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## CALIFORNIA STATE COLLEGE

## LONG BEACH

BULLETIN

# GENERAL CATALOG 

GENERAL INFORMATION AND ANNOUNCEMENT OF COURSES

## Fall and Spring Semesters 1971-1972

6101 E. Seventh Street, Long Beach, California 90801<br>Telephone, 498-4111

Edited by Barbara Parks, Office of Information and Publications
Cover by Howard Klein
Maps by Norm Bueche, Audio Visual Center

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## 1971-72 CALENDAR

## FALL SEMESTER, 1971

| JULY |  |  |  |  |
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| SEPTEMBER |  |  |  |  |  |  |
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FEBRUARY

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July 17
Entrance Examinations: American College Testing Program Examination.

September $13 \quad$ Beginning of fall semester.
September $13 \quad$ Faculty and staff meetings.
September 13-17 _ Registration. Refer to Schedule of Classes.

September $20 \quad$ Instruction begins.
September $24 \quad$ Last day to add new class to program.
October $15 \quad$ Last day to drop a course with mark of "W" if work is not of "C" grade.
October 16
American College Testing Program Examination.
October 25 Veterans' Day-holiday.
November $6 \quad$ Entrance Examinations: College Entrance Examinations Board Scholastic Aptitude Test.
November 25-26 . Thanksgiving vacation.
December $4 \quad$ College Entrance Examinations Board Scholastic Aptitude Test.
December 6-17 _......Registration for continuing students.

December $11 \quad$ American College Testing Program Examination.
Dec. 20-Jan. 2 Christmas vacation.
January $8 \quad$ College Entrance Examinations Board Scholastic Aptitude Test.
January 3-14 $\qquad$ Registration for continuing students.
January 17-18_ Reading period. (No instruction, no examinations.)
January 19-28 Final examinations.
January $29 \ldots \quad$ End of fall semester.

## SPRING SEMESTER, 1972


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| MAY |  |  |  |  |  |
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| JUNE |  |  |  |  |  |  |
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| AUGUST |  |  |  |  |  |  |
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| SEPTEMBER |  |  |  |  |  |  |
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 24252627282930

January 31 $\qquad$
$\qquad$ Beginning of spring semester.
January 31 $\qquad$ Faculty and staff meetings.
Jan. 31-Feb. $4 \quad$ Registration. Refer to Schedule of Classes.
February 7 _._. Instruction begins.
February $18 \quad$ Last day to add new class to program.
February $21 \quad$ Washington's Birthday-holiday.
February $26 \quad$ Entrance Examinations: American College Testing Program Examination.
March $3 \quad$ Last day to drop a course with mark of "W" if work is not of "C" grade.
March 27-April 2 ...-Spring vacation.
April 15 Entrance Examinations: College Entrance Examinations Board Scholastic Aptitude Test.
April 22 American College Testing Program Examination.
May 8-26 Registration for continuing students.

May 29 Memorial Day-holiday.
May 30-31 Reading period. (No instruction, no examinations.)
June 1-9 Final examinations.
June $11 \square$ Commencement and end of spring semester.

## 1972 SUMMER SESSION

June 19-July 28 _...First six-week session.
July 31-Sept. 8. Second six-week session.

| OCTOBER |  |  |  |  |  |  |
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| DECEMBER |  |  |  |  |  |  |
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| MAY |  |  |  |  |  |  |
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| JUNE |  |  |  |  |  |  |
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| 24 | 25 | 26 | 27 | 28 | 29 | 30 |

## 1972-73 CALENDAR

FALL SEMESTER, 1972
Aug. 14-Sept. 8._. Registration: Refer to Schedule of Classes.

September 11 $\qquad$ Beginning of fall semester.
September $11 \quad$ Faculty and staff meetings.
September 11-15 Completion of Registration.
September 18 Instruction begins.
October 23 $\qquad$ Veterans' Day-holiday.
November 23-24 ....Thanksgiving vacation.
Dec. 18-Jan. 1 Christmas vacation.
January 15-16 Reading period.
January 17-26 Final examinations.
January $27 \ldots \quad$ End of fall semester.
SPRING SEMESTER, 1973
December 4-15 Registration. Refer to Schedule of Classes.
January 2-12 $\quad$ Registration.
January $29 \quad$ Beginning of spring semester.
January $29 \quad$ Faculty and staff meetings.
Jan. 29-Feb. $2 \quad$ Completion of Registration.
February 5 Instruction begins.
February 19 Washington's Birthday-holiday.
April 16-20 Spring vacation.
May 28 Memorial Day-holiday.
May 29 Reading Period.
May 30-June 8_-Final Examinations.
June 10
Commencement and end of spring
semester.

## 1973-74 CALENDAR

September $10 \ldots \quad$ Beginning of fall semester.

## TRUSTEES OF THE CALIFORNIA STATE COLLEGES: 1970-71 EX OFFICIO TRUSTEES

Hon. Ronald Reagan ._. State Capitol, Sacramento 95814 Governor of California and President of the Trustees
Hon. Ed Reinecke $\qquad$ State Capitol, Sacramento 95814 Lieutenant Governor of California
Hon. Wilson Riles $\qquad$ 721 Capitol Mall, Sacramento 95814 State Superintendent of Public Instruction
Hon. Bob Moretti
State Capitol, Sacramento 95814 Speaker of the Assembly
Dr. Glenn S. Dumke 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 of the years in parentheses. Names are listed in order of accession to the Board.
Charles Luckman (1974)
9220 Sunset Blvd., Los Angeles 90069
Mrs. Philip Conley (1972)
3729 Huntington Blvd., Fresno 93702
E. Guy Warren (1973)
P.O. Box 59, Hayward 94541

Daniel H. Ridder (1975)
604 Pine Ave., Long Beach 90801
George D. Hart (1975)
111 Sutter St., San Francisco 94104
Alec L. Cory (1973)
530 B St., Suite 1900, San Diego 92101
William A. Norris (1972)
609 So. Grand Ave., Los Angeles 90017
Edward O. Lee (1974)
P.O. Box 23361, Oakland 94623

Karl L. Wente (1976)
5565 Tesla Road, Livermore 94550
Dudley Swim (1976)
Route 2, Box 5000, Carmel Valley Rd., Carmel 93921
W. O. Weissich (1977)

1299 Fourth St., San Rafael 94901
Robert A. Hornby (1978)
P.O. Box 60043, Terminal Annex, Los Angeles 90060
William McColl (1979)
1433 West Merced Ave., West Covina 91790
Wendell W. Witter (1979)
45 Montgomery St., San Francisco 94106
Mrs. Winifred H. Lancaster (1977)
P.O. Drawer JJ, Santa Barbara 93102
Gene M. Benedetti (1978)
8990 Poplar Ave., Cotati 94952
OFFICERS OF THE TRUSTEES

| Governor Ronald Reagan | Alec L. Cory |
| :--- | :--- |
| President | Chairman |
| E. Guy Warren | Chancellor Glenn S. Dumke |
| Vice-Chairman | Secretary-Treasurer |

OFFICE OF THE CHANCELLOR
The California State Colleges
5670 Wilshire BoulevardLos Angeles, California 90036213 938-2981
Glenn S. Dumke Chancellor
H. E. Brakebill Executive Vice Chancellor
Norman L. Epstein
$\qquad$ Vice Chancellor and General CounselD. Dale Hanner.
$\qquad$ Vice Chancellor, Business Affairs
Harry Harmon . Vice Chancellor, Physical Planning and DevelopmentC. Mansel Keene
$\qquad$ Assistant Chancellor, Faculty and Staff Affairs William B. Langsdorf $\qquad$ Vice Chancellor, Academic Affairs

## THE CALIFORNIA STATE COLLEGES

California State College, Bakersfield 9001 Stockdale Highway Bakersfield, California 93309
Paul F. Romberg, President
805 833-2011
California State College, Dominguez Hills
1000 East Victoria Street
Dominguez Hills, California 90247
Leo F. Cain, President
213 532-4300
California State College, Fullerton
800 North State College Boulevard Fullerton, California 92631
L. Donald Shields, President

714 870-2011
California State College, Hayward 25800 Hillary Street Hayward, California 94542
Ellis E. McCune, President 415 538-8000

California State College, Long Beach 6101 East Seventh Street Long Beach, California 90801 Stephen Horn, President 213 498-4111

California State College, Los Angeles
5151 State College Drive
Los Angeles, California 90032
John A. Greenlee, President
213 224-0111
California State College, San Bernardino
5500 State College Parkway
San Bernardino, California 92407
John M. Pfau, President
714 887-6311
California State Polytechnic College
Kellogg-Voorhis, Pomona
3801 West Temple Avenue
Pomona, California 91766
Robert C. Kramer, President
213 964-6424
California State Polytechnic College, San Luis Obispo
San Luis Obispo, California 93401
Robert E. Kennedy, President 805 546-0111
Chico State College
Chico, California 95926
Stanford Cazier, President916 345-5011
Fresno State CollegeShaw and Cedar AvenuesFresno, California 93726
Norman A. Baxter, President ..... 209 487-9011
Humboldt State College
Arcata, California 95521
Cornelius H. Siemens, President ..... 707 826-3011
Sacramento State College6000 Jay Street
Sacramento, California 95819
Bernard L. Hyink, President916 454-6011
San Diego State College
5402 College Avenue San Diego, California 92115
Malcolm A. Love, President ..... 714 286-5000
San Fernando Valley State College18111 Nordhoff Street
Northridge, California 91324
James W. Cleary, President213 349-1200
San Francisco State College 1600 Holloway Avenue San Francisco, California 94132
S. I. Hayakawa, President
415 469-9123

San Jose State College 125 South Seventh Street San Jose, California 95114 John H. Bunzel, President 408 294-6414<br>Sonoma State College 1801 East Cotati Avenue Rohnert Park, California 94928<br>Thomas H. McGrath, President 707 795-2011<br>Stanislaus State College<br>800 Monte Vista Avenue<br>Turlock, California 95380<br>Carl Gatlin, President<br>209 634-9101

## THE CALIFORNIA STATE COLLEGES

Academic year 1971-72 marks for the California State Colleges the beginning of their second decade of service to the people of California as a unified system of public higher education-the largest such system in the Western Hemisphere and one of the largest in the world. Brought together as a system under an independent Board of Trustees as a result of the Donahoe Higher Education Act in the early 1960's, the California State Colleges now number nineteen, covering the state from Humboldt State College in the north to San Diego State College in the south. Current enrollment exceeds 244,000 full- and part-time students, with a faculty of approximately 14,000 .
Responsibility for the California State Colleges is vested in the Board of Trustees, whose members are appointed by the Governor, and the Chancellor, who is the executive officer of the system. The Trustees and the Chancellor develop system-wide policy, with implementation taking place at the campus level. The Academic Senate of the California State Colleges, made up of elected representatives of the faculty from each college, recommends academic policy to the Board of Trustees through the Chancellor.
Each college in the system has its own unique geographic and curricular character, but all emphasize the liberal arts and sciences. Programs leading to the bachelor's and master's degrees are master-planned to anticipate and accommodate student interest and the educational and professional needs of the State of California. A limited number of joint doctoral programs are also offered. Although there is increasing recognition of the importance of research to the maintenance of quality teaching, the primary responsibility of the faculty continues to be the instructional process.

While San Jose State College, the oldest, was founded over a century ago, prior to World War II only seven State Colleges were in existence, with a total enrollment of 13,000 . Since 1947, twelve new colleges have been established, and sites have been selected for additional campuses in Ventura, San Mateo and Contra Costa counties. California State College, Bakersfield, the newest, was opened to students only last year. Enrollment in the system is expected to pass 400,000 by 1980.

## CSCLB ADVISORY BOARD

The California State College, 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. (Honorary) Long Beach
Joseph Brooks Long Beach
Samuel C. Cameron Long Beach
C. Lowell Clarke Long Beach

Lawrence A. Collins, Sr. (Honorary) Long Beach
Jack Dilday, Jr. Long Beach
William S. Grant (Honorary) Long Beach
John W. Hancock (Honorary) Long Beach
Marvin Haney Long Beach
Francis C. Hertzog, M.D. Long Beach
Rabbi Wolli Kaelter Long Beach
Harry J. Krusz (Honorary) Long Beach
Lyman Lough ._ Long Beach
Jackson R. McGowen Long Beach
John Rodgers (Ad Hoc) Long Beach
Aaron Schultz Long Beach
Elizabeth Wallace Long Beach
Robert C. Westmyer Long Beach
Leon L. Wiltse, M.D. Long Beach

## ADMINISTRATION

President
Stephen Horn
Administrative Assistant to the President

$\qquad$
Ralph T. Moloney
Betty Kolberg
Joyce MacLaughlin
Secretary to the President -Foundation ..... Don G. Gill
Director, Office of Information and Publications Publications Coordinator
Robert G. Wells
Special Assistant to the President Dennis J. Murray
Executive Office of the President
Vice President for Administration and Staff
Coordination David E. Gray
Mission Project Coordinators Roger D. Bauer
Alfred L. Lazar
Vice President for Academic Affairs Leo Goodman-Malamuth
Vice President for Student Affairs John W. Shainline
Executive Dean-PlanningRobert E. Tyndall
Director of Academic Planning Robert E. Tyndall
Academic Planner
Academic Planner ..... Lane B. Koluvek
Junior Staff Analyst
Junior Staff AnalystDennis G. ButlerRonald A. Lee
Director of Physical Planning and Development Robert T. Littrell
Administrative Affairs
Vice President for Administration and Staff Coordination
David E. Gray
Administrative Assistant
Business Manager
$\qquad$Administrative AssistantBernard R. CarmanEdward C. Ball
Auxiliary Services Supervisor Paul Goydos
College Financial ManagerDirector of the BudgetGeorge H. HackneyJohn A. McAnlisPauline Vorhees
Payroll Supervisor
Director of Purchasing

$\qquad$
Business Manager, Associated Students ..... $-\quad-\quad$
Kenneth North
$\qquad$
Director of Physical Planning and Development ..... Jon Regnier
Building Coordinator ..... Carl T. Androff
Director of Plant Operations ..... Larry Stapp

Kenneth Tom
Chief of Campus Police C. Lee Chandler
Director of Staff Personnel Art W. BaarsAssistant Personnel Officer ................ Dames R. Davis
Assistant Personnel Officer Oscar Robinson
Academic Affairs
Vice President for Academic Affairs Leo Goodman-Malamuth
Administrative Assistant Jan A. Nevin
Associate Dean-Instruction Boyd A. Davis
Associate Vice President for Academic Affairs- Academic Personnel
Administrative Assistant-Academic Personnel Wilma Eyer
Dean, School of Applied Arts and Sciences C. Thomas Dean
Dean, School of Business Administration Arthur E. Prell
Dean, School of Education John A. Nelson, Jr.
Dean, School of Engineering Richard C. Potter
Dean, School of Fine Arts
Dean, School of Letters and Science Jerome Manheim
Dean of Graduate StudiesDean of Summer Sessions and ContinuingEducation
Roderick B. Peck
Director of Continuing Education George L. Appleton
International Program Coordinator M. Robert Rutherford
Director of Special Programs Byron C. Kluss
Director of Research Darwin L. Mayfield
Dean of Instructional Services James N. McClelland
Associate Dean, Admissions and Records Clarence R. Bergland Assistant to the Dean
Admissions Officer George W. LaDueAdmissions Counselor
Registrar
College Librarian
Carol A. ReversRuth K. Haney
Administrative Assistant
Assistant Librarian-Public Services Gail F. CookCharles J. Boorkman
Assistant Librarian-Technical ServicesCoordinator, Audio Visual ServicesCoordinator, Instructional TelevisionCoordinator, SchedulingMarvin E. SmithBetty J. BlackmanJames E. CockrumDan F. BakerDouglas F. Tally

## Student Affairs

Vice President for Student Affairs
Assistant Dean of Students
John W. Shainline Nap Harris
Assistant Dean of Students-Judicial Affairs
Director of Intercollegiate Athletics
Assistant Director
Sports Information Director
Athletic Business Manager
$\qquad$ Robert W. Wuesthoff Gary Wright Jim Tyson
Associate Dean, Career Planning and Placement H. Edward Babbush Associate Director
Supervisor, Business, Industry and Government
Counselor
Counselor
Supervisor, Educational Placement Counselor Counselor
Supervisor, Work-Study and Part-Time Placement ... Andy Heck Student Placement Counselor
Director, College Union
Assistant Director
Scheduling and Desk Services Supervisor
Games and Night Manager
Facilities Coordinator Winifred Duckworth Frank E. Noffke David R. Page Betty L. Meacham Michael Crabb Tom Baxter
Kenneth C. Weisbrod
William P. Abbott Van Roussos
Test Office
Psychom
Counselor
Counselor
Counselor
Counselor
Counselor
Counselor

## Counselor

Counselor
Counselor
Counselor
Counselor
Director, Financial Aid
Associate Director
Work-Study Supervisor
Robert B. Clyde Marjorie B. Dole Phillip J. Gallagher Bruce Grant
Carl T. Grounds Dorothy Leach

Paul Opstad
Louis Preston
Henry Reyna
Karl A. Russell, Jr.
Ned M. Russell
David B. Whitcomb
Sylvia Diegnau Ganzalo Moya
Vickie M. Currie

Director, Health Center
Associate Director
Assistant to the Director
Supervising Nurse
Associate Dean, Housing
Housing Adviser
Housing Manager $\square-$ Kermit U. Parker
Director, International Student Affairs Center -... J. Russell Lindquist Associate Director
Associate Dean, Student Affairs
Coordinator
Coordinator
Coordinator
Coordinator
Coordinator
Coordinator

Donald L. Martinson Richard Thorsen Jane Gawley Roberta Mocabee Frank Bowman Alan W. Johnson Kathryn E. Goddard Gay Carpenter John D. Kennedy Rowland E. Kerr Nancy Mattice Hal Schaeffer Rosemary Taylor

## DEANS OF SCHOOLS, DEPARTMENT CHAIRMEN AND PROGRAM COORDINATORS

School of Applied Arts and Sciences
Associate Dean Associate Dean
Criminology Department
Health Science and Safety Education Department
Home Economics Department
Industrial Arts Department
Industrial Technology Department
Men's Physical Education Department
Nursing Department
Physical Therapy Department
Recreation Department.
Women's Physical Education Department
School of Business Administration
Associate Dean
Associate Dean, Graduate Studies
Accounting Department
Bureau of Business Services and Research
Business Education Department
Finance Department
Management and Operations Management Depaymond G. Schultz
Manpower Management Department
Marketing Department
Operations Research and Statistics Department
C. Thomas Dean

Floyd M. Grainge John McConnell Paul M. Whisenand John A. Torney
Merna A. Samples
Irvin T. Lathrop
Adam Darm (acting)
Robert A. Pestolesi
Edna L. Fritz
Frank J. Bok
Stanley R. Gabrielsen
C. Patricia Reid Arthur E. Prell
John T. Martinelli
Robert T. Holmes Talmadge C. Tillman Dale Yoder Ronald L. King

Vernon A. Metzger
Robert M. Simons William D. Ash John T. Martinelli
School of Education.John A. Nelson, Jr.Leland M. PerryAssociate DeanAlfred L. LazarJohn R. Kinzer
Director of Research and Services
Educational Administration DepartmentTaylor T. Jackman
Educational Psychology and Social Foundations Department
Virgil A. Revie
Elementary Education DepartmentHoward C. Rolfe
Instructional Media DepartmentSecondary Education DepartmentRichard J. JohnsonMayer J. FranklinRichard C. Potter
School of EngineeringAssociate Dean
Chemical Engineering
Civil Engineering Department
Electrical Engineering Department
Mechanical Engineering DepartmentRodney C. LewisSchool of Fine Arts
Art Department
Dance Department
Music DepartmentTheatre Arts Department
School of Letters and ScienceAssociate DeanAssociate Dean
Associate Dean
Anthropology Department
Biology Department.
Black Studies Department
Chemistry Department
Comparative Literature Department
Economics DepartmentEnglish DepartmentFrench-Italian DepartmentGeography DepartmentGeology DepartmentGerman-Classics-Eastern Languages Department
History Department
Journalism Department
Mathematics Department
Mexican-American Studies DepartmentMicrobiology DepartmentPhilosophy Department
Physics-Astronomy Department
Political Science Department
Psychology Department
Radio and Television Department
Social Welfare Department
Sociology Department
Spanish-Portuguese Department
Speech Communication Department
Director of Special ProgramsByron KlussCenter for Asian StudiesCenter for Latin American StudiesCenter for Latin American
Center for Urban StudiesCenter for Urban Studies
General Honors Program
$\qquad$ The Alain G. MarsotTheodore G. NicholsLinguistics
$\qquad$
$\qquad$ Richard OutwaterWilliam M. ReschR. Clyde McCone

## 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 councils and standing committees are the fol-
lowing:

ADP and Information Services
Advisory Committee
Athletic Board of Control
Campus Affairs
Campus/Police Relations
Commencement and Ceremonies
Committee on Committees
Ecological and Environmental
Practices Committee
Elections
Financial Affairs
Graduate
International Programs
Legislative and Public Relations Library

Mass Communications
Commission
Matriculation and Registration
Planning and Educational
Policies
Publications
Research
Rules
Scholarships and Loans
Scholastic Standards
Student Affairs
Student Conduct
Student Housing
Teacher Education
Television

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

## the college



## 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 AngelesOrange 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, in 1964 to California State College at Long Beach and in 1968 to California State College, Long Beach. In 1951 the College moved to its present 320acre 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 1,100 full-time and 500 part-time faculty, a student body of more than 28,000 and 38 permanent buildings costing more than $\$ 40,000,000$.
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.

