOMEN

Professors: Crogen, Deatherage, Ericson, D., Fornia, Reid.

Associate Professors: Johnson, L., Lyon, M., Schaafsma, Stock.

Assistant Professors: Dupont, Edmondson, Matthews, Miller, M., Royal, Schlaich.

Instructors: Grimmett, Pape, Redmon, Riddle.

LOWER DIVISION

020. (130) Orientation and Guidance in Physical Education (0) F
Required of all transfer students who have completed, in another institution, a course comparable to Women's Physical Education 121. Designed to orient and guide students who transfer from other institutions. Includes degree and credential requirements, responsibilities of physical education majors and motor ability evaluations.

120. (20) Fundamentals of Human Movement (2) S
Foundation course designed to develop an understanding of basic mechanical principles and their application to human motion. Mechanical analysis of gross motor skill patterns and the personal application of movement principles to locomotor and axial movements of the body. (Lecture, laboratory.)

121. (30) Introduction to Physical Education (2) F
Origin and development of the professions of health, physical education and recreation with emphasis upon their significance and function in contemporary American culture. Includes a critical examination of professional leadership responsibilities and the ethical concepts upon which they are based. Analytical review of recent research and current trends. Not open to transfer students who have completed a comparable course.

140. (65) Tennis, Badminton (1) F
Instruction and practice in the fundamental skills basic to successful performance in these activities.

150. (70) Team Sports for Women—Basketball, Softball and Volleyball (1) F
Instruction and practice in the fundamental skills basic to successful performance in these activities.

151. (71) Field Sports for Women (1) S
Instruction and practice in the fundamental skills basic to successful performance in these activities.

243. (66) Gymnastics, Track and Field (1) S
Instruction and practice in the fundamental skills basic to successful performance in these activities.

244. (67) Golf, Archery (1) S
Instruction and practice in the fundamental skills basic to successful performance in these activities.

250. (72) Sports Officiating for Women I (1) F
Designed for women physical education majors to develop proficiency in officiating volleyball, field sports (hockey, soccer, speedball and speed-a-way), tennis and badminton. Open to all qualified women students.

251. (73) Sports Officiating for Women II (1) S
Designed for women physical education majors to develop proficiency in officiating basketball, softball and aquatic events. Open to all qualified women students.

261. (51) Fundamentals of Modern Dance (2) F
Designed to develop a comprehensive background in the skills, techniques and creative materials of modern dance. Participation, analysis and valuation through movement; musical terminology, notation and elemental music forms with specific reference to modern dance. (Lecture, laboratory.)

UPPER DIVISION

321. (106) Principles and Administration of Physical Education (3) F, S
Principles, aims and objectives of physical education and the relationship to administrative problems in the secondary school physical education program.

330. (121) Evaluation in Physical Education (2) F
Prerequisite: Secondary Education 421 or equivalent. Principles and techniques of construction, administration and evaluation of measuring devices used in physical education. (Lecture, activity.)

340. (165) Advanced Analysis of Tennis and Badminton (2) S
Prerequisite: Women's Physical Education 140 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in tennis and badminton. (Lecture, laboratory.)

350. (170) Advanced Analysis of Team Sports (2) F
Prerequisite: Women's Physical Education 150 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in basketball, volleyball and softball. (Lecture, laboratory.)

351. (171) Advanced Analysis of Field Sports (2) S
Prerequisite: Women's Physical Education 151 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in hockey, speedball, soccer and speed-a-way. (Lecture, laboratory.)

360. (150) Advanced Analysis of Social-Recreation Dance (2) F, S
Prerequisite: Physical Education 160 or equivalent. Comprehensive analysis of the theory and practice of social, American folk and square dance. Includes skills analysis, organization, conduct and evaluation of the social-recreational dance forms. (Lecture, laboratory.)

421. (105) Historical and Cultural Foundations of Physical Education (2) F
Basic survey of the history of physical education. Historical identification of the general purposes and functions of physical education with the more inclusive role of total education.

422. (190) Philosophical Bases of Physical Education (2) S
Prerequisites: Women's Physical Education 321, 421, senior standing. Discussion of current issues and concepts in physical education and their philosophical significance. Designed to help prospective teachers develop a philosophy for professional practice.

430. (127) Motor Learning and Human Performance (2) S
Prerequisites: Women's Physical Education 120; Anatomy and Physiology 201, 202; Psychology 100. Psychological, physiological and mechanical aspects of motor learning as they relate to human movement and performance. Principles of motor learning and practical application of experimental evidence to the teaching of gross motor skills.

442. (156) Advanced Analysis of Aquatics (2) S
Prerequisite: Physical Education 241 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in aquatics. Not open to students with credit in Women's Physical Education 445. (Lecture, laboratory.)

443. (168) Advanced Analysis of Gymnastics, Track and Field (2) S
Prerequisite: Women's Physical Education 243 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in gymnastics and track and field. Not open to students with credit in Women's Physical Education 445. (Lecture, laboratory.)

444. (167) Advanced Analysis of Golf and Archery (2) F
Prerequisite: Women's Physical Education 244 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in golf and archery. (Lecture, laboratory.)

460. (149) International Folk Dance (2) S
Prerequisite: Physical Education 160 or equivalent. Emphasis on enrichment of the knowledge of folk dances and background which shapes the origins, themes and styling; acquisition of skills in correct performance of the dances; augmentation of attitudes and appreciations of peoples to a vital folk art. (Lecture, laboratory.)

461. (151) Advanced Analysis of Modern Dance (2) F
Prerequisite: Women's Physical Education 261 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in modern dance. (Lecture, laboratory.)

465. (140) Special Events in Physical Education (1) F
Principles and procedures in the conduct of special events commonly related to the physical education program. Special emphasis upon standards, organization and administration, and resource materials.

PHYSICAL SCIENCE

Professor: Anfinson.

For additional listings see Physics faculty.

LOWER DIVISION

112. (12) Introduction to the Physical Sciences (3) F, S
Selected processes which illustrate some of the basic principles used by scientists to interpret modern ideas of matter and energy in the physical universe. Students with a full year course in high school physics or chemistry should elect some other lower division course in chemistry, geology or physics. Not open for credit to majors in any of the physical sciences. (Lecture 2 hours, laboratory 3 hours.)

GRADUATE DIVISION

512A-B. (212A,B) Modern Physical Science (3,3)

696. (297) Research Methods (3)

698. (298) Thesis or Project (2-4)

PHYSICAL THERAPY

Professor: Bok.

Medical Adviser: Michela.

UPPER DIVISION

310. Introduction to Physical Therapy (2) F, S
Prerequisites: Anatomy and Physiology 203A-B (may be taken concurrently) and consent of instructor. The profession, including present status, practices, trends, organization of rehabilitation programs and medical-professional ethics.

320. Applied Kinesiology for Therapists (4) F, S
Prerequisites: Anatomy and Physiology 203A and consent of instructor. Principles of kinesiology applied to therapeutic techniques and procedures. (Lecture and laboratory.)

350. Massage (1) F
Prerequisites: Anatomy and Physiology 203A-B and consent of instructor. Principles and techniques of massage procedures, including indications and physical and physiological bases. (Lecture and laboratory.)

352. Hydrotherapy (1) F, S
Prerequisites: Anatomy and Physiology 203A-B and consent of instructor. Principles and techniques of hydrotherapy procedures, including indications and physical and physiological bases. (Lecture and laboratory.)

353. Electrotherapy (2) S
Prerequisites: Anatomy and Physiology 203A-B and consent of instructor. Principles and techniques of electrotherapy procedures, including indications and physical and physiological bases. (Lecture and laboratory.)

371. Clinical Lectures I (3) F
Prerequisite: Physical Therapy 310 or consent of instructor. The pathology, clinical course, medical and/or surgical implications, and the roles of the physical therapist regarding infectious and idiopathic diseases, and diseases of allergy, metabolism, and the digestive, respiratory, blood, recticuloendothelial and cardiovascular systems.

380. Clinical Applications (2-4) F, S
Prerequisites: Physical Therapy 310 and consent of instructor. Supervised experiences in various rehabilitation facilities during which the student acquires, through observation, clinical insight and experiences in the procedures and practices in the field. (Field work.)

430. Therapeutic Exercise and Assistive Devices (4) F
Prerequisites: Physical Therapy 320 and consent of instructor. Principles and techniques of exercise design and assistive devices as applied to the prevention and correction of physical disability, including methods of evaluation. (Lecture and laboratory.)

460. Applied Neuroanatomy and Neurophysiology (2) F
Prerequisites: Anatomy and Physiology 203 A-B and consent of instructor. Correlation of neuroanatomy and neurophysiology with the diseases and traumatic lesions commonly treated by therapists. (Lecture and laboratory.)

472. Clinical Lectures II (2) S
Prerequisite: Physical Therapy 371 or consent of instructor. Pathology, clinical course, medical and/or surgical implications, and the role of the physical therapist in the management of diseases of the endocrine and locomotor systems with specific reference to arthritis, amputation and muscular and congenital deformities.

473. Clinical Lectures III (2) S
Prerequisite: Physical Therapy 472 or consent of instructor. Pathology, clinical course, medical and/or surgical implications and the role of the physical therapist in the management of neurological and skin conditions.

485A,B. Clinical Practice (3) S
Prerequisites: Physical Therapy 380, 473 and consent of coordinator of physical therapy. Directed practices in physical therapy procedures in clinical affiliations of various types for 15 40-hour weeks. (Field work.)

PHYSICS

Professors: Appleton, Chow, Fredrickson, Roberts, C., Schultz, C.
Associate Professors: George, Hutcherson, Salem, Scott, B., Yano.
Assistant Professors: Anwar, Buchner, Chen, Eliason, Jackson, Luke, Schreiber, Shelley, Shen, Troutman, Wen, Woollett.

LOWER DIVISION

100A-B. (2A,B) General Physics (4,4) F, S
Prerequisite: Mathematics 101 which may be taken concurrently. Physics 100A is a prerequisite for 100B. Year course in the introduction to physics. First semester deals with the properties of matter, mechanics and heat. Second semester deals with electricity, sound, and light. (Lecture 3 hours, laboratory 3 hours.)

104. (10) Survey of General Physics (4) F
Prerequisite: One year of high school mathematics. Designed to acquaint the student with the more important aspects of elementary physics. Emphasis on physiological physics, color and sound. Recommended for art, music and physical education majors. (Lecture 3 hours, laboratory 3 hours.)

110. (1A) General Physics: Mechanics of Solids (3) F, S
Prerequisite: Mathematics 122 which may be taken concurrently. (Lecture and demonstration 3 hours, laboratory 2 hours.)

120. (1B) General Physics: Mechanics of Fluids and Heat (3) F, S
Prerequisites: Physics 110, Mathematics 123 which may be taken concurrently. (Lecture and demonstration 3 hours, laboratory 2 hours.)

230. (1C) General Physics: Light and Modern Physics (3) F, S
Prerequisites: Physics 110, Mathematics 224 which may be taken concurrently. (Lecture and demonstration 3 hours, laboratory 2 hours.)

240. (1D) General Physics: Electricity and Magnetism (3) F, S
Prerequisites: Physics 110, Mathematics 224 which may be taken concurrently. (Lecture and demonstration 3 hours, laboratory 2 hours.)

300. (113) Survey of Modern Physics (3) S
Prerequisites: Physics 100B and Mathematics 101. Descriptive course in atomic and nuclear physics and the quantum nature of radiation. Not open for credit to majors in physics. (Lecture 3 hours.)

310A-B. (105A,B) Analytic Mechanics I, II (3,3) F, S
Prerequisites: Physics 120 and Mathematics 224. General theory of particles and rigid bodies. Coupled oscillations. Lagrange's and Hamilton's equations. Concurrent registration in Mathematics 370A-B recommended. (Lecture 3 hours.)

320. (112) Thermodynamics and Kinetic Theory (3) F
Prerequisites: Physics 120 and Mathematics 224. Equations of state and thermodynamic functions. First and Second Laws. Introduction to kinetic theory and statistical mechanics. (Lecture 3 hours.)

330. (109) Experimental Optics (3) F, S
Prerequisite: Physics 230. Interference, diffraction, polarization and elementary spectroscopy. (Lecture 2 hours, laboratory 3 hours.)

340. (120A) Electricity and Magnetism I (3) F, S
Prerequisites: Physics 310A and Mathematics 370A. Laws of electricity and magnetism in vector analytic form and the formulation of Maxwell's equations. (Lecture 3 hours.)

380. (118) Fundamentals of Electronics (3) S
Prerequisite: Physics 240. Electronic phenomena in vacuum and solids applied to electron device structures; circuit models of electron tubes and transistors. Fundamental electronic circuits. (Lecture 2 hours, laboratory 3 hours.)

420. (122) Statistical Physics (3) S
Prerequisite: Physics 450A. Fundamental hypotheses of statistical mechanics. Applications include classical and quantum gases, electric and magnetic systems, fluctuations and condensation.

440. (120B) Electricity and Magnetism II (3) F, S
Prerequisite: Physics 340. Application of Maxwell's equations to radiation problems and the interaction of electromagnetic waves and matter. (Lecture 3 hours.)

444. (129) Plasma Physics (3) F
Prerequisite: Senior standing in physics or equivalent. Plasma physics, hydromagnetics, elementary gaseous electronics, transport and electromagnetic theories.

450A-B. (121A,B) Quantum Physics I, II (3,3) F, S
Prerequisites: Physics 310A, B, 320, 340A. Structure of atoms and nuclei and the nature of electromagnetic radiation. Development of fundamental Quantum Mechanical theory to analyze these structures.

451A-B. (131A,B) Quantum Physics Laboratory I, II (1,1) F, S
Prerequisite: Physics 450A,B which may be taken concurrently. Selected experiments in atomic, nuclear and solid state physics.

460. (127) Introduction to Mathematical Physics (3) F
Prerequisites: Physics 310A,B, 340A. Partial differential equations of physics. Calculus of variations. (Lecture 3 hours.)

470. (125) Introduction to Solid State Physics (3) S
Prerequisite: Physics 450A. Study of the properties of solids from a quantum-theoretical viewpoint. Topics include lattice vibrations, elastic constants, and thermal, electric and magnetic properties. (Lecture 3 hours.)

480. (123A) Circuit Electronics (4) F
Prerequisites: Physics 380, Mathematics 370B. Development of the circuit concept by matrix and topological methods. Analysis of electronic circuit behavior and applications to communication networks and other physical systems. (Lecture 3 hours, laboratory 3 hours.)

484. (123B) Physical Electronics (4) S
Prerequisite: Physics 450A. Physical theory of electron devices. Dependence of device behavior upon structure. Physical properties of solid state transducer materials. (Lecture 3 hours, laboratory 3 hours.)

490. (130) Special Topics in Physics (3) F, S
Prerequisite: Consent of instructor. Topics of interest in physics selected for intensive development. Topics to be selected from such areas as atomic and nuclear physics, astro-physics, physics of materials, low temperature physics, acoustics and theoretical physics. Both undergraduate and graduate students may take for a maximum of 6 units of credit. (Lecture 3 hours.)

496. (169) Special Problems in Physics (1-3) F, S
Prerequisite: Consent of instructor and senior standing. Problems in physics. Problems selected by instructor for considered and mature analysis. May be repeated for credit to a maximum of 4 units.

GRADUATE DIVISION

510. (205) Graduate Mechanics (5)

540. (210) Graduate Electricity and Magnetism and Electrodynamics (3)

550A,B. (226A,B) Quantum Mechanics (3,3)

554A,B. (227A,B) Nuclear Physics (3,3)

570. (225) Solid State Physics (3)

574. (223) Semiconductor Physics (3)

694. Seminar in Special Topics (1)

695. (295) Colloquium (1)

697. Directed Research (1-3)

698. (298) Thesis (2-6)

PHYSIOLOGY (See Anatomy and Physiology under Biology Department)

POLICE SCIENCE (See Criminology)

POLITICAL SCIENCE

Professors: Amendt, Hardy, L., Lien, Urquhart.

Associate Professors: Chawla, Cohen, I., Lorch, Trombetas.

Assistant Professors: Delorme, Erb, Hayes, Inui, Kacewicz, Leiter, Miewald, Olorunsola, Ridder, Weaver.

Instructor: Perlman.

LOWER DIVISION

100. (50) American Political Institutions (3) F, S
Survey of United States national, state and local governments with attention to unique aspects of California government. This course satisfies the general education requirement and the California teaching credential requirement.

110. (51) Issues of American Government (3) F, S
Prerequisite: Political Science 100. Intensive study of issues associated with the concepts of democracy, limited government, federalism, separation of powers, judicial review, preservation of individual rights and world ideological conflict. Highly recommended for political science majors.

200A,B. (60A,B) Introduction to Political Science (3,3) F, S
Introduction to the principles of political science. Select foreign governments systematically treated in a comparative survey: their constitutional principles, political institutions and governmental problems.

UPPER DIVISION

300. (110) Introduction to International Politics (3) F, S
Interaction of "great powers"; the influence of balance of power, imperialism, prestige, and the preservation of the *status quo* in the international sphere.

305. (111) Introduction to International Law (3) F
Nature and historical development of international law. Determination of rules of international law. International community under law. Recognition of states and governments. Jurisdiction. Settlement of international disputes. War aggression and neutrality.

307. (112) International Organization and Administration (3) S
Examination of historical development, of international organization from the Concert of Europe to the United Nations. Analysis of contemporary international organization, its functions, problems and prospects in the context of the world situation.

311. (114) American Foreign Policy (3) S
Prerequisite: Political Science 300. Systematic study of the foreign policy of the United States. Contemporary problems will receive special emphasis.

312. (115) Foreign Policies of the Major Powers (3) F
Systematic examination of the national interests and foreign policies of the major world powers in terms of global political problems. Recommended: Political Science 300.

313. Soviet Foreign Policy (3) F
Soviet foreign policy since 1917—its origins, evolution, dynamics and objectives in selected areas of the world.

321. (116) Contemporary Problems in International Politics (2) S
Prerequisite: Political Science 300 or consent of instructor. Analysis of the occurring problems of contemporary international politics in terms of possible strategic-political-military solutions.

330. (120) Governments of Western Europe (3) F, S
Governments of representative European democracies, with emphasis on governmental structure, functions and political processes and their relationship to current problems.

333. Governments and Politics of Scandinavian Countries (3) F, S
Scandinavian political systems, including parties, programs and policies.

335. (121) Government and Politics of the USSR (3) F, S
Theory and practice of Soviet government from its revolutionary beginnings to the present. Sources and manifestations of Marxist-Leninist political power, and the problems and prospects for totalitarian government in a world of rapid modernization.

341. (122) Governments and Politics of the Far East (3) F
Developments in government, parties, process of elections and political ideology of China, Japan and Korea.

345. (123) Governments and Politics of South Asia (3) F
Developments in government, parties, process of elections and political ideology of India, Pakistan, Nepal and Ceylon.

351. (124) Governments of Latin America (3) F
Governments of leading and representative Latin American states. Emphasis on the background and evolution of current leadership, political institutions and philosophies.

355. (125) Governments and Politics in the Near and Middle East (3) F, S
Comparative study of political systems in the Near and Middle East with special emphasis on their political forms, governmental and social structure.

370. (160) Introduction to Political Thought (3) F
Critical examination of Western political philosophy from Plato to the 16th Century. Emphasis upon major political philosophers.

375. (162) American Political Thought (3) S
American political ideas from the colonial period to the present.

380. (161) Modern Political Thought (3) F, S
Critical examination of Western political philosophy from the 16th Century to the present. Emphasis upon major political philosophers.

385. (165) Contemporary Political Ideologies (3) F
Development and change in the major political ideologies of the 20th Century, including communism, corporatism, fascism, liberalism and socialism.

400. (130) Constitutional Development: Rights (3) F, S
Prerequisite: Political Science 100 or 421 or equivalent. Analysis of the rights and guarantees contained in the Bill of Rights and other constitutional and statutory provisions.

405. (131) Constitutional Development: Power (3) F, S
Prerequisite: Political Science 100 or 421 or equivalent. Power of the courts in interpreting and enforcing constitutional limitations in order to maintain the separation of powers, the division of powers between the national government and the states and establish governmental power to tax, spend, regulate commerce and conduct foreign relations.

411. (134) Modern Legal Systems (3) F
Nature of law, public and private, with emphasis upon cases and materials illustrating the development of Anglo-American legal institutions and processes. Some attention is given to theories of law or jurisprudence. Background for the professional study of law.

421. (132) American Government (3) F, S
Formation of the Constitution, federalism, civil liberties, politics, the legislature, executive, judiciary, state and local government. This course satisfies the federal, state and local government requirement. Not open to students with credit in Political Science 100.

425. (108) State Government (3) F, S
Political structure and its operation, state-federal relations, state-local relations; particular emphasis on California.

427. (109) Local Government and Administration (3) S
Organization of local government and the operations used to carry into effect the functions assigned to such units; particular emphasis upon local government in California.

430. (140) Political Parties (3) F, S
Organization, functions and practices of political parties in the United States with special emphasis on California parties. Analysis of the part the political parties play in government and the importance of the two-party system in American government. Party responsibility in the United States in comparison with parties in other countries.

432. (141) Public Opinion and Propaganda (3) F
Factors which mold public opinion; the creation, practice and distinguishing characteristics of propaganda; the analysis of public opinion in its relations to political processes.

440. (142) The Legislative Process (3) S
Historical development of the legislature; functions of legislatures; organization and procedure of typical legislative bodies; current legislative and legislation trends; problems and principles of lawmaking. Special emphasis on the California legislature.

441. (145) Political Behavior (3) F
Introduction to research in political behavior, emphasizing empirical methods, especially as related to voting, political participation and techniques of political action. (The class will jointly formulate and carry out a research project.)

460. (170A) Introduction to Public Administration (3) F
Principles and practices of federal, state and local administration.

461. (170B) Introduction to Public Administration (3) S
Examination of administrative processes with emphasis on governmental budgeting, administrative law, personnel administration and special administrative problems.

465. (172) Administrative Justice and Lawmaking (3) S
Process by which administrative agencies decide quasi-judicial cases involving private rights, and make rules and regulations of a quasi-legislative nature affecting private rights.

471. (171) Public Personnel Administration (3) S
Survey of public personnel administration, including the growth and development of the civil service, the personnel agency, recruitment procedures, position classifications, training programs, employee organizations and retirement systems.

475. (173) Public Financial Administration (3) F
Role of the modern budgetary process in the determination of policy, administrative integration, control of government operations, intergovernmental relations and relation to private economy.

481. (174) Local Planning Law and Administration (3) F
Prerequisite: Political Science 100. Place of planning in local government; legislative bases for planning, zoning, governmental programs in housing and urban renewal; subdivision control; long range financial planning; municipal revenues; other legal, political and governmental problems involved in planning; principal elements of planning surveys.

491. (190) Public Administration Trainee Program I (3) F
Prerequisite: Consent of instructor. Internships in one of the various federal, state or local governmental units in the immediate area.

492. (191) Public Administration Trainee Program II (3) S
Prerequisite: Consent of instructor. Internships in one of the various federal, state or local governmental units in the immediate area.

499. (199) Readings and Conference in Political Science (1-3) F, S
Prerequisite: Consent of instructor. Directed reading to permit independent pursuit by advanced students on topics of special interest. Hours to be arranged.

GRADUATE DIVISION

600. (217) Seminar in International Politics (3)

610. (220) Seminar in Comparative Government (3)

620. (260) Seminar in Political Theory (3)

630. (230) Seminar in Public Law (3)

640. (234) Seminar in American Government (3)

650. (240) Seminar in Politics (3)

655. (241) Seminar in Legislation (3)

660. (270) Seminar in Public Administration (3)

665. Seminar in Personnel Administration (3)

697. Directed Research (1-3)

698. (298) Thesis (2-4)

PSYCHOLOGY

Professors: Bradley, Heintz, Macfarlane, McClelland, Towner.

Associate Professors: Carlson, E., DeHardt, Hanson, Hommel, Jarrett, Mason, Newman, Nygaard, Petersen.

Assistant Professors: Buchwald, Christy, Creamer, Danson, Davis, Fiebert, Fiebiger, Haralson, Hunting, Kapche, Resch, Thayer.

LOWER DIVISION

100. (51) General Psychology (3) F, S
Introduction to the scientific study of human behavior. Designed to provide the student with a basic background for further study and for practical application in everyday life.

210. (52) Elementary Statistics (3) F, S
Prerequisites: Psychology 100 and two years of high school algebra or Mathematics 100. Calculation and interpretation of the basic statistical measures. Major emphasis on the meaning, limitations and applicability of statistical procedures. (Lecture 2 hours, laboratory 2 hours.)

220. (53) Principles of Psychology (3) F, S
Prerequisite: Psychology 100. Advanced consideration of the fundamental principles of psychology intended primarily for prospective psychology majors and other students who plan to take further work in psychology. Emphasis on integration of psychological principles with the major areas of psychology and techniques of psychological measurement and experimentation. (Lecture 2 hours, laboratory 3 hours.)

256. (58) Psychology of Personality (3) F, S
Prerequisite: Psychology 100. Psychological principles pertinent to the understanding of personality and interpersonal adjustment. Discussion of research and theories of social motivation, conflict and anxiety, adjustment mechanisms and personality change.

UPPER DIVISION

311. (186) Advanced Statistics-Statistical Inference (3) F, S
Prerequisites: Psychology 210; Mathematics 114, 117, 120 or equivalent. Consideration of the logic and applications of statistical inference, parametric and nonparametric methods, analysis of variance and co-variance and experimental design. (Lecture 2 hours, laboratory 2 hours.)

312. (187) Advanced Statistics-Correlation Analysis (3) F, S
Prerequisites: Psychology 210; Mathematics 114, 117, 120 or equivalent. Correlation and prediction with continuous and categorical data, partial and multiple correlation, and introduction to factor analysis. (Lecture 2 hours, laboratory 2 hours.)

315. (155) Psychological Testing (3) F, S
Prerequisite: Psychology 210. Principles and practices of group and individual testing in the fields of intelligence, aptitude, achievement, personality and interest. Emphasis on the evaluation of tests as measuring devices, their applicability and limitations.

331. (112) Sensation and Perception (3) F, S
Prerequisite: Psychology 220. Basic phenomena of the senses, their physiological correlates and integration in complex perceptual judgments. (Lecture 2 hours, laboratory 3 hours.)

333. (114) Psychology of Learning (3) F, S
Prerequisites: Psychology 210, 220. Human and animal learning with special emphasis on experimental evidence and techniques. (Lecture 2 hours, laboratory 3 hours.)

337. (154) Motivation and Emotion (3) F, S
Prerequisites: Psychology 210, 220. Discussion of the situational and physiological determiners of behavior, theories of motivation and emotion, and an introduction in the laboratory to investigative techniques and problems in the study of motivation. (Lecture 2 hours, laboratory 3 hours.)

341. (111) Physiological Psychology (3) F, S
Prerequisite: Psychology 220. Physiological aspects of behavior with special emphasis upon neurological structure and function. Experimental evidence on which theories of psycho-physiology are based will be reviewed. (Lecture 2 hours, laboratory 3 hours.)

343. (113) Comparative Psychology (3) F
Prerequisite: Psychology 220 or equivalent. Phylogenetic differences in animal behavior leading to the development of psychological principles. (Lecture 2 hours, laboratory 3 hours.)

351. (115) Social Psychology (3) F, S
Prerequisite: Psychology 100. Ways in which personal adjustment, mental processes, and skilled performances vary as functions of differences in social experience. Includes attitudes, communication, leadership, opinion, propaganda, suggestion and related topics. Not open to students with credit in Sociology 335.

356. (148) Personality Structure and Development (3) F, S
Prerequisite: Psychology 256 or 370. Modern views of personality structure and functioning.

361. (170) Developmental Psychology (3) F, S
Prerequisite: Psychology 100. Psychological problems of human development considered with reference to data from studies of children and lower animals.

370. (130) Abnormal Psychology (3) F, S
Prerequisite: Psychology 100. Abnormal behavior as it throws light on normal personality adjustment. Consideration of the role of biological, psychological and social factors in personality disorders, together with the consideration of basic principles of mental hygiene.

381. (149) Industrial Psychology (3) F, S
Prerequisite: Psychology 100. Problems and procedures in industrial psychology. Emphasis on motivational effects of such programs as incentive plans, worker adjustment, group participation, job security, motion and time study, training and supervision.

401. (135) History and Systems of Psychology (3) F, S
Prerequisites: Nine upper division units in psychology or consent of instructor. Designed primarily for psychology majors with senior standing. Contributions of prominent historical figures and systems to the development of psychological theory and methodology. Examination of these systems in light of their significance for current theory.

403. (190) Mathematical Models of Behavior (3) S
Prerequisites: Psychology 210; Mathematics 114, 117 or 120; one upper division psychology laboratory course or consent of instructor. Use of mathematical models, especially stochastic models, for the descriptive and theoretical analysis of individual and group behavior. Topics in learning, perception, attitude change and other areas will be used in examples of fitting models to data. (Lecture 2 hours, laboratory 3 hours.)

415. (185) Vocational Testing (3) S
Prerequisite: Psychology 210 or Education 320. Principles and practices in the use of tests for vocational counseling and vocational selection. Students administer tests to selected subjects. Emphasis on evaluation of these tests for their applicability and limitations.

427. (147) Engineering Psychology (3) S
Prerequisites: Two upper division laboratory courses in psychology including either Psychology 331 or 341 or consent of instructor. Applications of psychological principles to man-machine systems. Includes both an introduction to research techniques in engineering psychology and a survey of existing knowledge in this area. (Lecture 2 hours, laboratory 3 hours.)

433. (164) Theories of Learning (3) S
Prerequisite: Psychology 333. Current learning theories and their experimental bases. (Lecture 2 hours, laboratory 3 hours.)

434. (119) Complex Mental Processes (3) F
Prerequisites: Psychology 210; 331 or 333. Problem solving, decision making, concepts, symbols, meaning, language and patterned behavior, controlled and free association, imagination, dreams. Human behavior emphasized.

451. (118) Experimental Social Psychology (3) F
Prerequisites: Psychology 210, 220, 351. Critical examination of research designs and methods for the study of problems in social psychology. Experimental projects with questionnaires, scales, interviews and observation methods, and with problems of sampling and data analysis. (Lecture 2 hours, laboratory 3 hours.)

453. (117) Principles of Group Dynamics (3) S
Prerequisites: Psychology 100; 351 or Sociology 335. Behavior in groups with attention to such factors as leadership, followership, interaction and influence including organization, management, morale, and efficiency. Problems, techniques and methods of investigation.

455. (116) Language, Communication, and Persuasion (3) S
Prerequisite: Psychology 351. Psychological processes underlying language, communication and persuasion. Learning and using language. Communication factors influencing thinking, attitudes and personality.

473. (150) Introduction to Clinical Psychology (3) F, S
Prerequisites: Psychology 315; Psychology 370 or Education 311. Survey of the field of clinical psychology including an introduction to diagnostic procedures and therapeutic process. Practical projects in observation, case practice and case conference techniques.

474. (165) Individual Intelligence Testing (3) F, S
Prerequisite: Psychology 315. Practice in administration and interpretation of the Stanford-Binet and Wechsler individual tests. Student will administer not less than 15 Binets and 20 Wechslers to children and adults at different developmental levels.

475. (166) Interviewing and Case Study Methods (3) F, S
Prerequisites: Psychology 315, 370. Study and development of the clinical techniques of observation, case history and the interview. Emphasis on diagnostic personal interviewing and the integration of clinical data in case studies.

486. (184) Personnel Psychology (3) F
Prerequisite: Psychology 381. Applications of psychology in personnel work. Includes selection, interviewing, training and counseling of employees. Job analysis, safety programs, attitude surveys and rating methods discussed.

499. (199) Independent Study (1-3) F, S
Prerequisite: Consent of department. Student will conduct independent laboratory or library research and write a report of the research. May be repeated for a maximum of 6 units.

GRADUATE DIVISION

515. (255) Test Construction Theory and Practice (3)
520. (231) Advanced Experimental Psychology (3)
541. (211) Techniques of Physiological Psychology (3)
554. (216) Attitude and Opinion (3)
570. Psychopathology (4)
573. (250) Clinical Psychology (3)
575A. (225) Projective Techniques (3)
575B. (226) Interpretation of Projective Techniques (3)
586. (240) Psychology of Industrial Relations (3)
610. (235) Seminar in Psychometric Methods (3)
627. (247) Seminar in Human Factors (3)
631. (202) Seminar in Sensation, Perception and Physiological Psychology (3)
632. (200) Seminar in Learning and Motivation (3)
634. (264) Seminar in Human Learning and Cognitive Processes (3)
651. (215) Seminar in Social Psychology (3)
656. (248) Seminar in Personality (3)
671. (236) Seminar in Behavior Disorders of Children (3)
678. (258) Clinical Practicum (3)
698. (298) Thesis (2-4)

RECREATION

Professors: Gabrielsen, Gray.
Assistant Professors: Cook, R., Jensen.

UPPER DIVISION

311. (111) The Recreation Program (2) F, S
Methods and materials used in planning and conducting organized recreation programs in public or private agencies. Theory and practicum.

312. (112) Recreation Leadership (2) F, S
Theory and practice in leadership of recreational activities. Principles in planning, conducting and evaluating recreation programs in recreation agencies.

315. (145) Team Sports in Recreation (2) F
Skills, techniques of teaching and officiating, arranging tournaments, and promoting interest in participation in basketball, softball, speedball, soccer, touch football and volleyball. Not open to physical education majors.

316. (146) Individual and Dual Sports in Recreation (2) S
Skills, techniques of teaching and officiating, arranging tournaments, and promoting interest and participation in archery, badminton, golf, handball, tennis, and stunts and tumbling. Not open to physical education majors.

317. (141) Outdoor Education (2) F, S
Philosophy, scope, administration and activities of the camping program, including public school camping. Camp organization, program planning, camp counseling and leadership, and campcraft.

341. (108) Community Recreation (2) F, S
Principles and organization of community recreation. Survey of public and private agencies engaged in community-wide recreation. Field trips to be arranged.

421. (121) Supervision in Recreation (3) F, S
Concepts and techniques of supervision in recreation agencies; emphasis on recruitment, assignment, evaluation and in-service training of recreation personnel.

425. (131) Organization and Administration of Recreation (3) F, S
Types of organization; program planning; finances; personnel; relationships and correlation with related agencies; construction, maintenance and promotion of the total recreation program as it relates to administration.

475. (105) History and Philosophy of Recreation (3) F, S
History and philosophy of recreation and leisure and its influence upon contemporary American society.

484. (174) Field Work in Private Recreation Agencies (3) F, S
Limited to recreation majors or consent of instructor. Supervised leadership in private and semi-public agencies. Minimum of 60 hours of supervised leadership in an approved agency required.

485. (175) Field Work in Public Recreation Agencies (3) F, S
Limited to recreation majors or consent of instructor. Supervised leadership in public agencies. Minimum of 60 hours of supervised leadership in an approved agency required.

486. (176) Field Work in Outdoor Education (3) F, S
Prerequisites: Recreation 317 or equivalent and consent of instructor. Supervised counselorship in a school camp or other approved agency. Two week attendance at camp required.

496. Research Methodology (3) F, S
Research methodology in recreation. Must be taken prior to or concurrently with any 500 or 600 level course.

GRADUATE DIVISION

521. Recreation Administration (3)

525. Recreation Areas and Facilities (3)

571. Philosophy, Issues and Trends (3)

575. (209) Problems in Recreation (3)

587. (275) Field Work in Recreation Administration or Supervision (3)

595. Management Studies (3)

671. (200) Seminar in Trends in Recreation (2)

697. Directed Studies (1-3)

698. Thesis or Project (2-4)

RUSSIAN

Assistant Professor: Ctvrtlik.

LOWER DIVISION

101A-B. (1A,B) Fundamentals of Russian (4,4) F, S
Practice in grammar, reading, pronunciation, writing and conversation.

101A. For those who are beginning the study of Russian or who have had one year of high school Russian.

101B. Prerequisite: Russian 101A or two years of high school Russian. Continuation of Russian 101A.

201A-B, (60A,B) Intermediate Russian (3,3) F, S
Readings of representative modern writers with oral and written practice.

201A. Prerequisites: Russian 101A-B or three years of high school Russian or equivalent.

201B. Prerequisite: Russian 201A or four years of high school Russian or equivalent.

SAFETY EDUCATION

Associate Professor: Kaywood.
Assistant Professor: Lorenzen.

LOWER DIVISION

220. (149) Public Safety and Accident Prevention (2) F, S
Accident prevention in the home, at school, on the job and in the community.

UPPER DIVISION

325. (150) Driver and Traffic Safety Education I (3) F, S
Prerequisite: A valid California driver's license and an extensive driving record free from repeated traffic violation convictions and/or accidents. Study of factors basic to safe and responsible driving. Includes laboratory driving to improve personal driving skill. (Lecture 3 hours, laboratory 1 hour.)

330. (148) Elementary and Secondary School Safety (2) F, S
Responsibilities of the classroom teacher in school safety education programs.

335. School Emergency Procedures (2) F
Prerequisite: Physical Education 130. Functions and responsibilities of administrators and teachers during school emergencies, such as earthquake, fire, nuclear attack, riot and accidental injuries.

440. (151) Driver and Traffic Safety Education II (3) F, S
Prerequisites: Safety Education 325 and consent of instructor. Methods, materials and resources for teaching driver education and driver training in secondary schools. Includes laboratory experience teaching beginning drivers in dual-control cars. (Lecture 3 hours, laboratory 1 hour.)

445. (152) Driving Simulators (3) F, S
Prerequisite: Safety Education 440 (may be taken concurrently) or consent of instructor. Operation, maintenance and techniques of teaching with driving simulators. Includes laboratory experience teaching beginning drivers through simulation. (Lecture 3 hours, laboratory 1 hour.)

460. (153) Administration and Supervision of Driver Education Programs (2) F, S
Prerequisite: Safety Education 445 or consent of instructor. Organization and administration of secondary school driver instruction programs. Includes evaluation of current programs, appraisal of current trends and research studies, and factors involved in program supervision.

SOCIAL SCIENCE

LOWER DIVISION

104. (60) History and Geography of California (3) F, S
(Not open to students who have credit in geography of California or history of California.) Integrated study of the impact of the physical environment upon the political, economic and social development of California. Special attention given to the changing use of the area as brought about by historic events. Major objective will be a better understanding of contemporary California and its problems. May not apply toward a history or geography major.

GRADUATE DIVISION

698. (298) Thesis or Project (2-4)

SOCIOLOGY

Professors: Dressler, Hartman, Korber, Lorch, Massaro.

Associate Professors: Dackawich, Haskell, Hubbard, Ponsar, Sheets, Ullman.

Assistant Professors: Aarons, Crawford, Fuss, Harman, Hutton, Katz, Leis, Roberts, Robertson, Steele, Walker, M., Willis.

LOWER DIVISION

100. (50) Principles of Sociology (3) F, S
Introduction to basic concepts of sociology and sociological analysis, emphasis upon group, status, role, personality, socialization, social processes, institutions, social organization and socio-cultural change.

142. (52) Social Trends and Problems (3) F, S
Concepts of social change, lag, trends and disorganization; population growth and mobility; minority groups; rural-urban relationships; communication agencies and problems; public health; social stratification; and war. Especially recommended for teachers who want a general survey of social problems.

255. (65) Elementary Statistics (3) F, S
Prerequisite: Knowledge of mathematical procedures usually covered in elementary high school algebra. Statistical techniques in social research. Relations of appropriate techniques to research problems. Assumptions necessary to the use of statistical techniques. Not open to students with credit in Psychology 210 or Operations Research and Statistics 320.

260. (80) The Field of Social Welfare (3) F, S
History, philosophy and development of thought in social welfare. Casework, social group work and community welfare organization, their functions and orientations. Social work as a career. Opportunities available and qualifications necessary for admission to the field.

275. (55) Marriage (3) F, S
Survey of the most recent information on dating, courtship, engagement, mate selection, areas of adjustment in marriage, parenthood, financial and homemaking problems.

UPPER DIVISION

310. (161) Conservation of Human Resources (3) F, S
Integrated study of the multiple human activities which promote the conservation of human resources. Special consideration given to the problems of health, education, population density and old age as they affect human resource. Role of inanimate energy in creating surpluses thus enabling man to develop and conserve both the quantity and quality of human resource is stressed.

320. (110) The Family (3) F, S
Family as a social institution; family in various cultures; the American family; relationships in family life; family and social change; disorganization and reorganization.

335. (115) Social Psychology (3) F, S
Prerequisite: Sociology 100. Extent to which personality is determined by social influences and processes by which people fit themselves into human groups. Not available to students with credit in Psychology 351.

336. (145) Sociology of Small Groups (3) F, S
Designed to give theoretical and practical understanding of sociological concepts and principles found in the dynamics of small groups; research and theory, the individual in a social situation, the group as a system of social interaction, leadership, methodology, and the small group approach to a problem.

345. (125) Juvenile Delinquency (3) F, S
Extent and distribution; causative factors; influence of home, school and community, programs of prevention, control and treatment.

347. (127) Social Disorganization (3) F
Prerequisite: Sociology 100. Analysis of those forces, processes and relationships which tend to create disorganization in society and of their operation in selected life situations. Examination of relationships between personal and social disorganization. Description and analysis of the forces and process whereby reorganization is effected.

350. (160) Population and Migration (3) F
Prerequisites: Sociology 100 and one other course in sociology. Growth and distribution of population; theories of population growth; population analysis; historical survey of the world migration; American immigration and emigration.

355. Advanced Statistics (3) F
Prerequisite: Sociology 255 or equivalent. Advanced statistical concepts in social research. Measurement theory; correlation methods; prediction models; reliability and validity; non-parametric tests; analysis of variance.

362. (182) Introduction to Social Casework (3) F, S
Contributions of psychology, sociology, biology and social work to an understanding of the dynamics of human behavior. Role of the caseworker. Principles involved in helping people solve their personal problems.

364. (184) Introduction to Social Group Work (3) F, S
Services and functions of social group work agencies. Role of the group worker. Principles involved in group participation and leadership.

365. (185) Interviewing in Social Welfare (3) F, S
Survey of interviewing principles and techniques as related to the field of social welfare. Special consideration of the interviewing process in the study, psychosocial diagnosis and treatment approach in working with the individual who experiences difficulty in achieving a satisfactory social adjustment.

366. (186) Community Welfare Organization (3) F
Survey and evaluation of the community social welfare organizations, with special emphasis on the theory and principles that the social worker applies in functioning as a community organization worker.

367. (175) Social Welfare Through Legislation (3) F
Development of social legislation affecting family and child welfare, civil rights, social insurance, health and safety, labor-management relations.

368. (188) Probation and Parole (3) F, S
History, philosophy and administration of probation and parole. Principles of investigation, supervision and socialized treatment in probation and parole.

410. (140) Human Ecology (3) S
Prerequisite: Sociology 100. Relations of man to his social and physical environment. Spatial patterns of communities, distribution of population and institutions, processes of change in these phenomena.

419. (109) Rural-Urban Trends (3) F, S
Prerequisite: Sociology 100. Transition from rural to urban society in America; impact of the urban way on individuals and groups; persistence of rural values; social differences between communities in various stages of the process of urbanization.

420. (120) Social Stratification (3) F, S
Prerequisite: Sociology 100. Role, status, and structure of differential rankings in societies, criteria for ranking, functions and dysfunctions, correlates of class position, and social change.

422. (150) Social Institutions (3) F, S
Prerequisites: Sociology 100 and one other course in sociology. Process of institutionalization, the general nature of institutions.

425. (170) Industrial Sociology (3) S
Prerequisite: 3 units of sociology. Modern industrial society; industrial organization; group structure and behavior in factory, office, and store; worker and the machine; social classes and the industrial order; industrial conflict.

430. (130) Social Control (3) F, S
Prerequisite: Sociology 100. Nature and means of social control. Classification and analysis of different forms of social control. Relative significance of types of social control such as law, religion and the family. Deliberation of noninstitutional controls such as language, ideologies and status groups.

435. (135) Communication and Social Contact (3) F, S
Prerequisite: Sociology 100. Social communication in human behavior. Nature and function of language and related communication symbols in group life. Communication media, such as newspapers, books, radio, television, movies and their function in socialization.

441. (121) Criminology (3) F, S
Prerequisite: Sociology 100. Incidence and characteristics of criminal behavior; physical, economic and emotional causes of antisocial behavior; social effects of crime; probation and parole; prevention programs.

442. (122) Penology (3) F, S
Prerequisite: Sociology 441. Control and treatment of offenders, peno-correctional programs, particularly in the United States. Administrative problems and methods in penology. American penology viewed in the framework of criminology.

445. (162) Ethnic Group Relations (3) F, S
Prerequisites: Sociology 100 and one other course in sociology. Patterns of ethnic group differentiation; world relationships between ethnic groups; accommodation and assimilation of minority groups in America.

455. (155) Methods of Sociological Research (3) F, S
Prerequisites: Sociology 100, 255 and one upper division course in sociology. Introduction to the use of scientific methods in sociology, its purpose and limitations, relationship between theory and research, research design, sampling, measurement and social science techniques, reliability and validity.

456. (166) Contemporary Sociological Theory (3) S
Prerequisites: Sociology 100 and two other courses in sociology, one of which is upper division. Critical analysis of the contributions of contemporary sociologists. Intended primarily for majors in this field.

460A,B. (190A,B) Field Experience in Social Welfare (3,3) F, S
Prerequisites: Sociology 100, Sociology 260, 362, or 364; or consent of instructor. Supervised experience in social agencies leading to orientation in public and private social welfare.

461. (181) Child Welfare Services (3) F, S
Contemporary social welfare programs designed to meet the physical, psychological and social needs of children. Historical backgrounds and basic principles of child welfare services.

467. (187) Principles of Public Welfare (3) F, S
Analysis of the contemporary public welfare system in the United States, its historical background and rationale. Basic principles underlying such public welfare programs as Social Security, Public Assistance, social insurance, public health, mental hygiene and others.

473. (153) Family Life Education (3) SS
Concepts of family development and interaction in the modern American family with emphasis on leadership opportunities for professional persons. Not open to students with credit in Home Economics 419.

GRADUATE DIVISION

525. (205) Social Classes (3)

551. (201) Development of Social Thought (3)

620. (210) Seminar in Family (3)

622. Seminar in Social Institutions (3)

629. Seminar in Social Change (3)

635. Seminar in Social Interaction (3)

636. (235) Seminar in Communications (3)

647. Seminar in Deviant Behavior (3)

656. Seminar in Sociological Theory (3)

696. Research Methods (3)

697. Directed Research (1-3)

698. Thesis (2-6)

SPANISH

Associate Professors: Donahue, Marin, Noguer.

Assistant Professors: Archuleta, Cardon, Contreras, DeLong, Inostroza, Ronquillo, Trinidad.

LOWER DIVISION

101A-B. (1A,B) Fundamentals of Spanish (4,4) F, S
Practice in grammar, reading, pronunciation, writing and conversation.

101A. For those who are beginning the study of Spanish or who have had one year of high school Spanish.

101B. Prerequisite: Spanish 101A or two years of high school Spanish. Continuation of Spanish 101A.

201A-B. (60A,B) Intermediate Spanish (3,3) F, S
Readings of representative modern writers with oral and written practice and reports.
201A. Prerequisite: Spanish 101A-B or three years of high school Spanish or equivalent.
201B. Prerequisite: Spanish 201A or four years of high school Spanish or equivalent.

UPPER DIVISION

312. (102) Advanced Spanish I (3) F, S
Prerequisite: Spanish 201B or equivalent. Extensive reading of Spanish writings, review of grammatical principles and a general consolidation of the four language skills: reading, comprehension, composition and conversation.

313. (103) Advanced Spanish II (3) F, S
Prerequisite: Spanish 312 or equivalent. Sequel to Spanish 312, with continuing emphasis on extensive reading of Spanish texts and periodicals, regular composition work based on these readings, and the development of increased mastery of the spoken language through student discussion of the readings.