## 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 Falkenstein 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 College

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, the California State Department of Education, the National Council on Accreditation of Teacher Education, the Engineers' Council for Professional Development, the National League for Nursing, National Association of Schools of Art, National Association of Schools of Music, Council on Medical Education of American Medical Association in collaboration with the American Physical Therapy Association, American Association of Collegiate Schools of Business, is approved by the American Association of University Women, and has an undergraduate program approved by the American Chemical Society.

## MEMBERSHIPS

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 Collegiate Schools of Business
American Association for Higher Education
American Association of School Administrators
American Association of State Colleges and Universities
American Association of University Women
American College Health Association
American Council on Education
American Society for Engineering Education
Association of American Colleges
Association of Schools of Allied Health Professions
Association for School, College and University Staffing
California Association of College and University Housing Officers
California Association of Public Purchasing Officers
California Association of School Personnel Administrators
California Association of Secondary School Administrators
California Association of Women Administrators and Counselors
California Council on the Education of Teachers

## The College

California Educational Placement Association
College Student Personnel Institute
Council of Graduate Schools in the United States
International Association of College and University Traffic and Security Directors
Long Beach Chamber of Commerce
Long Beach Community Planning Council
National Association of College and University Attorneys
National Association for Foreign Student Affairs
National Association of Schools of Art
National Association of Schools of Music
National Association of Student Personnel Administrators
National Association of Women Deans and Counselors
National Collegiate Honors Council
National Commission on Accrediting
National League for Nursing
Pacific Coast Association of Collegiate Registrars and Admissions Officers
Pacific Coast College Health Association
Personnel and Industrial Relations Council
Society for College and University Planning
Town Hall of California
Western Association of College and University Business Officers
Western Association of Graduate Schools
Western Association of Summer Session Administrators
Western College Association
Western College Placement Association

## BUILDINGS AND FACILITIES

In addition to administration and faculty 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 classroomlaboratory buildings, a three-building science complex, three fine arts buildings, a psychology classroom and laboratory building, a music building, a language arts building, a physical education gymnasiumclassroom facility, a nursing building, a home economics building, theatre arts building, engineering buildings and industrial arts buildings.

The Library. The College Library, housed in a modern, six-story building, has over 435,000 accessioned items and 3,400 current periodical subscriptions plus 25 newspapers. The book collection is supplemented by bound periodicals, art prints, art slides, phono-records, microtexts, film strips and maps. The Library is divided into six major subject areas: fine arts, language arts, business, education, sciences and social

## The College

sciences with special reading rooms for each. Typing rooms, copying machines, microtext reading rooms, viewing rooms and listening rooms are available to students and faculty.

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 Food Service, composed of a main dining facility, a faculty dining room, two snack bars, and residence hall cafeteria provides food service for the entire College.

Both facilities are operated as a nonprofit corporation, the FortyNiner Shops, Inc. Faculty, students and administrators are represented on its board of directors.
The College Union. Completed during the winter of 1971, the College Union, the campus community and hospitality center, often known as the "living room of the campus," houses the educational program of out-of-class activities and is the headquarters for all college groups. It offers lounges, meeting-dining rooms, cultural, social, recreational and games facilities, as well as a variety of informational and convenience services for the students, faculty and staff of the College.

## 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.

The foundation also accepts donations, gifts and bequests for any College-related use and provides a tax deductible advantage for the donor.

## ALUMNI ASSOCIATION

Affiliation with the College community does not terminate with graduation but continues through the years by participation in the California State College, Long Beach Alumni Association.

Organized in 1952, the association is incorporated under State of California law and operates in accordance with the Articles of Incorporation and By-laws adopted by the membership. It is governed by a 12-member Board of Directors. Each board member is elected by the membership for a three-year staggered term. Officers are elected annually by the Board from among its own membership.
Today the alumni of our university number over 40,000 . CSCLB alumni can be found in all 50 states and in numerous countries around the world, while over 70 per cent live in the Southern California area.

In cooperation with the College, the association is assisted by the office of the Special Assistant to the President. All students and alumni gestions.

## Objectives

The general objective of the Alumni Association is to assist and advance the general interest of California State College, Long Beach, its administration, faculty, student body and alumni, and to further the aims for which the College was founded. The organization also seeks to further the continuance of friendships and associations formed in the College among its students, while promoting good will in the community, and engaging in the support of educational and charitable projects for the College.

## Membership

All former CSCLB students are eligible for membership in the Alumni Association. Both annual and life memberships are available. Those persons interested in membership should contact the Alumni Office of the College. For a graduate to keep abreast of the activities and programs of the Alumni Association, he is urged to keep a current address on file in the Alumni Office.

## Activities and Services

The association serves the graduates of the College by providing continued educational programs, a wide variety of academic, athletic and cultural programs, library and bookstore privileges, job placement and career counseling services and College publications which give graduates an opportunity to maintain contact with their former classmates while receiving information concerning the activities and growth of CSCLB.

Alumni are urged to participate in all the activities of the College which include Homecoming-Fall Festival, Forty-Niner Days, All-College Open House, Campus-Community Convocations and all other academic, athletic and cultural programs offered by the College.

An annual fund sponsored by the Alumni Association assists the College by providing scholarship and loan assistance, research fellowships and grants, unrestricted funds to meet critical academic needs while also supporting cultural and athletic programs of the College. All donations to the fund are tax deductible. Contributions to the fund need not necessarily be confined to the annual solicitation period. Gifts to the College can be made at any time by addressing them to the Alumni Office. The fund is administered by the Special Assistant to the President under the direction of the Alumni Board of Directors. Current projects receiving support from the fund include the Student Scholarship Loan Fund, College Union Development Fund, College-Community Relations Program and many other worthwhile programs.

Alumni also assist the College through the participation in student recruitment, public support and curriculum inputs to improve the educational offerings of the College.


## 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 Bookstore.

## CONTINUING EDUCATION-EXTENSION

The College offers a variety of the courses from this Bulletin as well as many special classes in a comprehensive program of continuing education in the greater Long Beach area. A schedule of these offerings is published twice yearly in early August and in early January. It is distributed in the Long Beach daily newspaper as well as by mail to those who have requested to be on the mailing list. Classes not listed in the schedule are also offered to meet particular demands and are announced in direct mailings to groups and individuals deemed to have more than casual interest in them. Requests to be on the mailing list should be sent to the Office of Continuing Education.

All of the courses in which academic credit may be earned are offered as extension classes in accord with policies for extension as adopted by the Board of Trustees of the California State Colleges. Such courses are of two kinds:
Courses numbered 100 through 499 listed in this Bulletin. Credit earned in such courses offered through extension applies to degrees conferred and credentials awarded by the College subject to limitations stated under "Extension and Military Credit."
Courses numbered 800 through 899. Each one is described, at the time it is offered, in the schedule of offerings in continuing education. These courses are designed to satisfy specific needs of particular professional groups such as recreation directors, school teachers, medical technologists and the like. The offering of each course implies the College's endorsement of it as a profitable and substantial course for those who have already earned the degrees, credentials, certificates or licenses required by their professions and as a course to be honored by employers in their consideration of the professional advancement of those who pass it. Credit earned in such courses does not apply to any degrees conferred or credentials awarded by the College.

The balance of the offerings in continuing education are special classes designed to serve a variety of educational needs of the community. They provide no academic credit. Participation in them is not recorded in an official student's record.

## INTERNATIONAL PROGRAMS

## the Callfornia state colleges' year abroad

A study abroad program of global scope is offered by the California State Colleges through the California State Colleges International Programs. Study opportunities for students from all nineteen campuses include full-year curricula at distinguished institutions of higher learning throughout the world.

Cooperating universities abroad include the University of Aix-Marseille, France; the Free University of Berlin and the University of Heidelberg, Germany; University of Athens, Greece; the University of Florence, Italy; the University of Coimbra and the University of Lisbon, Portugal; the University of Stockholm and the University of Uppsala, Sweden; the University of Copenhagen, Denmark; the University of Madrid and the University of Granada, Spain; the State University of Leningrad, U.S.S.R.; Tel Aviv University and the Hebrew University of Jerusalem, Israel; the American University of Beirut, Lebanon; Waseda University, Japan; National Chemgchi University, Taiwan; Andhra University, the Universities of Benares and Delhi, India; the Catholic University, Peru. In the United Kingdom, cooperating universities, which may vary from year to year, have included Birmingham, Bristol, Dundee, Exeter, Leicester, Liverpool, London, Nottingham, Oxford, Sheffield, Southampton and Wales. Cooperative arrangements also exist with the Netherlands School of Business, Netherlands, and the Centro de Estudios Universitarios Colombo-Americano (CEUCA), Colombia and study opportunities are offered in Ghana, Africa.

Selected students remain enrolled and continue to earn residence credit at the home campus. Academic work successfully completed at the cooperating institutions abroad is applied toward the degree requirements of the college in accordance with college regulations. Students are selected from each college on the basis of academic, linguistic and personal qualifications, as well as career objectives. Requirements include:

Upper division or graduate standing by the beginning of the academic year abroad.
Grades of B (3.0) or better in 30 semester units or 45 quarter units. Proficiency in the language of instruction, as specified below.
Faculty recommendations.
Cost to the student ranges from $\$ 2,000$ to $\$ 2,500$ and includes roundtrip transportation from San Francisco to the study centers, room and board for the academic year, and health and accident insurance. For 1971-72 these costs are: Taiwan, $\$ 2,000$; France, Germany, Ghana, Portugal, Spain, $\$ 2,200$; Colombia, Israel, Lebanon, Peru, U.S.S.R., \$2,300; Italy, Japan, $\$ 2,400$; Denmark, Greece, India, Netherlands, Sweden, United Kingdom, $\$ 2,500$. Students remain eligible for any financial aids available at the college, and payments may be made in installments over the year.

Proficiency in the language of the host country is a requirement for the programs in France, Germany, Latin-America, Portugal, Spain and the U.S.S.R. Ordinarily, two years of college-level study of the lan-
guage, or the equivalent, will satisfy this requirement. In the U.S.S.R., however, three years language study is mandatory. Even where language proficiency is not required, however, competence in the language of the host country will assure broader curricular opportunities.

Application for the 1972-73 academic year should be made early in the fall semester of 1971. Detailed information may be obtained from the Coordinator of International Programs, FO2-220, this College or by writing to the California State Colleges International Programs, 1600 Holloway Ave., San Francisco, California 94132.

IS 192. Projects in Study Abroad: (subject)
Open only to students in the California State Colleges' International Programs. Study undertaken in a university abroad under the auspices of the California State Colleges.

## IS 492. Projects in Study Abroad: (subject)

Open only to students in the California State Colleges' International Programs. Study undertaken in a university abroad under the auspices of the California State Colleges.

## 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, 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 offers courses in history, political science, sociology, literature and art, all taught in English by Uppsala and guest European professors, and also Swedish language. 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 $\$ 500$. This excludes transportation and personal expenses of the student.

Course descriptions, additional information and application forms are available from the Coordinator of International Programs, FO2-220.

## INTERNATIONAL STUDENT PROGRAMS

Complimentary to educational programs for U.S. students, the College welcomes students from approximately 60 foreign countries to study on this campus. Their presence provides opportunities for U.S. students to become acquainted with customs, cultures and concepts of other lands through the International Student Affairs Center. Classes are available, and in certain cases required, for foreign visa students.

## Foreign Student Courses:

## 110A,B,C. English for Foreign Students (3) F, S

Elementary, intermediate and advanced courses designed to prepare students for whom English is their second language with skills required in courses of study in higher education. Admission by testing scheduled prior to each semester. Required.

## Special Programs

## 261A,B. Speech for Foreign Students (3) F, S

Improvement of American speech sounds and patterns. Emphasis on inflection patterns, phonetic drill and oral language comprehension. Admission by testing prior to each semester.

## GENERAL HONORS PROGRAM

The General Honors Program provides an intellectual challenge to the academically motivated undergraduate by offering him intensive interdisciplinary studies. Through seminars, colloquia, tutorials and independent research, participating students find an opportunity to explore and interpret the methods, ideas and issues of the liberal arts and sciences.

The program is continuous and cumulative, leading to a certificate in the General Honors Program. Each semester students enroll in honors classes appropriate to their level. In no semester do Honors Program classes constitute the total student's program; he selects the rest of his classes from the regular curriculum of major study. Satisfactory completion of the Honors Program automatically satisfies the General Education requirements with the exception of category V-Special Subjects. (However, the English composition requirement may be waived upon recommendation of the Honors faculty after one semester's work in Honors 100 -Freshman Colloquium. Credit by examination is also possible in the U.S. History and U.S. Government and Constitution requirements.)
Entering freshmen are invited to apply for the program as soon as possible after making application to the college, submitting their transcripts and taking the American College Testing Program. Selection is based on comprehensive interviews. (The annual deadline for the return of the application form is August 1; thereafter, applications cannot be assured consideration.) Other interested students already enrolled in the College may inquire at the Honors Office concerning admission to the General Honors Program at their appropriate class level.

## Honors Courses:

## A. Freshman Year:

## $100 \mathrm{~A}, \mathrm{~B}$. Freshman Colloquium I-II ( 3,3 ) $\mathrm{F}, \mathrm{S}$

Interdisciplinary discussion groups and experimental projects exploring the creative process in such areas as art, music, fiction, poetry, drama, film and philosophy.

## 130A,B. Western Civilization ( 3,3 ) $\mathbf{F}$, $\mathbf{S}$

Undergraduate seminars examining the 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. (Not open to students with credit in History 131A,B.)

## 150. Human Behavior (3) $\mathbf{F}$

Investigation of factors influencing human behavior, experience, learning processes and personality. The methods of psychology will be compared to scientific activity in biology and physics. Students will engage in empirical projects.

## 151. Biological Functions of Cells and Organisms (3) 5

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.)

## B. Sophomore Year:

200A,B. Sophomore Colloquium I-II $(3,3)$ F, 5
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.

## 252. Metfer 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.)
253. Cosmology and the Philosophy of Science (3) S

Origin of nature according to modern theories of cosmology. Evolution of the universe, galaxies, solar systems and the origin of the evolution of the earth. Nature of limits of scientific inquiry, including the relationships of the sciences to each other, to mathematics and philosophy.

## C. Junior Year:

300. Junior Colloquium (3) F, S

The study of selected interdisciplinary topics, problems or issues. Work will be carried on largely through small discussion groups and outside research. Topics, issues and problems may be changed each semester. May be repeated for a maximum of six units. Two semesters of Honors 300 required in different topic areas for matriculation in Honors.

## D. Senior Year:

## 490. 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.

## 498. 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.

## 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.

[^1]
## CENTER FOR ASIAN STUDIES

A program in Asian studies has been established to encourage and promote the study of Asian cultures and civilizations. A student may earn a Certificate in Asian Studies with a concentration on either China, Japan or India. Courses used to meet the certificate requirements also may be used to satisfy, where applicable, the General Education requirement and the major and teaching minor requirements of the cooperating departments.

## Requirements for the Certificate in Asian Studies:

1. A bachelor's degree with a major in a traditional discipline. (Certificate can be completed prior to the completion of B.A. requirement.)
2. A minimum of two semesters of an Asian language which is to be selected in accordance with the area of concentration.
3. Eighteen units selected from four of the disciplines listed below (in addition to the two semesters of Asian languages) limited in accordance with the area of concentration and in consultation with the student's adviser. No more than six units of any one discipline shall apply towards the certificate.
Asian Studies courses: Anthropology 332, 333; Art 113A-B, 319A-B, $415 \mathrm{~A}-\mathrm{B}, 491,492,494 \mathrm{~A}-\mathrm{B}, 499 \mathrm{Q}, 611$; Comparative Literature $325^{*}$, 439; Economics 362, 367; Geography 313, 314; History 181A,B, 382A,B, 383A,B, 385A,B, $481^{* *}, 487,488$, 681; Indic 335; Music 295E; Philosophy 306, 307; Political Science 341, 345, 347, 390; Religious Studies 152, 341, 343, 351, $481^{* *}$; Theatre Arts $325^{*}$; Sanskrit 331, 332, 341, 342; Hindi $221 \mathrm{~A}, \mathrm{~B}, 331 \mathrm{~A}, \mathrm{~B}$; Japanese $221 \mathrm{~A}, \mathrm{~B}, 331 \mathrm{~A}, \mathrm{~B}$; Chinese $221 \mathrm{~A}, \mathrm{~B}$, 331A,B.

Interested students should apply to the Director, Center for Asian Studies, FO2-226.

## CENTER FOR LATIN AMERICAN STUDIES

The Center for Latin American Studies has established an interdisciplinary program which offers students interested in this field the opportunity to pursue courses leading to a Certificate in Latin American Studies. Courses used to meet this certificate requirement may be counted also, where applicable, toward the General Education requirement and the major and teaching minor requirements of the cooperating departments.

## Requirements for the Certificate in Latin American Studies:

1. A bachelor's degree with a major in a traditional discipline.
2. 30-36 units distributed as follows:

Lower Division ( $6-12$ units): History 161A-B (will fulfill State U.S. history requirement; will fulfill General Education requirements.

[^2]Students who have already had History 171A or B are barred from $161 \mathrm{~A}, \mathrm{~B}$ and consequently will be excused from this requirement.) Spanish 201A-B or Portuguese 201A-B or equivalent.
Upper Division: 12 units from the core, consisting of one course listed from each of the following departments: Anthropology 323, 324, 325, or 345 ; Geography 321 or 322 ; History 362, 363, or 364 ; Political Science 351,352 , or 365 . Twelve additional units of electives selected in consultation with an adviser from the following (courses taken in the core may not be duplicated): Anthropology 323, 324, 325, 345; Art 414; Economics 363; Geography 32'1, 322; History 362, 363, 364, 462, 463, 464, 465, 466, 467, 473A; Political Science 351, 352, 365; Spanish 312, 313, 314, 337, 338, 411, 440, 445, 455, 457; courses on Spanish literature as permitted.
Interested students should apply to the Director, Center for Latin American Studies, FO2-226.