314. Spanish Conversation (3) S
Prerequisite: Upper division standing in Spanish. Functional course in conversation. Intended to meet specific, everyday situations and to provide help to those who intend to speak Spanish in travel, work or classroom instruction.

335. (105) Introduction to Spanish Literature I (3) F
Prerequisite: Upper division standing in Spanish. Origins and development of Spain's literature from the "Poem of Mio Cid" to 1700.

336. (106) Introduction to Spanish Literature II (3) S
Prerequisite: Upper division standing in Spanish. From 1700 to the present time.

337. (113) Survey of Latin American Literature I (3) F
Prerequisite: Upper division standing in Spanish. Survey of the outstanding chronicles of the Conquest and the influence of Spanish culture in the formation of the New World. Covers the period of the colonization of Latin America and its struggle for independence.

338. (114) Survey of Latin American Literature II (3) S
Prerequisite: Upper division standing in Spanish. From the ending of the wars of independence to the present time.

411. (111) Advanced Spanish Syntax and Composition (3) F
Prerequisites: Spanish 312 and 313 or equivalent. Special emphasis on the writing of short compositions and commercial letters.

415. Introduction to Romance Linguistics (3) F
Prerequisites: Spanish 312 and 313 or consent of instructor. Basic concepts of linguistic science; techniques of structural analysis with illustrations taken primarily from Romance languages; their application in teaching foreign languages.

440. Spanish Civilization (3) F
Prerequisites: Spanish 335 and 336 or consent of instructor. Characteristic features of Spanish culture with special attention to the various institutions, economy, social organization, cultural configurations, and the ways of thinking.

454. Modern Spanish Theatre (3) S
Prerequisite: Upper division standing in Spanish. Spanish theatre from Benavente to Buero Vallejo.

455. (115) The Latin-American Novel (3) S
Prerequisite: Upper division standing in Spanish. Survey of the most representative novels of Latin-America, with emphasis on the intimate relationship between the literature and the problems of our neighboring countries.

456. (116) The Modern Spanish Novel (3) F
Prerequisite: Upper division standing in Spanish. Survey of works of outstanding 19th and 20th Century Spanish novelists.

457. Spanish American Prose Writings (3) S
Prerequisites: Spanish 337 and 338 or consent of instructor. Nineteenth and 20th Century Latin American prose writers. Genres covered are the short story and the essay.

458. (118) The Modern Spanish Essay (3) S
Prerequisite: Upper division standing in Spanish. Reading and discussion of the essays of writers such as Azorín, Unamuno, Ortega y Gasset and Angel Ganivet.

474. (124) The Drama of the Golden Century (3) SS
Prerequisite: Upper division standing in Spanish. Spanish drama from Juan del Encina to Calderón de la Barca.

476. (117) Spanish Romanticism (3) F
Prerequisite: Upper division standing in Spanish. Most representative Spanish writers of the Romantic period.

GRADUATE DIVISION

505. History of the Spanish Language (3)
520. Modernismo in Latin American Literature (3)
535. Spanish Medieval Literature (3)
606. Seminar in Spanish Renaissance Prose (3)
639. Seminar in Spanish Literary Masters (3)
697. Directed Research (1-3)
698. Thesis (2-6)

SPEECH

Professors: Cain, E., Castleberry, Drum, Goodman-Malamuth, Morehead, Thompson, J., Wagner, Wills.

Associate Professors: Buck, Landes, Larr, Partridge, Powell, J., Shanks, Skriletz.

Assistant Professors: Baker, D. F., Cooper, Covelli, Ek, Gilbert, Hauth, Healy, J. L., Jenson, Krueger, Langston, Lopez, Martin, H., Rogers.

Instructors: Ackley, Carlsen, Mercer, Weedon.

Lecturer: Tacey.

LOWER DIVISION

060. (A) Speech Improvement (0) F, S
For students with speech defects that are not amenable to correction in other speech courses. Counts 1 unit toward the student's semester load but does not give unit credit toward graduation.

130. (30) Essentials of Public Speaking (3) F, S
Composition and delivery of speeches to inform and persuade. Logical organization is stressed.

131. (41) Essentials of Argumentation (3) F, S
Theory and practice of argumentation. Includes evidence, proof, refutation in argumentative speaking and evaluative techniques.

132. (50) Elements of Group Discussion (3) F, S
Basic principles and techniques of discussion. Survey of the importance of discussion in contemporary society, including a study of and practice in informal group discussion, panel discussion, symposium and forum.

133. (52) Elements of Oral Interpretation (3) F, S
Theory and practice in the oral interpretation of prose and poetry.

202. (42) Television-Radio Activity (1) F, S
Prerequisite: Speech 209 or consent of instructor. Individual and group participation in television and radio productions. Specific assignments determined in consultation with instructor. Hours other than regular class time may be arranged. Maximum credit, two units.

206. (46) Survey of Broadcasting (3) F
Social, political, economic and cultural implications of broadcasting. History of broadcasting. Relationships between the broadcasting industry, the federal government and the public. Comparative systems of broadcasting. Unresolved problems of broadcasting in America.

209. (49) Fundamentals of Television and Radio Production (3) F, S
Basic principles and techniques of planning, writing, and producing television and radio programs.

210. Fundamentals of Motion Picture Production (3) F
Prerequisite: Photography 210 or consent of instructor. Beginning techniques in motion picture production including use of the camera, picture composition, planning sequences, splicing and cutting film.

236. (42) Forensic Activity (1) F, S
Prerequisite: Consent of instructor. Participation in intercollegiate forensic activities. Any student who expects to participate in such activities during the semester should enroll. The student's specific assignments will be determined in consultation with the staff. Maximum credit, four units.

237. (27) Introduction to Parliamentary Procedure (3) F, S
Application of the fundamentals of parliamentary procedure to the organization and functioning of groups.

261A-B. (25A,B) Speech for Foreign Students (3,3) F, S
General orientation to the production of American speech sounds and patterns. Emphasis on inflection patterns, phonetic drill, and oral language comprehension. Open only to students assigned to this course by the Foreign Student Adviser.

271. (3) Voice and Articulation (3) F, S
Physiological and anatomical bases of normal voice production with intensive training in articulation, pronunciation, projection and related oral skills.

UPPER DIVISION

301. (151) Television Production (3) S
Prerequisite: Speech 209 or consent of instructor. Experience in producing original television programs. Emphasis is on creative programming using a variety of production techniques.

302. (142) Television-Radio Activity (1) F, S
Prerequisite: Speech 309 or Speech 301 or consent of instructor. Individual and group participation in television and radio productions. Specific assignments determined in consultation with instructor. Hours other than regular class time may be arranged. Maximum credit, two units.

303. (153) Television and Radio Public Affairs (3) S
History, theory and practice of public affairs broadcasting. Planning and producing the interview, forum and documentary program. Description and interpretation of special events on television and radio.

304. (154) Television and Radio Writing (3) S
Nondramatic and dramatic writing for broadcasting. Student scripts and copy will be produced when possible.

305. (155) Broadcast Programs and Audiences (3) S
Prerequisite: Speech 206 or consent of instructor. History of program trends in American broadcasting and the influences which have been reflected. Present practices in programming. Experimental approach to creating, developing and producing new ideas, techniques and program forms for particular audiences.

306. Directing Television Drama (3) F
TV director's responsibilities for casting, scenery, performance, camera choices, shot sequences and microphone technique in creating the TV dramatic production. (Lecture, laboratory.)

309. (149) Radio Production (3) F
Prerequisite: Speech 209 or consent of the instructor. Planning and producing original radio programs for broadcasting, using a variety of production techniques. Not open to students with credit in Speech 150.

330. (106) Advanced Public Speaking (3) F, S
Prerequisite: Speech 130. Advanced forms of speech composition. Stress is placed on matters of selection of subject matter, arrangement of materials and factors of style. Intensive application of rhetorical principles.

331. (141) Argumentation and Debate (3) F, S
Prerequisite: Speech 130, 131, 132 or 133. Techniques of argumentation and their application to debate; logic, reasoning and fallacies of reasoning; experience in various forms of formal argument and debate; techniques of debate program administration.

332. (134) Advanced Group Discussion (3) F, S
Prerequisite: Speech 130, 131, 132 or 133. Relationship of discussion to the democratic process. Critical thinking and the role of leadership in the group process.

333. (140) Advanced Oral Interpretation (3) F, S
Prerequisite: Speech 130, 131, 132 or 133. Derivation of meaning in various literary forms and its oral interpretation to specific audiences.

334. (145) Business and Professional Speech (2) F, S
Speech in informal business and professional situations, including interviews, sales talks and conference speaking.

335. (108) Persuasion (3) F, S
Audience behavior; theories of motivation, attention, interest; an understanding and analysis of types of audiences with methods of audience adaptation.

336. (142) Forensic Activity (1) F, S
Prerequisite: Consent of instructor. Participation in intercollegiate forensic activities. Any student who expects to participate in such activities during the semester should enroll. Student's specific assignments will be determined in consultation with the staff. Maximum credit, four units.

352. (138) Story Telling (2) F, S
Development of proficiency in the art of story telling.

358. (118) Speech Arts for Children (2) F, S
Use of creative dramatics, improvisations, puppetry, choral speech, radio, television and group discussion for the purpose of developing fluency, responsiveness and imagination in children. Integration of speech arts activities with curricular subjects will be stressed.

359. (119) Laboratory in Speech Arts for Children (1) F, S
Prerequisite or co-requisite: Speech 358. Opportunity for the student to apply the theories presented in Speech 358.

361. (107) Speech and Language Development in Children (3) F, S
Development of speech and language in children; recognition of speech and language needs and the role of the parents and teachers in meeting these needs; procedures for correcting minor speech disorders in the classroom; related community referral agencies.

371. (162) Phonetics (3) F, S
Phonetic basis of speech sounds and the various factors which influence pronunciation. Consideration is given to linguistic variations, regional dialects and standards.

400. Educational Television Production (3) F, S
Prerequisite: Consent of instructor. Television theory and technique including intensive use of professional television equipment. Not open for credit to students in fulfilling the requirements for the TV-Radio concentration. (Lecture, laboratory.)

406. (156) Mass Media and Society (3) F, S
History and impact of the press, broadcasting and motion pictures on American society. Dimensions, social responsibilities and unresolved problems of mass media.

409. (196) Special Problems in Television, Radio and Film (3) F, S
Prerequisites: Senior standing in TV-film-radio concentration and consent of instructor. Study and research in a problem of mass media.

410. Techniques of Motion Picture Production (3) F, S
Prerequisite: Speech 210 or consent of instructor. Planning and producing original film.

417. (157) History and Criticism of Motion Pictures (3) S
Historical survey of the birth, development and current status of motion pictures as an art form and social force in America and the world. Classics of film art are shown and discussed. (Lecture 3 hours, laboratory 3 hours.)

440. (139) Introduction to Rhetorical Theory (3) F, S
Analytical survey of the major contributions of rhetorical authorities.

441. (146) Ancient Public Address (3) F
Critical study of the speakers, speeches and speaking arenas from the preclassical and classical periods.

442. (148) British Public Address (3) S
Study of significant speakers with emphasis on ideas and contributions.

443. (137A) History and Criticism of American Public Address to 1860 (3) F
Evaluation of public speaking as it pertains to the development of American institutions prior to the Civil War.

444. (137B) History and Criticism of American Public Address Since 1860 (3) S
Evaluation of public speaking as it pertains to the development of American institutions from the Civil War to 1932.

445. (143) Contemporary Public Address (3) F
National and international public address since 1932. Procedures of evaluation of persuasion and the application of these procedures to contemporary speakers, political movements, audiences and media.

446A-B. Communication Theory (3,3) F, S
Prerequisites: Completion of general education speech requirement, Psychology 100. Conceptual frameworks and measurement in communication theory; application of learning, motivation, perception and related theories to the study of speech.

448. (190) Language and Symbolic Processes (3) F
Prerequisites: Completion of general education speech requirement, Psychology 100. General semantics, linguistics and psycholinguistics in the analysis of oral language behavior; nature of language and meaning, including symbolism, abstraction, categorizing and distortion.

449. Studies in Oral Persuasion and Attitude Change (3) S
Prerequisites: Completion of general education speech requirement, Psychology 100. Attitude formation and change through oral communication; factors in persuasion; problems in determining the effects of persuasive messages; source credibility, message variables, and personality factors in the process of persuasion.

461. (158) Introduction to Speech Pathology (3) F, S
Prerequisite: Speech 361, pre or co-requisite 371. Survey of speech disorders emphasizing treatment of functional defects; preparation of records and case studies, role of speech therapist in the community and in public schools. Observation of speech therapy; techniques for differential diagnosis.

462. (159) Speech Pathology: Non-Organic Disorders (3) F
Prerequisites: Speech 371, 461, or consent of instructor; Speech 471 recommended. Detailed study of the etiological, diagnostic and therapeutic aspects of non-organic speech disorders, including stuttering; observation and limited clinical experience under supervision.

463. (170) Speech Pathology: Organic Disorders (3) S
Prerequisites: Speech 461, 471. Advanced study of speech disorders which have an organic origin, including problems of etiology, diagnosis and therapy.

464. (165) Parent Counseling in Speech Correction (3) F, S
Prerequisite: Speech 469. Techniques used in counseling and interviewing parents, emphasizing problems presented by speech and language handicapped children.

469. (160) Clinical Practice (1-6) F, S
Prerequisites: Speech 371, 461, or consent of instructor. Student conducts individual and group speech and/or hearing therapy under clinical supervision. May be repeated for credit to a maximum of six units.

471. (144) Voice Science (3) F
Prerequisite: Speech 271; pre or co-requisite: Speech 371. Speech process as an organic and acoustic phenomenon. Anatomy, physiology, neurology and acoustics of speech and voice.

473. (163) Principles of Audiometry and Hearing Conservation (3) F, S
Basic physiological and acoustical concepts of the hearing mechanism; techniques of pure tone and speech audiometry; interpretation of results; organization of hearing conservation programs.

474. (173) Principles of Audiology (3) S
Prerequisite: Speech 473. Advanced audiometry, recruitment testing, use of masking, objective audiometry and automatic audiometry; evaluation and selection of hearing aids.

477. (164) Speech Reading and Aural Rehabilitation (3) S
Prerequisite: Speech 371. Lip reading theory and instructional techniques; current teaching methods and research in visual communication, auditory training and speech conservation; practice in teaching and performing speech reading; types of and utilization of hearing aids.

490. (195) Special Studies in Speech (1-3) F, S
Open only to speech majors with senior standing with a cumulative grade point average of 3.0 and consent of department chairman. Individualized laboratory or library research selected in consultation with instructor. Written report of the research is required.

GRADUATE DIVISION

571. (244) Theories of Hearing (3)
632. (250) Seminar in Discussion and Debate (3)
633. (240) Seminar in Oral Interpretation (3)
640. (220) Seminar in Public Address (3)
647. (299) Seminar in Experimental Methodologies (3)
663. (259) Seminar in Speech Pathology (3)
669. (260) Advanced Clinical Practice (1-6)
674. (263) Seminar in Audiology (3)
696. (200) Research Methods (3)
697. Directed Research (1-3)
698. (298) Thesis or Project (2-4)

ZOOLOGY (See Biology Department)

FACULTY

(As of February 1, 1967)

(Number in parentheses indicates year of appointment)

AARONS, HERBERT L. (1965) ..... Assistant Professor, Sociology
A.B., M.A., Pennsylvania State.

ABEL, ADELINE (1966) ..... Assistant Professor, Foreign Languages
A.B., M.A., Ph.D., Louisiana State University.

ABOU-el-HAJ, RIFAAT ALI (1964) ..... Assistant Professor, History
A.B., Washington and Lee University; M.A., Ph.D., Princeton University.

ACKLEY, ROBERT G. (1965) ..... Instructor, Speech
A.B., Texas Western College; M.S., Purdue University.

AFFLACK, RUTH H. (1966) ..... Instructor, Mathematics
A.B., M.A., University of California at Santa Barbara.

AGGARWAL, RAJINDER P. (1966) ..... Assistant Professor, Electrical Engineering
B.S., Delhi University, India; M.S., University of Minnesota; Ph.D., University of Washington.

AHLQUIST, IRVING F. (1949) ..... Professor, History
B.S., Wheaton College; M.A., Ph.D., University of Illinois.

ALBRECHT, WALTER A., JR. (1952) ..... Professor, Mathematics
B.S., Hamline University; M.A., University of Minnesota; Ph.D., Ohio State University.

ALBRO, LYSLE R. (1966) ..... Assistant Professor, Business Education
B.S., M.S., Western Illinois State University.

AL-CHALABI, KAMAL T. (1966) ..... Associate Professor, Civil Engineering
B.S. in C.E., Baghdad University, Iraq; M.S., Ph.D., University of Michigan.

ALENDER, CHARLES B. (1966) ..... Assistant Professor, Biology
A.B., M.A., DePauw University; Ph.D., University of Hawaii.

ALEXANDER, ROBERT L. (1964) ..... Associate Professor, Civil Engineering
A.B., Rensselaer Polytechnic Institute; M.S., Harvard University; D. Engr., University of California.

ALLEN, CHARLES A. (1957) ..... Professor, English
A.B., DePauw University; Ph.D., University of Iowa.

ALLEN, RALPH K. (1956) ..... Professor, English
A.B., William Jewell College; M.A., Ph.D., University of Washington.

AMENDT, JOHN T. (1957) ..... Professor, Political Science
B.S., Loyola University, Los Angeles; Ph.D., Georgetown University.

ANDERSON, BURTON L. (1958) ..... Associate Professor, Geography
B.S., Southern Methodist University; M.A., University of Minnesota; Ph.D., University of Washington..

ANDERSON, ROBERT E. (1964) ..... Associate Professor, Music
A.B., Oberlin College of Arts and Sciences; B.M.E., Oberlin Conservatory of Music; M.A., Ph.D., Ohio State University.

ANDERSON, ROY C. (1950) ..... Professor, Education
A.B., Augustana College; M.A., University of Michigan; Ed.D., Stanford University.

ANDERSON, ROY C. (1965) ..... Assistant Professor, Economics
B.S., Lehigh University; M.A., Ph.D., Tulane University.

ANDREWS, EDNA M. (1967) ..... Assistant Professor, Accounting
B.S., California State College at Long Beach.

ANFINSON, OLAF P. (1956) ..... Professor, Physical Science
B.Ed., Winona State Teachers College; M.A., Ed.D., Colorado State College of Education.

ANSELMO, CARL R. (1964) ..... Assistant Professor, Microbiology
A.B., M.S., Ph.D., University of Utah.

ANWAR, MOHAMMAD Z. (1965) ..... Assistant Professor, Physics
B.S., M.S., Dacca University, Pakistan; Ph.D., University of British Columbia.

APPELGATE, KENNETH W. (1965) ..... Professor, History
B.S., M.A., Ph.D., University of Washington.

APPLETON, GEORGE L. (1953) ..... Professor, Physics
B.S., Carnegie Institute of Technology; Ph.D., University of Southern California.

ARCHER, BLAIR C. (1950) ..... Professor, Art
B.S., Moorhead State Teachers College; M.Ed., Ph.D., University of Minnesota.

ARCHULETA, ALFONSO L. (1965) ..... Assistant Professor, Foreign Languages
A.B., University of California at Los Angeles; M.A., California State College at Los Angeles.

ARNELL, WALTER J. W. (1959) ..... Professor, Mechanical Engineering
Chairman, Division of Engineering
Aeronautical Engineer, Royal Aircraft Establishment, England; B.Sc., University of London; M.A., Occidental College; M.S., University of Southern California.

ARNHEIM, DANIEL D. (1959)—Associate Professor, Physical Education
A.B., George Pepperdine College; M.A., California State College at Los Angeles; Ph.D., Springfield College.

ASH, WILLIAM D. (1957)—Associate, Professor, Marketing
A.B., Idaho State College; M.B.A., Stanford University; D.B.A., University of Southern California.

ASHER, EUGENE L. (1959)—Associate Professor, History
A.B., M.A., Ph.D., University of California at Los Angeles.

ASPIZ, HAROLD (1958)—Professor, English
A.B., M.A., Ph.D., University of California at Los Angeles.

ATHERTON, WALLACE N. (1966)—Associate Professor, Economics
A.B., Ph.D., University of California.

AUSTIN, CHARLES W. (1966)—Associate Professor, Mathematics
Chairman, Mathematics Department
B.S., M.S., Ph.D., University of Washington.

AVNI, ABRAHAM A. (1964)—Assistant Professor, English
D. of Maturity Gymnasium, Czechoslovakia; M.A., Hebrew University, Jerusalem; Ph.D., University of Wisconsin.

AXELRAD, ARTHUR M. (1964)—Assistant Professor, English
A.B., Brooklyn College; M.A., Ph.D., New York University.

BAIRD, JOHN J. (1956)—Professor, Biology
A.B., Iowa State Teachers College; M.S., Ph.D., State University of Iowa.

BAKER, CLARENCE P. (1952)—Professor, English
B.S., Haverford College; M.A., Harvard University; Ph.D., University of California at Los Angeles.

BAKER, DAN F. (1961)—Assistant Professor, Speech
A.B., M.A., Indiana University.

BAKER, DOROTHY W. (1961)—Assistant Professor, Home Economics
B.S., University of Maryland.

BAKKEN, CLARENCE J. (1962)—Counselor
B.S., University of Minnesota; M.A., Ed.D., University of Denver.

BALL, EVELYN ROMA (1965)—Instructor, English
A.B., University of Missouri; M.A., Kansas State Teachers College.

BALLARD, JOAN P. (1965)—Instructor, English
A.B., Queens College, Flushing, New York; M.A., University of Rochester.

BALTZELL, JAMES H. (1958)—Professor, Foreign Languages
A.B., University of Illinois; M.A., Ph.D., Indiana University.

BARBER, SHIRLEY (1963)—Associate Professor, Business Education
B.S., University of Oregon; M.Ed., Oregon State University; Ed.D., Colorado State College.

BARSKY, ARTHUR (1966)—Assistant Professor, History
A.B., George Pepperdine College; M.A., University of Southern California; Ph.D., University of California at Los Angeles.

BARTENBACH, IRMGARD F. (1964)—Assistant Professor, Foreign Languages
A.B., University of Heidelberg; M.A., Ph.D., University of Southern California.

BARTLETT, KENNETH T. (1959)—Associate Professor, Physical Education
B.S., University of Minnesota; M.A., California State College at Los Angeles.

BATES, ZELPHA (1953)—Professor, Home Economics
A.B., Washburn College; M.A., Teachers College, Columbia University; Ed.D., New York University.

BAUER, ROGER D. (1959)—Associate Professor, Chemistry
Chairman, Chemistry Department
B.S., Beloit College; M.S., Ph.D., Kansas State University.

BAUGH, JAMES R. (1964)—Assistant Professor, Mathematics
A.B., M.A., University of California at Los Angeles.

BAUMGARTNER, WERNER A. (1966)—Lecturer, Chemistry
B.S., Ph.D., University of New South Wales, Sydney, Australia.

BEACOM, PHYLLIS M. (1966)—Assistant Professor, Home Economics
A.B., M.A., University of California at Los Angeles.

BECKER, CALLIE D. (1963)—Assistant College Librarian
A.B., Shorter College; A.B. in L.S., Emory University.

BECKER, CHARLES E. (1956)—Associate Professor, Music
B.Mus., M.A., Ph.D., State University of Iowa.

BECKER, EDWIN N. (1955)—Professor, Chemistry
B.S., Iowa State University; Ph.D., University of Wisconsin.

BECKER, HAROLD K. (1963)—Associate Professor, Criminology
A.B., M.S., University of Southern California.

BEECHER, EARL S. (1961)—Associate Professor, Business Finance
A.B., University of Utah; M.B.A., Ph.D., University of California at Los Angeles.

BEEGLE, DONALD A. (1963)—Associate Professor, Health Education
B.S., M.S., University of Oregon; M.P.H., University of California.

BEEKMAN, BRUCE E. (1958)—Associate Professor, Physiology
A.B., San Diego State College; M.A., Ph.D., Indiana University.

BEIDERMAN, DAVID D. (1966)—Assistant Professor, Education
Chairman, Elementary Education Department
A.B., Brooklyn College; M.Ed., Ed.D., University of California at Los Angeles.

BELL, A. ROBERT (1964)—Instructor, English
A.B., M.A., University of Miami.

BELT, VIRGINIA M. (1963)—Associate Professor, Business Finance
B.S., Southern Illinois University; M.S., Ph.D., University of Illinois.

BENNETT, E. KENNETH (1966)—Assistant Humanities Reference Librarian
A.B., University of California; M.L.S., University of California at Los Angeles.

BERBERELLY, JOHN C. (1964)—Assistant Professor, Philosophy
A.B., Boston University; M.A., Columbia University.

BERGLAND, CLARENCE R. (1951)—Associate Dean—Admissions and Records
B.S., M.A., University of Southern California.

BETAR, GEORGE V. (1963)—Assistant Professor, English
A.B., State University of New York, College at Albany; M.A., Ph.D., University of Southern California.

BIEDEBACH, MARK C. (1967)—Assistant Professor, Biology
B.E., M.S., University of Southern California; Ph.D., University of California at Los Angeles.

BILLINGS, DONALD B. (1966)—Lecturer, Economics
A.B., San Diego State College; M.A., University of Oregon.

BIRO, BELA L. (1959)—Professor, Art
Ph.D., University of Budapest.

BISHOP, SHARON R. (1965)—Instructor, English
A.B., University of Oregon; M.A., University of Washington.

BLACK, ALBERT G. (1962)—Assistant Professor, English
A.B., M.A., University of Michigan.

BLACK, STUART E. (1962)—Assistant Professor, Mathematics
B.S., Harvey Mudd College, Claremont; M.A., University of California at Los Angeles.

BLACKBURN, FAY I. (1959)—Social Science Catalog Librarian
A.B., Mount St. Mary's College, Los Angeles; M.S. in L.S., University of Southern California.

BLACKMAN, EVELYN L. (1961)—Assistant Professor, Education
A.B., University of Washington; M.P.H., Ed.D., University of California.

BLAYLOCK, ENID V. (1966)—Assistant Professor, Nursing
B.S., Loma Linda University; M.S., University of California at Los Angeles; Ph.D., University of Southern California.

BLISS, JAMES H. (1964)—Associate Professor, Journalism
A.B., University of California at Los Angeles; M.A., University of Missouri.

BOK, FRANK J. (1956)—Professor, Physical Education
Coordinator, Physical Therapy
B.S., M.A., Ph.D., Certificate in Physical Therapy, State University of Iowa; Registered Physical Therapist, California.

BONAZZA, BLAZE O. (1966)—Lecturer, English
A.B., Cornell University; M.A., California State College at Los Angeles; Ph.D., University of Southern California.

BONIS, WILLIAM D. (1963)—Assistant Professor, Philosophy
B.D., Theological Academy, Sarospataka, Hungary; M.Th., Presbyterian Theological Seminary, Pittsburgh; Ph.D., University of Texas.

BOORKMAN, CHARLES J. (1949)—College Librarian
A.B., B.S. in L.S., University of Illinois; M.A., University of Southern California.

BORDERS, DAVID C. (1962)—Assistant Professor, Art
B.F.A., Ohio State University; M.F.A., University of Washington.

BORING, WARREN J. (1956)—Professor, Physical Education
B.S., Kansas State College; M.S., University of Colorado; H.S.D., Indiana University.

BOURRET, JAMES A. (1966)—Assistant Professor, Biology
B.S., M.S., University of Wyoming.

BRADLEY, JACK I. (1952)—Professor, Psychology
A.B., California State College at Los Angeles; M.A., Occidental College; Ph.D., Claremont Graduate School.

BRAINERD, WILLIAM R. (1965)—Instructor, English
A.B., Lehigh University; M.A., University of Chicago.

BRANDSTATT, GERALD J. (1966) ..... Assistant Professor, Industrial Arts
A.B., M.A., Chico State College.

BRASHER, ROBERT E. (1956) ..... Serials Catalog Librarian
A.B., Oklahoma City University; M.A. in L.S., University of Denver.

BRASLOW, LAWRENCE (1966) ..... Assistant Professor, Economics
B.S., Temple University.

BRATTON, J. WESLEY (1950) ..... Professor, Education
A.B., Seattle Pacific College; M.S., Ed.D., University of Southern California.

BREEN, JON L. (1966) ..... Assistant Order Librarian
A.B., Pepperdine College; M.S. in L.S., University of Southern California.

BRENT, PAUL L. (1959) ..... Associate Professor, Education
B.S., Central State College; M.Ed., Ed.D., University of Oklahoma.

BRIND, ERNEST G. (1965) ..... Lecturer, Mechanical Engineering
B.E., M.S., Ed.D., University of Southern California.

BRISKER, ESTELLE R. (1967) ..... Instructor, Art
A.B., Hunter College; M.A., University of California at Los Angeles.

BRITTON, ALEXANDER L. (1965) ..... Assistant Professor, Education
A.B., University of California at Los Angeles; M.A., California State College at Long Beach.

BRODETSKY, ANNA M. (1966) ..... Assistant Professor, Microbiology
A.B., Ph.D., University of California at Los Angeles.

BROOKS, CHARLES B. (1957) ..... Professor, English
A.B., M.A., Ph.D., University of California.

BROOKS, F. LESLIE (1966) ..... Assistant Professor, Chemistry
B.S., University of California; Ph.D., University of Washington.

BROWN, WILLIAM W. (1966) ..... Assistant Professor, Operations Research and Statistics
A.B., University of California at Los Angeles.

BRYAN, RUTH M. (1962) ..... Assistant Humanities Librarian
B.A., M.A., University of California at Los Angeles; M.S. in L.S., University of Southern California.

BRYANT, DAVID L. (1949) ..... Executive Dean, Administration
B.S., University of Southern California; M.A., Stanford University; Ed.D., University of Southern California.

BUCHNER, REINHARD K. (1963) ..... Assistant Professor, Physics
B.S., Gutenberg University, Mainz, Germany; M.S., Doctorate in Engineering, Technical Hochschule, Aachen, Germany.

BUCHWALD, CHARLES (1964) ..... Assistant Professor, Psychology
A.B., University of Minnesota; M.A., Yale University.

BUCK, STEVEN M. (1961) ..... Associate Professor, Speech
A.B., M.A., Washington State University; Ph.D., Purdue University.

BUCKLAND, ROSCOE L. (1955) ..... Professor, English
Chairman, English Department
A.B., M.A., University of Idaho; Ph.D., State University of Iowa.

BUCKWALTER, BARBARA (1959) ..... Associate Professor, Home Economics
B.S., Brigham Young University; M.S., Oregon State College.

BURDICK, DONALD E. (1957) ..... Medical Officer
B.S., M.D., University of Nebraska.

BURK, R. BURDETT (1954) ..... Professor, Education
B.S., Ball State Teachers College; M.S., Ed.D., Indiana University.

BURRAS, DARRELL V. (1957) ..... Professor, Business Education
Chairman, Business Education Department
B.S., Central Michigan College; M.S., Ph.D., University of Michigan.

BUTTER, FRANKLIN A., JR. (1965) ..... Associate Professor, Mathematics
A.B., M.A., Ph.D., Stanford University.

BYERS, JOSEPH C. (1966) ..... Instructor, History
A.B., University of New Mexico.

CAIN, EARL R. (1959) ..... Professor, Speech
A.B., University of South Dakota; M.A., Ph.D., Northwestern University.

CAIN, GUY H., JR. (1960) ..... Associate Professor, Electrical Engineering
B.S. in E.E., University of Wisconsin; M.Eng., University of California at Los Angeles.

CALVIN, CLYDE L. (1966) ..... Assistant Professor, Biology
B.S., Washington State University; M.S., Purdue University; Ph.D., University of California at Davis.

CAMBURN, HERBERT L. (1960) ..... Associate Professor, Drama
A.B., M.A., Michigan State University.

CAMPBELL, CHARLES E. (1966) ..... Instructor, Health Education
A.B., M.A., California State College at Los Angeles.

CAMPBELL, DANIEL A. (1962) ..... Assistant Professor, Physical Education
A.B., University of California at Santa Barbara.

CAMPBELL, JANET (1965) ..... Assistant Catalog Librarian
A.B., California State College at Long Beach; M.S. in L.S., University of California at Los Angeles.

CANFIELD, JAMES K. (1957) ..... Assistant Professor, Education
A.B., Fresno State College; M.A., Ed.D., Teachers College, Columbia University.

CARDON, EARL L. (1966) ..... Assistant Professor, Foreign Languages
A.B., Brigham Young University; M.A., University of Miami.

CARLBERG, DAVID (1966) ..... Assistant Professor, Microbiology
A.B., Ph.D., University of California at Los Angeles.

CARLSEN, JAMES W. (1966) ..... Instructor, Speech
A.B., San Diego State College; M.A., Southern Illinois University.

CARLSON, EARL R. (1961) ..... Associate Professor, Psychology
B.S., University of Washington; Ph.D., University of Michigan.

CARLSON, MAUDE C. (1952) ..... Head Social Science Reference Librarian
A.B., M.A. in L.S., University of Michigan.

CARPENTER, BRUCE H. (1962) ..... Assistant Professor, Biology
Chairman, Biology Department
A.B., M.A., California State College at Long Beach; Ph.D., University of California at Los Angeles.

CARR, HARRY LAWSON (Peter) (1959) ..... Associate Professor, English
Chairman, Comparative Literature Department
A.B., University of Southern California; M.A., Johns Hopkins University; Ph.D., University of Southern California.

CARROTT, MONTGOMERY B. (1964) ..... Assistant Professor, History
A.B., Princeton University; M.A., Ph.D., Northwestern University.

CASKEY, KATHRYN (1965) ..... Assistant Professor, Nursing
B.S., University of Minnesota; M.S., University of California at Los Angeles.

CASTLEBERRY, OTTIS L. (1956) ..... Professor, Speech
A.B., Pennsylvania State College; M.A., University of Southern California; Ph.D., Pennsylvania State University.

CERVENY, GEORGE R. (1952) ..... Professor, English
B.S., M.A., University of Idaho; Ph.D., New York University.

CHAMBERS, CARLETON A., P.E. (1961) ..... Associate Professor, Civil Engineering
B.S.E., M.S.E., Princeton University.

CHAO, L. LINCOLN (1964) ..... Associate Professor, Operations Research and Statistics
B.L., National Hunan University, China; M.A., Ph.D., University of Minnesota.

CHAWLA, SUDERSHAN (1962) ..... Associate Professor, Political Science
B.S., Delhi University, India; M.A., Ph.D., Ohio State University.

CHELAPATI, CHUNDURI V. (1965) ..... Associate Professor, Civil Engineering
B.S., College of Engineering, Kakinada, India; M.S., Ph.D., University of Illinois.

CHEN, CHIA-HWA (1964) ..... Assistant Professor, Physics
B.S., National Taiwan University; M.S., National Tsing Hua University; Ph.D., State University of New York, Buffalo, New York.

CHEUNG, STEVEN N. S. (1965) ..... Assistant Professor, Economics
A.B., M.A., University of California at Los Angeles.

CHOW, RICHARD H. (1958) ..... Professor, Physics
A.B., M.A., University of British Columbia; Ph.D., University of California at Los Angeles.

CHRISTENSEN, ARNOLD M. (1949) ..... Professor, Education
A.B., Carleton College; M.A., University of Minnesota; Ph.D., State University of Iowa.

CHRISTIAN, HARRIET L. (1965) ..... Assistant Professor, Home Economics
B.Ed., University of California at Los Angeles; M.A., California State College at Long Beach.

CHRISTOPHER, PAUL (1964) ..... Assistant Professor, History
A.B., Pomona College; M.A., University of Michigan.

CHRISTY, EDWARD G. (1966) ..... Assistant Professor, Psychology
A.B., University of Miami; Ph.D., University of Tennessee.

CHRYSSAFOPOULOS, HANKA W. (1965) ..... Assistant Professor, Civil Engineering
B.S., University Rio Grande do Sul, Brazil; M.S., Ph.D., University of Illinois.

CLEGG, RICHARD (1958) ..... Associate Professor, Physical Education
A.B., M.A., Ed.D., Stanford University.

CLICK, ROBERT E. (1964) ..... Assistant Professor, Art
A.B., University of California at Los Angeles; M.A., California State College at Long Beach.

COCKRUM, JAMES E. (1955) ..... Coordinator, Audio-Visual Services; Professor, Education
B.Ed., Southern Illinois University; M.A., Teachers College, Columbia University; Ed.D., Indiana University.

COHEN, FLOYD A. (1965) ..... Associate Professor, Mathematics
A.B., M.A., Ph.D., University of California at Los Angeles.

COHEN, HENRY (1964) ..... Assistant Professor, History
A.B., Columbia College; Ph.D., Cornell University.

COHEN, IRA S. (1959) ..... Associate Professor, Political Science
A.B., University of Arizona; M.A., Ph.D., University of Chicago.

CONREY, BERT L. (1959) ..... Professor, Geology
Chairman, Geology Department
B.S., M.S., University of California; Ph.D., University of Southern California.

CONROY, JEAN L. (1961) ..... Assistant Professor, Mathematics
A.B., M.A., University of Maine.

CONTRERAS, JOSEPH (1961) ..... Assistant Professor, Foreign Languages
A.B., M.S., University of Southern California.

COOK, EDGAR T. (1952) ..... Chief, Library Technical Processes
A.B., Occidental College; M.S. in L.S., University of Southern California.

COOK, GAIL F. (1963) ..... Periodicals Librarian
B.S., Oregon State University; M.L.S., University of California at Los Angeles.

COOK, RAYMOND (1966) ..... Assistant Professor, Recreation
B.S., Southwest Missouri State College; M.A., University of Illinois.

COOKE, ARTHUR J. (1966) ..... Assistant Professor, Mathematics
A.B., M.A., Ph.D., University of California at Los Angeles.

COOPER, JUNE M. (1966) ..... Assistant Professor, Speech
A.B., Queens College, Flushing, New York; M.A., Brooklyn College; Ph.D., New York University.

COPPOLA, AUGUST F. (1961) ..... Associate Professor, English
A.B., University of California at Los Angeles; M.A., Hofstra College, Hempstead, New York; Ph.D., Occidental College.

COTTA, EDMUND A. (1958) ..... Associate Professor, Marketing
Chairman, Marketing Department
B.B.A., University of Toledo; M.B.A., University of Pennsylvania.

COVELL, JON C. (1964) ..... Assistant Professor, Art
A.B., Oberlin College; Ph.D., Columbia University.

COVELLI, EUGENE F. (1965) ..... Assistant Professor, Speech
A.B., M.A., Ph.D., University of Wisconsin.

COX, HIDEN T. (1963) ..... Coordinator of Research; Professor, Biology
B.S., Furman University, Greenville, South Carolina; M.A., Ph.D., University of North Carolina.

COX, T. HILLARD (1964) ..... Professor, Business Administration
Chairman, Division of Business Administration
B.S.C., M.A., Ph.D., University of Iowa.

CRAFTS, JAMES S. (1957) ..... Professor, Art
A.B., Oberlin College; M.A., Teachers College, Columbia University; M.A., Ph.D., Yale University.

CRANE, GEORGE F. (1958) ..... Associate Professor, English
A.B., Stanford University; M.A., University of California at Los Angeles; Ph.D., University of California.

CRAWFORD, JOHN R. (1966) ..... Assistant Professor, Sociology
A.B., West Virginia State College; M.A., New York University; M.S.W., Fordham University.

CRAWFORD, WALTER B. (1963) ..... Assistant Professor, English
A.B., Union College, Lincoln, Nebraska; M.A., Columbia University; Ph.D., University of California at Los Angeles.

CREAMER, LYLE R. (1962) ..... Assistant Professor, Psychology
B.S., M.S., Kansas State University; Ph.D., University of Illinois.

CROGEN, CORINNE A. (1951) ..... Professor, Physical Education
B.Ed., La Crosse State Teachers College; M.S., Wellesley College; Ed.D., University of Michigan.

CROSSAN, ROBERT D. (1955) ..... Professor, Education
A.B., M.A., Whittier College; Ed.D., University of Southern California.

CROWE, WALTER C. (1952) ..... Professor, Physical Education
Chairman, Division of Health, Physical Education and Recreation
B.S., M.S., University of California at Los Angeles; Ed.D., University of Southern California.

CTVRTLIK, JOSEF T. (1963) ..... Assistant Professor, Foreign Languages
A.B., University of Prague, Czechoslovakia; M.A., University of Southern California.

CUMPIANO, MARION W. (1966) ..... Assistant Professor, English
B.S. in Ed., M.Ed., Massachusetts State Teachers College; Ph.D., Columbia University.

CURRIE, ROBERT J. (1965) ..... Assistant Professor, Education
A.B., Stanford University; M.S., University of Southern California.

DACKAWICH, S. JOHN (1959) ..... Associate Professor, Sociology
A.B., University of Maryland; Ph.D., University of Colorado.

DAILEY, MURRAY D. (1966) ..... Assistant Professor, Biology
B.S., University of Nevada; M.S., American University of Beirut, Lebanon; Ph.D., Colorado State University.

DALLIN, LEON (1955) ..... Professor, Music
B.Mus., M.Mus., University of Rochester; Ph.D., University of Southern California.

DAME, DONALD L. (1965) ..... Instructor, Art
A.B., California State College at Long Beach.

DANSON, CARL M. (1965) ..... Assistant Professor, Psychology
A.B., M.A., Ph.D., Ohio State University.

DARBEE, RICHARD H. (1954) ..... Professor, English
A.B., Alma College; M.A., University of Michigan; Ph.D., University of New Mexico.

DARLING, HORTENSE A. (1964) ..... Assistant Professor, Nursing
B.S., University of California; M.S., University of California at Los Angeles.

DARM, ADAM E. (1963) ..... Assistant Professor, Industrial Technology
B.S. in Ed., Northern Illinois State College.

DARNELL, DONNA D. (1965) ..... Assistant Humanities Reference Librarian
A.B., Scripps College; M.S. in L.S., University of Southern California.

DAVIS, BOYD A. (1951) ..... Associate Dean—Instruction; Professor, Education
A.B., John Fletcher College; M.S., Ph.D., Iowa State University.

DAVIS, CHRISTOPHER M. (1965) ..... Assistant Professor, Psychology
A.B., Indiana University; Ph.D., University of Washington.

DAVISON, OSCAR W. (1966) ..... Associate Professor, Education
A.B., Central State College, Edmond, Oklahoma; M.S., Oklahoma State University; Ph.D., University of Oklahoma.

DAY, JAMES E. (1955) ..... Professor, English
A.B., Iowa State Teachers College; M.A., Ph.D., State University of Iowa.

DEAN, C. THOMAS (1952) ..... Professor, Industrial Arts
Chairman, Division of Applied Arts and Sciences
A.B., Peru State Teachers College; M.S., Ph.D., Iowa State University.

DEATHERAGE, DOROTHY (1955) ..... Professor, Physical Education
A.B., M.A., Stanford University; Ed.D., University of Southern California.

DEHARDT, DORIS C. (1961) ..... Associate Professor, Psychology
A.B., M.A., University of Missouri; Ph.D., Michigan State University.

DELONG, BEVERLY J. (1966) ..... Assistant Professor, Foreign Languages
B.J., University of Missouri; M.A., State University of Iowa.

DELORME, ROBERT L. (1966) ..... Assistant Professor, Political Science
A.B., St. John's University, Collegeville, Minnesota; M.A., University of Minnesota.

DELOTTO, MARCEL J. (1954) ..... Professor, Physical Education
B.S., Randolph-Macon College; M.A., University of North Carolina; Ph.D., University of Oregon.

DELUCA, JOSEPH F. (1965) ..... Assistant Professor, Physical Education
A.B., Montana University; M.A., Chico State College.

DEMOS, GEORGE D. (1962) ..... Dean of Students
B.S., Northern Illinois State College; M.S., University of Illinois; Ph.D., University of Southern California.

DENNIS, JOHN G. (1962) ..... Associate Professor, Geology
B.S., Imperial College, London, England; M.A., Ph.D., Columbia University, New York.

DILLINGHAM, ORVAL L. (1955) ..... Professor, Art
A.B., M.F.A., University of Minnesota.

DINIELLI, GENE L. (1965) ..... Instructor, English
A.B., M.A., University of Connecticut.

DIXON, KEITH A. (1958) ..... Associate Professor, Anthropology
A.B., M.A., University of Arizona; Ph.D., University of California at Los Angeles.

DOLE, MARJORIE B. (1959) ..... Counselor
A.B., M.A., California State College at Long Beach; Ed.D., University of Southern California.

DONAHUE, FRANCIS J. (1960) ..... Associate Professor, Foreign Languages
A.B., University of Omaha; M.A., University of Wisconsin; Ph.D., University of Southern California.

DORSEY, JOHN F. (1961) ..... Head Order Librarian
A.B., Colorado State College of Education; M.A. in L.S., Denver University.

DOTSON, GEORGE E. (1964) ..... Professor, Education; Director, Educational Services
A.B., San Diego State College; M.A., Ed.D., Stanford University.

DRESSLER, DAVID (1953) ..... Professor, Sociology
Ph.B., University of Chicago; M.A., Columbia University; Ph.D., New York University.

DRUM, DALE D. (1956) ..... Professor, Speech
A.B., M.A., Ph.D., University of Southern California.

DUCKWALL, RALPH W. (1964) ..... Associate Professor, Drama
A.B., M.A., Indiana University.

DUDLEY, JOHN H., P.E. (1960) ..... Associate Professor, Civil Engineering
B.S., United States Military Academy; M.S., Massachusetts Institute of Technology.

DULMES, ABRAHAM H. (1960) ..... Medical Officer
A.B., Hope College; M.A., University of Wisconsin; M.D., Northwestern University.

DuPONT, ELIZABETH O. (1965) ..... Assistant Professor, Physical Education
A.B., Florida State University; M.A., Texas Woman's University.

DURBIN, ROBERT P. (1950) ..... Professor, Biology
A.B., San Diego State College; M.S., Ed.D., University of Southern California.

DVORAK, ELDON J. (1961) ..... Associate Professor, Economics
B.S., South Dakota State College; Ph.D., University of Washington.

DYER, JAMES L. (1966) ..... Assistant Professor, Mechanical Engineering
B.S., M.S., Ph.D., University of California at Los Angeles.

DYKEMA, JEAN A. (1966) ..... Assistant Professor, Geography
B.S., M.S., Illinois State University.

EDMONDSON, BETTY V. (1964) ..... Assistant Professor, Physical Education
B.S., University of Nevada; M.A., San Jose State College.

EDSON, W. DOYLE (1966) ..... Counselor
B.A., M.A., University of Redlands.

EGGERS, ROBERT F. (1964) ..... Instructor, Drama
A.B., Linfield College, McMinnville, Oregon; M.A., University of Oregon.

EHRREICH, ALBERT LEROY (1957) ..... Associate Professor, Geology
A.B., M.A., University of California at Los Angeles; Ph.D., University of California.

EK, RICHARD A. (1964) ..... Assistant Professor, Speech
A.B., University of Utah; M.A., San Francisco State College; Ph.D., University of Southern California.

ELIASON, LOWELL J. (1965) ..... Assistant Professor, Physics
B.S., Stanford University.

ELSER, JOAN T. (1966) ..... Instructor, Nursing
B.S.N., College of St. Teresa, Winona, Minnesota; M.S.N., Wayne State University.

ERB, THEODORE H. (1965) ..... Assistant Professor, Political Science
A.B., University of Southern California; M.A., Georgetown University.

ERICKSEN, SHELDON D. (1955) ..... Professor, Geography
Chairman, Geography Department
A.B., M.A., University of Utah; Ph.D., University of Chicago.

ERICSON, DOROTHY L. (1953) ..... Professor, Physical Education
B.S., University of Wisconsin; M.A., Ed.D., Teachers College, Columbia University.