## CENTER FOR URBAN STUDIES

The Center for Urban Studies has as its principal objectives the fostering of concern, discussion, analysis and resolution of urban problems, among participating members of the student body and faculty of the College and its community. Recognition of the scope and impact of urban problems as they affect people is the first objective of the Urban Studies certificate program. After urban problems are identified and open discussion developed, data associated with general urban questions are analyzed to provide the framework for the development of solutions.

These objectives are promoted by an interdisciplinary approach to urban problems. The center offers a Certificate in Urban Studies which has as its core nine units of urban studies courses and 15 units of urban studies electives. The electives, approved by the urban studies faculty, are selected from a variety of departments. The urban studies core curriculum is designed to be team taught by faculty from various departments. The introductory lecture course (Urban Studies 201) leads to a discussion colloquium (Urban Studies 401). Both courses progressively delineate the most crucial urban problem areas. The final urban studies core course (Urban Studies 402) is a field course which sends small research teams of students into the community under the direction of an appropriate urban studies faculty member. These research teams will seek out data in public agencies, private institutions and the community at large and recommend approaches to problem solution. In each case cooperation between faculty, students and the community is essential for the success of the program.

Metropolitan areas and local communities provide the laboratory for urban research. The center will organize and coordinate urban research and dialogue as an essential and integral part of the maintenance of a certificate program of continuing significance.

Interested students should apply to the Director, Center for Urban Studies, FO2-226.

## Special Programs

## Requirements for the Cerlificate in Urban Studies:

1. A bachelor's degree with a major in a traditional discipline. 2. 24 units distributed as follows:

Required Courses: Urban Studies 201, 401, 402.
Elective Courses: 15 units from the following courses to be selected in consultation with an urban studies adviser. No more than six units shall be from one department. These electives must be outside the student's major. Art 417, 418; Black Studies 210, 330, 420A,B; Civil Engineering 426, 464, 482; Criminology 101, 481, 485; Economics 336, 436; Educational Psychology 485; Finance 222; Geography 388, 466; Health Science 320, 322; History 474A,B; Home Economics 342, 440, 442, 444; Mexican-American Studies 210A, 230, 300, 350; Political Science 426, 427, 481; Psychology 351; Recreation 330; Social Welfare 367, 467; Sociology 347.

## LOWER DIVISION

## 201. Introduction to Urban Studies (3) F, S Brisker, Cerillo, Outwater

Prerequisite: Sophomore standing or higher. Introduction to urban studies including a critical and comparative examination of the most crucial variables which affect the urban community such as population distribution, transportation systems, economic and technological parameters, government and politics, conflict among differing urban value systems and generalized problems or questions which result from the interaction of these variables.

## UPPER DIVISION

401. Urban Studies Colloquium
(3) F Staff

Prerequisites: Urban Studies 201 and nine units of urban studies certificate electives or consent of instructor. Analysis of the general urban problem areas: housing, transportation, ethnic communities, government, open space, legal justice, poverty and the quality of life and the development of tentatively proposed solutions.

## 402. Field Experience in Urban Studies (3) 5 Staff

Prerequisites: Urban Studies 401 and consent of instructor. Analysis of specific community problems with thorough field investigation in the community including public agencies, private corporations and citizen groups. Small groups of students will specify the scale of specific problems and their efforts will be directed by an urban studies faculty member.

## 493. Urban Community Problems (3) SS Staff

Community experts in such areas as city administration, urban planning, health, education, welfare and justice will analyze contemporary problems of the urban community.

## 494. Community Understudy Experience (3) SS Staff

Prerequisites: Concurrent enrollment in Urban Studies 493 and consent of instructor. Student participation as understudies in a variety of city agencies in order to gain an understanding of the difficulties associated with solving problems of the urban community. Discussion groups of students, faculty and community leaders will share experiences and report on their observations and conclusions.

## RELIGIOUS STUDIES PROGRAM

The Program of Religious Studies is designed to provide students with the necessary academic background required for a critical understanding of the forms and traditions of religion that have appeared in and characterize human culture. In order to assure this scholarly background the program treats objectively the religious phenomena of both Eastern and Western civilizations. Curriculum development includes courses in Hinduism, Buddhism, Islam, Judaism and Christianity.

At present there are several courses offered: comparative literature, foreign language, history, philosophy and sociology which are an integral part of the Program in Religious Studies.

Interested students should contact Dr. Gerald Strickler, Philosophy Department.

## LOWER DIVISION

## 100. Introduction to Religion (3) F,S A. Thompson

Origin, nature, and function of religion in the individual and culture with emphasis upon and reference to outstanding personalities, sacred writings, and basic features of the world's leading religions.

## 111. Introduction to Western Religious Thought (3) F Strickler

A survey of representative figures, themes, schools, and issues in Judaism, Christianity, and Islam. Not open to students with credit in Philosophy 331.

## 152. Introduction to Asian Religions (3) S W. Johnson

A survey of representative figures, themes, schools, and issues in Hinduism, Jainism, Buddhism, Sikhism, Zoroastrianism, Taoism, Confucianism, and Shinto. Not open to students with credit in Philosophy 331.

## UPPER DIVISION

301. Methodology in Religious Studies (3) S W. Johnson

Study of the methodology of religious studies including the history of religions, comparative and phenomenological study of the religions, textual criticism, research methods and field techniques.

## 311. Literature and Religion of the Old Testament (3) $\mathbf{F}$ A. Thompson

Development of the beliefs and practices of the Hebrew religion as set forth in the Old Testament emphasizing those elements which have proved to be enduring in Judaism and Christianity.
312. Literature and Religion of the Inter-Testament Period (3) S A. Thompson Historical development of Hebrew religion and cultùre from the close of the Old Testament to the beginning of the New Testament with emphasis upon the rise of the political parties, the coming of the Romans, and archaeological findings such as the Dead Sea Scrolls.
314. History of the Jewish Religion (3) $F$ Hirsh

From the beginning of the Common Era to the present time with emphasis upon basic structures and motifs such as the law, rituals, feasts, national sovereignty and international involvements.
322. Literature and Religion of the New Testament (3) S A. Thompson

Development of the beliefs and practices of the early Church as set forth in the New Testament with emphasis upon those elements which have proved to be enduring in Christianity.

## Special Programs

## 331. Religion in Islamic Cultures (3) S Staff

Origin and development of Islam with emphasis upon its rapid spread as a world faith, development of Muslim theology and culture, major personalities, groups and issues.

## 341. Comparative Buddhism (3) W. Johnson

Major forms of Asian Buddhism, including Theravada and Mahayana Indian Buddhism, Chinese, Japanese and Tibetan Buddhism, and Buddhism in the nonAsian modern world. Discussion of doctrine, practice, literature and art.

## 343. Religions of China and Japan (3) S W. Johnson

A survey of the major religions of China and Japan, of all periods and forms.

## 351. Hinduism (3) F W. Johnson

Survey of ancient, classical and medieval Hinduism, including Vedism and the development of classical devotional and tantric forms.

## 471. History of Christian Thought I (3) F A. Thompson

Prerequisites: Six units of religious studies or consent of instructor. Development of major concepts shaping the Christian tradition from the Ante-Nicene Fathers to the Reformation as expressed in selected documents and writings of major personalities.

## 472. History of Christian Thought II (3) S A. Thompson

Prerequisites: Six units of religious studies or consent of instructor. Development of major concepts in the Christian tradition from the Reformation to the 20th Century as expressed in selected documents and writings of major personalities.

## 481. Modern Hindu Religious Thought (3) S Lipski

Prerequisite: History 385B or consent of instructor. Western impact on traditional Hinduism. Renascent Hinduism. Worldwide significance of contemporary Hindu thought. (Same course as History 481 and taught by History Department.)

## MARINE STUDIES

The Biology Department offers a four-year program leading to the bachelor of science degree in marine biology. Also, the School of Engineering has a four-year option in ocean engineering. The Chemistry, Physics, Geology, Microbiology and Industrial Technology Departments offer courses related to this new area. Interested students should consult with advisers in those departments.

## INTERDISCIPLINARY CERTIFICATE PROGRAM IN LANGUAGE AND COMMUNICATION

The Certificate in Language and Communication may be earned in conjunction with any baccalaureate degree or teaching credential offered by the college. Certification of successful completion will be issued with the degree or credential by the coordinator of the program. Courses offered for the certificate may be the same ones used to satisfy major, minor, credential, or general education requirements, except that no more than 15 units may be in the candidate's major.

## Requirements for the Certificate in Language and Communication:

Minimum requirement 30 units distributed as follows: Lower division: 9 units chosen from English 100, Speech 246, Anthropology 170, English 220, Journalism 110, Philosophy 170, Philosophy 270, Speech 130 or 132. Upper Division 21 units: candidates must take at least one course in each category 1 through 5. The total units in categories 1 through 6 must total at least 21 .

1. English 423; Sociology 435; Speech 448
2. Anthropology 471, 472; English 321A-B, 323, 428; French 414, 425; Spanish 415, 425; Speech 371.
3. English 425; Psychology 455; Speech 439, 440, 449
4. Journalism 350, 430, 470; Political Science 432; Radio-TV 406
5. Speech $434,446,447$
6. Anthropology 413; Philosophy 484; Psychology 434, 453; Sociology 336; Speech 361; Psychology 351 or Sociology 335; any upper division literature courses offered in the departments of Comparative Literature, English, foreign language, and ethnic studies.

## CERTIFICATE PROGRAM IN INTERNATIONAL BUSINESS

A program in international business has been established to encourage and promote study in this field. This integrated program offers undergraduate business students the opportunity to pursue courses leading to a Certificate in International Business Studies. Courses used to comply with certificate requirements may also be counted, where applicable, toward the General Education requirements, the School of Business Administration requirements and departmental requirements for a bachelor's degree.

## Requirements for the Certificate in International Business

1. A bachelor's degree with a major in business administration pursued and earned concurrent with certificate course work.
2. Fifteen units distributed as follows: (a) either Economics 370 or Marketing 380, (b) 12 units selected from Accounting 465, Finance 490, Management 405, Marketing 480, Political Science 300 or 307.
Interested students should apply to the Coordinator, International Business Program, School of Business Administration.

## AIR FORCE ROTC

Through arrangements with the University of Southern California, two and four-year Air Force Reserve Officers Training Corps programs are available to all qualified male and female students at California State College, Long Beach. Units earned in this program are counted as elective credits toward graduation. Interested students should contact the Air Force ROTC Office at the University of Southern California for information.
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 Biology Department 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 Finance Department or the Political Science Department concerning entrance requirements of specific law schools.

## Pre-Medical

Each pre-medical student shall confer with a member of the premedical 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 Biology Department.

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.


## 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
Number of Units

|  | $1-3.9$ | $4-6.0$ | $6.1-7.9$ | $8-11.9$ | 12 or more |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Materials and Service Fee | $\$ 39.00$ | 44.00 | 44.00 | 49.00 | 59.00 |
| Facilities Fee | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Student Body Fee | 6.00 | 6.00 | 10.00 | 10.00 | 10.00 |
| College Union Fee | $\frac{7.50}{}$ | $\frac{7.50}{}$ | $\frac{10.00}{}$ | $\frac{10.00}{}$ | 10.00 |
| Total Per Semester | $\$ 55.50$ | $\$ 60.50$ | $\$ 67.00$ | $\$ 72.00$ | $\$ 82.00$ |

Nonresident tuition ( 15 or more units) maximum $\$ 555.00$
(less than 15 units) per unit or fraction 37.00
per academic year. 1110.00

## Foreign-Visa Students * as prescribed by regulations

Nonresident tuition ( 15 or more units) maximum _\$555.00
$\begin{array}{ll}\text { (less than } 15 \text { units) per unit or fraction } & 37.00 \\ \text { per } \\ 1110.00\end{array}$
per academic year 1110.00

## Summer Session

Fee per unit ..... $\$ 24.00$
College union fee per session ..... 5.00
Associated student body fee ..... 1.00
OTHER FEES OR CHARGES
Application (and reapplication) fee (non-refundable) payable by check or money order at time of applying ..... $\$ 20.00$
Late registration fee ..... 5.00
Change of program ..... 1.00
Parking fee per semester-regular students ..... 13.00
Parking fee per semester-limited students ..... 13.00
Parking fee per semester for less than four-wheeled self-propelledvehicles-one-fourth the fees shown above.

[^3]Check returned for any cause ..... 2.00
Complete transcript ..... 1.00
Diploma fee ..... 3.50
Organ practice (per semester) ..... 10.00
Residence hall room and board fee per academic year depend- ing on type of accommodation (approx.) ..... \$950-\$1,175
Failure to meet administratively required appointment or timelimit (including but not limited to special aptitude examina-tions, 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 CollegesFull Payment of Registration and Activity Fees must be Madeof 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, facilities fee and 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.

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 <br> refund |
| :--- | :---: |
| (1) | Before or during the first week of the semester |
| (2) During the second week of the semester | $100 \%$ |
| (3) During the third week of the semester | $90 \%$ |
| (4) During the fourth week of the semester | $70 \%$ |
| (5) During the fifth week of the semester | $50 \%$ |
| (6) During the sixth week of the semester |  |
| (3) | $20 \%$ |

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 day of the semester when instruction begins.)

| Period | Amount of |
| :--- | :---: |
| refund |  |

## 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 $\$ 50-\$ 65$ per semester. The student should be prepared to meet these expenses at the time of registration.


## STUDENT SERVICES AND ACTIVITIES <br> STUDENT HOUSING

Parietal Rule. The College recommends that unmarried minor (under 21) students, not living with a parent or guardian, live in the College residence halls or in the off-campus residence halls which are recognized by the Student Housing Office.
College Residence Halls. The campus residence hall complex consists of eight halls with a maximum capacity of 868 students. Single and double rooms are available and the room and board rate for the academic year is approximately $\$ 1,000-\$ 1,225$, depending on the type of accommodation. A $\$ 20$ security deposit, payable at the time the rental fee is paid, is also required.
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.
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 are recognized by the Student Housing Office. These halls are coeducational with a capacity of 300 each. 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.

Medical emergencies arising at any time the Health Service is closed will be directed to the Campus Police Office.

## STUDENT COUNSELING SERVICES

Student Counseling Services can provide help toward improving selfunderstanding, capacity of self-management and skills in the formulation of realistic alternatives. Students are invited to contact Student Counseling Services if they wish to discuss such matters as social adjustment, emotional growth, educational handicaps, study skills, career planning and selective service concerns. Appointments may be made by contacting the receptionist of Student Counseling Services in Administration Annex 203 or by telephoning 498-4001.
Students receive academic program planning and advisement from the instructional departments of their major field. Counselors are available to advise students who have no declared major.
Students seeking admission to the College should consult the Office of Admissions and Records for information.

## INTERNATIONAL STUDENT AFFAIRS CENTER

The International Student Affairs Center is the primary office for contact and assistance for all non-immigrant students, as well as for new immigrant and permanent resident students who are nationals of for these groups:

Counseling and Advising. A staff of specially trained counselors is available to assist new students as they become accustomed to working
in a new educational environment with different demands and requirements and to assist students in adjusting to living in a cultural environment with new relationships, living style and pace of life. Students consult with these counselors on a wide variety of educational problems: selection or change of field of study, unfamiliar examination techniques, study skills, planning for vocation or advanced graduate study, appropriate academic load and anxieties related to academic pressures. Close contact is maintained with students' faculty advisers in academic departments both at the undergraduate and graduate levels. Students' personal problems also are often considered: finances and employment (on which there are legal restrictions); relations with other students, professors and other persons; problems of an ethical, cultural or moral nature; and anxieties encountered in growth toward maturity in personal and interpersonal development. Problems of health, legal difficulties and other unusual matters are referred to sources of specialized assistance in and outside the College.
Community Relations. The staff and corps of volunteers from the Long Beach community work with the International Student Committee of the Associated Students and representatives of national groups to conduct a continuing orientation program for new foreign students. Assistance is given in finding suitable living accommodations, often with U.S. families. Programs of a social, cultural and recreational nature are planned for fun, for foreign students to learn about U.S. culture, customs and institutions and for U.S. students and families to learn about the culture of the rest of the world.
Administrative Services. The center assists students in complying with regulations of the U.S. Immigration and Naturalization Service. It provides applications for extension of stay, changes of student status, and certificates to permit return to the U.S. after leaving the country; it issues work permits for part-time employment and practical training and requests to bring dependents to this country. It also issues letters of student standing in the College for consulates and embassies and requests for release of foreign currencies to support students in any critical emergencies. The center coordinates departmental programs and classes designed specifically for foreign students which are related to understanding of the system of American higher education and the acquisition of required communication skills.

## FINANCIAL ASSISTANCE

Normally students are expected to be able to pay registration fees from their own resources. The College offers financial assistance to Regular students in several forms for continuing college expenses.
Part-time Jobs. Employment services are available. Full-time students whose parents' incomes fall below federally established norms are given special consideration under the Economic Opportunity Act of 1964-Work-Study Program. Students may apply for Work-Study after they have been accepted for full-time enrollment.

## Student Services and Activities

Loans. The College administers the following loan programs: $\mathrm{Na}-$ tional Defense Education Act Loan Program, Nurses Training Act Loan Program, Law Enforcement 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 from February 1 to April 1 for the following academic year for first consideration. Applications for financial aid are available only from the College Financial Aid Office. A Parents' Confidential Statement is required to be submitted to the College Scholarship Service.

Emergency Loans. Short term loans, repayable during the current semester, are made in small amounts for emergencies. Loans are not made to entering students for registration charges.

Grants. All full-time exceptionally needy, undergraduate financial aid applicants are considered for Educational Opportunity Grants. Law Enforcement Grants are available for full-time employees in public funded law enforcement agencies.

Scholarships. Applications for college scholarships are available in the Office of Financial Aid between January 2 and March 1. Applicants are considered on the basis of grades as well as criteria established by the donor and they must be enrolled as full-time students during the period covered by the scholarship. The College has virtually no scholarships available for entering or transferring students. California residents are encouraged to apply for a State Scholarship, which is available through the California State Scholarship and Loan Commission, 520 Capitol Mall, Sacramento, California 95814.

Federally Insured Bank Loans. Applicants may apply after they have been accepted for enrollment. Approval is subject to the participating banks.

Federal and State Programs of Assistance. The College aids students in receiving benefits through State and Federal programs of educational assistance: Cold War GI Bill (PL 89-358), Disabled Veterans (PL 87815), Wives or Widows of Disabled or Deceased Veterans (PL 631), War Orphans (PL 634), Children of Disabled Veterans (PL 88-361), Dependents of Deceased or Disabled Veterans (California State Educational Assistance), State Scholarship and State Fellowship recipients, as well as State Vocational Rehabilitation programs. Any students wishing to use their benefits should check with the Veterans Station each semester at registration. For further information check at Window 7 in the Records Office.

Vocational Rehabilitation Services. Students who have a physical, emotional or other disability which handicaps them vocationally may be eligible for the services of the State Department of Rehabilitation. These services include vocational counseling and guidance, training (with payment of costs such as books, fees, tuition, etc.) and job placement. Under certain circumstances students may also qualify for help with medical needs, living expenses and transportation.

Appointments may be made with a counselor in the Financial Aids Office or by contacting the State Department of Rehabilitation in Long Beach.

## Student Services and Activities

## TESTING

The Testing Office provides individual testing services to help students with educational, personal or vocational problems. Students seeking help should first contact the Counseling Center for individual interviews so that appropriate tests may be assigned.
All entering freshmen and sophomores are required to complete the American College Testing Program (ACT) or the College Entrance Examination Board (CEEB) Scholastic Aptitude Test. Information and applications can be obtained from high school counselors or the Testing Office at California State College, Long Beach.

Candidates for the teacher education or school nursing programs are required to take the Aptitude part of the Undergraduate Record Examination.