ESHETT, ALI (1966) ..... Assistant Professor, Civil Engineering
B.S., Technion, I.I.T., Haifa, Israel; M.S., Colorado State University.

EVANS, JEPTHA A., JR. (1965) ..... Assistant Professor, English
A.B., Arkansas Polytechnic College.

EWING, ETHEL E. (1952) ..... Professor, Anthropology
A.B., Muskingum College; M.A., Radcliffe College; Ph.D., Cornell University.

EYLAR, HARRY D. (1963) ..... Assistant Professor, Mathematics
A.B., Montana State University; M.S., University of Washington.

FARBER, STUART L. (1960) ..... Associate Professor, Health Education
B.S., University of California at Los Angeles; M.A., California State College at Long Beach.

FARR, WILBUR J. (1955) ..... Associate Professor, Industrial Arts
A.B., Washington State College; M.A., Colorado State College; Ed.D., University of Missouri.

FARRELL, RAYMOND R. (1966) ..... Associate Professor, Finance
A.B., University of California at Los Angeles; LL.B., Yale University.

FATT, MILTON J. (1963) ..... Assistant Professor, Mathematics
A.B., M.A., University of California at Los Angeles; Sc.D., Swiss Federal Institute of Technology.

FEELEY, ROSCINE (1967) ..... Lecturer, English
A.B., College of Wooster.

FEERER, DONALD J. (1966) ..... Medical Officer
A.B., University of Michigan; M.D., Ohio State University.

FELKENES, GEORGE T. (1964) ..... Assistant Professor, Criminology
B.S., LL.B., University of Maryland.

FELKLEY, A. W. (1966) ..... Counselor
A.B., Heidelberg College, Tiffin, Ohio.

FELS, LEONARD A. (1965) ..... Assistant Professor, Philosophy
A.B., M.A., University of California at Los Angeles.

FENENGA, FRANKLIN (1965) ..... Assistant Professor, Anthropology
A.B., University of California.

FERREIRA, ARMANDO T. (1957) ..... Associate Professor, Art
A.B., M.A., University of California at Los Angeles.

FIEBERT, MARTIN S. (1965) ..... Assistant Professor, Psychology
B.S., Queens College, Flushing, New York; Ph.D., University of Rochester.

FIEBIGER, JOSEPHINE B. (1966) ..... Assistant Professor, Psychology
A.B., Pennsylvania State University; M.A., California State College at Los Angeles.

FISHEL, JERRY R. (1966) ..... Assistant, Physical Education
A.B., California State College at Long Beach.

FISHER, WILLIAM E. (1955) ..... Professor, Education
A.B., Baker University; Ph.D., University of Kansas.

FITZGERALD, RICHARD A. (1966) ..... Assistant Professor, History
A.B., University of San Francisco; M.A., University of California at Riverside.

FLYNN, FRANCIS J. (1950) ..... Executive Dean—Development
A.B., M.S., Ed.D., University of Southern California.

FOGG, WILLIAM E. (1956) ..... Professor, Education
A.B., University of California; M.S., Ed.D., University of Southern California.

FOLEY, FRANCIS T. (1966) ..... Assistant Professor, History
A.B., Arizona State University; M.A., University of California at Los Angeles.

FOOTE, RONALD C. (1957) ..... Associate Professor, English
M.A., University of Edinburgh; Ph.D., Tulane University.

FORD, PAUL A. (1966) ..... Instructor, Drama
A.B., St. Mary's College of California; M.A., California State College at Long Beach.

FORNIA, DOROTHY L. (1956) ..... Professor, Physical Education
B.Ed., M.A., Ohio State University; Ed.D., University of Southern California.

FORST, FLORENCE H. (1964) ..... Assistant Professor, Education
A.B., Washington State University; M.A., Illinois Institute of Technology; Ph.D., University of Pittsburgh.

FOSTER, GERARD J. (1961) ..... Associate Professor, Geography
A.B., M.A., Ph.D., University of California at Los Angeles.

FRANKLAND, JOHN T. (1966) ..... Assistant Professor, Electrical Engineering
B.S., M.E.S., Lamar State College, Beaumont, Texas.

FRANKLIN, MAYER J. (1966) ..... Assistant Professor, Education
A.B., Washington Square College of New York University; M.Ed., University of Southern California.

FRAZER, ROBERT W. (1965) ..... Professor, History
A.B., M.A., Ph.D., University of California at Los Angeles.

FREDRICKSON, JOHN E. (1955) ..... Professor, Physics
B.S., University of California; M.S., Ph.D., University of Southern California.

FREEMAN, FILLMORE (1965) ..... Assistant Professor, Chemistry
B.S., Central State College, Wilberforce, Ohio; Ph.D., Michigan State University.

FRITTS, PAUL J. (1965) ..... Assistant Professor, Geology
Geological Engineer, Colorado School of Mines.

FROYD, ROBERT K. (1958) ..... Associate Professor, Mathematics
A.B., Occidental College; M.A., University of California.

FULLER, JAMES A. (1964) ..... Instructor, English
A.B., Denison University, Granville, Ohio; M.A., Columbia University.

FUNG, HENRY C., JR. (1966) ..... Assistant Professor, Microbiology
A.B., University of California; M.T., University of California Medical School at San Francisco; M.A., San Francisco State College; Ph.D., Washington State University.

FURTH, CHARLOTTE D. (1966) ..... Assistant Professor, History
A.B., University of North Carolina; A.B., University of Aix-Marseille, France; Ph.D., Stanford University.

FUSS, AUDREY (1966) ..... Assistant Professor, Sociology
A.B., University of California; M.A., University of California at Los Angeles.

GABRIELSEN, STANLEY R. (1958) ..... Professor, Recreation
A.B., Gustavus Adolphus College, St. Peter, Minnesota; M.A., Ed.D., New York University.

GABRIELSON, ALICE A. (1961) ..... Social Science Catalog Librarian
A.B., California State College at Long Beach; M.S. in L.S., University of Southern California.

GAYER, DIXON L. (1959) ..... Associate Professor, Journalism
Chairman, Journalism Department
A.B., University of California; M.A., California State College at Long Beach.

GENEVRO, GEORGE W. (1957) ..... Professor, Industrial Arts
A.B., San Jose State College; M.S., State College of Washington.

GENSLEY, JULIANA T. (1962)—Associate Professor, Education
A.B., University of California at Los Angeles; M.A., California State College at Los Angeles; Ed.D., University of California at Los Angeles.

GEORGE, BARBARA C. (1961)—Associate Professor, Finance
A.B., Bennett College, Greensboro, North Carolina; J.D., State University of Iowa. Member, Iowa State Bar, California State Bar.

GEORGE, SIMON (1961)—Associate Professor, Physics
B.S., University of Travancore, India; M.S., University of Saugar, India; Ph.D., University of British Columbia.

GERMANN, A. C. (1957)—Professor, Criminology
B.S., Loyola University, Los Angeles; M.S., D.P.A., University of Southern California.

GHOSH, BHAKTI (1967)—Lecturer, Education
A.B., M.A., M.E., Allahabad University, India; Ph.D., Baylor University.

GIBBS, NORMA B. (1966)—Counselor
Ph.B., Northwestern University; M.Ed., University of Illinois.

GIBBS, THOMAS J. (1964)—Assistant Professor, Education
A.B., M.A., California State College at Long Beach.

GIBSON, NADYNE C. (1955)—Associate Professor, Music
B.S., B.Mus., Fort Hays Kansas State College; M.A., Northwestern University.

GIETL, RUDY E. (1966)—Assistant Professor, Industrial Arts
B.S., State Teachers College, California, Pennsylvania; M.A., California State College at Long Beach.

GILBERT, RETA A. (1962)—Assistant Professor, Speech
B.S., M.S., Brigham Young University.

GILDE, HELEN C. (1959)—Assistant Professor, English
A.B., M.A., University of Colorado; Ph.D., University of Chicago.

GILLASPIE, BEULAH V. (1962)—Professor, Home Economics
B.S., Ohio University; M.S., University of Minnesota; Ph.D., Columbia University.

GILPIN, C. BARCLAY (1966)—Associate Professor, Mechanical Engineering
B.S., University of Wisconsin; M.S., Ph.D., Carnegie Institute of Technology.

GITTLEMAN, ARTHUR P. (1966)—Assistant Professor, Mathematics
A.B., M.A., University of California at Los Angeles.

GLASSER, ALAN J. (1959)—Assistant Professor, Education
A.B., Stanford University; M.A., Ph.D., Boston University.

GLENN, KENNETH (1956)—Professor, Art
A.B., M.F.A., University of Washington.

GOLD, VIRGINIA Y. (1967)—Assistant Professor, Education
A.B., M.A., California State College at Long Beach.

GOLDEN, ROGER M. (1966)—Assistant Professor, Accounting
B.B.A., M.B.A., University of Miami.

GOLDISH, DOROTHY M. (1958)—Assistant Professor, Chemistry
B.S., Stanford University; Ph.D., University of California.

GOLDMAN, ROBERT B. (1961)—Assistant Professor, Electrical Engineering
B.S., U. S. Naval Academy; B.S., University of California.

GOODMAN-MALAMUTH, LEO (1956)—Professor, Speech
A.B., M.A., Ph.D., University of Southern California.

GOROW, FRANK F. (1953)—Professor, Education
B.S., University of Washington; Ed.D., University of California at Los Angeles.

GOUVIS, NICHOLAS A., P.E. (1961)—Assistant Professor, Civil Engineering
B.S., M.S., University of Illinois.

GRAETZ, RALPH C. (1956)—Professor, Education
B.S., Wisconsin State College, Milwaukee; M.Ed., Marquette University; Ed.D., Michigan State University.

GRAFF, HERMAN H. (1964)—Assistant Professor, Art
B.A.E., De Paul University, Chicago, Illinois; M.A.E., Northwestern University.

GRAHAM, GREGORY S. (1965)—Assistant Professor, Industrial Arts
B.S., Oregon State University; M.A., San Jose State College.

GRAINGE, FLOYD M. (1953)—Professor, Industrial Arts; Chairman, Industrial Arts Department
B.S., M.S., Iowa State University.

GRAMLICH, JAY J. (1956)—Professor, Education
B.S., Southwestern State College, Oklahoma; M.Ed., Southern Methodist University; Ed.D., University of Oklahoma.

GRANT, BRUCE (1956)—Counselor
B.S., University of Illinois; M.A., University of Minnesota; Ed.D., University of Colorado.

GRAY, ARLENE J. (1966)—Instructor, Nursing
B.S., M.S., Loma Linda University.

GRAY, DAVID E. (1954) ..... Professor, Recreation; Chairman, Recreation Department
A.B., California State College at Los Angeles; M.S., University of California at Los Angeles; D.P.A., University of Southern California.

GREEN, JOHN H. (1955) ..... Professor, Drama
A.B., Central State College, Edmond, Oklahoma; M.A., Northwestern University; Ph.D., University of Denver.

GREENSTADT, MELVIN (1966) ..... Associate Professor, Chemistry
B.S., City College of New York; A.B., M.A., Ph.D., University of Southern California.

GREGORY, CARL E. (1951) ..... Professor, Management
A.B., University of Washington; M.A., Ed.D., Teachers College, Columbia University.

GRELE, RONALD J. (1966) ..... Assistant Professor, History
A.B., M.A., University of Connecticut.

GRIMMETT, DIXIE ANN (1965) ..... Instructor, Physical Education
B.S., Brigham Young University; M.A., Washington State University.

GROSS, CALVIN D. (1962) ..... Associate Professor, Art
A.B., Iowa University; M.F.A., Ph.D., University of Iowa.

GROUNDS, CARL T. (1959) ..... Counselor
B.S., M.Ed., University of Oklahoma.

GUNTER, SERAFINA Q. (1964) ..... Assistant Professor, Accounting
B.S., M.S., California State College at Long Beach; C.P.A. certificate, California.

GUPTA, BHARAT B. (1966) ..... Assistant Professor, Biology
B.Sc., University of Delhi, India; M.Sc., Ph.D., University of Rajasthan, India.

GUTHRIE, C. ROBERT (1963) ..... Professor, Criminology
Chairman, Department of Criminology
A.B., Fresno State College; M.S., D.P.A., University of Southern California.

HAINES, MILLICENT (1966) ..... Assistant Professor, Education
A.B., Drake University; M.A., State University of Iowa.

HALL, HUBERT V. (1959) ..... Assistant Professor, Marketing
A.B., M.A., University of Oregon.

HAMBURGER, CHARLES D. (1965) ..... Associate Professor, Operations Research and Statistics
A.B., M.A., University of California at Los Angeles; Ph.D., University of Southern California.

HAMEL, ALBERT (1956) ..... Associate Professor, Education
A.B., University of California at Los Angeles; M.A., Emory University; Ed.D., University of California at Los Angeles.

HAMILTON, ARLENE D. (1966) ..... Associate Professor, Home Economics
B.S., Farmington State Teachers College, Farmington, Maine; M.Ed., Pennsylvania State University.

HAMMER, ELLIS D. (1965) ..... Assistant Professor, Electrical Engineering
B.S., M.S., University of Washington.

HANSON, RAPHAEL M. (1961) ..... Associate Professor, Psychology
A.B., M.A., Ph.D., University of California.

HARA, TADAO (1966) ..... Counselor
A.B., Tamagawa University, Japan; M.A., Northwest Bible College, Kirkland, Washington.

HARALSON, SALLY A. (1966) ..... Assistant Professor, Psychology
A.B., Milwaukee-Downer College, Milwaukee, Wisconsin; M.A., Indiana University; Ph.D., University of California at Los Angeles.

HARDEMAN, NICHOLAS P. (1955) ..... Professor, History
A.B., M.A., Ph.D., University of California.

HARDESTER, JANE S. (1967) ..... Lecturer, Music
A.B., University of the Pacific; M.M., University of Southern California.

HARDY, LEROY C. (1953) ..... Professor, Political Science
A.B., University of California at Santa Barbara; Ph.D., University of California at Los Angeles.

HARDY, ROSS (1949) ..... Professor, Zoology
B.S., M.S., University of Utah; Ph.D., University of Michigan.

HARMAN, MARSHA S. (1966) ..... Assistant Professor, Sociology
A.B., M.A., University of California at Los Angeles.

HARRIS, CHARLES H., III (1966) ..... Assistant Professor, History
A.B., M.A., University of Texas.

HARRIS, CHESTER R. (1966) ..... Associate Professor, Management
B.S., Indiana University; M.S., California State College at Long Beach.

HARRIS, EDWIN R. (1959) ..... Associate Professor, Chemistry
B.S., M.S., University of Oklahoma; Ph.D., University of California.

HARTMAN, WILLIAM E. (1951) ..... Professor, Sociology
A.B., M.A., Ph.D., University of Southern California.

HASKELL, MARTIN R. (1963) ..... Associate Professor, Sociology
A.B., City College of New York; LL.B., Brooklyn Law School; M.A., Ph.D., New York University.

HAUTH, LUSTER E. (1964) ..... Assistant Professor, Speech
A.B., M.A., University of Redlands; Ph.D., State University of Iowa.

HAYES, ROBERT E. (1961) ..... Assistant Professor, Political Science
A.B., M.A., University of Minnesota; Ph.D., University of Colorado.

HEALY, J. VALENTINE (1963) ..... Assistant Professor, Mechanical Engineering
B.S., Dublin College of Technology, Dublin, Ireland; M.S. in M.E., Columbia University.

HEALY, JOHN L. (1956) ..... Assistant Professor, Speech
A.B., University of California; M.A., University of Nebraska; Ph.D., University of Southern California.

HEINTZ, ROY K. (1956) ..... Professor, Psychology
A.B., University of Missouri; M.A., Washington University; Ph.D., Princeton University.

HEISE, REINALD C. (1958) ..... Associate Professor, Management
B.B.A., M.A., University of Minnesota.

HELM, SANFORD M. (1954) ..... Professor, Music
A.B., Transylvania College; B.Mus., M.Mus., Ph.D., University of Michigan.

HENDERSON, BRAXTON C. (1964) ..... Associate Professor, Business Education
B.S., M.Ed., University of California at Los Angeles; Ed.D., Stanford University.

HENDERSON, ROBERT B. (1955) ..... Professor, Chemistry
A.B., M.A., Cornell University; Ph.D., University of California at Los Angeles.

HENNESSEE, DON A. (1952) ..... Assistant Social Science Reference Librarian
A.B., University of Redlands; B.S. in L.S., University of Illinois; M.A., Mexico City College.

HERMANN, JOHN A. (1955) ..... Professor, English
A.B., Carroll College; M.A., University of Wisconsin; Ph.D., State University of Iowa.

HICKERSON, TRUMAN O., JR. (1965) ..... Assistant Professor, Accounting
B.S., M.B.A., University of California at Los Angeles; C.P.A. certificate, California.

HIGGINS, JOHN E. (1964) ..... Associate Professor, History
A.B., Tufts University; M.A., Ph.D., Harvard University.

HILL, JAMES W., P.E. (1962) ..... Associate Professor, Electrical Engineering
B.S., M.S., California Institute of Technology, Pasadena.

HILLESHEIM, JAMES W. (1966) ..... Lecturer, Education
A.B., Chapman College; M.A., Tulane University; M.Ed., University of Southern California.

HINKEL, MICHAEL A. (1966) ..... Assistant Order Librarian
A.B., M.L.S., University of Southern California.

HIPKISS, ROBERT A. (1966) ..... Assistant Professor, English
A.B., San Jose State College; M.A., Ph.D., University of California at Los Angeles.

HITCHCOCK, HOWARD G. (1958) ..... Associate Professor, Art
A.B., College of Puget Sound; M.F.A., University of Washington; Ed.D., Teachers College, Columbia University.

HOFF, JOAN C. (1957) ..... Associate Professor, Home Economics
B.S., George Pepperdine College; M.S., University of Southern California.

HOFFMAN, MABEL J. (1961) ..... Associate Professor, Nursing
B.S., University of California at San Francisco; M.A., Teachers College, Columbia University.

HOFSAS, ELIZABETH A. (1966) ..... Assistant Serials Catalog Librarian
B.Mus.Ed., Illinois Wesleyan University; M.S. in L.S., University of Illinois.

HOLMES, ROBERT T. (1961) ..... Associate Professor, Marketing
B.S., Purdue University; M.B.A., Northwestern University; Ph.D., State University of Iowa.

HOMMEL, LEONARD S. (1961) ..... Associate Professor, Psychology
A.B., Wayne State University; M.A., State University of Iowa; Ph.D., Stanford University.

HOOD, DAVID C. (1966) ..... Assistant Professor, History
A.B., University of California at Santa Barbara; Ph.D., University of Southern California.

HOUDE, ADELORE L. (1965) ..... Associate Professor, Electrical Engineering
A.B., University of Toronto; M.A., University of Houston; Ph.D., University of Notre Dame.

HRUBANT, H. EVERETT (1957) ..... Associate Professor, Biology
B.S., University of Illinois; M.S., Ph.D., Ohio State University.

HSIEH, KENNETH (1959) ..... Periodicals Catalog Librarian
A.B., Meiji University, Tokyo; M.L.S., University of California.

HU, CHI-yu YANG (1963) ..... Assistant Professor, Physics
B.S., National Taiwan University, Taipei, Taiwan; Ph.D., Massachusetts Institute of Technology.

HUBBARD, HAROLD G. (1962) ..... Associate Professor, Sociology
A.B., University of California at Los Angeles; M.A., Southern Methodist University, Dallas, Texas; Ph.D., University of Southern California.

HUBBLE, THOMAS N. (1958) ..... Associate Professor, English
A.B., M.A., Ph.D., University of Southern California.

HUDDLESTON, BARBARA (1966) ..... Assistant Professor, Education
A.B., University of California at Los Angeles.

HUNT, RICHARD L. (1965) ..... Assistant Professor, Chemistry
B.S., Antioch College, Yellow Springs, Ohio; Ph.D., University of Chicago.

HUNTING, WALTER H. (1965)—Assistant Professor, Psychology
A.B., University of California at Los Angeles; M.A., Mills College.

HUPFIELD, TALMA B. (1959)—Associate Professor, Home Economics
A.B., Hardin-Simmons University; M.A., Teachers College, Columbia University.

HUTCHERSON, JOHN V. (1956)—Associate Professor, Physics
A.B., University of California; M.S., University of Colorado.

HUTTON, ERMA L. (1966)—Assistant Professor, Sociology
A.B., California State College at Long Beach; M.S.W., University of Southern California.

INOSTROZA, RAUL A. (1966)—Assistant Professor, Foreign Languages
Licenciado en Filosofia, University of Concepcion, Chile; M.A., University of California; Ph.D., Stanford University.

INUI, LLOYD T. (1965)—Assistant Professor, Political Science
A.B., M.A., University of Michigan.

IRWIN, CATHERN M. (1961)—Associate Professor, Health Education
B.S., M.S., University of California at Los Angeles.

ISRAELS, ELISABETH M. (1966)—Lecturer, History
A.B., University of California at Los Angeles.

JACKMAN, TAYLOR T. (1963)—Associate Professor, Education
A.B., John Brown University; M.A., Oklahoma State University; Ed.D., University of Southern California.

JACKSON, RICHARD F. (1966)—Assistant Professor, Physics-Astronomy
B.S., University of Hull, England; Ph.D., University of Southampton, England.

JACOBSON, EDWARD (1965)—Lecturer, Education
A.B., M.S., California State College at Los Angeles.

JAMES, WILFRED P. (1952)—Professor, English-Journalism
A.B., University of Dubuque; M.A., Ph.D., Northwestern University.

JAMES, WILLARD D. (1967)—Associate Professor, Mathematics
B.S., Nothern Illinois University; M.S., Ph.D., University of Illinois.

JARRETT, HILTON F. (1966)—Associate Professor, Psychology
B.E., M.S., Ph.D., University of Southern California.

JENSEN, MARILYN A. (1965)—Assistant Professor, Recreation
A.B., San Jose State College; M.A., University of Southern California.

JENSON, OWEN O. (1966)—Assistant Professor, Speech
B.S., Brigham Young University; M.S., Ph.D., Purdue University.

JERSIN, PATRICIA D. (1965)—Instructor, Education
A.B., University of Denver; M.A., University of California at Los Angeles.

JOHNSON, CHRISTOPHER J. (1966)—Lecturer, Physical Education
B.S., M.S., University of Southern California.

JOHNSON, CLYDE S. (1957)—Professor, Education
A.B., University of California; M.A., Ed.D., University of California at Los Angeles.

JOHNSON, HENRY S. (1966)—Test Officer
A.B., University of Hawaii; M.Ed., Ph.D., University of Southern California.

JOHNSON, JEAN J. (1965)—Associate Professor, Art
A.B., Central Washington State College; M.A., Teachers College, Columbia University.

JOHNSON, KENNETH L. (1951)—Professor, Physiology
Chairman, Division of Natural Science
B.S., Bethany College, Kansas; M.S., Ph.D., University of Southern California.

JOHNSON, LOIS E. (1959)—Associate Professor, Physical Education
A.B., Gustavus Adolphus College; M.Ed., University of Minnesota.

JOHNSON, RICHARD JOHN (1959)—Associate Professor, Education
Chairman, Instructional Media Department
B.S., Michigan State College; M.S., Ed.D., Indiana University.

JOHNSON, WILLIAM M. (1965)—Assistant Professor, Philosophy
A.B., University of California.

JOHNSTON, MARION R. (1955)—Professor, Education
A.B., Northwestern University; M.A., Stanford University; Ed.D., University of California at Los Angeles.

JOHNSTONE, OLIVER P. (1951)—Professor, Education
Coordinator, Elementary Teacher Education
B.S., Miami University, Ohio; M.A., Stanford University; Ed.D., University of Southern California.

JONES, RITA H. (1964)—Assistant Professor, Education
B.S., Northern Michigan University; M.A., University of Michigan; Ed.D., University of California

JORDANIDES, THIMIOS J. (1964)—Assistant Professor, Electrical Engineering
B.S. in E.E., Wayne State University; M.S. in E.E., San Jose State College.

JORGENSEN, RUSSELL B. (1966) ..... Lecturer, Mechanical Engineering
B.S. in C.E., M.S., University of Nebraska.

KACEWICZ, GEORGE V. (1966) ..... Assistant Professor, Political Science
A.B., University of Minnesota; M.A., University of Missouri.

KAHAN, STANLEY (1961) ..... Associate Professor, Drama
A.B., City College of New York; M.A., Ph.D., University of Wisconsin.

KALBUS, GENE E. (1957) ..... Associate Professor, Chemistry
B.S., Ph.D., University of Wisconsin.

KANASI, IRENE (1959) ..... Humanities Catalog Librarian
A.B., University of Science, Budapest; M.A. in L.S., University of Southern California.

KAPCHE, ROBERT W. (1966) ..... Assistant Professor, Psychology
B.S., Loyola University; M.S., Ph.D., Northwestern University.

KARABENICK, EDWARD (1959) ..... Associate Professor, Geography
A.B., M.A., Wayne State University; Ph.D., University of Michigan.

KATZ, JERRY M. (1965) ..... Assistant Professor, Sociology
A.B., New York University; M.A., University of California at Los Angeles.

KAUFMAN, ELIZABETH S. (1963) ..... Assistant Professor, Nursing
A.B., Stanford University; M.S., University of California at Los Angeles.

KAYWOOD, RICHARD (1966) ..... Associate Professor, Health Education
B.S., College of City of New York; M.A., Ed.D., Columbia University.

KAZAN, ELIZABETH (1955) ..... Professor, Microbiology
B.S., University of Utah; M.S., Ph.D., University of Southern California.

KEARNEY, MICHAEL L. (1960) ..... Associate Professor, Finance
B.S., University of California at Los Angeles.

KEATING, FREDERICK M. (1964) ..... Assistant Professor, Biology
B.S., M.S., University of New Hampshire; Ph.D., Ohio State University.

KEELE, GARY D. (1965) ..... Assistant Professor, Speech
B.S., M.S., University of Oregon.

KEFGEN, MARY F. (1958) ..... Associate Professor, Home Economics
B.S., Iowa State College; M.A., New York University.

KELLY, REINE C. (1964) ..... Assistant Professor, Foreign Languages
Licence, Diplome d'Etudes Superieures, University of Bordeaux, France.

KENDALL, HARVEY L. (1966) ..... Assistant Professor, Foreign Languages
A.B., M.A., Indiana University.

KENNELLY, ROBERT A. (1952) ..... Professor, Geography
A.B., M.A., Ph.D., State University of Iowa.

KENNEY, JOHN P. (1966) ..... Professor, Criminology
A.B., University of California; M.S., University of Southern California; Ph.D., University of California at Los Angeles.

KERSHAW, GRETHA (1966) ..... Assistant Professor, Anthropology
M.A., University of Chicago.

KEY, HAROLD H. (1965) ..... Assistant Professor, Anthropology
A.B., M.A., Ph.D., University of Texas.

KIDD, EARL C. (1952) ..... Associate Professor, Physical Education
B.S., Oregon College of Education; M.S., University of Oregon.

KIERBOW, JULIE VAN N. (1957) ..... Associate Professor, Chemistry
B.S., Ohio State University; M.S., University of Hawaii; Ph.D., University of Colorado.

KIM, HYUNG I. (1966) ..... Assistant Professor, Philosophy
M.A., Ph.D., Claremont Graduate School.

KIM, JUHEE (1966) ..... Assistant Professor, Microbiology
B.S., Seoul National University; M.S., Ph.D., Cornell University.

KIMBALL, HOWARD E. (1951) ..... Professor, History
Chairman, History Department
A.B., M.A., Ph.D., University of California at Los Angeles.

KINCSES, JOHN (1959) ..... Medical Officer
M.D., Queen of Elizabeth State University, Pecs, Hungary.

KING, CHI WU (1959) ..... Associate Professor, Civil Engineering
Diploma, Shanghai University; Engineering degree, University of Ghent.

KING, RONALD L. (1964) ..... Assistant Professor, Business Education
B.S., California State College at Long Beach.

KINSMAN, KEPHAS A. (1949) ..... Professor, Education
A.B., University of California at Los Angeles; M.A., Ed.D., University of Southern California.

KLAFS, CARL E. (1956) ..... Professor, Physical Education
B.S., Indiana University; M.A., Montana State University; Ph.D., University of Southern California.

KLEINTJES, PAUL L. (1954) ..... Professor, Industrial Technology
Chairman, Industrial Technology Department
B.S., New York State Teachers College; Oswego; M.A., Ohio State University; Ed.D., Pennsylvania State University.

KLUSS, BYRON C. (1959) ..... Professor, Zoology
A.B., M.A., Ph.D., State University of Iowa.

KNAFEL, STEPHEN R. (1962) ..... Assistant Professor, English
A.B., Union College, Schenectady, New York; M.A., Columbia University; Ph.D., Brown University.

KORBER, GEORGE W. (1952) ..... Professor, Sociology
Chairman, Sociology and Social Welfare Department
A.B., M.A., University of Pacific; Ph.D., Stanford University.

KOZUMA, HAROLD K. (1964) ..... Assistant Professor, Education
A.B., University of Hawaii; M.S., Ed.D., University of Oregon.

KRANZ, M. MURRAY (1966) ..... Instructor, History
A.B., M.A., New York University.

KRAUSE, JOSEPH H. (1955) ..... Professor, Art
Chairman, Art Department
A.B., M.S., Ed.D., University of Southern California

KREBS, ERLINE S. (1967) ..... Assistant Professor, Education
A.B., University of California.

KROMAN, RONALD A. (1959) ..... Associate Professor, Biology
A.B., M.A., Ph.D., University of Minnesota.

KRUEGER, DAVID H. (1956) ..... Assistant Professor, Speech
A.B., M.A., Whittier College.

KUHN, BENNO (1965) ..... Assistant, Foreign Languages
A.B., California State College at Long Beach.

KULIK, STEPHEN (1959) ..... Professor, Mathematics
Doctor of Mathematical Science, Institute of Mathematics; University of Kiev.

KUNDIS, LAWRENCE E. (1958) ..... Associate Professor, Mechanical Engineering
A.B. in M.E., Youngstown University; M.F.A., University of Colorado; Ph.D., University of Southern California.

KYLE, CHESTER R., P.E. (1959) ..... Associate Professor, Mechanical Engineering
B.S., University of Arizona; M.S. in Engineering, University of California at Los Angeles.

LABELLE, DALE T. (1966) ..... Assistant Professor, History
A.B., University of Massachusetts; M.A., University of Chicago.

LACKEY, PHYLLIS L. (1964) ..... Assistant Professor, Nursing
B.S., University of California at Los Angeles; M.S., University of California at San Francisco.

LaCOUR, MARSHALL W. (1964) ..... Assistant Professor, Industrial Arts
A.B., M.A., California State College at Long Beach.

LAMPL, HANS (1965) ..... Associate Professor, Music
B.M., M.M., D.M.A., University of Southern California.

LANDES, BERNARD A. (1961) ..... Associate Professor, Speech
B.S., M.S., Purdue University; Ph.D., University of Michigan.

LANE, HERBERT J. (1963) ..... Assistant Professor, Electrical Engineering
B.S. in E.E., Gonzaga University; M.S. in E.E., University of Washington.

LANGSTON, B. JOE (1966) ..... Assistant Professor, Speech
A.B., University of Southern California; M.A., Wayne State University.

LaPAGE, PETER PAUL (1957) ..... Associate Professor, Accounting
B.S., University of California at Los Angeles; M.B.A., University of Southern California; C.P.A. certificate, California.

LARE, JOAN H. (1964) ..... Associate Professor, Home Economics
B.S., University of Maryland; M.S., Ph.D., Cornell University.

LARR, ALFRED L. (1960) ..... Associate Professor, Speech
A.B., M.A., Indiana State College; Ph.D., Syracuse University.

LATHROP, IRVIN T. (1959) ..... Professor, Industrial Arts
B.S., Stout Institute; M.S., Ph.D., Iowa State University.

LAUFER, ARTHUR C. (1957) ..... Professor, Management
Chairman, Management Department
B.S., M.B.A., Ph.D., University of California at Los Angeles.

LAWSON, ALVIN H. (1962) ..... Assistant Professor, English
A.B., University of California; M.A., Ph.D., Stanford University.

LEE, LESTER C. (1966) ..... Lecturer, Education
A.B., Occidental College; B.D., Princeton Seminary; Ph.D., Claremont Graduate School.

LEE, RICHARD E. (1955) ..... Professor, English
A.B., M.A., Ph.D., New York University.

LEIS, GORDON L. (1966)—Assistant Professor, Sociology
B.S., Florida Southern College; M.S., London School of Economics.

LEITER, WILLIAM M. (1966)—Assistant Professor, Political Science
A.B., University of Massachusetts; M.A., University of Chicago.

LELAND, MARY JANE (1959)—Associate Professor, Art
B.S., Iowa State University; M.F.A., Cranbrook Academy of Art.

LEUTWILER, RICHARD W., JR., P.E. (1959)—Professor, Mechanical Engineering
B.S. in M.E., University of Illinois; M.S. in M.E., State University of Iowa.

LEWIS, AREN A. (1967)—Assistant Professor, Accounting
B.S., Northwestern University; M.B.A., California State College at Long Beach.

LEWIS, RODNEY C., P.E. (1958)—Professor, Electrical Engineering
Chairman, Electrical Engineering Department
B.S., University of Southern California; M.S., Iowa State University.

LIEN, JAMES C. (1954)—Professor, Political Science
A.B., St. Ambrose College; M.A., Ph.D., State University of Iowa.

LINCOLN, RICHARD G. (1956)—Professor, Botany
B.S., Oregon State College; Ph.D., University of California at Los Angeles.

LINDGREN, RAYMOND E. (1961)—Academic Vice-President; Professor, History
A.B., M.S., Ph.D., University of California at Los Angeles.

LINDQUIST, JOHN R. (1966)—Counselor
B.S., M.A., University of Minnesota.

LIPSKI, ALEXANDER (1958)—Professor, History
A.B., M.A., Ph.D., University of California.

LITTRELL, ROBERT T. (1957)—Director, Institutional Studies and Data Processing
B.S., M.A., Ed.D., University of Nebraska.

LOCKLEY, A. S. (1956)—Associate Professor, Zoology
A.B., Queen's University; M.S., University of Michigan.

LOCKLIN, GERALD I. (1965)—Assistant Professor, English
A.B., St. John Fisher College, Rochester, New York; M.A., Ph.D., University of Arizona.

LOGAN, LUCILE (1964)—Instructor, Microbiology
B.S., University of Montana; M.A., University of Utah.

LOOMIS, RICHARD B. (1955)—Professor, Biology
B.S., University of Nebraska; Ph.D., University of Kansas.

LOPEZ, BEULAH E. (1965)—Assistant Professor, Speech
A.B., Pasadena College; M.A., California State College at Long Beach.

LORCH, BARBARA DAY (1959)—Professor, Sociology
B.S., M.A., Washington State College; Ph.D., University of Washington.

LORCH, ROBERT S. (1959)—Associate Professor, Political Science
A.B., State University of Iowa; M.S., University of Nebraska; Ph.D., University of Wisconsin.

LORD, ISABEL E. (1959)—Assistant Curriculum Librarian
B.S., University of Tampa; M.S. in L.S., University of Southern California.

LORENZEN, ED. F. N. (1963)—Assistant Professor, Safety Education
A.B., M.A., Colorado State College.

LOTHAMER, EILEEN E. (1966)—Assistant Professor, English
A.B., M.A., Ph.D., University of California at Los Angeles.

LUBBE, LOUISE C. (1956)—Professor, English
A.B., M.A., Ph.D., University of California at Los Angeles.

LUKE, KEUNG P. (1966)—Assistant Professor, Physics
B.S., M.S., Ph.D., Massachusetts Institute of Technology.

LUMSDEN, WILLIAM W., JR. (1958)—Associate Professor, Geology
A.B., Ph.D., University of California at Los Angeles.

LUTZ, J. GEORGE (1967)—Lecturer, Chemistry
B.S., Polytechnic Institute of Brooklyn; M.A., Ph.D., Columbia University.

LYCHE, WALTER J. (1957)—Associate Professor, Mathematics
A.B., St. Olaf College; M.A., University of Minnesota.

LYMAN, KENNETH C. (1965)—Assistant Professor, Drama
B.S., Rockhurst College, Kansas City, Missouri; M.A., University of Denver; Ph.D., University of Wisconsin.

LYON, M. JOAN (1958)—Associate Professor, Physical Education
A.B., M.A., Stanford University.

LYON, MICHAEL T. (1967)—Lecturer, Art
A.B., University of Washington.

LYON, RICHARD E. (1958)—Associate Professor, English
A.B., M.A., Ph.D., University of Chicago.

McCLELLAND, JAMES N. (1959)—Professor, Psychology
B.S., M.A., Drake University; Ph.D., University of California.

McCONE, R. CLYDE (1961)—Associate Professor, Anthropology
A.B., Wessington Springs College, South Dakota; M.S., South Dakota State College; Ph.D., Michigan State University.

McCONNELL, JOHN J. (1953)—Professor, Physical Education
A.B., Cornell College, Iowa; M.A., Purdue University; Ph.D., State University of Iowa.

McCORKLE, H. THOMAS, JR. (1966)—Associate Professor, Anthropology
A.B., Ph.D., University of California.

McCULLOUGH, THOMAS A. (1965)—Assistant Professor, Mathematics
A.B., M.A., University of California at Los Angeles.

McFAUL, JOHN M. (1963)—Assistant Professor, History
A.B., University of California at Santa Barbara; M.A., Ph.D., University of California.

McGARRITY, BERTRAM C. (1951)—Professor, Music
B.S., University of Minnesota; M.S., University of Idaho; Ph.D., State University of Iowa.

McILVAINE, WILLIAM D. (1964)—Associate Professor, Mechancial Engineering
B.S., M.S., University of Minnesota.

McINTOSH, CARL W. (1959)—President
A.B., University of Redlands; M.A., Ph.D., State University of Iowa; LL.D., University of Redlands.

McKINNON, ANNA MARY (1960)—Associate Professor, Accounting
B.S., University of Illinois; M.B.A., Northwestern University; C.P.A. certificate, Arizona.

McKNIGHT, ROBERT V. (1966)—Lecturer, Journalism
B.J., University of Missouri; M.S.J., American University.

McLEOD, EDWARD B., JR. (1965)—Associate Professor, Mathematics
A.B., Occidental College; M.S., Ph.D., Stanford University.

McNAUGHTON, DANIEL C. (1958)—Professor, Education; Chairman, Secondary Education Department; Coordinator, Secondary Teacher Education
B.S., Colorado A. & M. College; M.A., University of Chicago; Ed.D., Stanford University.

McNEALLY, DOUGLASS H. (1964)—Assistant Professor, History
A.B., Bowdoin College; M.A., Columbia University; Ph.D., Northwestern University.

MACARTHUR, DAVID E. (1964)—Associate Professor, Drama
A.B., M.A., Western Reserve University; Ph.D., Ohio State University.

MACFARLANE, THOMAS G. (1952)—Professor, Psychology
A.B., University of British Columbia; M.A., Ph.D., University of California at Los Angeles.

MACMILLAN, ARCHIE J. (1963)—Associate Professor, Electrical Engineering
B.S. in E.E., M.S. in E.E., University of Southern California; Ph.D., Massachusetts Institute of Technology.

MACON, B. DAVID (1957)—Assistant Professor, Industrial Arts
A.B., M.A., California State College at Long Beach.

MADDEN, MARILYN (1966)—Assistant Professor, Foreign Languages
A.B., Stanford University; M.A., University of Washington; M.A., Middlebury College, Middlebury, Vermont.

MADISON, RYLAND R. (1951)—Associate Professor, Economics
A.B., M.A., Ph.D., Stanford University.

MAHAR, FRANKLYN D. (1967)—Assistant Professor, History
A.B., Southern Oregon College; M.A., University of Oregon.

MAHROUYAN, REZA (1966)—Assistant Professor, Electrical Engineering
B.S. in E.E., M.S. in E.E., San Jose State College.

MAKKAI, ADAM (1966)—Assistant Professor, English
A.B., Harvard University; M.A., Ph.D., Yale University.

MALONE, DAGMAR M. (1965)—Lecturer, Foreign Languages
A.B., University of Cologne, Germany; M.A., University of Southern California.

MALTZ, CARL (1966)—Assistant Professor, Mathematics
B.S., California Institute of Technology; M.S. in E.E., University of California at Los Angeles.

MANNING, RUBY MONTEEN (1959)—Head Education Curriculum Librarian
A.B., Lander College; A.B. in L.S., Emory University.

MANSFIELD-JONES, GREAYER (1962)—Assistant Professor, Biology
A.B., Pomona College; M.A., Claremont University College.

MARDELLIS, ANTHONY (1956)—Associate Professor, Mathematics
A.B., M.A., University of California.

MARIN, JOSE (1964)—Associate Professor, Foreign Languages
A.B., University of Valencia, Spain; M.A., University of Southern California; Ph.D., University of Valencia.

MARSI, KENNETH L. (1961)—Associate Professor, Chemistry
A.B., San Jose State College; Ph.D., University of Kansas.

NORMAN, PHILIP B. (1964) — Associate Professor, Mathematics
A.B., M.A., University of California; Ph.D., Columbia University.

NYGAARD, JOHN E. (1963) — Associate Professor, Psychology
Chairman, Psychology Department
A.B., College of Wooster, Ohio; Ph.D., University of Illinois.

ODEN, RICHARD S. (1961) — Assistant Professor, Art
B.F.A., Carnegie Institute of Technology; M.F.A., Cranbrook Academy of Art.

OLIVER, HAZEL A. (1960) — Education Catalog Librarian
B.Th., Northwest Christian College, Eugene, Oregon; M.A., Butler University, Indianapolis, Indiana; M.S. in L.S., University of Southern California.

OLORUNSOLA, VICTOR A. (1967) — Assistant Professor, Political Science
A.B., Friends University, Wichita, Kansas; Ph.D., Indiana University.

OLSEN, R. WARNER (1960) — Music Catalog Librarian
B.Mus.Ed., University of Colorado; M.A., University of Denver.

OPSTAD, PAUL E. (1958) — Counselor
A.B., M.A., Ph.D., State University of Iowa.

ORGILL, DOUGLAS H. (1951) — Professor, English
A.B., M.A., Brigham Young University; Ph.D., University of Southern California.

ORFET, RUSSEL E. (1959) — Associate Professor, Education
A.B., M.S., M.Ed., Ed.D., University of Southern California.

OSBORNE, CLYDE E. (1957) — Assistant Professor, Chemistry
A.B., University of California at Los Angeles; M.S., University of California.

OSBORNE, DOUGLAS (1964) — Professor, Anthropology
A.B., M.A., University of New Mexico; Ph.D., University of California.

OSUGA, JEAN S. (1961) — Assistant Social Science Reference Librarian
A.B., Lewis & Clark College; M.A. in L.S., University of Washington.

O'TOOLE, WILLIAM F. (1966) — Instructor, English
A.B., Clark University; M.A., University of Connecticut.

PACE, DENNY F. (1966) — Assistant Professor, Criminology
B.S., M.S., University of Southern California.

PALMER, PETER F. (1953) — Professor, Economics
A.B., University of British Columbia; M.A., Ph.D., Stanford University.

PALUBINSKAS, FELIKSAS (1965) — Associate Professor, Marketing
B.S.C., M.B.A., DePaul University, Chicago, Illinois; Ph.D., University of Illinois.

PAPE, PATTIE A. (1966) — Instructor, Physical Education
A.B., California State College at Long Beach.

PARKER, KERMIT U. (1966) — Counselor
A.B., Simpson College, Indianola, Iowa.

PARTRIDGE, LYMAN M. (1964) — Associate Professor, Speech
A.B., Brigham Young University; M.A., Teachers College, Columbia University; Ph.D., University of Michigan.

PATCHA, JOHN C. (1963) — Assistant Professor, Industrial Arts
A.B., University of California at Santa Barbara; M.S., California State College at Long Beach.

PATEL, RAMAN C. (1966) — Associate Professor, Operations Research and Statistics
B.Sc., M.Sc., University of Baroda, India; M.S., University of Chicago; Ph.D., University of Southern California.

PATTERSON, WILLIAM (1957) — Professor, Physical Education
A.B., San Diego State College; M.Ed., Springfield College, Massachusetts; Ed.D., University of California at Los Angeles.

PECCORINI, FRANCISCO L. (1966) — Lecturer, Philosophy
A.B., St. Francis Xavier College, Spain; Ph.D., University of Comillas, Spain.

PECK, RODERICK B. (1957) — Associate Dean, Instruction; Professor, Education
A.B., Nebraska State Teachers College, Wayne, Nebraska; M.S., Ph.D., Iowa State University.

PENTECOST, WANDA L. (1963) — Assistant Professor, Nursing
B.S., Mount Union College, Alliance, Ohio; M.S., University of California at Los Angeles.

PERLA, GEORGE A. (1965) — Assistant Professor, Foreign Languages
A.B., M.A., University of California at Los Angeles.

PERLGUT, LOUIS E. (1965) — Assistant Professor, Chemistry
B.S., M.S., Ph.D., Rutgers University.

PERLMAN, ELLIS B. (1962) — Instructor, Political Science
A.B., M.A., University of California at Los Angeles.

PERRY, LELAND M. (1956) — Professor, Education
A.B., Duke University; M.Ed., Ed.D., University of Missouri.

PERRY, RICHARD H. (1958) — Associate Professor, Physical Education
A.B., College of Emporia; M.A., Kansas State Teachers College.

PESTOLESI, ROBERT A. (1955)—Associate Professor, Physical Education
Chairman, Men's Physical Education Department
B.S., University of Southern California; M.A., California State College at Long Beach.

PETERS, DONALD W. (1953)—Professor, History
Chairman, Division of Social Sciences
A.B., Occidental College; M.A., Claremont Graduate School; Ph.D., University of Southern California.

PETERSEN, PAUL G. (1962)—Associate Professor, Psychology
A.B., Ph.D., University of California.

PETERSEN, RAY A. (1965)—Instructor, Health Education
B.S., M.H.Ed., Brigham Young University.

PETERSON, AUDREY C. (1966)—Assistant Professor, English
A.B., University of California at Los Angeles; M.A., California State College at Long Beach; Ph.D., University of Southern California.

PETERSON, LAWRENCE L. (1949)—Professor, Music
Chairman, Division of Fine Arts
B.Ed., Moorhead State Teachers College; M.S., Ed.D., University of Southern California.

PHEARMAN, LEO T. (1950)—Professor, Education
A.B., Cornell College, Iowa; M.A., Ph.D., State University of Iowa.

PICKEL, WILLIAM T. (1958)—Professor, Accounting
B.S., Highlands University; M.S., University of Colorado; LL.B., Blackstone School of Law; C.P.A. Certificate, Texas; Member, Texas State Bar.

PINE, ALVIN A. (1962)—Assistant Professor, Art
B.S., City College of New York; M.F.A., Cranbrook Academy of Art.

PLOURDE, FERDINAND J., JR. (1966)—Instructor, English
A.B., M.A., University of Minnesota.

POLLACH, SAMUEL (1961)—Associate Professor, Education
B.S., Tufts College; M.A., Ed.D., University of California at Los Angeles.

POLLOCK, MARION B. (1964)—Assistant Professor, Health Education
A.B., Miami University; M.S., University of California at Los Angeles.

PONSAR, WARREN (1961)—Associate Professor, Sociology
A.B., California State College at Long Beach; M.S., University of Missouri.

POOLE, IRMA AILEEN (1959)—Professor, Education
A.B., University of Michigan; M.A., Ohio University; Ph.D., University of California.

POOLER, FRANK M. (1959)—Associate Professor, Music
B.Mus., St. Olaf College; M.A., M.F.A., State University of Iowa.

POPHAM, DONALD F. (1956)—Associate Professor, Education
A.B., M.A., University of Denver; Ed.D., University of Colorado.

POWELL, JAMES G. (1961)—Associate Professor, Speech
A.B., University of Minnesota; M.A., Pennsylvania State University; Ph.D., University of Wisconsin.