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

The Mathematics Placement Test is required of all students who take certain math courses as department requirements or course prerequisites. Students should check specific requirements in the College Bulletin. Exceptions: Students who plan to enter Mathematics 100 or who have satisfactorily completed a college course in calculus within the past four years.

All prospective master's degree candidates should check with their advisers or the Testing Office in their first semester of residence regarding specific testing requirements.
The college reserves the right to administer additional tests to all students whenever it is deemed appropriate for the improvement of instruction.

## 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 Career Planning and Placement. 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. Twenty-four national and one local Greek organization(s) have chapters on campus. Forty-seven 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 Pacific Coast 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, Pacific Coast 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 intercollegiate sports are governed by the Women's Extramural Coordinating Council of Southern California Colleges. Activities offered are volleyball, basketball, tennis, swimming, golf and gymnastics for women and coed badminton, fencing and archery.

The men's intramural program at the College is one of the finest in the country, in part because it receives strong faculty support, yet is organized and controlled largely by the students. The modern and varied equipment of the physical education facility is utilized in the program which includes 25 different activities, ranging from billiards to flag football. All male students are welcome to participate in any or all of the activities which offer fun, friendship, recognition and awards.

## admission to the college



## ADMISSION TO THE COLLEGE

Requirements for admission to California State College, 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 November 24, 1970. A prospective applicant who is unsure of his status under these requirements is encouraged to consult with a school or college counselor or contact the College Admissions Office.

## APPLICATION PROCEDURE FOR 1972-73

All prospective students must file a completed application for admission within the appropriate filing period. The completed application includes the application form, the California State College Residence Questionnaire and the non-refundable application fee of $\$ 20$. Each applicant may file only one application for any one term within the California State College system. The application should be obtained from, and filed with, the College of first choice. Second, third and fourth choice campuses should be listed on the application.

## APPLICATION SCHEDULE FOR 1972-73

Initial Filing Period
Fall Semester 1972
Nov. 1-30, 1971
Spring Semester 1973
Aug. 1-31, 1972

Late Filing Period
Dec.1-June 30, 1972 (or earlier if quotas are filled)
Sept. 1-Nov. 30, 1972 (or earlier if quotas are filled)

## INITIAL FILING PERIOD <br> SPACE RESERVATIONS

All applications received during the initial filing period will receive equal consideration within the colleges' established enrollment categories and quotas, irrespective of the time and date they are received.
Applicants who can be accommodated within enrollment quotas will receive confirmation of space reservation. Although the space reservation is not a statement of admission, it is a commitment on the part of the College to admit a student once eligibility has been determined. When the student receives notice of the space reservation, he should initiate action to have transcripts of any college and high school work sent to the state college where space has been reserved. The College will inform him of the number of copies of transcripts required, dates for submittal and where they should be sent. The student should not request that transcripts be sent until requested to do so by the college where space bas been reserved.
Applications of students who cannot be accommodated at their first choice college will automatically be forwarded to their second choice, and, if they cannot be accommodated there, to their third choice, etc.

Each college has established procedures to consider qualified applicants who would be faced with an extreme hardship if not admitted. Prospective hardship petitioners should contact the concerned college regarding specific policies governing hardship admission.

## LATE FILING PERIOD

Colleges not filling enrollment categories during the initial filing period will continue to accept applications during the late period until quotas are filled. Enrollment priorities within the last period will be granted in chronological order of application receipt by the colleges.

## ADMISSION STANDARDS

## ADMISSION AS FIRST-TIME FRESHMEN

Applicants who have had no college work after high school graduation will be considered for admission under the following provision. Except as noted, results of either the Scholastic Aptitude Test (SAT) or the American College Test (ACT) are required.

California High School Graduates and Legal Residents for Taition Purposes must have a grade point average and total score on the SAT, or composite score on the ACT, which together provide an eligibility index placing them in the upper one-third of California high school graduates. The grade point average is based upon all high school course work completed in grades $10-12$, excluding physical education and military science courses. The following table 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

3.21 and above
2.80
2.40

$$
2.00
$$

1.99 and below
(SAT/ACT) Needed
Eligible with any score

$$
832 / 19
$$

1,152/27
1,472/35
Not eligible

High School Graduates from Other States or Possessions Who Are Nonresidents for tuition purposes must present an eligibility index which places them in the upper one-sixth of California high school graduates. The grade point average is based upon all high school course work completed in grades $10-12$, excluding physical education and military science courses. The following table 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

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

## GRADUATES OF HIGH SCHOOLS IN A FOREIGN COUNTRY

Applicants who are graduates of foreign high schools 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

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

## HIGH SCHOOL STUDENTS

Students still enrolled in high school will be considered for enrollment in certain special programs if recommended by the principal and if 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.

## RECOMMENDED PREPARATION

Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at California State College, 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 State Colleges as undergraduate transfers will be considered for admission under one of the following provisions.

## APPLICANTS WITH 60 OR MORE SEMESTER UNITS

Applicants who are residents and have successfully completed 60 or more semester units, or the equivalent, are eligible for admission if they have achieved a grade point average of 2.0 (C) and were in good standing at the last college attended. Nonresident applicants must have earned a grade point average of at least 2.4 (C plus).

## APPLICANTS WITH FEWER THAN 60 SEMESTER UNITS

Applicants who have successfully completed fewer than 60 transferable semester units, or the equivalent, are eligible for admission if they meet the above requirements and the current first-time freshman
requirements. Applicants for admission as transfer students who have been continuously enrolled at a college since graduation from high school are eligible if they meet the first-time freshman requirements in effect at the time of their high school graduation. Either SAT or ACT test results are required of transfer applicants with fewer than 60 transferable semester units.

## 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

An applicant not admissable under one of the above 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.

## REDIRECTION

It is not always possible for the College to accommodate all qualified applicants. If an application is accepted and it later becomes evident that admission will not be possible, it and any supporting documents will, at the applicant's request, be forwarded to any State College where space is still available. No additional application fee is required.

## 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 Admissions Office written authorization from the instructor of the course they wish to audit, after which the Admissions Office will issue a class admission card upon payment of regular fees. Once enrolled, the student is restricted to muditor 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 Records Office. 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 Admissions Office. 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 $\$ 330$ United States currency per month) during the period that he expects to be registered as a student in the College.
All foreign students for whom English is their second language are required upon arrival to take the English Language Placement Examination and enroll in any necessary class in English as a second language. In some cases this will mean that students will be required to take reduced course loads in their major field until English proficiency can be demonstrated in the English classes. The requirements cannot be postponed.

## 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 Admissions Office 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

No unit credit will be allowed from a junior college when a student has earned a cumulative total of 70 transferable units. No upper division credit can be allowed for courses taken in a junior college. No credit can be allowed for professional education courses taken in a junior college.

## 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 Admissions Office.

## ACCELERATION OF COLLEGE STUDIES

The College provides several means by which students may accelerate their college studies. Students currently enrolled as well as prospective students are urged to acquaint themselves with the various alternatives for acceleration outlined below and are strongly encouraged to take advantage of them.

## Waiver of Course Requirement

Students who feel that previous training has sufficiently prepared them in a certain area may request waivers of specific course requirements. Requests for waiver of course requirements can be made to the department concerned on an application form available in the Admissions Office. A waiver of specific course requirements does not reduce the total number of credits required for a degree, but it does allow the student to take additional courses better suited to his background, interests and needs.

## Credit by Examination

Students may apply also for course credit by examination. Credits earned in this manner will be recorded as P (Pass) on the student's transcript and will be counted toward the total number of units required for the degree although they will not be included in calculation of the grade point averages. A grade of F will be included on the record if the student fails the examination.

The College sets no maximum on the number of credits a student may receive by examination. However, to receive credit in excess of 15 units a petition must be made to the Scholastic Standards Committee through the appropriate department chairman. A student may not receive credit by examination for any course which is a prerequisite to one for which he has already received credit, to remove a grade of F or to satisfy the courses required for a major in a master's degree. Application forms to apply for credit by examination are available in the Admissions Office.

## Advanced Placement

The College participates in the Advanced Placement Program of the College Entrance Examination Board. High school students who perform satisfactorily in advanced, college-level courses before entrance into college and who demonstrate their achievement in tests of the Advanced Placement Program may apply for credit to the Admissions Office. Arrangements should be made with a high school counselor.

## Earn College Credit Prior to High School Graduation

High school students in the last semester of their senior year may enroll in a course at the College which is taken concurrently while they are finishing their high school requirements. Outstanding high
school students may enroll also in college courses during the summer between their junior and senior year. These programs are particularly useful to students who wish to fulfill the general education requirements early in their college career. Students are accepted for these programs on the bases of their high school record and the recommendation of their principal.

## ADMISSION PROCEDURES

Permission to register in the College requires authorization from the Admissions Office. 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 Admissions Office

## 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

Prospective students must file an application for admission with an application fee of $\$ 20$. Checks or money orders should be made payable to California State College, Long Beach. The applicant also must request the registrar of the last high school and each college attended to forward an official transcript of course work completed directly to Admissions Office. Transcripts presented by students are not acceptable. Applications for admission may be filed during the filing periods indicated on the application for admission. Thereafter, applications will be accepted only until admission quotas have been filled. The application gives complete information and directions for applying for admission or readmission.

## Returning Students

Any student previously enrolled in the College who has been absent more than one semester, or who has attended college during his absence from CSCLB, must apply for admission and pay the application fee as though he were a new student. Students who have enrolled previously only in summer sessions or extension courses at the College are also required to follow the procedure for new students.
Any student who has been absent for no more than one semester who enrolled at the College and withdrew or otherwise left the College before the end of the fourth week of instruction, must file a complete application with the Admissions Office for admission the following semester. The application fee will be waived unless the person attended or is in attendance at a college elsewhere during his absence.

## GRADUATE STUDENTS

Refer to Graduate Bulletin.
Inquiries Concerning Admission Are to Be Directed to the Admissions Office

## REGISTRATION PROCEDURES

When admission requirements have been satisfied, the student is ready to register for classes at the College. Generally, registration involves securing the Permit to Register, 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.

## CONCURRENT REGISTRATION

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


## GENERAL REGULATIONS AND PROCEDURES

## GRADES

The student's work in each course is recorded in the Records Office 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 complete the final examination.
An "incomplete" (I) may be made up by completing the unfinished portion of the course within the next two semesters of enrollment, and in this event, the I on the records is changed to the letter grade assigned by the instructor. In the event that the I is not made up within two semesters of enrollment, it remains an I on the records. A student has the option of completing a course in which he has received an I by re-enrolling in the course and earning a passing grade, but this action will not remove the I.

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

## FINAL GRADE REPORTS

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

## WITHDRAWALS

1. During the first four weeks of classes in a semester a student may withdraw without prejudice and receive a mark of W. A Complete Witbdrawal Application to drop all classes or a Change of Program form must be completed by the student at the Records Office 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 files with his change of program card.
2. After the first four weeks of classes in a semester a student may withdraw with a mark of $W$ if his work has been satisfactory, 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 Records Office, 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 fourth 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 Records Office 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 12 th week); or:
(b) Arrange with instructors, after the 12 th 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 Records Office.
6. Instructor Drops. A grade of W or F may be assigned by an instructor to a student whose name appears on the "semester grade report" but who has never attended class or who has been delinquent toward the end of the term to such extent that the instructor has reason to believe that the student has withdrawn from the class without notifying the instructor or the registrar. The instructor will be guided in the choice of a W or an F by the length of time the student attended class and the satisfactory or unsatisfactory quality of the student's work up to the time of apparent withdrawal.

## 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;
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 of D 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.

A student who receives a grade of F and who repeats and passes the course will receive unit credit and equivalent grade points.

## 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 Admissions Office before the dates established by the College for filing applications.
Grades earned at another institution may not offset grade point deficiencies in courses taken at this College.

## 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 .....
16
First Semester Freshmen
First Semester Freshmen
17
17
Students on Academic Probation
17
17
All Other Students ..... 18
To carry more than the maximum unit load, a student must obtainpermission prior to registration from the academic dean of his School.

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 ap-
plication 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.

## CONDUCT ON CAMPUS

The Board of Trustees of the California State Colleges has requested that its Reaffirmation of Policy Relating to Conduct on State College Campuses and Sections 41301 and 41302 in Article 1, Subchapter 3, Chapter 5, Title 5 of the California Administrative Code be distributed to each State College student.

## BOARD OF TRUSTEES POLICY RELATING TO CONDUCT ON STATE COLLEGE CAMPUSES

The following restatement of policy of the Board of Trustees of the California State Colleges is extracted from a resolution approved by the Board in November 1968.

Resolved, By the Board of Trustees of California State Colleges, that this Board recognizes the need for a clear understanding of those types of behavior considered wholly unacceptable within the College Community; and be it further

Resolved, That this Board wishes to indicate to staff, students, and visitors alike that any of the following violations of orderly conduct are to be considered cause for prompt and diligent corrective action on the part of appropriate officials, including college disciplinary proceedings and the bringing of criminal charges where appropriate:

1. Obstruction or disruption of any authorized state college activity, including those of auxiliary organizations, whether on state college property or at any location then controlled by a state college.
2. Obstruction of either pedestrian or vehicular traffic on state college owned or controlled property.
3. Physical abuse or detention of any member of the college community at any location or of any other person while that person is a visitor on state college owned or controlled property.
4. Theft of or damage to state college property or property of any person while that property is on state college owned or controlled property.
5. Conduct which endangers the health or safety of any person while on state college owned or controlled property or at any college sponsored or supervised function.
6. Unauthorized entry to or use of any state college facilities, including buildings, grounds and equipment.
7. Failure to comply with directions of college police and any other law enforcement officers while they are acting in the performance of their duties.
8. Illegal possession or use of firearms, explosives, dangerous chemicals or other weapons on state college owned or controlled property.
9. Failure to comply with directions of a State College President or his authorized designee(s) while acting in the performance of his (their) duties.
10. Disorderly conduct, breach of the peace, and aiding, abetting or procuring another to breach the peace on state college owned or controlled property or at any state college sponsored or supervised functions; and be it further
Resolved, That this resolution is not to be construed as superseding any additional violations as specified by law, the administrative code, the resolutions of this Board, or the rules of any particular college.

## expulision, suspenion and probation of students

Violation of Sections 41301 and 41302 in Article 1, Subchapter 3, Chapter 5, Title 5 of the California Administrative Code can result in disciplinary action on campus. The other statement attached is an expression of policy of the Board of Trustees as to acceptable campus conduct.
41301. Expulsion, Suspension and Probation of Students. Following procedures consonant with due process established for the state college of which he is a student, any student of a state college may be expelled, suspended, placed on probation or given a lesser sanction for one or more of the following causes which must be state college
related:
(a) Cheating or plagiarism in connection with an academic program at a state college.
(b) Forgery, alteration or misuse of state college documents, records, or identification or knowingly furnishing false information to a state college.
(c) Misrepresentation of oneself or of an organization to be an agent of a state college.
(d) Obstruction or disruption, on or off college property, of the state college educational process, administrative process, or other college function.
(e) Physical abuse on or off college property of the person or property of any member of the college community or of members of his family or the threat of such physical abuse.
(f) Theft of, or nonaccidental damage to, state college property; or property in the possession of, or owned by, a member of the college community.
(g) Unauthorized entry into, unauthorized use of, or misuse of state college property.
(h) On state college property, the sale or knowing possession of dangerous drugs, restricted dangerous drugs, or narcotics as
those terms are used in California statutes, except when lawfully prescribed pursuant to medical or dental care, or when lawfully permitted for the purpose of research, instruction or analysis.
(i) Knowing possession or use of explosives, dangerous chemicals or deadly weapons on state college property or at a state college function without prior authorization of the state college president.
(j) Engaging in lewd, indecent, or obscene behavior on state college property or at a state college function.
(k) Abusive behavior directed toward a member of the college community.
(1) Violation of any order of a state college president, notice of which had been given prior to such violation and during the academic term in which the violation occurs, either by publication in the campus newspaper, or by posting on an official bulletin board designated for this purpose, and which order is not inconsistent with any of the other provisions of this Section.
(m) Soliciting or assisting another to do any act which would subject a student to expulsion, suspension or probation pursuant to this Section.
(n) For purposes of this Article, the following terms are defined:
(1) The term "member of the college community" is defined as meaning state college Trustees, academic, nonacademic and administrative personnel, students, and other persons while such other persons are on state college property or at a state college function.
(2) The term "state college property" includes:
(a) real or personal property in the possession of, or under the control of, the Board of Trustees of the California State Colleges, and
(b) all state college feeding, retail, or residence facilities whether operated by a college or by a state college auxiliary organization.
(3) The term "deadly weapons" includes any instrument or weapon of the kind commonly known as a blackjack, slung shot, billy, sandclub, sandbag, metal knuckles, any dirk dagger, switchblade knife, pistol, revolver, or any other firearm, any knife having a blade longer than five inches, any razor with an unguarded blade, and any metal pipe or bar used or intended to be used as a club.
(4) The term "behavior" includes conduct and expression.
(o) This Section is not adopted pursuant to Education Code Section 23604.1.
(p) The provisions of this Section as hereinabove set forth only apply to acts and omissions occurring subsequent to its effective date. Notwithstanding any amendment or repeal pursuant to the resolution by which any provision of this article is amended, all acts and omissions occurring prior to that effective date shall be subject to the provisions of this Article as in effect immediately prior to such effective date.
41302. Expulsion, Suspension or Probation of Students; Fees and Notification. The President of the state college may place on probation, suspend, or expel a student for one or more of the causes enumerated in Section 41301. No fees or tuition paid by or for such student for the semester, quarter, or summer session in which he is suspended or expelled shall be refunded. If the student is readmitted before the close of the semester, quarter, or summer session in which he is suspended, no additional tuition or fees shall be required of the student on account of his suspension. In the event that a student who has not reached his twenty-first birthday is suspended or expelled, the President shall immediately notify his parent or guardian of the action by registered mail to the last known address, return receipt requested.
During periods of campus emergency, as determined by the President of the individual campus, the President may, after consultation with the Chancellor, place into immediate effect any emergency regulations, procedures, and other measures deemed necessary or appropriate to meet the emergency, safeguard persons and property, and maintain educational activities.
The following is extracted from Student Disciplinary Procedures of the California State Colleges, as revised by Executive Order No. 116, October 30, 1970:

The President may immediately impose an interim suspension in all cases in which there is reasonable cause to believe that such an immediate suspension is required in order to protect lives or property and to insure the maintenance of order. A student so placed on interim suspension shall be given prompt notice of charges and the opportunity for a hearing within ten days of the imposition of interim suspension. During the period of interim suspension, the student shall not, without prior written permission of the President or his designated representative, enter any campus of the California State Colleges other than to attend the hearing. Violation of any condition of interim suspension shall be grounds for expulsion.
Education Code, Division 22, Cbapter 4, Consisting of Section 31291.
Financial Aid Agreement; Ineligibility for State Financial Aid; Hearing Board.
In accepting a scholarship, loan, fellowship, grant-in-aid, or any other financial aid given or guaranteed by the state for assistance, every recipient thereof who is a student at a public or private university, college, or other institution of higher education, shall be deemed to have agreed to observe the rules and regulations promulgated by the governing authority of the university, college, or other institution of higher education, for the government thereof.
Any recipient of such state financial aid who, on the campus of the university, college, or other institution of higher education, willfully and knowingly commits any act likely to disrupt the peaceful conduct of the activities of such campus, and is arrested and convicted of a public offense arising from such act, may be determined to be ineligible for any such state financial aid for a period not to exceed the ensuing

Any recipient of such state financial aid who, after a hearing, is found to have willfully and knowingly disrupted the orderly operation of the campus, but has not been arrested and convicted, may be determined to be ineligible for any state financial aid for such period as the hearing board may determine, not to exceed the ensuing two academic years.
Any such recipient who is suspended from an institution of higher education for such acts shall be ineligible for such state financial aid for a period not less than the time of such suspension.