POWELL, J. RICHARD (1954)—Professor, Economics
Chairman, Economics Department
A.B., University of California at Santa Barbara; M.A., Ph.D., University of California at Los Angeles.

POWELL, PAUL E. (1955)—Professor, Industrial Arts
B.S., Bowling Green State University; M.S., Stout Institute; Ed.D., Wayne University.

PRIVETTE, SUZANNE W. (1965)—Assistant Order Librarian
A.B., California State College at Long Beach; M.S. in L.S., University of Southern California.

PROPECK, GEORGE E. (1964)—Assistant Professor, Education
A.B., University of Illinois; M.A., Ed.D., Northwestern University.

PROPES, AILEEN W. (1953)—Head Catalog Librarian
A.B., B.L.S., University of California; M.A., California State College at Long Beach.

PUCKETT, CLARK R. (1962)—Assistant Professor, Economics
A.B., University of California.

PULLMAN, JAMES M. (1961)—Assistant Professor, Physical Education
A.B., M.A., University of California at Santa Barbara.

PURCELL, JANE F. (1964)—Assistant Professor, Art
A.B., Fresno State College; M.A., Columbia University.

PURCELL, MARY-JOE (1959)—Associate Professor, English
B.S., University of Arkansas; M.A., Ph.D., University of Missouri.

QUEST, CHARLES E. (1966)—Assistant Professor, Philosophy
A.B., Duke University.

QUILLEN, ELISABETH M. (1964)—Instructor, Foreign Languages
License, University of Paris, La Sorbonne.

QUINONES, LOUIS E. (1965)—Assistant Professor, Industrial Arts
B.S., M.S., State University of New York Teachers College, Oswego, New York.

RAGLAND, JAMES F. (1955) ..... Associate Professor, History
A.B., University of Missouri; M.A., University of Southern California; Ph.D., Stanford University.

RAINEY, DENNIS G. (1956) ..... Professor, Zoology
A.B., Westminster College, Wisconsin; M.S., University of Arkansas; Ph.D., University of Kansas.

RAJ, HARKISAN D. (1962) ..... Associate Professor, Microbiology
B.S., University of Bombay, India; M.S., Ph.D., University of Poona, India.

RAMSEY, ROBERT W. (1957) ..... Associate Professor, Art
B.F.A., University of Southern California; M.F.A., Alfred University, New York; Ph.D., Ohio State University.

RAWSON, ERNEST J. (1957) ..... Associate Professor, Industrial Arts
A.B., Peru State Teachers College, Peru, Nebraska; M.E., Colorado Agricultural and Mechanical College.

RAZDAN, BRIJ M. (1966) ..... Lecturer, English
A.B., Mahendra College, India; M.A., Government College, Pakistan.

REDMON, JO ANNE (1964) ..... Instructor, Physical Education
B.S., M.S., University of California at Los Angeles.

REED, DON F. (1957) ..... Associate Professor, Physical Education
B.S., M.S., University of Southern California.

REED, WILLARD H. (1962) ..... Associate Professor, Civil Engineering
Chairman, Civil Engineering Department
B.S., California State College at Long Beach; M.S. in C.E., University of Southern California.

REEDS, J. NELSON (1966) ..... Associate Professor, Chemistry
B.S., M.S., Ph.D., State University of Iowa.

REEP, S. AUSTEN (1953) ..... Professor, Finance
B.B.A., M.A., University of Minnesota; Ph.D., University of Chicago.

REESE, RICHARD (1964) ..... Assistant Professor, Physical Education
A.B., California State College at Long Beach.

REID, CARMEN P. (1951) ..... Professor, Physical Education
Chairman, Women's Physical Education Department
B.Ed., M.S., Ed.D., University of California at Los Angeles.

REINCE, OWEN M. (1956) ..... Associate Professor, Education
B.S., St. Norbert College, Wisconsin; M.S., Ph.D., University of Wisconsin.

REISH, DONALD J. (1958) ..... Professor, Biology
B.S., University of Oregon; M.A., Oregon State College; Ph.D., University of Southern California.

RENNER, GERALD A. (1966) ..... Head Science-Technology Reference Librarian
B.S., University of Kansas; M.A.L.S., Louisiana State University.

RENSHAW, R. WARD (1966) ..... Instructor, Biology
A.B., San Jose State College; M.A., University of the Pacific.

RESCH, WILLIAM M. (1964) ..... Assistant Professor, Psychology
A.B., San Jose State College.

REVIE, VIRGIL A. (1957) ..... Associate Professor, Education
A.B., M.A., Ed.D., University of California.

REYNOLDS, H. ROBERT (1962) ..... Associate Professor, Music
B.M., M.M., University of Michigan.

RHOADS, KENNETH J. (1956) ..... Professor, Finance
A.B., University of Redlands; M.B.A., University of California at Los Angeles; LL.B., University of Southern California. Member, California State Bar.

RIDDER, HANS P. (1964) ..... Assistant Professor, Political Science
Diploma, University of Cologne.

RIDDLE, LYNNE (1966) ..... Instructor, Physical Education
A.B., M.A., California State College at Los Angeles.

RINGER, VIRGINIA H. (1961) ..... Associate Professor, Philosophy
A.B., University of California at Los Angeles; Ph.D., University of Southern California.

ROBERTS, CHARLES A., JR. (1956) ..... Professor, Physics
Chairman, Physics-Astronomy Department
B.S., University of California at Los Angeles; M.S., University of Southern California; Ph.D., University of Maryland.

ROBERTS, MARTHA A. (1965) ..... Lecturer, Sociology
B.S., Northwestern University; M.A., University of Arizona.

ROBERTSON, DONALD R. (1966) ..... Assistant Professor, Sociology
A.B., Los Angeles Pacific College; Ph.D., University of Edinburgh.

ROBINSON, DONALD ELLIOTT (1959) ..... Assistant Professor, Electrical Engineering
B.S. in E.E., Kansas State College.

ROBINSON, HERBERT B. (1962) ..... Associate Professor, Industrial Technology
B.S., Michigan State University; M.A., California State College at Long Beach.

RODABAUGH, DELMER J. (1955)—Professor, English
A.B., Park College; M.A., State University of Iowa; Ph.D., University of Minnesota.

RODEN, JOHANNA W. (1962)—Assistant Professor, Foreign Languages
A.B., M.A., California State College at Long Beach.

ROGERS, FRED (1959)—Assistant Professor, Speech
B.S., Kansas State College; M.A., State University of Iowa.

ROLFE, HOWARD C. (1960)—Associate Professor, Education
A.B., M.A., University of New Mexico; Ed.D., University of California.

ROMAN, BASIL PETER (1959)—Associate Professor, Mechanical Engineering
Diploma of Engineering, University of Bucharest; M.S., California Institute of Technology.

ROMIG, HARRY G. (1966)—Professor, Operations Research and Statistics
A.B., Pacific University, Forest Grove, Oregon; M.A., University of California; Ph.D., Columbia University.

RONQUILLO, PABLO J. (1966)—Assistant Professor, Foreign Languages
A.B., M.A., Tulane University.

ROSE, JACK W. (1956)—Professor, Physical Education
B.S., M.A., University of Michigan; Ph.D., University of Southern California.

ROSE, STANLEY C. (1956)—Assistant Professor, English
A.B., Queens University; M.A., University of Miami.

ROSTER, ARLENE A. (1952)—Professor, Education
A.B., San Jose State College; M.S., Ed.D., University of Southern California.

ROYAL, SARAH A. (1958)—Assistant Professor, Physical Education
A.B., M.S., MacMurray College.

RUGG, KENNETH W. (1964)—Assistant Professor, Drama
A.B., San Jose State College; M.A., California State College at Long Beach.

RUSSELL, BARBARA J. (1967)—Instructor, Nursing
B.S., University of Buffalo; M.S., University of California at Los Angeles.

RUSSELL, KARL A., JR. (1950)—Professor, Education; Counselor
B.S., Indiana State Teachers College; Ed.D., Indiana University.

RUSSELL, NED M. (1965)—Counselor
A.B., M.A., Ph.D., University of Kansas.

RUSSELL, RUTH L. (1963)—Assistant Professor, Microbiology
A.B., Ph.D., University of California at Los Angeles.

RUTHERFORD, M. ROBERT (1964)—Coordinator, International Programs
A.B., M.A., Montana State University.

RYAN, JAMES E. (1954)—Professor, Industrial Arts
B.S., Kansas State Teachers College, Pittsburg; M.A., California State College at Long Beach; Ed.D., University of California at Los Angeles.

RYAN, JAMES E. (1965)—Instructor, English
A.B., University of Buffalo; M.A., University of Notre Dame.

SALEM, SEMA'AN I. (1961)—Associate Professor, Physics
B.S., American University, Cairo, Egypt; Ph.D., University of Texas.

SAMUELSON, DAVID N. (1966)—Instructor, English
A.B., Drew University.

SANDEFUR, CHARLES R. (1964)—Assistant Professor, Physical Education
A.B., California State College at Long Beach.

SAWYER, JANET B. (1957)—Professor, English
A.B., University of Minnesota; M.A., Ph.D., University of Texas.

SCANTLING, FREDERICK H. (1966)—Assistant Professor, Geography
A.B., M.A., University of Arizona.

SCHAAFSMA, FRANCES M. (1959)—Associate Professor, Physical Education
A.B., M.A., California State College at Long Beach.

SCHATZLEIN, FRANK C. (1959)—Associate Professor, Biology
A.B., Colgate University; Ph.D., Indiana University.

SCHLAICH, JOAN M. (1965)—Assistant Professor, Physical Education
B.S., Boston University; M.A., Columbia University.

SCHMIDT, MARY E. (1966)—Assistant Professor, Nursing
B.S., Carnegie Institute of Technology; M.A., University of Buffalo.

SCHMIDT, MILTON E. (1959)—Associate Professor, Industrial Arts
B.E., Wisconsin State Teachers College; M.A., University of Minnesota.

SCHREIBER, CHARLES L. (1964)—Assistant Professor, Physics
B.S., Wayne State University.

SCHULTZ, CRAMER W. (1964)—Professor, Physics
B.S., University of California; Ph.D., University of Southern California.

SCHULTZ, JAMES W. (1963)—Associate Professor, Physical Education
B.S., M.A., University of Southern California.

SCHULTZ, JOSEPHINE BURLEY (1951)—Professor, Art
A.B., Eastern Washington College of Education; M.A., Ed.D., Teachers College, Columbia University.

SCHULTZ, RAYMOND G. (1965)—Professor, Finance
Chairman, Finance Department
B.S., M.B.A., University of Southern California; Ph.D., University of Pennsylvania.

SCHWAB, ARNOLD T. (1961)—Associate Professor, English
A.B., University of California at Los Angeles; M.A., Ph.D., Harvard University.

SCHWARTZKOPF, HERMAN (1950)—Professor, Physical Education
B.S., Kansas State Teachers College, Fort Hays; M.S., University of Oregon; Ed.D., University of Southern California.

SCOTT, BRUCE L. (1965)—Associate Professor, Physics
B.S., California Institute of Technology; M.S., University of Illinois; Ph.D., University of California at Los Angeles.

SEGELHORST, ELBERT W. (1964)—Assistant Professor, Economics
A.B., Harris Teachers' College, St. Louis, Missouri; M.A., Washington University; Ph.D., Columbia University.

SEHMANN, HENRY R. (1951)—Professor, Education
Chairman, Division of Education
B.Ed., Illinois State Normal University; M.A., Ph.D., University of Chicago.

SERRETT, THOMAS M. (1963)—Assistant Order Librarian
B.S., Tulane University; M.S. in L.S., Louisiana State University.

SETT, ABHA M. (1966)—Associate Professor, Mathematics
A.B., A.M. College, India; M.A., University College, India; Ph.D., Queen Mary College, London, England.

SHAAK, JOHN J. (1962)—Assistant Professor, Art
B.S., Pennsylvania State College; M.A., Teachers College, Columbia University.

SHAINLINE, JOHN W. (1966)—Assistant Dean of Students
A.B., Gettysburg College; M.A., Columbia University.

SHANKS, KENNETH H. (1960)—Associate Professor, Speech
A.B., Wittenberg; M.A., Ph.D., University of Southern California.

SHAVER, JESS CARMAN (1959)—Associate Professor, Education
A.B., Northeastern State College, Tahlequah, Oklahoma; M.Ed., Ed.D., University of Oklahoma.

SHAWAF, BASSIM (1965)—Assistant Professor, Electrical Engineering
B.S. in E.E., University of London; M.S., University of California at Los Angeles.

SHECHTER, IRVING (1967)—Lecturer, Art
B.F.A., Carnegie Institute of Technology; M.Litt., University of Pittsburgh.

SHEETS, ALFRED W. (1959)—Associate Professor, Sociology
A.B., M.A., Ph.D., University of Southern California.

SHELLEY, DONALD L. (1964)—Assistant Professor, Physics
A.B., M.S., Ph.D., Catholic University of America, Washington, D.C.

SHEN, KWANG Y. (1961)—Assistant Professor, Physics
B.S., Ph.D., University of Maryland.

SHIPLEY, DONALD D. (1953)—Professor, Biology
B.S., University of Connecticut; M.S., Virginia Polytechnic Institute; Ph.D., Cornell University.

SILVERMAN, PETER (1966)—Assistant Professor, English
A.B., M.A., University of Minnesota; Ph.D., University of New Mexico.

SIMONS, ROBERT M. (1959)—Associate Professor, Management
B.S., M.B.A., University of Southern California.

SIMONSEN, DONALD H. (1956)—Associate Dean—Instruction; Professor, Chemistry
A.B., Reed College; M.A., Oregon State College; Ph.D., Indiana University.

SIMONSON, GENE R. (1958)—Associate Professor, Economics
B.S., University of Wisconsin; M.A., Mexico City College; Ph.D., University of Washington.

SIMS, SYDNEY B. (1960)—Serials Librarian
A.B., Baylor University; M.A., University of Denver.

SINCLAIR, LORELEI P. (1966)—Assistant Catalog Librarian
A.B., Moorhead State College; M.A., University of Minnesota.

SINDELAR, RONALD C. (1966)—Assistant Professor, Music
B.M., Lawrence University; M.A., Cornell University; D.Mus., Stanford University.

SKARSTEN, A. KEITH (1956)—Associate Professor, English
A.B., M.A., University of Washington; Ph.D., University of Illinois.

SKOV, JOHN V. (1962)—Assistant Professor, English
A.B., College of the City of New York; M.A., University of Southern California.

SKRILETZ, DOROTHY J. (1959)—Associate Professor, Speech
B.S., M.A., Bowling Green State University; Ph.D., Michigan State University.

SLEEPER, ELBERT L. (1957) ..... Professor, Entomology
B.S., M.S., Ph.D., Ohio State University.

SMITH, ALTON H. (1957) ..... Professor, Mathematics
A.B., George Pepperdine College; M.A., Ph.D., University of Southern California.

SMITH, DAVID S. (1967) ..... Assistant Catalog Librarian
A.B., M.L.S., University of Washington.

SMITH. DONALD H. (1960) ..... Assistant Professor, Industrial Arts
A.B., M.A., California State College at Long Beach.

SMITH, HUGH L., JR. (1956) ..... Professor, English
A.B., M.A., University of Tulsa; Ph.D., University of New Mexico.

SMITH, ROBERT J. (1966) ..... Assistant Professor, Management
B.S., California State College at Los Angeles; M.S., California State College at Long Beach.

SMOKE, MARY E. (1965) ..... Assistant Professor, Mathematics
B.S., American University, Washington, D.C.; M.S., Ph.D., Stanford University.

SMYTH, LETTY T. (1965) ..... Instructor, Education
A.B., Occidental College.

SOKOLIK, BYRON M. (1966) ..... Instructor, Geography
A.B., M.A., University of Missouri.

SOUTER, EDWARD B. (1965) ..... Lecturer, Physical Education
A.B., California State College at Long Beach.

SPECHT, DORIS S. (1958) ..... Head Humanities Reference Librarian
A.B., University of Minnesota; M.S. in L.S., University of Southern California.

SPILLE, DEAN (1965) ..... Assistant Professor, Art
A.B., University of California at Los Angeles; M.A., California State College at Long Beach.

SPRING, GRAHAM K. (1966) ..... Assistant Professor, Foreign Languages
A.B., Harvard University; M.A., Ph.D., University of Southern California.

SQUIRE, LUCILLE (1965) ..... Assistant Professor, Education
A.B., University of California at Los Angeles.

SQUIRE, RUSSEL N. (1956) ..... Professor, Music
A.B., Oberlin College; M.A., Western Reserve University; Ph.D., New York University.

STACKER, LOUIS J., JR. (1955) ..... Professor, Education
B.S., Stout State College; M.S., Ph.D., University of Wisconsin.

STANTON, ROGER R. (1966) ..... Assistant Professor, Management
B.S., San Jose State College; M.B.A., California State College at Long Beach.

STEELE, MARION F. (1966) ..... Assistant Professor, Sociology
A.B., California State College at Long Beach; M.A., University of Washington.

STEFFES, ROBERT A. (1959) ..... Associate Professor, Journalism
B.S., South Dakota State College; M.S., Syracuse University.

STEINER, W. RODNEY (1956) ..... Professor, Geography
A.B., M.A., University of California at Los Angeles; Ph.D., University of Washington.

STEPHENS, GEORGE D. (1951) ..... Professor, English
A.B., Trinity University; M.A., University of Texas; Ph.D., University of Southern California.

STEPHENS, LEE B., JR. (1962) ..... Associate Professor, Biology
B.S., Morehouse College, Atlanta, Georgia; M.S., Atlanta University; Ph.D., State University of Iowa.

STEPHENSON, RICHARD R. (1967) ..... Associate Professor, Management
A.B., M.A., Ph.D., University of Minnesota.

STERN, JOHN H. (1958) ..... Associate Professor, Chemistry
B.S., University of California; M.S., Ph.D., University of Washington.

STEWART, GLENN H. (1958) ..... Professor, Management
B.S., State University of Iowa; Ph.D., University of Southern California.

STIVER, HARRY E., JR. (1964) ..... Professor, Drama
Chairman, Drama Department
A.B., Hastings College, Hastings, Nebraska; M.A., University of Nebraska; Ph.D., University of Illinois.

STOCK, L. LAVONNE (1959) ..... Associate Professor, Physical Education
A.B., State University of Iowa; M.S., Ed.D., University of California at Los Angeles.

STOCKTON, WILLIAM D. (1957) ..... Professor, Entomology
B.S., University of Akron; M.S., Ph.D., Cornell University.

STONE, HERBERT L. (1958) ..... Professor, Operations Research and Statistics
Chairman, Operations Research and Statistics Department
B.S., University of California at Los Angeles; M.S., Arizona State University; C.P.A. Certificate, California-Arizona; Ph.D., University of Southern California.

STRAIN, ROBERT E. (1956) ..... Professor, Economics
A.B., University of Wichita; M.Ph., Ph.D., University of Wisconsin.

STRANG, GERALD (1965)..... Professor, Music
Chairman, Music Department
A.B., Stanford University; Ph.D., University of Southern California.

STRICKLER, GERALD B. (1958)..... Professor, Philosophy
A.B., Gettysburg College; B.D., Gettysburg Lutheran Theological Seminary; M.A., New York University; S.T.D., Temple University.

STROUD, WILLIAM PAUL (1957)..... Associate Professor, Music
B.S., Southwest Missouri State College, Springfield, Missouri; M.Mus., University of Illinois; D.M.A., University of Southern California.

STUTEVILLE, JOHN R. (1964)..... Assistant Professor, Marketing
B.S., M.A., Ph.D., University of California at Los Angeles.

SUCHER, VIVIAN M. (1962)..... Associate Professor, Nursing
B.S., University of New Hampshire; M.S., University of California at Los Angeles; M.N., Yale University.

SUN, RUDOLPH F. (1965)..... Assistant Audio-Visual Coordinator
A.B., University of the Pacific; M.A., University of California at Los Angeles.

SUNGU, SABRI, P.E. (1961)..... Associate Professor, Mechanical Engineering
B.S., University of London; M.S., University of Michigan.

SUTTLE, CLYDE T. (1961)..... Assistant Professor, Accounting
B.S., M.B.A., University of California at Los Angeles.

SVEC, WILLIAM R. (1964)..... Assistant Professor, History
B.S., Loyola University, Chicago, Illinois; M.A., Northwestern University.

SWAN, ROBERT JUNIOR (1964)..... Assistant Professor, Education
A.B., M.A., Ph.D., University of Minnesota.

SWANSON, LOIS J. (1951)..... Associate Dean—Student Affairs
A.B., Morningside College; M.A., Ph.D., State University of Iowa.

SWATEK, FRANK E. (1956)..... Professor, Microbiology
Chairman, Microbiology Department
B.S., San Diego State College; M.A., Ph.D., University of California at Los Angeles.

SWENSEN, FREDERICK M. (1961)..... Associate Professor, Foreign Languages
A.B., M.A., University of Southern California; Ph.D., University of Liege, Belgium.

SWIFT, RICHARD H. (1958)..... Associate Professor, Art
A.B., California State College at Los Angeles; M.F.A., Claremont College.

TACEY, WILLIAM S. (1967)..... Lecturer, Speech
A.B., Geneva College, Beaver Falls, Pennsylvania; M.A., Columbia University; Ed.D., Pennsylvania State University.

TAYLOR, CHARLES T. (1960)..... Assistant Circulation Librarian
A.B., University of California at Los Angeles; M.S. in L.S., University of Southern California.

TAYLOR, CLYDE R. (1962)..... Assistant Professor, English
A.B., M.A., Howard University, Washington, D.C.

TAYLOR, MARY L. (1966)..... Assistant Social Science Reference Librarian
A.B., Occidental College; M.L.S., Rutgers University.

TEAGUE, WILLIAM L. (1966)..... Instructor, Marketing
B.S., M.B.A., California State College at Long Beach.

TEMIANKA, HENRI (1964)..... Professor, Music
Diploma, Curtis Institute of Music, Philadelphia.

TERRY, SHERRILL E. (1965)..... Assistant Professor, Nursing
B.S., Texas Christian University; M.S., University of California at Los Angeles.

THARP, A. G. (1959)..... Professor, Chemistry
B.S., University of Kentucky; M.S., Ph.D., Purdue University.

THAYER, ROBERT E. (1963)..... Assistant Professor, Psychology
A.B., University of Redlands; Ph.D., University of Rochester.

THOMAS, JAMES A. (1964)..... Assistant Professor, Philosophy
A.B., California State College at Long Beach; M.A., Ph.D., University of Southern California.

THOMAS, LINDSAY, JR. (1961)..... Assistant Professor, Foreign Languages
A.B., Le Seminaire Adventiste, Savoie, France; A.B., M.A., Boston University; Ph.D., University of California at Los Angeles.

THOMPSON, CHARLES M. (1956)..... Professor, Art
B.S., Lehigh University; B.A., M.A., Art Institute of Chicago; Ed.D., Teachers College, Columbia University.

THOMPSON, JESSE J. (1956)..... Professor, Speech
Chairman, Speech Department
A.B., University of California at Santa Barbara; M.S., Ph.D., University of Southern California.

THOMPSON, OLIVE L. (1951)..... Professor, Education
A.B., Iowa State Teachers College; M.A., State University of Iowa; Ed.D., University of Southern California.

THORSEN, RICHARD C. (1965) ..... Medical Officer
A.B., M.D., University of Washington.

TILDEN, CHARLES H. (1952) ..... Professor, Education; Counselor
A.B., University of Redlands; M.A., Ed.D., Stanford University.

TIMMONS, F. ALAN (1954) ..... Professor, Education
A.B., San Francisco State College; M.A., Ed.D., University of Southern California.

TORBY, BRUCE J., P.E. (1961) ..... Assistant Professor, Mechanical Engineering
B.M.E., City College of New York; M.S., University of California at Los Angeles.

TORNEY, JOHN A., III (1957) ..... Associate Professor, Health Education
Chairman, Health Education and Safety Department
A.B., University of Washington; M.A., Ed.D., Teachers College, Columbia University.

TORRES, LEONARD (1956) ..... Professor, Industrial Arts
A.B., University of California at Santa Barbara; M.Ed., Oregon State College; Ed.D., Colorado State College.

TOWNER, LEONARD W., JR. (1955) ..... Professor, Psychology
A.B., M.A., Ph.D., University of California.

TRABER, WILMA J. (1964) ..... Assistant Professor, Nursing
B.S., California State College at Long Beach; M.S., University of California at Los Angeles.

TREVENNEN, JOHN, JR. (1952) ..... Head Circulation Librarian
A.B., M.S. in L.S., University of Southern California.

TRINIDAD, FRANCISCO (1962) ..... Assistant Professor, Foreign Languages
A.B., M.A., University of California at Los Angeles.

TROMBETAS, THOMAS P. (1961) ..... Associate Professor, Political Science
Law Degree, University of Athens, Greece; M.P.A., Ph.D., University of Washington.

TROUT, ROBERT G. (1961) ..... Assistant Professor, Industrial Arts
A.B., M.A., California State College at Long Beach.

TROUTMAN, CHARLES R., JR. (1963) ..... Assistant Professor, Physics
A.B., Princeton University; M.S., University of California at Los Angeles.

TSAO, CHING H. (1965) ..... Associate Professor, Mechanical Engineering
B.S., Chiao-Tung University, China; M.S., Michigan State University; Ph.D., Illinois Institute of Technology.

TUNDER, KALITA K. (1966) ..... Assistant Professor, Accounting
B.S., University of Kansas; M.B.A., University of Chicago.

TURNBULL, GEORGE (1966) ..... Instructor, Art
B.F.A., Carnegie Institute of Technology.

TURNER, BARBARA (1966) ..... Assistant Professor, Mathematics
A.B., Cornell University; M.A., Columbia University.

TYNDALL, ROBERT E. (1955) ..... Professor, Music
A.B., M.A., M.F.A., Ph.D., State University of Iowa.

TYRNAUER, HERBERT H. (1961) ..... Associate Professor, Art
B.F.A., Carnegie Institute of Technology; M.F.A., Cranbrook Academy of Art.

ULLMAN, PAUL S. (1958) ..... Associate Professor, Sociology
A.B., M.A., University of Southern California; Ph.D., University of Oregon.

UNT, HILLAR, P.E. (1960) ..... Associate Professor, Mechanical Engineering
B.S. in M.E., M.S. in M.E., University of Southern California.

URQUHART, ALEXANDER D. (1953) ..... Professor, Political Science
Chairman, Political Science Department
A.B., M.A., University of Washington; Ph.D., University of California at Los Angeles.

VALLEE, JAMES A., JR. (1965) ..... Assistant Professor, Biology
A.B., Syracuse University; M.A., Ph.D., University of Miami.

VANDER MEYDEN, HANS H., P.E. (1961) ..... Assistant Professor, Mechanical Engineering
M.S. in M.E., University of Technology, Delft, Netherlands.

VANDERWARF, MARILYN (1957) ..... Associate Professor, Home Economics
B.S., University of Illinois; M.S., Cornell University.

VAN EIMEREN, JAMES J. (1961) ..... Associate Professor, Art
B.S., University of Wisconsin; M.S., Florida State University.

VARIAKOJIS, DANGUOLE J. (1965) ..... Assistant Professor, Anthropology
B.M., Chicago Musical College, Chicago, Illinois.

VAUGHAN, GEORGIE B. (1960) ..... Science and Technology Catalog Librarian
A.B., M.S. in L.S., University of Southern California.

VAUGHAN, JAMES S. (1959) ..... Associate Professor, Education
B.S., West Texas State Teachers College; M.Ed., Ed.D., University of Texas.

VERDINA, JOSEPH (1959) ..... Associate Professor, Mathematics
A.B., Scuola Media, Palermo, Italy; M.A., Liceo Scientifico, Palermo, Italy; Ph.D., University of Palermo, Italy.

WAGNER, JOSEPH A. (1952) ..... Professor, Speech
A.B., M.A., University of Washington; Ph.D., Stanford University.

WALKER, CHARLES T. (1964) ..... Associate Professor, Geology
B.S., Ph.D., University of Leeds, England.

WALKER, MILTON G. (1964) ..... Assistant Professor, Sociology
A.B., University of Chicago; M.A., Stanford University.

WALLACE, WILLIAM J. (1963) ..... Professor, Anthropology; Chairman, Anthropology Department
A.B., Ph.D., University of California.

WALLIN, EUGENE C. (1956) ..... Associate Professor, Art
A.B., Beloit College; M.F.A., State University of Iowa; Ed.D., Pennsylvania State University.

WALSH, DOROTHY L. (1956) ..... Professor, Nursing; Chairman, Nursing Department
B.S., M.A., Teachers College, Columbia University.

WALTER, HAROLD A. (1957) ..... Professor, Foreign Languages
M.A., McGill University, Montreal; Ph.D., University of Leipzig.

WALZER, JOHN F. (1963) ..... Assistant Professor, History
A.B., Yale University; M.A., University of Wisconsin.

WARNER, GORDON (1955) ..... Professor, Education
B.S., M.A., University of Southern California; Ed.D., University of California.

WARTER, JANET K. (1966) ..... Lecturer, Geology
B.S., M.Ed., Pennsylvania State University; Ph.D., Louisiana State University.

WARTER, STUART L. (1965) ..... Assistant Professor, Biology
B.S., M.S., University of Miami; Ph.D., Louisiana State University.

WASHBURN, HAROLD W. (1965) ..... Professor, Electrical Engineering
B.S., University of California; M.S., Massachusetts Institute of Technology; Ph.D., University of California.

WEAVER, JERRY L. (1966) ..... Assistant Professor, Political Science
A.B., M.A., Ohio University.

WEEDON, JERRY L. (1965) ..... Instructor, Speech
A.B., California State College at Long Beach; M.A., University of California at Los Angeles.

WEGENER, FRANK C. (1957) ..... Professor, Philosophy
B.S., Milwaukee State Teachers College; M.S., Drake University; Ed.D., University of Southern California.

WEIDE, MARGARET L. (1965) ..... Assistant Professor, Anthropology
A.B., University of Washington; M.A., University of California at Los Angeles.

WEISBROD, KENNETH C. (1964) ..... Associate Dean, Counseling and Testing
A.B., University of Redlands; M.A., Stanford University; Ed.D., University of Maryland.

WELLHOUSE, WILLIAM T. (1955) ..... Associate Professor, Biology
B.S., Iowa State University; M.A., University of Kansas; Ph.D., Iowa State University.

WENJEN, CHIEN (1959) ..... Associate Professor, Mathematics
A.B., National Central University, Nanking, China; Ph.D., University of California at Los Angeles.

WERLICK, STEPHEN G. (1964) ..... Assistant Professor, Art
M.F.A., Tulane University.

WHARTON, MARION A. (1965) ..... Associate Professor, Home Economics
A.B., University of Toronto; M.S., University of Western Ontario; Ph.D., Michigan State University.

WHEELER, ROBERT D. (1963) ..... Assistant Professor, Economics
A.B., Washington State University; M.A., Northwestern University.

WHISENAND, PAUL M. (1965) ..... Assistant Professor, Criminology
B.S., M.S., University of Southern California.

WHITCOMB, DAVID B. (1967) ..... Counselor
A.B., Pasadena College; M.A., University of Redlands; Ph.D., University of Southern California.

WHITE, BRUCE (1966) ..... Assistant Professor, Art
B.F.A., M.F.A., Rhode Island School of Design.

WHITE, JOSEPH L. (1962) ..... Associate Professor, Psychology
A.B., M.S., San Francisco State College; Ph.D., Michigan State University.

WILCOX, DON G. (1966) ..... Assistant Professor, Music
B.M., University of Michigan.

WILDE, RICHARD H. (1951) ..... Professor, History
B.S., Milwaukee State Teachers College; M.S., Ph.D., University of Wisconsin.

WILDER, HARRY S. (1953) ..... Professor, English
B.S., M.A., Ph.D., Ohio State University.

WILEY, SAMUEL E. (1949) ..... Professor, Philosophy
Chairman, Division of Humanities
A.B., Anthenaeum of Ohio; M.A., Ph.D., Roman Academy.

WILFORD, AILLEE W. (1951) ..... Associate Professor, English
A.B., Hendrix College; M.A., George Peabody College for Teachers.

WILLIAMS, CECIL E., P.E. (1963) ..... Associate Professor, Electrical Engineering
B.S. in E.E., Purdue University; M.S. in E.E., Northwestern University.

WILLIAMS, DAVID A. (1965) ..... Assistant Professor, History
A.B., M.A., University of California at Los Angeles; Ph.D., University of Southern California.

WILLIAMS, JOHN B. (1966) ..... Assistant Professor, English
A.B., University of Southern California; M.A., University of California at Los Angeles; Ph.D., University of Southern California.

WILLIAMS, LUSTER J. (1956) ..... Professor, English
A.B., M.A., University of Oregon; Ph.D., Indiana University.

WILLIAMS, STANLEY W. (1952) ..... Professor, Education
Chairman, Educational Administration Department
A.B., Bates College; M.S., Ed.D., University of Southern California.

WILLIAMS, WENDELL L. (1965) ..... Assistant Professor, Industrial Arts
B.S., M.S., Kansas State College, Pittsburg, Kansas.

WILLIAMSON, DELBERT E. (1960) ..... Associate Professor, Accounting
Chairman, Accounting Department
A.B., San Jose State College; M.B.A., Ph.D., Stanford University.

WILLIAMSON, LUCILLE J. (1965) ..... Lecturer, Home Economics
A.B., M.S., University of Oklahoma; Ph.D., Columbia University.

WILLIS, FAITH L. (1966) ..... Assistant Professor, Sociology
A.B., Chatham College, Pittsburgh, Pennsylvania; M.A., Emory University, Atlanta, Georgia.

WILLS, JOHN W. (1957) ..... Professor, Speech
A.B., Mississippi College; M.A., University of North Carolina; Ph.D., University of Southern California.

WILSON, JAMES N. (1950) ..... Professor, Geography
B.S., Edinboro State Teachers College; M.A., Ed.D., Teachers College, Columbia University.

WILSON, ROBERT R. (1966) ..... Assistant Professor, Mathematics
A.B., M.A., University of California at Los Angeles.

WILSON, SUZANNE M. (1958) ..... Professor, English
A.B., Stanford University; M.A., San Francisco College for Women; Ph.D., University of Southern California.

WILSON, WALTER J. (1964) ..... Assistant Professor, Accounting
B.S., M.A., University of Southern California; C.P.A. certificate, California.

WINCHELL, ROBERT E. (1966) ..... Assistant Professor, Geology
B.S., Stanford University; M.S., Michigan Technological University; Ph.D., Ohio State University.

WINCHELL, ROBERT W. (1961) ..... Associate Professor, Electrical Engineering
B.S., M.S., California Institute of Technology.

WINSLOW, ROBERT W. (1952) ..... Professor, Music
B.Mus., Eastman School of Music; M.Ed., University of Rochester; M.A., Ed.D., Teachers College, Columbia University.

WINTER, HERBERT A. (1959) ..... Assistant Professor, Foreign Languages
A.B., University of Toulouse; M.A., University of Munich.

WOLFF, CHARLES E. (1957) ..... Professor, Marketing
A.B., Lewis Institute, Chicago; M.B.A., Northwestern University.

WOLFF, GERALD W. (1966) ..... Assistant Professor, History
B.S., M.A., Bowling Green University.

WOOD, ALBERT E. (1965) ..... Assistant Professor, Industrial Technology
B.S., University of Michigan; M.A., Arizona State College.

WOODFIN, MARY J. (1966) ..... Assistant Professor, Education
A.B., Pepperdine College; M.A., California State College at Long Beach; Ed.D., University of Southern California.

WOODY, KENNERLY M. (1962) ..... Assistant Professor, History
A.B., Dartmouth College; M.A., Columbia University.

WOOLLETT, EDWIN L. (1966) ..... Assistant Professor, Physics
B.S., University of Missouri; Ph.D., Kansas State University.

WRIGHT, EDWARD A. (1966) ..... Lecturer, Drama
A.B., M.A., State University of Iowa.

WUESTHOFF, ROBERT W. (1959) ..... Associate Professor, Physical Education
A.B., San Jose State College; M.A., Stanford University.

WYLDER, ROBERT C. (1953)—Professor, English
A.B., M.A., Montana State University; Ph.D., University of Wisconsin.

WYNSTON, LESLIE K. (1965)—Assistant Professor, Chemistry
B.S., San Diego State College; M.S., Ph.D., University of California at Los Angeles.

YANO, ALVA F. (1963)—Associate Professor, Physics
B.S., California Institute of Technology; M.A., University of Southern California; Ph.D., University of Rochester.

YEN, BING CHENG (1964)—Associate Professor, Civil Engineering
B.S.C.E., National Taiwan University; Ph.D., University of Utah.

YING, WILLIAM H. (1964)—Assistant Professor, Civil Engineering
B.S., Taiwan Provincial Chengkung University; M.S., University of Missouri School of Mines and Metallurgy; Ph.D., Oklahoma State University.

YODER, DALE (1966)—Professor, Management
A.B., James Millikin University, Decatur, Illinois; M.A., Ph.D., State University of Iowa.

YOUNG, JAMES L. (1963)—Assistant Professor, Industrial Technology
A.B., University of Washington; M.A., College of Idaho.

YOUNG, WAYNE W. (1954)—Professor, Education
A.B., Chico State College; M.A., Claremont Graduate School; M.Ed., Ed.D., University of Southern California.

YOURY, L. WARD (1952)—Professor, Art
B.S., Central Michigan College of Education; M.F.A., Claremont Graduate School; Ph.D., Ohio State University.

YPERMAN, PIERRE (1963)—Assistant Professor, Foreign Languages
A.B., M.A., University of Southern California.

ZACHRY, MARY ANN (1966)—Medical Officer
B.S., North Texas State College; M.D., University of Texas.

EMERITI

P. VICTOR PETERSON (1949)—President
A.B., Iowa State Teachers College; M.A., Ph.D., Stanford University. Emeritus, 1959.

FREDERICK, W. WOODBRIDGE (1956)—Professor, Business
B.B.A., M.B.A., University of Washington. Emeritus, 1959.

WILLARD, H. VAN DYKE (1953)—Professor, Education
B.S., Oregon State College; M.A., Ed.D., University of California. Emeritus, 1964.

ROBERT E. VIVIAN (1958)—Professor, Engineering; Chairman, Division of Engineering
A.B., M.A., University of Southern California; Ph.D., Columbia University. Dean of Engineering. Emeritus, 1964.

HENRY, EDITH MAY (1959)—Professor, Art
B.F.A., University of Nebraska; M.A., University of Denver. Emeritus, 1965.

LEHNBERG, VAL B. (1957)—Professor, Accounting
A.B., Fresno State College; M.B.A., Ph.D., University of Southern California. Emeritus, 1965.

MILLER, HAROLD T., P.E. (1958)—Associate Professor, Civil Engineering
B.S., U.S. Military Academy; M.S., Pennsylvania State University; M.A., University of Chicago. Emeritus, 1966.

ADMINISTRATIVE AND PROFESSIONAL STAFF

Anderson, Violet — Nurse, Health Services
Avvocato, R. J. — Medical Consultant, Health Services
Baker, Elizabeth — Head Resident, Men's Residence Hall
Bakken, Clarence J. — Assistant to the Dean of Students
Boeckler, Shirley Ann — Nurse, Health Services
Breuklander, Eva — Nurse, Health Services
Bugajski, Joan — Nurse, Health Services
Burdick, Donald E. — Medical Officer, Health Services
Christman, A. H. — Medical Consultant, Health Services
Clark, Jolene E. — Nurse, Health Services
Davison, Oscar W. — Coordinator, Secondary Teacher Education
DeNio, Arthur E. — Medical Consultant, Health Services
Dole, Marjorie — Counselor
Durbin, Robert — Coordinator, Science Education
Dulmes, A. H. — Medical Officer, Health Services
Feerer, Donald J. — Medical Officer, Health Services
Forster, A. F. — Medical Consultant, Health Services
Frazer, Mary P. — Nurse, Health Services
Gayer, Dixon L. — Coordinator, Student Publications
Grant, Bruce — Counselor
Graves, A. W. — Medical Consultant, Health Services
Grounds, Carl T. — Counselor
Johnston, David C. — Medical Consultant, Health Services
Johnstone, Oliver P. — Coordinator, Elementary Teacher Education
Keuneke, Barbara M. — Assistant Manager, News Bureau and Publications
Kincses, John — Medical Officer, Health Services
Lee, William M. — Assistant Director, Institutional Studies and Data Processing
Lindquist, J. Russell — Foreign Student Counselor
Little, H. Gary — Administrative Assistant to Business Manager
McPherson, Isabell — Head Resident, Women's Residence Hall
Martinson, Donald L. — Director, Health Services
Mocabee, Roberta — Supervising Nurse, Health Services
Moloney, Ralph T. — Administrative Assistant to the President
O'Connell, Sophia — Nurse, Health Services
Reince, Owen M. — Associate Coordinator, Elementary Teacher Education
Richards, R. A. — Medical Consultant, Health Services
Roussos, Van — Psychometrist—Testing Office
Russell, Karl A., Jr. — Counselor
Russell, Ned M. — Counselor
Schuster, Lee — Coordinator, Student Activities
Scidmore, Willard H. — Supervisor, Teacher Placement
Shainline, John W. — Assistant Dean of Students
Smith, Topper — Coordinator, Student Activities
Spicer, Viola — Supervisor, Business Placement
Tally, Douglas F. — Administrative Assistant to Academic Vice-President
Taylor, Rosemary — Coordinator, Student Activities
Thorsen, Richard C. — Medical Officer, Health Services
Tilden, Charles — Counselor
Tisdale, Donald A. — Financial Aid Officer
Walthall, J. E. — Medical Consultant, Health Services
Warren, Rosaline — Nurse, Health Services

Westland, J. C. — Medical Consultant, Health Services
Winchell, Julia — Nurse, Health Services
Zachry, Mary Ann — Medical Officer, Health Services

LIBRARIANS

Becker, Callie D. — Assistant College Librarian
Bennett, E. Kenneth — Assistant Humanities Reference Librarian
Blackburn, Fay I. — Social Science Catalog Librarian
Boorkman, Charles J. — College Librarian
Brasher, Robert E. — Series Catalog Librarian
Breen, Jon L. — Assistant Order Librarian
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Cook, Edgar T. — Chief, Library Technical Processes
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Dorsey, John F. — Head Order Librarian
Gabrielson, Alice A. — Social Science Catalog Librarian
Henessee, Don A. — Assistant Social Science Reference Librarian
Hinkel, Michael A. — Assistant Order Librarian
Hofsas, Elizabeth A. — Assistant Serials Catalog Librarian
Hsieh, Kenneth — Periodicals Catalog Librarian
Kanasi, Irene — Humanities Catalog Librarian
Lord, Isabell E. — Assistant Education and Curriculum Librarian
Manning, R. Monteen — Head Education Curriculum Librarian
Martin, Margaret J. — Assistant Science-Technology Reference Librarian
Masuda, Judith A. — Assistant Education Curriculum Librarian
Oliver, Hazel A. — Education Catalog Librarian
Olsen, R. Warner — Music Catalog Librarian
Osuga, Jean S. — Assistant Social Science Reference Librarian
Propes, Aileen W. — Head Catalog Librarian
Renner, Gerald A. — Head Science-Technology Reference Librarian
Serrett, Thomas M. — Assistant Order Librarian
Sims, Sydney B. — Serials and Government Publications Librarian
Sinclair, Lorelei P. — Assistant Catalog Librarian
Smith, David S. — Assistant Catalog Librarian
Specht, Doris S. — Head Humanities Reference Librarian
Taylor, Charles T. — Assistant Circulation Librarian
Taylor, Mary L. — Assistant Social Science Reference Librarian
Trevennen, John, Jr. — Head Circulation Librarian
Vaughan, Georgie B. — Science and Technology Catalog Librarian

BUSINESS, TECHNICAL AND SECRETARIAL STAFF

Adams, Donald — Supervisor, Registrar's Office
Anderson, Deloris F. — Secretary to the Coordinator, Research
Barto, Silvio J. — X-ray Technologist, Health Services
Chandler, C. Lee — Chief of College Police
Cunningham, Kristin — Secretary to the Manager, News Bureau and Publications
de Araujo, Dorothy A. — Secretary to the Business Manager
De Bord, Dorothy — Secretary to the Chairman, Div. of Applied Arts and Sciences
Duncan, Lenora — Secretary to the Academic Vice President
Dunning, Joan — Secretary to the Chairman, Division of Business Administration
Elliott, Sue T. — Secretary to the Chairman, Division of Fine Arts
Eyer, Wilma — Secretary to the Executive Dean—Administration

Galloway, Lola F. — Secretary to the Chairman, Division of Natural Sciences
Gawley, Jane S. — Secretary to the Director, Health Services
Glumm, Merry E. — Secretary to the Admissions Officer
Goydos, Paul — Supervisor of Office Services, Business Office
Harbison, Linda R. — Secretary to Associate Dean—Instruction
Hugen, Patricia M. — Secretary to the Associate Dean—Student Affairs
Inano, Henri — Laboratory Technologist, Health Services
Jarvis, Edmund L. — Supervising Groundsman, Plant Maintenance
Jennings, Irene C. — X-ray Technologist, Health Services
Johnson, Marion J. — Secretary, Office of the Academic Senate
Keller, Virginia — Head Evaluator, Admissions Office
Kinkade, Ruth E. — Secretary, Financial Aid Office
Klatscher, Loyse L. — Secretary to the Administrative Assistant to the President
Klug, George — Supervising Custodian, Plant Maintenance
Kurrasch, Calvin R. — Supervisor, Data Processing
Lewis, LeDean — Secretary to Associate Dean—Instruction
Lloyd, Barbara E. — Secretary to the Chairman, Div. of Health, P.E. and Recreation
Lutz, La Von — Secretary to the Director of Institutional Studies and Data Processing
McCallister, Holly — Secretary to the Chairman, Division of Education
McMullen, Helen — Secretary to the Chairman, Division of Engineering
Maddock, Doris M. — Secretary to the College Librarian
Mansfield, Ann — Secretary to the Associate Dean—Instruction
Matherly, Stella — Secretary to the Director, Educational Services; Secretary to the Coordinator, International Programs
Meacham, Betty Lou — Secretary to the President
Miller, Dorothy A. — Secretary to the Dean of Students
Pearson, Ruth — Placement Counselor
Perry, Betty J. — Secretary to the Executive Dean—Development
Polly, Clare M. — Secretary to the Chairman, Division of Social Science
Reis, Josephine — Test Technician
Riley, Edward — Placement Counselor
Simmons, Malcolm V. — Supervisor of Building Trades, Plant Maintenance
Stampe, Audrey — Secretary to the Chairman, Division of Humanities
Tarrant, JoAnne — Supervisor, Graduation Clerks
Thayer, Evelyn M. — Secretary to the Associate Dean—Counseling and Testing
Toma, Mary — Secretary to the Director of Placement
Tuttle, Tennyson U. — Accounting Technician, Business Office
Vaughan, Virginia — Secretary to the Registrar
Wells, Virginia — Secretary to the Dean of Graduate Studies
Wolfe, Helen J. — Secretary to the Associate Dean—Admissions and Records
Young, Helen — Secretary to the Coordinator, Audio-Visual Services
Zeran, Jack — Placement Counselor

AUXILIARY SERVICES STAFF

Bartlett, Lyle — Assistant Manager, Bookstore
Buchanan, R. W. — Manager, Cafeteria
Espy, Hal — Assistant Manager, Cafeteria
Gjestvang, John — Assistant Manager, Cafeteria
North, Kenneth — Business Manager, Associated Students
Pittman, Douglas W. — Supply Department Manager, Bookstore
Richie, Douglas — Manager, Food Services
Tubbs, Jerry — Manager, Forty-Niner Shops, Inc.
Welsh, Pat — Trade and Operations Department Manager, Bookstore

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