The governing authority of the university, college, or other institution of higher education shall for purposes of this section, cause to be reviewed the record of each recipient and shall, as soon as practicable, notify a hearing board established by it of the name of any recipient who committed any such act and was arrested and convicted of any such public offense, or is found to have willfully and knowingly disrupted the orderly operation of the campus, or has been suspended from an institution of higher education for such acts.

The college conducts all disciplinary procedures according to the policies of the Board of Trustees of the California State Colleges and adheres to Executive Order No. 116, Student Disciplinary Procedures of the California State Colleges, issued October 30, 1970.

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."

Additional detailed information relating to Conduct on Campus is available in the Office of the Dean of Students.


## 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
Chemistry
Comparative Literature
Economics
English
Entomology
French
Geography
German
Health Education
History
Home Economics
Industrial Arts
Journalism
Mathematics
Music
Philosophy
Physical Education

Physics
Political Science
Psychology
Radio-Television
Recreation
Social Welfare
Sociology
Spanish
Speech
Theatre Arts

## BACHELOR OF MUSIC DEGREE

## BACHELOR OF SCIENCE DEGREE

The College is authorized to grant the bachelor of science degree with majors in the following fields of study:

| Botany |
| :--- |
| Chenistry |
| Criminology |
| Earth Science |


| Geology |
| :--- |
| Industrial Technology |
| Marine Biology |

BUSINES OF SCIENCE DEGREE IN
BUSESINISTRATION

| Accounting | Manpower Management | Operations Research and |
| :--- | :--- | :--- |
| Finance | Marketing | Statistics |
| Management | Operations Management |  |

## BACHELOR OF SCIENCE DEGREE IN BUSINESS EDUCATION

## BACHELOR OF SCIENCE DEGREE IN

 CHEMICAL ENGINEERING
## BACHELOR OF SCIENCE DEGREE IN ENGINEERING

Civil Engineering<br>Computer Engineering

Engineering Maserials
Industrial Management
Mechanical Engineering Ocean Engineering

Microbiology<br>Physics<br>Zoology

Operations Research and Statistics

## 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 following:

## 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 94 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 music, speech, theatre arts, 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 $2.5(\mathrm{C}+)$. 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.

## GENERAL EDUCATION REQUIREMENTS

A candidate for a bachelor's degree at California State College, Long Beach must complete a minimum general education requirement of 40 semester units. The student must complete not less than six units in each of the categories I to IV and not less than a total of 32 units in categories I to V. In categories I to IV, no more than nine units in the category in which the student's major is listed may be used to satisfy general education requirements. No courses in the student's major department may be used to satisfy the 40 units of general education with the exception of those in category V. Satisfactory completion of the Honors Program automatically satisfies the general education requirement completely with the exception of category V. Various ethnic studies courses offered by Black Studies, Mexican-American Studies, Asian American Studies and American Indian Studies may be used to meet appropriate general education requirements. Lists of courses and the categories for which they have been approved are available at department offices and the Information Desk.
I. Natural Science-Two or more courses (totaling six or more units) in the Departments of Biology (which includes anatomy and physiology, biology, botany entomology and zoology); Chemistry; Geology; Microbiology or Physics (which includes astronomy and physical science). Àt least one laboratory science course must be included.
II. Social Sciences-Two or more courses (totaling six or more units) in the Departments of Anthropology, Economics, Geography, History, Political Science, Psychology, Social Welfare or Sociology
or offered by the Center for Urban Studies, exclusive of any courses chosen to satisfy the requirements of U.S. History, Government and Constitution, included in category V.
III. Humanities-Two or more courses (totaling six or more units). One of these must be either a philosophy course (offered by the Philosophy Department), a religious studies course (offered by the area of Religious Studies) or a literature course offered by one of the following departments: English, Comparative Literature, French-Italian, German, Classics and Eastern Languages or Span-ish-Portuguese.
A second course in this category must be an appropriate course in one of the following departments: Art, Dance, Music or Theatre Arts. (The departments named will decide which of their courses are appropriate.)
IV. Basic Communication-Two or more courses (totaling six or more units) in English composition, foreign language (other than literature courses), journalism, mathematics, radio-television, speech communication or statistics, exclusive of any course chosen to satisfy the English composition requirement included in category V.
V. Special Subjects-One course in United States history; one course in United States government and Constitution (Political Science Department); and one course in English composition. The student has the option of receiving credit by examination; departments will make such examinations available. A student who fails any such examination has the option of repeating the examination without penalty, or taking the course(s) which satisfy the requirement. A student who has met any of these requirements prior to enrollment at CSCLB is exempt. Unit credit (to be included in the $40-$ unit general education requirement total and in the total number of units required for graduation, but not in the student's grade point average) shall be granted for satisfactory completion of examination in these subjects. Credit by examination, however, is subject to conditions specified in this Bulletin.

## 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.

The term "continuous attendance" means attendance for a regular academic year, except where such attendance is interrupted by illness or by military service.

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



## 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 but graduate credit may not normally be earned in advance of the baccalaureate degree. However, a second semester senior with a minimum grade point average of 2.75 overall and 3.0 in his major may earn, with the approval of the Scholastic Standards Committee, a maximum of six units of upper division work (300-499) to be applied as graduate credit for a credential or further non-degree purposes at this College. A petition to do so must be filed prior to the beginning of the last semester of the senior year. Any courses to be applied as graduate credit must be specified and must be taken in addition to those needed to satisfy bachelor's degree requirements. Petition forms are available in the Admissions Office.

## Classification and Designation of Courses

See the Graduate Bulletin for information about credit for work taken as a senior to be applied toward an advanced degree.

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: number, title, semester units (in parentheses), session offered and faculty normally teaching the course. 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.

## DEGREE REQUIREMENTS

## for <br> BACCALAUREATE DEGREE PROGRAM

Major
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Art ..... Page 269
Biology ..... Page 308
Botany ..... Page 314
Business Administration ..... Page 157
Business Education ..... Page 167
Chemical Engineering ..... Page 248
Chemistry ..... Page 320
Civil Engineering ..... Page 250
Comparative Literature ..... Page 325
Criminology ..... Page 99
Earth Science ..... Page 359
Economics ..... Page 328
Electrical Engineering ..... Page 255
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Journalism ..... Page 380
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Spanish ..... Page 424
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Vocational Education ..... Page 154
Zoology ..... Page 317


## SCHOOL OF APPLIED ARTS AND SCIENCES

## Administrative Officers

Dr. C. Thomas Dean Dean of the School ..... IA2-100
Dr. John J. McConnell Associate Dean, Academic Affairs ..... P.E. 212
Dr. Floyd M. Grainge Associate Dean, Fiscal Affairs ..... N 13
Mr. Albert J. Winter Administrative Assistant ..... IA2-108
Directory of Departments
Department Chairman Dept. Offices
CriminologyHealth Education and Safety
Home Economics
Dr. Paul M. Whisenand ..... FO5-202
Dr. John A. Torney, III ..... P.E. 215
Dr. Merna A. Samples ..... Home Ec. 106A
Industrial Arts Dr. Irvin T. Lathrop ..... |A|-101
Industrial Technology Dr. Paul L. Kleintjes ..... CC-4
Men's Physical Education Dr. Robert A. Pestolesi ..... P.E. 203Nursing
Dr. Edna L. Fritz ..... N-19
Physical Therapy Dr. Frank J. Bok ..... P.E. 218
Recreation and Leisure Studies Dr. Stanley R. Gabrielsen ..... P.E. 218Women's Physical Education
Dr. C. Patricia Reid ..... P.E. 221

## Other School Offices

| Graduate Coordinator | Dr. Dorothy L. Fornia | P.E. 209 |
| :--- | :--- | ---: |
| Facilities Coordinator | Mr. Bill Bovee | P.E. 318 |
| Intramural Director | Dr. William A. Sinclair | P.E. 20 |
| Director of Institute for <br> Police Studies | Dr. Paul Whisenand | FO5-204 |

## CRIMINOLOGY DEPARTMENT

## (School of Applied Arts and Sciences)

Professors: Felkenes, Germann, Guthrie, Jameson, Kenney.
Associate Professors: Becker, H., Whisenand.
Assistant Professors: Good, Rogers.
The program in criminology offers the bachelor of science degree to the man or woman seeking comprehensive education for a professional career in the criminal justice area. The pattern for this major provides for a broad preparation including subjects of an advanced, specialized and administrative nature.
The program is designed for the student who, through screening based upon evaluation of previous college work, job experience, testing and counseling, clearly demonstrates an aptitude and promise for work in one or more of the option areas within the Department of Criminology. The following student groups are served:

1. Transfer students from the community 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 related curricula.
3. Personnel currently employed who desire additional education and/or the bachelor of science degree.
Four options are available: corrections, criminalistics, law enforcement and security administration.
A minimum of 33 units of study in criminology courses plus 12 units of upper division supporting courses in the social sciences (taken outside of the Department of Criminology) constitutes the major. For information concerning general regulations and degree requirements, refer to Baccalaureate Degrees.
All students are required to complete a 12 -unit core requirement consisting of Criminology 301, 351, 355 and 403. Also, all students are required to complete a course in statistics before graduation.
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 person 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 attending the city or junior college.
Commencing with the fall, 1972 semester a total of 20 units of criminology (or police science) will be acceptable for transfer in place of the 27 units now accepted.

Note: Fire Administration Courses. For administrative purposes only, several fire science courses have been lodged with the Department of Criminology. The purpose of this is to offer career-oriented course work for the student electing to prepare himself for an administrative position in the fire service. Special counseling regarding transfer from city or junior college, platoon scheduling of classes and fulfillment of baccalaureate degree requirements is available through the Department of Criminology.

## MAJOR IN CRIMINOLOGY FOR THE BACHELOR OF SCIENCE DEGREE CORRECTIONS OPTION

Lower Division: Psychology 256.
Upper Division: Criminology 301, 351, 355, 403 and 21 units of criminology electives to be selected in consultation with an adviser. Criminology $321,322,324$ and 483 are strongly recommended. It is also recommended that the following courses be included in the student's program: Psychology 315, 351, 356, 370; Social Welfare 362, 368; Sociology 445.
Supporting Courses: 12 units of upper division supporting courses in the social sciences (taken outside the Criminology Department) are required after consultation with an adviser.

## CRIMINALISTICS OPTION

Lower Division: Chemistry 111A-B, 251, 251L; Physics 100A-B; Mathematics 120 and one of the following: Anatomy and Physiology 202; Botany 210, 212; Microbiology 210; Zoology 210A.
Upper Division: Criminology 301, 351, 355, 403 and 21 units of criminology electives selected in consultation with an adviser; Chemistry $321 \mathrm{~A}-\mathrm{B}, 451$. The student is strongly recommended to take Criminology 311, 312 and 411.
Supporting Courses: 12 units of upper division supporting courses in the social sciences (taken outside the Criminology Department) are required after consultation with an adviser.

## LaW Enforcement option

Upper Division: Criminology 301, 351, 355, 403 and 21 units of criminology electives selected in consultation with an adviser. Criminology 321, 322, 323 and 324 are strongly recommended.
Supporting Courses: 12 units of upper division supporting courses in the social sciences (taken outside the Criminology Department) are required after consultation with an adviser.

## SECURITY ADMINISTRATION OPTION

Upper Division: Criminology 301, 351, 355, 403 and 21 units of criminology electives selected in consultation with an adviser. Criminology $331,431,435$ and 437 are strongly recommended.
Supporting Courses: 12 units of upper division supporting courses in the social sciences (taken outside the Criminology Department) are required after consultation with an adviser.

## UPPER DIVISION

301. Concepts and Issues of Criminal Justice (3) F, 5 Germann, Jameson

Criminal justice studied as a total interacting system: police, corrections, parole, probation and the judiciary. Not open to students with credit in Criminology 101.

## 303. Basic Statistics in Criminal Justice (3) F Staff

Prerequisite: Consent of instructor. Description and analysis of research methods used in law enforcement, courts, probation and parole and correctional institutions. Calculation, interpretation and applicability of special techniques to the fields of criminal justice.
311. Basie Criminalistics (3) F,S Staff

Broad survey of the relationship between the physical sciences and the administration of criminal justice. Concepts of identifications and their application to various types of physical evidence which involve chemical and physical analysis, and mechanical or physical comparison. (Lecture 3 hours.)

## 312. Intermediate Criminalistics (3) F, S Staff

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. Criminal Justice: Administrative Organization (3) S Kenney, Rogers

Functional and structural approaches. Formulation of policy and procedures; coordination and control methods; planning and research.

## 322. Criminal Justice: Administrative Behavior (3) F Whisenand

Prerequisite: Criminology 321. Behavioral approach to the study of criminal justice administration; organization and the individual; effect of group dynamics on the administrator; decision making from a human relations point of view.
323. Criminal Justice: Advanced Administrative Theory (3) S Whisenand

Prerequisite: Criminology 322. Systems approach to criminal justice administration; systems analysis and design; application of computer sciences and related technology.
324. Criminal Justice: Personnel Supervision and Development (3) $\mathbf{S}$

## Good, Rogers

Techniques of police supervision; problems of policy and procedure; field problems; instructional and disciplinary methods; motivation; supervisory investigations and reports; performance rating.

## 331. Introduction to Industrial Security (3) F Staff

Historical, philosophical and legal basis of security; role of security in modern industrial society; administrative, personnel and physical aspects of the security field.

## 351. Criminalization and Substantive Criminal Law (3) F Felkenes

Jurisprudential philosophy and case study of common law and statutory crimes; includes functions and development of substantive criminal law; elements of criminal liability; specific crimes and defenses. Not open to students with credit in Criminology 151.

## 355. Evidentiary Issues in the Legal Process (3) S Felkenes

Issues and problems of proof in civil and criminal trials; admissibility; examining witnesses; constitution consideration and exclusionary rules. Not open to students with credit in Criminology 155.

## 357. Procedural Aspects of the Legal Process (3) F Felkenes

Criminal analysis of prosecution; constitutional limitations from arrest to release; trends in the administration of criminal justice; legal restraints on police; relation between state and federal criminal authority. Not open to students with credit in Criminology 157.

## 361. Investigation Issues and Theories (3) F, S Good, Rogers

Examination of the investigative process throughout the criminal justice system. Includes procedures involving the decision to invoke the criminal justice process; disposition of offenders; socio-psychological aspects; and crucial issues in investigation. Not open to students with credit in Criminology 261.

## 371. Current Trends in Field Policing (3) F, S Good, Rogers

Comprehensive review of criminal justice operational activities in terms of contemporary societal needs. Emphasis placed on the role of training; application of science and technology to operational problems. Not open to students with credit in Criminology 271.

## 403. Criminal Justice: Ecology and Etiology (3) F Becker, Jameson

Social, political, economic, religious and emotional characteristics of criminal justice problems; historical perspectives. Objectives and methods of social control by individuals and institutions.

## 411. Advanced Criminalistics (3) On demand Staff

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. Specialized Problems in Police Administration (3) F Becker, Germann,

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. Comparative Police Administration (3) $\mathbf{S}$ Becker

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 and Executive Development in Criminal Justice On demand Guthrie, Whisenand
Prerequisite: Criminology 324. Behavioral science approach to supervision in criminal justice. Includes sensitivity training, individual and group interview rehearsals and group dynamics.

## 431. Industrial Security Administration (3) On demand Staff

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

## 435. Physical Security (3) S odd years Staff

Protection of industrial, business and governmental facilities. Physical security requirements and standards.

## 437. Special Problems in Industrial Security (3) $\mathbf{S}$ even years Staff

Theft control, shoplifting, document control, subversion and sabotage, civil disturbances, business espionage, labor problems, white-collar crime and natural disasters. Legal aspects. Illegal political activities.
441. Fire Services Administration (3) On demand Staff

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 Staff

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 Staff

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 Staff

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. Advanced Legal Problems (3) S Felkenes

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. Traffic Laws and Procedures (3) F Felkenes

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 criminal justice officials.

## 481. Police-Community Relations (3) F,S Becker, Germann, Jameson

Individual and group study of relationships between law enforcement agencies and the public. Exploration of areas of conflict and cooperation.

## 482. Crime, Police and the Political Process (3) On demand Felkenes

Crimino-political power; relationships between specific organized crimes and political entities; political functions of criminal groups; the police as a political instrumentality.

## 483. Jail Administration (3) On demand Guthrie

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.

## 485. The Role of Police in Society (3) S Germann, Kenney

Historical development of the police as an institution for social control; policing in urban and rural areas; political and socio-economic factors affecting the changing role of police in modern society.
490. Independent Study (1-3) F,S Staff

Prerequisite: Consent of instructor. Individual research and study approved by major professor. May be repeated for credit not to exceed a total of 3 units.

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495. Internship (3) F,S Staff
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Prerequisite: Consent of instructor. Supervised work experience in criminal justice agency in the immediate area. May be repeated for a maximum of six units. (Not open to employed criminal justice officials.)

## 499. Special Topics in Criminology (3) F,S Staff

Prerequisite: Consent of instructor. Topics of current interest in the field of criminology selected for intensive development. Topics are announced in the Schedule of Classes.

## GRADUATE DIVISION

## 511. Criminal Justice Education Systems (3)

512. Problems in Urban Criminal Justice (3)
513. Criminal Justice Administration (3)
514. Criminal Justice Legal Systems (3)
515. Theories of Crime Causation and Prevention (3)
516. Seminar in Criminal Justice Administration (3)
517. Seminar in Administration of Criminal Justice Information Systems (3)
518. Seminar in Comparative Criminal Justice Administration (3)
519. Seminar in Criminal Justice Problems (3)
520. Research Methodology (3)
521. Directed Research (1-3)
522. Thesis or Project (2-4)

## HEALTH SCIENCE DEPARTMENT

## (School of Applied Arts and Sciences)

Professors: Kaywood, Torney.
Associate Professors: Beegle, Farber, Irwin, Kaywood, Pollock, Probst. Assistant Professor: Campbell, C.
Instructor: Lussier.
Courses are offered which are designed to satisfy health science requirements for (1) general education, (2) the standard designated services credential with a specialization in health to serve as a public school nurse, (3) the baccalaureate degree major, (4) the teaching major and minor in health science for the standard teaching credential, (5) the teaching minor in safety education for the standard teaching credential, (6) the standard designated subjects credential in public safety and accident prevention including driver education and driver training.

## 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 Science 300,320 or 420, 321 or 322, 325, 327, 421, 430, 440; Home Economics 430; Psychology 351 or 370; Safety Education 220 or 330.

## Teaching Credentials: <br> See Credential Section.

## LOWER DIVISION

## 210. Contemporary Health Problems (3) F, S Irwin, Lussier, Pollock

Development of modern health knowledge, attitudes and behavior; includes family life-sex education, drug use and abuse, mental health, medical quackery and health frauds, common diseases such as venereal disease, heart disease and cancer.

## UPPER DIVISION

## 300. Community Health Statistics (3) $S$ Beegle

Prerequisite: Mathematics 100. Concepts and procedures of statistical analysis in community health. (Lecture 2 hours, laboratory 3 hours.)

## 320. Community Health Problems (3) F Irwin

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.

## 321. Consumer Health (3) F Campbell

Quackery and fraudulent health practices; protection agencies; laws protecting consumer health; criteria for selecting health information, products and services, and medical care services.

## 322. Environmental Health <br> (3) $\mathbf{S}$ Lussier

Factors in man's physical environment which may exercise a deleterious effect on his physical development, health and survival.

## 325. The School and Sex Education (3) $S$ Beegle, Campbell

Prerequisites: Anatomy and Physiology 200, Psychology 100; or equivalent. Development and conduct of sex education in American schools; factors in human

## Health Science

growth and sexual maturation; family health problems; parenthood; family planning.

## 327. Stimulants and Depressants (3) F, S Beegle, Irwin, Torney

Narcotics and addiction; alcohol and alcoholism; smoking and health; dangerous drugs; and related laws.

## 400. Determinants of Disease Prevalence in Man (3) F Beegle

Prerequisite: Microbiology 100 or equivalent. Application of epidemiologic procedures to the understanding of the occurrence and control of infectious and chronic diseases, mental illness, environmental health hazards, accidents and geriatric problems.

## 401. Community Health Education (3) F Staff

Concepts of community health education with emphasis on community organization; application of these concepts to health education activities of official, voluntary and professional health agencies.

## 410. Health Science and the Young Child (3) F Pollock

Health needs and problems of the young child; health science content pertaining to attitudes and behavior; concepts of appraisal, services and healthful environment.
420. International Health

## (3) S Staff

Factors affecting health in selected populations, international variations, human ecology and the organization and purpose of agencies functioning in this field. 421. Health Behavior (3) $F$ Lussier

Prerequisite: Psychology 351 or 370 . Current research in the medical and behavioral sciences related to health and illness, with attention to factors underlying individual and group health behavior.

## 430. School Health Program (3) F, 5 Pollock

Intensive analysis of the philosophy, organization and legal aspects of the school health program.
435. School Health Problems (3) Staff

Prerequisite: Student teaching or teaching experience or consent of instructor. Analysis and approaches for solving health problems of the school-age child.
440. Applied Concepts of School Health Science (3) $\mathbf{S}$ Pollock

Prerequisite: Health Science 430. Identification and application of the concepts and modes of inquiry unique to the discipline of health science.
485. Field Experience in Community Health Education (3) F, $\mathbf{S} \quad \mathbf{S t a f f}$

Prerequisites: Health Science 401 and consent of instructor. Supervised observation and field experience in community health education as conducted by official, voluntary and professional health organizations.

## 499. Special Studies (1-3) F, S Campbell, Lussier, Torney

Group investigation of selected topics. Topics to be announced in the Schedule of Classes. May be repeated for credit to a maximum of six units.

## GRADUATE DIVISION

## SAFETY EDUCATION

## LOWER DIVISION

## 220. Public Safety and Accident Prevention (2) F, S Probst

Accident prevention in the home, at school, on the job and in the community.

## UPPER DIVISION

## 321. Driver and Traffic Safety Education I (2) F, S Probst

Co-requisite: Safety Education 321L. Study of factors basic to safe and responsible driving. Not open to students with credit in Safety Education 325.

## 321L. Driver and Traffic Safety Education I Laboratory (1) F, S Probst

Prerequisites: Valid California driver's license and an extensive driving record free from repeated traffic violations, convictions and/or accidents. Co-requisite: Safety Education 321. Laboratory to improve personal driving skill. Not open to students with credit in Safety Education 325.

## 330. Elementary and Secondary School Safety (2) F,S Probst

Responsibilities of the classroom teacher in school safety education programs.

## 335. School Emergency Procedures (2) F Probst

Prerequisite: Physical Education 130. Functions and responsibilities of administrators and teachers during school emergencies, such as earthquake, fire, nuclear attack, riot and accidental injuries.

## 422. Driver and Traffic Safety Education II (2) F, 5 Kaywood

Prerequisites: Safety Education 321, 321 L and consent of instructor. Co-requisite: Safety Education 422 L . Analysis of the driving task involving factors of man-machine-environment complex in traffic safety; legal provisions; application of technological advances and research in traffic safety. Not open to students with credit in Safety Education 440.

## 422L. Driver and Traffic Safety Education II Laboratory (1) F, S Kaywood

Prerequisites: Safety Education 321, 321L and consent of instructor. Co-requisite: Safety Education 422. Laboratory experience teaching beginning drivers in the dual control car. Not open to students with credit in Safety Education 440.

## 423. Driving Simulators (2) F, S Kaywood

Prerequisites: Safety Education 422, 422L (may be taken concurrently) and consent of instructor. Co-requisite: Safety Education 423L. Design, concepts, research and development, capabilities, limitations, operational procedures and preventive maintenance of driving simulators. Not open to students with credit in Safety Education 445.

## 423L. Driving Simulators Laboratory (1) F, S Kaywood

Prerequisites: Safety Education 422, 422L (may be taken concurrently) and consent of instructor. Co-requisite: Safety Education 423. Laboratory experience teaching beginning drivers in the driving simulator laboratory. Not open to students with credit in Safety Education 445.

## 460. Administration and Supervision of Driver Education Programs (2) $\mathbf{F}, \mathbf{S}$ Kaywood

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.

[^4]
## HOME ECONOMICS DEPARTMENT

## (School of Applied Arts and Sciences)

Emeritus: Zelpha Bates.
Professors: Samples, Wharton.
Associate Professors; Buckner, Buckwalter, Hamilton, Hoff, Kefgen, Lare, Vanderwarf.
Assistant Professors: Baker, D., Christian, Dinerstein, Moore, M., Rader, Ristow.
Lecturer: Keenan.
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, environmental factors: housing and interiors 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
Home Economics in Business. This emphasis prepares for representa-
tive types of business tive 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 or Home Economics 141 or equivalent; Psychology 100 or equivalent; Sociology 100 or 142 or Anthropology 120 or equivalent; Eco-

[^5]nomics 200 and 201 or equivalent; English 100 and 101, or equivalent; Chemistry 111A or 200; Anatomy and Physiology 200 or equivalent; Microbiology 100 or 210 , or Physics 104.
Upper Division: Home Economics 321, 323, 331, 333,* 342, 344, 353, 413,490 or approved alternative. Chemistry 300 or 327; Economics 300 or 308 (if 200 and 201 were not taken).

## Teaching Credentials:

See Credential Section.

## Child Development Program

The Certificate Program in Child Development is designed to prepare persons interested in the development and education of young children, with special experiences which will enhance their knowledge and professional skills. The certificate has been designed with the belief that those interested should be college graduates, liberally educated with specialized knowledge and skills. The certificate is designed for those interested in nursery schools, day care centers, Head Start and preschool programs and with children's programs in other public and private agencies.

The Certificate in Child Development may be earned in conjunction with the baccalaureate degree or teaching credential in home economics. Courses offered for the certificate may be the same ones used to satisfy, where applicable, major, minor, credential or general education requirements.

## Requirements for the Certificate in Child Development:

1. A bachelor's degree in home economics.
2. 35-36 units distributed as follows:

Lower Division (8-9 units): Home Economics 111, 141, 232 or 331.

Upper Division (18 units): Home Economics 312, 314, 411, 413, 414, 433.
3. A minimum of nine units chosen in consultation with the coordinator selected from the following: Health Science 410; Home Economics 321, 412, 416, 418; Industrial Arts 388; Music 281 or 382 or 386; Physical Education 490; Social Welfare 461; Speech 352, 361, 447; Theatre Arts 352 or 356.
Certification of successful completion of the Certificate in Child Development will be recommended by the coordinator.
Interested students should apply to Dr. Merna A. Samples, Home Economics Department.

## LOWER DIVISION

[^6][^7]
## UPPER DIVISION

## 400. Procedures and Demonstration Techniques (2) $F$ Staff

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 1 hour, laboratory 3 hours.)
487. Curriculum and Instruction in Consumer Education Programs (3) F Rader

Prerequisites: Senior standing in home economics. Development of curriculum in consumer education programs for school and community. Current resources, effective uses of media and methods for instruction appropriate for various age levels. Coordination of offerings with other school and community agencies. (Lecture 3 hours.)
488. Gainful Employment Programs in Home Economics (3) On demand Samples

Prerequisites: Sec. Ed. 450 H , Home Economics 487 or teaching experience with consent of instructor. Utilizing knowledge and skills derived from the field of home economics as a basis for offering occupational opportunities for youth and adult through planning programs in school and community. (Lecture, discussion 3 hours.)

## 490. Directed Studies (1-3) F, S Samples

Prerequisites: Home economics major, senior standing. Independent study under the supervision of a faculty member. Readings in areas of mutual interest to student and faculty which are not a part of any regular course. Written report is required.

## 499. Special Topics (1-3) F, S Staff

Group investigation of selected topics. Topics to be announced in the Schedule of Classes. May be repeated for credit to a maximum of 6 units.

## CHILD DEVELOPMENT AND FAMILY RELATIONS LOWER DIVISION

## 111. The Preschool Child (3) F, S Ristow

Prerequisites: Psychology 100, Sociology 100 or 142 or Anthropology 120 (may be taken concurrently), or equivalent. Patterning of behavior in home and nursery school, and interaction of parents, children and teachers. (Lecture 2 hours, laboratory 3 hours.)

## UPPER DIVISION

312. Family and Personal Development (3) F, S Staff

Prerequisites: Psychology 100, Sociology 100 or 142, or Anthropology 120 or consent of instructor. Interdisciplinary introduction to the concepts underlying contemporary American family life and the influence of social and cultural conditions on human development. (Lecture, discussion 3 hours.)

## 314. The Older Child (3) F Christian

Prerequisite: Home Economics 111 or consent of instructor. Behavior and development in middle and late childhood and early adolescence, with emphasis on individual and cultural differences. (Lecture 3 hours.)

## 411. Individual Child Study (3) F Ristow

Prerequisite: Home Economics 111 or Educational Psychology 301 or consent of instructor. Formulating guidance practices on the basis of the individual child in a family and community setting. Evaluating current materials in child care and development. (Lecture, discussion 3 hours.)

## 412. The Individual and His Family (3) $F$ Christian

Prerequisites: Psychology 100, Sociology 100 or 142 or Anthropology 120, or consent of instructor. Interrelations of the individual and his family through the stages of the family's life cycle. (Lecture 3 hours.)

## 413. The Family in the Community (3) F, S Christian, Ristow

Prerequisites: Psychology 100 and Sociology 100 or 142 or Anthropology 120, or Educational Psychology 301, or consent of instructor. Exploration of key concepts underlying contemporary American family life and community agencies serving the urban family. (Lecture 3 hours.)
414. Field Work with Preschool Children (3) 5 Christian

Prerequisite: Home Economics 111 or Educational Psychology 301 or consent of instructor. Participation in group care of young children. Nursery curriculum, techniques and objectives of various programs. (Lecture 2 hours, laboratory 3 hours.)

## 416. Directing Children's Programs (3) On demand Christian

Prerequisite: Consent of instructor. Minimum and recommended standards and laws pertaining to housing, equipment, play space, adult child ratio, health supervision and meal service for children's programs. Selection and supervision of personnel, program planning and directing, record keeping. Field experience. (Lecturediscussion 3 hours.)

## 418. Working with Parents (3) S Christian

Prerequisites: Home Economics 111, 413 or consent of instructor. Principles and techniques for working with parents in community and school programs. Community responsibilities and resources for children. Content for programs in parenthood. (Lecture, discussion 3 hours.)
419. Family Life Education (3) On demand Staff

Prerequisites: Home Economics 412 and 413 or consent of instructor. Concepts of family development and interaction with special emphasis on leadership opportunities for professional persons. Not open to students with credit in Sociology 473. (Lecture 3 hours.)

## ENVIRONMENTAL FACTORS: HOUSING AND INTERIORS <br> LOWER DIVISION

## 141. Techniques in Applied Arts (3) F, S Dinerstein

Basic concepts and techniques of applied art including media, presentation methods and visual communication. (Lecture-laboratory 6 hours.)

## 142. Housing Design (3) F,S Dinerstein

Functional and aesthetic factors of housing as related to family needs. (Lecture 2 hours, laboratory 3 hours.)

## 143. Applied Color: Theory and Application (2) 5 Dinerstein

Essential theories of color perception. Applied problems dealing with color interaction phenomena and its effects and function in home and family living. (Lecture 1 hour, laboratory 3 hours.)

## 241. Contemporary Housing and Interiors (3) On demand Hoff

Planning the total home environment. Housing and interior design from a nontechnical basis. (Lecture 3 hours.)

## UPPER DIVISION

## 340. History of Applied Arts (3) F Staff

Study of the history of the applied arts with emphasis on the interiors, furnishings and structures as they express needs and values of civilization in history. Critical appraisal of aesthetic and functional qualities of the environment. (Lecture 3 hours.)
342. Housing: Study of Environmental Factors (2) F,S Hoff

Problems of developing effective housing and communities for families in various cultural situations. Sociological, financial, psychological and legislative factors of housing are investigated. (Lecture 2 hours.)

## 344. Interiors (3) F,S Hoff

Prerequisites: Art 100 or 121 and 131, or Home Economics 141, 142, 143. Design principles as applied to interiors; analysis of materials and elements used in environmental planning. (Lecture-laboratory 6 hours.)

## 440. Environmental Factors and the Urban Family (3) F Dinerstein

Prerequisites: Home Economics 142, 342 and 344 or consent of instructor. Critical analysis of the urban family's environment including aspects of shelter, community and the city. (Lecture, discussion 3 hours.)

## 441. Advanced Interiors (3) S Hoff

Prerequisite: Home Economics 344 or consent of instructor. Advanced home furnishings design with emphasis upon functional planning for residences. Includes applied design, historic periods, lighting, color theory and textiles. (Lecture 3 hours.)

## 442. Housing Policies: Public and Private (3) F Hoff

Prerequisite: Home Economics 342 or consent of instructor. Federal, state and local legislation and policies concerning housing, urban renewal financing and city planning. Analysis of the housing industry and its influence on the consumer market. (Lecture 3 hours.)

## 444. World Housing (3) $s$ Dinerstein

Prerequisite: Home Economics 342. Theories and solutions of family housing in urban and rural areas throughout the world. (Lecture 3 hours.)

## FAMILY FINANCE, MANAGEMENT AND CONSUMER SCIENCES

## 321. Home Management (3) F, S Hamilton, Keenan

Application of social, economic and technical decision theory to the management of the home and the influence of family values, goals, philosophy and socioeconomic conditions upon those decisions. (Lecture, discussion 3 hours.)

## 323. Personal and Family Financial Management (3) F,S Buckner <br> Theory and procedure in planning, controlling and protecting financial resources.

Emphasis on education and laws to protect the consumer. (Lecture, discussion 3 hours.)

## 327. Household Equipment Technology (3) F,S Hamilton

Scientific principles underlying the selection, care and operation of household equipment. (Lecture 2 hours, laboratory 3 hours.)

## 421. Management of Work Capacity in the Home (3) $\mathbf{S}$ Keenan <br> Prerequisite: Home Economics 321. Physiological, psychological and sociological

 implications in the use of human and material resources for maximum economy,
## 423. Home Management Project (3) F, S Hamilton

Prerequisites: Home Economics 321, 323, 413 or equivalent. Analysis of family goals and values in a rapidly changing culture; principles and concepts of management developed through field work with families. (Lecture 2 hours, field work 3 hours.)

## 424. Home Management: Limited Resources (3) S Hamilton

Prerequisite: Home Economics 423. Management problems of homemakers who have limited resources of time, money or energy. Field experience.

## 426. Family Financial Problems (3) F, S Buckner

Prerequisite: Home Economics 323 or consent of instructor. Socio-economic changes, public policies and programs, and management practices related to family financial well-being. (Lecture 2 hours, laboratory 3 hours.)

## 427. Household Equipment: Performance Testing (3) On demand Hamilton

Prerequisites: Home Economics 327, Physics 104. Experimental problems on the performance of the major types of household equipment. (Lecture 2 hours, laboratory 3 hours.)

## FOOD AND NUTRITION

## LOWER DIVISION

## 231. Food Selection and Meal Preparation (2) On demand Staff

Food selection and buying; meeting individual and family food needs; principles of food preparation, family meals. Not open to home economics majors. (Lecture 1 hour, laboratory 3 hours.)

## 232. Nutrition (2) F,S Wharton

Prerequisite: Anatomy and Physiology 200 or equivalent. Essential nutrients, their physiological functions and human needs during the life cycle, food sources as applied to selection of an adequate dietary. Designed for majors in nursing and elective students. (Lecture 2 hours.)

## 235. Principles of Food Preparation (3) F, S Vanderwarf

Prerequisite: Chemistry 111 A or 200 . Scientific principles and techniques in food preparation; factors that contribute to quality of food products; judging quality of prepared foods. (Lecture 2 hours, laboratory 3 hours.)

## UPPER DIVISION

## 331. Fundamentals of Nutrition (3) F, S Baker

Prerequisites: Anatomy and Physiology 200, Chemistry 300 or 327 or equivalent. Foundations of nutrition and its relation to health; application to feeding the individual and family. (Lecture 3 hours.)

## 333. Meal Management (3) F, S Vanderwarf

Prerequisites: Home Economics 235, 232 or $331 ; 321$ (may be taken concurrently), or equivalents. Factors which influence meal plans; food selection, preparation and service in relation to management of time, energy and money. (Lecture 2 hours, laboratory 3 hours.)

## 334. Quantity Meal Management (1) On demand Staff

Prerequisite: Home Economics 333. Meal planning and related activities for institutions and other large groups; required of students following the dietetic program.

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## 337. Food Service Management (3) F Staff

Prerequisite: Home Economics 335. Principles of organization and management, cost control, personnel management and administration in institutional food services. (Lecture 3 hours.)

## 338. Institution Equipment and Layout (3) On demand Staff

Prerequisite: Home Economics 337. Selection, layout and maintenance of institution food service equipment. (Lecture 3 hours.)

## 430. Nutrition and Health (3) S Baker

Prerequisite: Anatomy and Physiology 200. 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. (Lecture 3 hours.)

## 431. Advanced Foods (3) S Baker

Prerequisite: Home Economics 235. Specific food preparation problems. Use of additives, prefabrications, processing and sanitation. (Lecture 2 hours, laboratory 3 hours.)

## 432. Experimental Foods (3) $F$ Baker

Prerequisites: Chemistry 300 or 327 , Home Economics 235 or equivalent. Scientific principles and experimental procedures applied to food processes. (Lecture 2 hours, laboratory 3 hours.)

## 433. Nutrition of Infants and Children (3) F Baker

Prerequisite: Home Economics 232 or 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. (Lecture 3 hours.)

## 435. Techniques for Teaching Foods (3) On demand Staff

Prerequisites: Sec. Ed. $450 \mathrm{H}, 481 \mathrm{~A}-\mathrm{B}$. 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. (Lecture 3 hours.)

## 436. Advanced Nutrition (3) $S$ Wharton

Prerequisites: Home Economics 331 or equivalent; Chemistry 448. Metabolism of protein, fats, carbohydrates, minerals and vitamins; interrelationships of nutrients; procedures for determining nutritional requirements of individuals. (Lecture 3 hours).

## 437. Cultural Aspects of Food and Nutrition (3) F,S Wharton

Prerequisites: Psychology 100, Sociology 100 or Anthropology 120, Home Economics 232 or 331 or equivalents. Science and art of food preparation in relation to cultural and economic conditions. (Lecture 3 hours.)

## 438. Diet Therapy (3) $F$ Wharton

Prerequisite: Home Economics 436 or equivalent. Introduction to therapeutic nutrition. Metabolic changes in specific pathological conditions; dietary modification used for treatment. (Lecture 3 hours.)

## 461. Community Nutrition (3) $S$ Baker

Prerequisite: Home Economics 232 or 331 . Nutritional status and factors responsible for the nutrient intake of all people. Communication techniques in community nutrition education. (Lecture 3 hours.)

## 462. Recent Developments in Nutrition (3) F Wharton

Prerequisite: Home Economics 232 or 331 or consent of instructor. Analysis of recent developments and current research in nutrition. (Lecture 3 hours.)
491. Directed Studies in Food and Nutrition (1-3) F, S Staff

Prerequisites: Senior standing, 12 units in food and nutrition. Independent study under the supervision of a faculty member. Readings in areas of interest to student and faculty which are not a part of any regular course. Written report is required.

## textiles and clothing

## LOWER DIVISION

## 251. Principles of Apparel Selection (3) F, $\mathbf{S}$ Kefgen

Apparel selection for the individual and family based upon aesthetic guidelines, cultural influences and consumer needs. (Lecture, discussion 3 hours.)

## 254. Fundamentals of Clothing Design (3) F, S Staff

Prerequisite: Home Economics 251 or equivalent. Analysis of theories and methods of clothing construction. (Lecture 2 hours, laboratory 3 hours.)

## UPPER DIVISION

## 353. Textiles (3) $\mathbf{F}, \mathrm{S}$ Buckwalter

Prerequisite: Chemistry 111A or 200 or consent of instructor. Natural and synthetic fibers, yarn and fabric construction, dyes and finishes in fabric selection, performance and care from the consumer point of view. (Lecture 3 hours.)

## 354. Analysis of Tailoring Processes (3) $F$ Kefgen

Prerequisite: Home Economics 254 or equivalent. Analysis of processes applied to construction of suits and coats. (Lecture 2 hours, laboratory 3 hours.)

## 357. Creative Pattern Design (3) $\mathbf{F}$ Lare

Prerequisite: Home Economics 254 or equivalent. Experimental approach to analysis of factors influencing clothing synthesis and design. (Lecture 2 hours, laboratory 3 hours.)

## 451. Fashion Analysis (3) F Kefgen

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. (Lecture 3 hours.)

## 452. Costume Design and Draping (3) 5 Lare

Prerequisite: Home Economics 254 or equivalent. Creating original design through French draping. (Lecture 2 hours, laboratory 3 hours.)

## 453. Advanced Textiles (3) $S$ Buckwalter

Prerequisites: Home Economics 353 and Chemistry 300 or 327 . Chemical and physical structure of fibers and physical properties of yarns and fabrics in relation to fabric serviceability. (Lecture 3 hours.)

## 454. Experimental Clothing (3) 5 Kefgen

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 2 hours, laboratory 3 hours.)

## Home Economics

459. Apparel Behavior (3) 5 LarePrerequisites: Home Economics 251, Economics 200 or 300 or 308, Sociology 100or 142 or consent of instructor. Psychological, sociological and economic influenceson the selection of individual and family clothing. (Lecture 3 hours.)
460. Directed Studies in Textiles and Clothing (1-3) F, S Staff
Prerequisite: Senior standing. Independent study under the supervision of a faculty member.
GRADUATE DIVISION
461. Family Development ..... (3)
462. Nutrition Programs for School and Community ..... (3)
463. Advanced Experimental Foods ..... (3)
464. Contemporary Ekistics ..... (3)
465. Curriculum Development in Home Economics ..... (3)
466. Evaluation in Home Economics ..... (3)
467. Trends and Perspectives in Home Economics ..... (3)
468. Seminar in Organization and Administration of Home Economics
469. Seminar in Child Development ..... (3)(3)
625A-B. Seminar in Family Finance and Management ..... (3,3)
635A-B. Seminar in Food and Nutrition $(3,3)$
470. Seminar in Ekistics ..... (3)
471. Seminar in Clothing and Textiles ..... (3)
472. Seminar in Home Economics Education ..... (3)
473. Research Methods ..... (3)
474. Directed Research ..... (1-3)
475. Thesis or Project ..... (2-4)

## INDUSTRIAL ARTS DEPARTMENT

## (School of Applied Arts and Sciences)

Professors: Dean, Farr, Genevro, Grainge, Lathrop, Powell, P., Rawson, Ryan, Torres.
Associate Professors: Graves, Macon, Nicholson, Patcha, Quinones, Schmidt, Smith, D., Trout.
Assistant Professors: Brandstatt, Church, Gietl, Kunst, Martin, Olivo, Randall, Routh, Seriguchi, Smith, E., Trusty, Webster, Wittich.
Instructor: Heineman.
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.
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 101, 111, 121, 131, 141, 151, 161, 181, 284.

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 481A-B.
Teaching Credentials:
See Credential Section.

## LOWER DIVISION

## 181. Orientation to Industrial Education (1) F, S Patcha

Evaluation of students' academic, social and mechanical aptitudes and abilities determined through standardized tests. Personal cumulative records started. Orientation to the philosophy of industrial education, credential requirements and opportunities in teaching included. (Required course for all industrial arts majors.)

## 281. Exploratory Woodwork (2) F,S Trout

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. Exploratory Metalwork (2) F, S Trout

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.)

## 284. Development of Industry and Technology (2) F, $S$ Ryan

Development of modern industry and technology from prehistoric times to the present. Discovery, invention and application of man's development in technology stressed.

## UPPER DIVISION

## 381. Shop Maintenance (2) F, S Powell

Prerequisite: Majors only in the senior year. Systems used in the maintenance of records, tools and equipment. (Laboratory included.)

## 382. The Comprehensive General Shop (3) F, S Powell

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. (Laboratory)

## 383. Safety Education (1) F,S Trout, Smith, E.

Safety as it applies to the industrial arts education program with an analysis of accidents in relation to causes, prevention and liability.

## 384. Materials Testing and Evaluation (2) F,S Patcha

Prerequisite: Consent of instructor. Testing and evaluation of basic metallic industrial materials, cutting fluids, lubricants, chemicals, finishing processes, plastics, fasteners and methods of quality assurance. (Lecture, laboratory.)

## 388. Industrial Arts for Elementary Teachers I (2) F, S Nicholson

Developing and fabricating teaching aids and integrated hand work units for elementary schools. Basic skills in the use of simple construction materials and tools. Open to industrial arts majors only by consent of instructor. (Laboratory included.)

## 389. Industrial Arts for Elementary Teachers II (2) 5 Nicholson

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.)
391. Internship in Industrial Education (2) F,S Smith, D.

Prerequisite: Consent of coordinator. Planned, coordinated and supervised work experience in an industry allied with the students' technical areas of concentration. May be repeated for a maximum of eight units.

## 481. House Construction (1) $\mathbf{F}, \mathbf{S}$ Macon

Designed for the homemaker desiring knowledge of materials and methods used in house construction. Not open to industrial arts majors.

## 482. Teaching Aids (2) F, S Randall

Criteria for the selection, planning, development and construction of teaching aids for the individual student and/or teacher. Laboratory experiences to develop familiarity of above criteria and their use. Open to all majors. (Laboratory included.)

## 483. Organization and Management of Industrial Education Facilities (2) $\mathrm{F}, \mathrm{S}$

 Dean, Smith, E.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.

## 484. History and Philosophy of Industrial Education (2) F, S Genevro

Philosophical bases and historical development of industrial education within the matrix of educational, political, economic and technological change. Study of leaders in industrial education and recent trends.

## 485. Problems in Teaching Industrial Education (2) F,S Farr

Must be taken concurrently with Sec. Ed. 481A-B. 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. Special Problems in Industrial Education (1-5) F, S Grainge

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) woods, (b) metals, (c) electricity-electronics, (d) industrial drawing, (f) automotive, (g) industrial crafts-plastics, (h) professional, (i) graphic arts, (j) photography.
492. Advanced Technical Studies (2) F, S Staff

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.)

## AUTOMOTIVE

## LOWER DIVISION

## 161. Automotive I (2) F,S Staff

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.)

## UPPER DIVISION

## 361. Auto Engines (3) $\mathbf{F}, \mathbf{S}$ Rawson

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. Auto Electricity (2) F, S Seriguchi

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.)

## Industrial Arts

## 363. Auto Chassis (2) F Webster

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. Auto Body Repair (2) F, S Rawson

Prerequisites: Industrial Arts 161 and 322, or equivalents. Techniques and practices of body rebuilding, refinishing and styling. (Laboratory included.)

## 365. Power Technology (3) $F, S$ Staff

Prerequisites: Industrial Arts 131, 161, or equivalents. Sources, utilization, distribution, control and transmission of power. (Lecture, laboratory.)

## 461. Auto Tuneup (2) F, S Seriguchi

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. Automatics (2) F, S Webster

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.)

## 141. Industrial Drawing I

## DRAWING

## LOWER DIVISION

F, 5 Staff
instruments, lettering instrument and freehand drawing. Use and care of drawing (Laboratory included.)

## 241. Introductory Graphics (3) F, S Staff

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.)

## UPPER DIVISION <br> Principletl

blackboard. (Laboratory included.)

## 343. Industrial Arts Design (3) 5 Trout

Prerequisite: Industrial Arts 141 or equivalent. Basic course dealing with the elements of two and three dimensional design, stressing the understanding and application of design principles to the industrial arts program.
345. Industrial Drawing II (3) $\mathbf{S}$ Gietl

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. Small Boat Design (2) $F$ Randall

Prerequisite: Industrial Arts 141. Development of table of offsets, arrangement and profile plans, lines drawings, transom and developable surfaces drawings for
sailing and planning vessels. Calculations of displacement, center of buoyancy, center of gravity, curve of area, stability, sail plans and engine requirements. (Laboratory included.)

## 347. Building Construction Graphics (3) F, S Church

Prerequisite: Industrial Arts 141 or equivalent. Development of drafting techniques applicable to graphics employed in the planning and study of light frame construction processes. (Laboratory included.)
441. Machine Drawing (2) S Church, Gietl

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. Architectural Planning and Presentation (3) F, S Church

Prerequisite: Industrial Arts 347. Study and planning of structures for specific functions. Development of presentation drawings including perspective drawing, shades and shadows, materials and colors. Review of architectural history. (Lecture, laboratory 6 hours.)

## ELECTRICITY-ELECTRONICS

## LOWER DIVISION

## 131. General Electricity (2) F, S Staff

Basic principles of electricity, Direct and Alternating current theory, batteries, rotating machinery and test equipment. (Laboratory included.)

## UPPER DIVISION

## 331. Electronics I (3) F,S Brandstaft, Smith, D.

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. Electronics II (3) $\mathbf{F}, \mathbf{S}$ Brandstaft

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. Electronic Circuits and Systems (3) F, S Brandstatt, Smith, D.

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.)

## 431. Audio Systems (2) F, S Smith, D.

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. Amateur Radio Licensing (2) S Smith, D.

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. Television and FM Principles (2) F, S Smith, D.

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.)

## GRAPHIC ARTS

## LOWER DIVISION

## 151. Graphic Arts I (2) F, S Staff

Principles of elementary typographic design and layout, type composition and presswork. Discussions and activities emphasize letterpress and offset lithographic printing processes. (Laboratory included.)

## UPPER DIVISION

## 351. Graphic Arts II (3) S Martin

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. Graphic Arts Photography (2) F, S Kunst

Prerequisite: Industrial Arts 101 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. Design and Composition of Printing Forms (2) $F$ Kunst

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. Graphic Arts Handicrafts (2) F Kunst

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.)

## 451. Duplicating Methods for Teachers (2) F, S Martin

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. Lefterpress Presswork (2) F, S Martin

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. Photo-Offset Lithographic Presswork (2) F, S Martin

Prerequisite: Industrial Arts 151 or equivalent. Principles and techniques of preparing original copy, processing lithographic negatives and plates and operating offset printing presses. (Laboratory included.)

## 454. Advanced Graphic Arts Photography (3) 5 Kunst

Prerequisite: Industrial Arts 352 or consent of instructor. Advanced presentation of photographic theory and practices common to the graphic arts field laboratory techniques to encompass shrinks and spreads, color separations, special effects, contacting and contemporary experimental processes.

## INDUSTRIAL CRAFTS-PLASTICS

## UPPER DIVISION

## 370. Industrial Plastics I (3) F, S Trusty

Study of polymers through basic experiences of casting, laminating, forming and processing synthetic (plastic) materials. Survey of the plastics industry. (Laboratory included.)

## 371. Industrial Crafts I (3) $F$ Nicholson

Materials of industry through creative experiences in the crafts media. Historical and industrial related information is included. (Laboratory included.)

## 470. Industrial Plastics II (3) F,S Trusty

Prerequisite: Industrial Arts 370 or consent of instructor. Comprehensive survey of the processes and materials used in the plastic industry. Machine tools and manufacturing methods will be emphasized. (Laboratory included.)

## 471. Industrial Crafts II (3) S Nicholson

Prerequisite: Industrial Arts 371. Advanced studies of industrial crafts media. Emphasis on ceramics and lapidary. (Laboratory included.)

## METALS

## LOWER DIVISION

## 121. General Metals I (2) F, S Staff

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.)

## UPPER DIVISION

## 321. Patternmaking and Foundry (2) F Smith, E.

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. Welding I (2) F Patcha

Oxy-acetylene and electric welding principles and practice, welding equipment and principles of ferrous metallurgy. (Laboratory included.)

## 323. Machine Tools : (3) F,S Heineman, Patcha

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. Sheet Metal (2) S Powell

Basic principles of pattern layout and development properties of coated metals, and hand and machine tool operations in sheet metal construction. (Laboratory included.)

## 325. Art Metal (2) 5 Smith, E., Trout

Principles, practices and concepts in the design and construction of art metal objects, with emphasis on non-ferrous materials. (Laboratory included.)

## 422. Welding II (2) S Patcha

Prerequisite: Industrial Arts 322 or equivalent. Principles and practice of fusion, brazing and resistance welding processes with emphasis on alloy metals. (Laboratory included.)

## 423. Machine Tools II (3) F, 5 Genevro, Heineman

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. General Metals II (2) S Smith, E.

Prerequisite: Industrial Arts 121. Continuation of General Metals I with emphasis on related information, design, development and tooling principles for metal products. (Laboratory included.)

## PHOTOGRAPHY

## LOWER DIVISION

## 101. Basic Photography (2) F, S Staff

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. Not open to students with credit in Photography 210. (Laboratory included.)

## UPPER DIVISION

## 304. Advanced Photography (3) F, S Routh, Schmidt, Wittich

Prerequisite: Industrial Arts 101. 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. Not open to students with credit in Photography 310. (Laboratory included.)

## 306. Color Photography (2) F, S Routh

Prerequisite: Industrial Arts 101. Survey of current color materials and processes with emphasis on exposing, developing and printing. Contemporary approach to color photography will be stressed. (Laboratory included.)

## 404. Industrial Photography (2) F Wittich

Prerequisite: Industrial Arts 101 or equivalent. Course designed to give exploration of camera and laboratory techniques as applied to industrial and commercial fields. Related photo assignments of studio, in-plant and field problems will be given. Studio and laboratory work included.
406. Experimental Photography (2) $\mathbf{S}$ Schmidt

Prerequisite: Industrial Arts 101 or equivalent. Includes techniques in high contrast, line image, tone separation, solarization, multiple exposure and advanced printing with emphasis on an experimental approach. (Laboratory included.)

## WOODS

## LOWER DIVISION

## 111. Introductory Wood (2) F,S Staff

Survey of basic wood processes, practices and apparatus with emphasis on the understanding of current principles and procedures. (Laboratory included.)

## UPPER DIVISION

## 311. Industrial Coatings (2) F, S Macon

Development, manufacture and use of modern industrial coatings, with emphasis on their application as protective and decorative substances for wood and allied materials. (Laboratory included.)

## 312. Machine Wood (3) F, S Macon, Quinones

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. Wood Technology (2) F,S Quinones

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.)
411. Furnifure (3) F,S Macon, Quinones

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. Carpentry (2) F, $S$ Macon

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. Upholstery (2) S Quinones

Methods of upholstery practices and use of tools and equipment employed in the process of upholstery. (Laboratory included.)

## 414. Boat Construction (2) $S$ Macon

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 Macon

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.)

## GRADUATE DIVISION

590. Supervision and Administration in Industrial Education (3)
591. Curriculum Construction in Industrial Education (3)
592. Evaluation in Industrial Education (3)
593. Techniques in Teaching Industrial Education (3)
594. Modern Concepts in Industrial Education (3)
595. Seminar in Industrial Education (3)
596. Research Methods (3)
597. Directed Research (2)
598. Thesis or Project (2-4)

## INDUSTRIAL TECHNOLOGY DEPARTMENT

## (School of Applied Arts and Sciences)

Professor: Kleintjes.
Associate Professors: Darm, Robinson, H.
Assistant Professors: Brice, Grossman, Hayes, G., Krauser, Pearson, Young.
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 and management 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, specification and proposal 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 and specification and proposal writing in areas of the 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 proposal writing, and the quality, liaison and management 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. Present membership in the council is made up of representatives from the following industries or corporations.
Paramount Pacific Corporation
Industrial Tectonics Inc.
Autonetics
McDonnell Douglas
Fluor Corporation
Northrop Nortronics
Aetna Life and Casualty
Collins Radio
Security First National Bank
Beckman Instruments
North American Rockwell
Norris Industries
Hughes Aircraft, Aerospace Group
Suburbia 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; Chemistry 100; economics, plane surveying, English 100; Mathematics 117, 120 or 122; Philosophy 170 or 270; Physics 100A-B; Psychology 381 ; industrial and architectural drafting and design ( 7 units), construction ( 7 units), transferable technical electives ( 7 units); Industrial Technology 300, 301, 302, 304, 307, 309, 403, 405, 406, 407, 421, 423,425 . Field work and general education requirements and electives selected in consultation with adviser, to total 128 units.
Electronics Technology. Art 330A; Accounting 201; Finance 222 (or equivalent); Management 300, 406; Chemistry 100; economics; English 100; Mathematics 117, 120 or 122; Philosophy 170 or 270; Physics 100A-B; Psychology 381; industrial drawing ( 3 units), metal processing ( 3 units); Industrial Technology 300, 301, 305, 306, 307, 309, 340, 341, $345,402,406,408$, and a minimum of 3 courses selected in consultation with the adviser from the following: Industrial Technology 409, 442, $443,444,445,446$ or 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; Finance 222; Management 300, 406; Chemistry 100; economics; English 100; Mathematics 117, 120 or 122; Philosophy 170 or 270; Physics 100A-B; Psychology 381; up to 24 transferable technical units to include drafting and design ( 8 units), industrial design ( 2 units), foundry ( 2 units), tool design ( 3 units), machine shop ( 6 units), technical or related subjects ( 3 units); Industrial Technology 300, 301, 302, 304, 305, 306, 307,

309, 313, 362, 402, 404, 406, 408 and 13 units selected in consultation with the adviser from the following: Industrial Technology 320, 361, 404, $405,407,409,466,468,491$. 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.

## UPPER DIVISION

## 300. Industrial Communications (3) F, S Staff

Prerequisites: English 100 or equivalent and industrial drawing. Accurate, economical, rapid transmission and interpretation of information.

## 301. Materials of Industry (3) F, S Kleintjes

Prerequisites: Physics $100 \mathrm{~A}, \mathrm{~B}$, Chemistry 100. Properties and applications of industrial materials. Not open to students with credit in Industrial Technology 303.

## 302. Industrial Electricity (3) F, S Staff

Prerequisite: Physics 100B. Current practices in transmission, utilization and application of electrical power in industry.

## 304. Mechanics of Materials (3) F, S Krauser

Prerequisites: Mathematics 122, Physics 100B, or equivalent. Study of the basic laws of statics and dynamics, analysis of failures, stresses and deformation of structural and machine members.

## 305. Kinematics and Machine Design (2) F, S Grossman

Prerequisite: Introductory graphics, Physics 100A. Graphical approach to analysis and design of mechanisms through the study of displacement, velocity and acceleration of gears, cams and linkages. (Laboratory included.)

## 306. Process of Industry (3) F, S Brice

Prerequisites: Physics 100A,B, Chemistry 100, Industrial Technology 301. Methods used in industrial manufacturing and fabrication. Not open to students with credit in Industrial Technology 303.

## 307. Industrial Safety (3) F,S Darm

Industrial safety management and administration, including history, economic factors such as workmen's compensation, disability, direct and indirect costs; responsibilities, organization, accident investigation and trends.

## 309. Foremanship and Supervision (3) F, S Darm

Types of industrial organizations and supervisory systems; responsibilities, duties and qualifications of the supervisor.

## 313. Metrology (3) F Robinson

Prerequisites: Industrial Technology 301, 306. Precision measurement for quality assurance and reliability.

## 320. Materials Handling (3) 5 Hayes

Prerequisites: Industrial Technology 301, 306. Work simplification in movement of materials in production.

## 321. Construction Cost Estimating (3) 5 Staff

Prerequisite: Consent of instructor. Principles and practices in making quantity surveys and labor estimates for construction projects.

## 325. Landscape Design and Drawing (2) $F$ Staff

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. Electronic Circuit Analysis (3) F, S Krauser

Prerequisites: Physics 100B, Mathematics 122 and departmental consent. RLCM networks and applications to industrial devices and systems. (Lecture 2 hours, problem session 2 hours.)

## 341. Electronic Testing and Troubleshooting (2) $F, 5$ Young

Prerequisites: Physics 100B and 16 units of basic electronics. Modern testing requirements, procedures and instrumentation; and logical troubleshooting of industrial electronic circuitry. (Laboratory included.)
345. Transistor Theory (2) F, S Staff

Prerequisites: Industrial Technology 340, 341. Semiconductor devices, integrated circuitry and their application. (Laboratory included.)

## 361. Applied Metallurgy (2) F, 5 Robinson

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. Heat Treating (2) F, S Brice, Robinson

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. Tool Design (3) F, S Brice, Hayes

Prerequisites: Industrial Technology 304, Industrial Arts 423, or consent of instructor. Design of tools for production. Typical tooling problems will include working drawings, production plans and tool drawings. (Laboratory included.)

## 365. Foundry Technology (2) F, S Brice

Foundry practices and casting techniques used in industry. (Laboratory included.)

## 402. Production Analysis (3) F, S Hayes

Prerequisite: Industrial Technology 306. Simplification of manufacturing operations; motion and time study, standards, planning and control; emphasis on operations analyses for optimum production economy.

## 403. Acquisition Techniques for Industrial Application (3) F, S Pearson

Prerequisites: Industrial Technology 301, Accounting 201. Examination of the acquisition function within the industrial complex.
404. Industrial Instrumentation (3) S Krauser

Prerequisites: Industrial Technology 302 (or 340, 341), 303, Mathematics 120 or 122. Techniques in measurement of physical quantities with emphasis on methods and equipment relating to industrial control and processing.

## 405. Plant Layout and Planning (3) F,S Hayes

Prerequisites: Industrial Technology 301, 307 (306 recommended). Practices, procedures and requirements for industrial facilities development.

## Industrial Technology

406. Industrial Proposals and Specifications (3) F,S Pearson

Prerequisite: English 317. Analysis of requests to bid and bidding instructions, techniques and procedures used in the preparation of technical specifications and proposals.

## 407. Critical Path and PERT (3) F, S Grossman

Prerequisites: Industrial Technology 306, Mathematics 120 or 122. Philosophy 270. Planning, scheduling, cost and job control by the network techniques of path and Program Evaluation Review Techniques.

## 408. Production Technology (2) F, S Robinson

Prerequisites: Industrial Technology 402, 406. Modern manufacturing processes and equipment; operation sequence planning; economic aspects of equipment selection, tooling and producing an item from design to distribution.
409. Senior Problems in Industrial Technology (1-3) F, S Staff

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.
410. Computer Applications (2) F,S Staff

Prerequisites: Philosophy 170 or 270 and consent of department. Survey of computer applications to business, manufacturing, research and simulation.

## 421. Utilities Design (3) Frossman

Prerequisites: Industrial Technology 405, 406 or equivalent. Current practices in utilities design and the application to industry. Planning and drawing of specific problems. (Laboratory included.)

## 423. Site Analysis and Development (3) $\mathbf{S}$ Grossman

Prerequisites: Civil Engineering 225, or equivalent, Physics 100A. 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. Construction Methods (3) S Staff

Prerequisites: Industrial Technology 304, 421, 423 (may be taken concurrently). Current practices in structural design, fabrication, and erection; materials, methods and equipment used in industrial and commercial building construction.
442. Computer Circuits (2) F, S Krauser, Staff

Prerequisites: Industrial Technology 345, Philosophy 170 or 270. Analog and digital computers, with emphasis on digital systems, number systems and computer logic, control, arithmetic and memory devices. (Laboratory included.)

## 443. Electronic Systems (3) $\mathbf{S}$ Young

Prerequisite: Industrial Technology 345. Block diagram approach to electronic systems, including computers, guidance, process control, data handling, navigation.

## 444. Advanced Electronic Communications (3) $\mathbf{S}$ Young

Prerequisite: Industrial Technology 345. Advanced coding, telemetry, and data processing of radio, radar, microwave, navigational and laser systems.

## 445. Microelectronics (3) $F$ Staff

Prerequisite: Industrial Technology•345. Design, processing and applications of monolithic and film-type hybrid microcircuits for analog and digital systems.

## 446. Industrial Electronic Automation (2) F,S Young

Prerequisite: Industrial Technology 345 or consent of instructor. Advanced problems in electronic automation pertaining to industrial production. (Laboratory included.)
447. Electronic Production Techniques (2) F,S Pearson

Prerequisite: Industrial Technology 306. Modern production practices and techniques used in the electronics industry. Field trips will be arranged. (Laboratory included.)

## 466. Welding Metallurgy (2) F,S Brice, Robinson

Prerequisite: Industrial Technology 361. Theory and applications of current and emergent joining processes with consideration of weldability of metals and thermal effects on properties. Welding techniques in selected processes exercised in laboratory.

## 468. Quality Assurance I (3) F, S Hayes

Prerequisites: Industrial Technology 306, 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.)

## 469. Quality Assurance II (3) S Staff

Prerequisites: Industrial Technology 468, 471. Process control, control chart application, customer qualifications, maintainability and configuration management.

## 470. Testing of Materials (3) F Staff

Prerequisite: Industrial Technology 468. Mechanical and electrical testing of materials, including both destructive and non-destructive forms.

## 471. Quality Control Concepts (3) F Hayes

Prerequisite: Industrial Technology 468. Principles of quality control, organization, policies, maintainability control, value analysis and change control.

## 491. Problems in Production Technology (3) F,S Staff

Prerequisites: Industrial Technology 402, 406, industrial experience. Problems in production technology: current problems will be identified, solutions proposed and evaluated and recommendations developed and presented.

## NURSING DEPARTMENT

(School of Applied Arts and Sciences)
Emeritus: Dorothy L. Walsh.
Professor: Fritz.
Associate Professors: Hoffman, Kaufman, Lackey, Pentecost, Sucher, Traber.
Assistant Professors: Cary, Caskey, Gray, Koehler, Moore, B., Rafai, Roberts, Russell, B., Sakamoto, Semeniuk, Sharpless, Terry, Weber.

## 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, interviews, physical examinations, and scholastic attainment. Students accepted for registration in available places for Nursing 210 must have achieved a C average in all prerequisite courses and have an overall grade point average of 2.35 . 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.

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 is required of all graduate nurses.

## 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. 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. Melvin Casberg, Harriman Jones Clinic
Mrs. Freda Oelke, Orange County Nursing Health Department
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, 220; Chemistry 200 or equivalent; Anatomy and Physiology 203A-B; Physics 104 or equivalent; Microbiology 210; Home Economics 232; electives.
Upper Division: Nursing 331, 332, 341, 342, 421, 441, 442, 451, 462, 481; Chemistry 300; Educational Psychology 301; Microbiology 361; electives.
Twelve units of social science courses required with at least one upper division course and courses from at least two different departments in social science (anthropology, economics, geography, history, political science, psychology and sociology).
See Credential Section for Public School Nursing Credential.

## LOWER DIVISION

100. Introduction to Nursing (1) 5 Staff

Nursing as a profession. Attitudes, ethics and responsibilities expected of nursing students.

## 210. Clinical Nursing (5) F,S Cary, Traber

Prerequisites: Nursing 100, 220; Anatomy and Physiology 203B; Home Economics 232; Microbiology 210; Chemistry 300 (may be taken concurrently). Basic principles of total patient care with applied practice in patient-centered nursing. (Lecture, laboratory.)

## 220. Human Awareness in the Health Professions (2) F, $S$ Weber

Awareness of self and others through the use of verbal and non-verbal communication, interviewing techniques and an understanding of cultural and social influences as they relate to the allied health professions.

## UPPER DIVISION

## 331. Maternal and Child Health I (5) F, S Moore, Russell

Prerequisites: Nursing 210, 220 and Chemistry 300. 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, laboratory.)
332. Maternal and Child Health II (5) F, S Semeniuk, Terry

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. (Lecture, laboratory.)

## 341. Medical-Surgical Nursing I (5) F,S Rafai, Sakamoto

Prerequisites: Nursing 210, 220 and Chemistry 300 . Nursing care of general medical and surgical patients; based on a knowledge (theoretical and practical) of surgical and medical asepsis, nutritional therapy and principles of rehabilitation. (Lecture, laboratory.)
342. Medical-Surgical Nursing II (5) F,S Roberts, Sucher

Prerequisites: Nursing 331, 341. 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. (Lecture, laboratory.)
421. Trends in Nursing (2) F, 5 Fritz

Prerequisite: Senior standing. History of modern nursing. Current problems, issues, studies and organizations influencing nursing. Not open to students with credit in Nursing 321.

## 441. Adult Clinical Nursing (6) F, S Hoffman, Sharpless

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, laboratory.)
442. Nursing Leadership (3) F, S Pentecost

Prerequisites: Nursing 441, 451. Philosophy and concepts of nursing leadership and the functioning of nursing teams as small groups. (Lecture, laboratory.)
451. Mental Health Behavioral Science in Nursing (6) F, 5 Kaufman, Koehler, Weber
Prerequisites: Nursing 332, 342. Mental health behavioral science concepts in relation to self, family and community. (Lecture, laboratory.)

## 462. Public Health Nursing (8) F, 5 Caskey, Gray, Lackey

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, laboratory.)

## 471. Teaching in Nursing (2) Seven years Staff

Prerequisites: Educational Psychology 301, 305. Principles of teaching patients, families and community groups.
481. Legal Aspects of Nursing Practice (2) F Fritz

Prerequisite: Political Science 100 or 421. Legal responsibilities of registered nurses, legal control of nursing practice, discussion of court cases which involve nurses.

## Nursing

## 491. The Nurse in the School Health Program (8) F, S Caskey

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, laboratory.)
499. Nursing Studies (1-3) S Staff

Techniques and methods in investigating nursing problems. Open to seniors only.

## OCCUPATIONAL THERAPY

(School of Applied Arts and Sciences)
The bachelor of science degree in occupational therapy is withdrawn from the curriculum for lack of financial support for an accredited program. The program will be reinstated at such time that fiscal resources and classroom and laboratory space becomes available.

## PHYSICAL EDUCATION DEPARTMENTS

## (School of Applied Arts and Sciences) <br> PHYSICAL EDUCATION-MEN

Professors: Arnheim, Boring, Crowe, DeLotto, Klafs, McConnell, Mastropaolo, Miller, F., Montgomery, Patterson, Pestolesi, Rose, J., Schwartzkopf.
Associate Professors: Bartlett, Campbell, D., Kidd, Reed, Sandefur, Schultz, J., Stangeland, Tarkanian, Wuesthoff.
Assistant Professors: Banks, Boyle, Gambril, Kuklenski, Miller, W., Morgan, Oxley, Sinclair, Souter.
Instructors: Edwards, Gonsalves.

## PHYSICAL EDUCATION-WOMEN

Professors: Crogen, Deatherage, Ericson, D., Fornia, Lyon, J., Reid, Schaafsma, Stock.
Associate Professors: Johnson, L., Miller, M.
Assistant Professors: DuPont, Edmondson, Franklin, Griffith, Grimmett, Heck, Leach, Matthews, Redmon, Royal.

## Instructor: Naeve.

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 provide a desirable program of elective activities in general education. Courses are offered which satisfy the following requirements: (1) physical education major and minor, coaching or teaching, 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.

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.
Students in the Men's Physical Education Department wishing to waive a major course requirement or take a course by examination must receive approval from the department chairman. In each case the student must pass a practical test where applicable and a written test related to the subject on the same basis as the regular student involved in course work. These exams must be taken during the regular final examination period.

## MAJOR IN PHYSICAL EDUCATION FOR THE BACHELOR OF ARTS DEGREE MEN

Lower Division: Men's Physical Education 111 or 211, 144, 146, 242, 243,244 , and 246, Physical Education 160 and 241 and Anatomy and Physiology 201 and 202.
Upper Division: Men's Physical Education 310, 315, 321, 390, 480 and 488. Physical Education 333, 335, and 437; two selected from Men's Physical Education 311, 312, 313; 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, 331, 421, 422, 431, 461, Physical Education 333, 335, 437; three selected from Women's Physical Education 340, 442, 443, 444; one selected from Women's Physical Education 350 or 351 ; and one selected from Women's Physical Education 360 or 460 .

## Teaching Credentials:

See Credential Section.

## Athletic Training Program

The Men's Physical Education Department offers students an opportunity to receive a Certificate in Athletic Training. Certification is designed to provide the participant with the specialized knowledge and skill that is required to care for athletic injuries and administer the athletic training programs in secondary schools, colleges and professional teams.

The certificate must be earned in conjunction with a major in physical education. This program is accredited by the National Athletic Trainers Association.

## Requirements for the Certificate in Athletic Training:

1. A bachelor's degree with a major in physical education.
2. A California teaching credential in physical education.
3. Lower Division: Physics 100A,B or Physics 104 and Chemistry 100, Psychology 100, Physical Education 130, Health Science 210, fulfillment of lower division physical education major requirements.
4. Upper Division: Educational Psychology 302, Home Economics 430, fulfillment of upper division physical education major requirements which must include Men's Physical Education 484, 485, 486 and credential requirement; additional physical education courses: Men's P.E. 481, P.E. 438, 439, Men's P.E. 499 (advanced athletic training) or P.E. 680.
Interested students should apply to the Men's Physical Education Department.

## General Education Physical Education

103, 104, 105, 106, 107. Physical Education Activity (1) Men, Women F, S Staff
Broad range of games, sports, aquatics and rhythmic activities are offered. These activities are designed to provide an opportunity for students to meet their health, physical and recreational needs and interests. (Maximum of eight units may be applied toward the General Education requirement.) All students participating in physical education activity must have a health clearance from the College Student Health Service.

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 Individual and Dual Sports
Archery
Badminton
Bowling
Dry Land Skiing
Fencing
Golf
Gymnastics and Trampoline (M)
Gymnastics (W)
Handball (M)
Horsemanship
Ocean Fishing
Tennis

PE 105 Fitness and Conditioning
Fitness and Conditioning (W)
Individual Conditioning (M)
Jogging
Karate
Posture and Carriage (W)
Personal Defense for Women Weight Training and Conditioning (M) Wrestling (M)

## PE 104 Aquatics

Diving
Ocean Aquatics and Safety
Rowing
Sailing
Surfing
Swimming
Synchronized Swimming (W)
PE 106 Team Sports
Basketball (M)
Flag Football (M)
Soccer (M)
Softball
Track and Field
Volleyball
Beach Volleyball
PE 107 Dance
Ballet
Folk Dance
Modern Dance
Modern Jazz
Social Dance
Social, Folk and Square Dance

## 118. Intercollegiate Team Sports (1) F, S Staff

Enrollment subject to approval of the coach of the sport in season. Up to eight units of activity may be applied toward the general education requirement under category VI. Athletes enrolled in P.E. 118 for credit who fail to qualify for the squad must withdraw from the course.

## PHYSICAL EDUCATION PROFESSIONAL COURSES

## LOWER DIVISION

## 130. First Aid (2) F, S Campbell, Miller, Reed

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.)

## Physical Education

## 160. Fundamental Rhythms (2) F,S DuPont, Schwartzkopf

Instruction and practice in fundamental rhythms, folk, square and social dance. Designed for men and women physical education majors and minors but open to all students.

## 241. Aquafics (2) F,S Edmondson, Royal, Schultz

Instruction and practice in the fundamental skills basic to successful performance in aquatics. Open only to physical education majors and minors.

## 248. Advanced Swimming, Life Saving and Water Safety (2) F, S Leach, Royal, Schultz

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. Games for the Elementary School Royal, Schwartzkopf
(1) F, S Johnson, Kidd,

Instruction and practice in the fundamental game skills commonly taught in the elementary schools.

## 271. Rhythms for the Elementary School Kidd, Royal, Schwartzkopf <br> (1) F, S Johnson,

Instruction and practice in the fundamental rhythm skills commonly taught in the elementary schools.

## UPPER DIVISION

## 333. Applied Principles of Kinesiology (3) F, S Crowe, Lyon, Mastropaolo

Prerequisite: Anatomy and Physiology 201. Structure, function and mechanical principles relating to human motion, including analytical application. (Lecture, laboratory.)
335. Physiology of Exercise (3) F,S Klafs, Lyon, Mastropaolo

Prerequisite: Anatomy and Physiology 202. Physiological effects of exercise on the human body. Significance of these effects for health and performance in physical activity. (Lecture, laboratory.)

## 373. Fundamental Motor Skills for Children (2) $\mathbf{S}$ Johnson

Analysis and practice in fundamental skills, gymnastics, combatives, track and field and perceptual-motor activities in the elementary school physical education program. Not open to students with credit in P.E. 273.

## 374. Activity Analysis and Exercise Design (2) $F$ Lyon

Application of principles of anatomy and physiology to the motor performance of children. (Lecture, laboratory.)

## 378. Dance for Children (2) $F$ Johnson

Prerequisite: Proficiency in basic dance steps. Exploration of movement and accompaniment in the learning and creativity of dance as it relates to the elementary school child. Not open to students with credit in P.E. 278.

## 437. Adapted Physical Education (2) F, S Arnheim, Crowe, Lyon <br> Prerequisite: Physical Education 333 or equivalent. Organization, administration

 and techniques utilized in the conduct of adapted physical education classes.(Lecture, laboratory.)
438. Physical Maintenance and Restoration (3) F, S SouterPrerequisites: Physical Education 437 or consent of instructor. Principles andpractical application of exercise for development, maintenance and restoration ofschool age children and adults.
439. Field Work in Adapted Physical Education (3) F, S Arnheim

Prerequisite: Physical Education 438 or consent of instructor. Supervised clinical experience in adapted physical education at suitable public and private agencies. May be repeated once for credit.
470. Elementary School Physical Education (2) F, S Johnson, Kidd, Schwartzkopf

Prerequisite: A knowledge of basic rhythm skills. Principles, aims and objectives of physical education in the elementary schools. Observation and practice in the teaching techniques used in elementary school physical education. (Lecture, activity.)
475. Movement Education Workshop in Elementary Physical Education ..... (2)
SS, 1971 Johnson

Current research and trends in elementary physical education with techniques for implementation of innovative programs in the elementary school.
490. Developmental Physical Education for Children (3) F, S Johnson
Analysis and participation in physical movement experiences with special empha- sis placed upon the study of optimum physical development of children.
GRADUATE DIVISION
521. Administration and Supervision in Physical Education ..... (3)
523. Curriculum Development and Construction in Physical Education ..... (3)
533. Scientific Bases for Physical Education ..... (3)
538. Motor Development of the Exceptional Child ..... (3)
573. History and Philosophy of Physical Education ..... (3)
577. Sport in U.S. Culture ..... (3)
590. Statistical Analysis and Measurement in Physical Education ..... (3)
630. Seminar in Motor Learning ..... (3)
637. Seminar in Adapted Physical Education ..... (3)
671. Seminar in Current Trends and Issues in Physical Education ..... (3)
680. Seminar in Management Theory of Athletic Injuries ..... (3)
683. Seminar in Competitive Sports for Girls and Women ..... (3)
685. Seminar in Athletics ..... (3)
695. Seminar in Professional Literature ..... (3)
696. Research Methods ..... (3)
697. Directed Studies ..... (1-3)
698. Thesis or Project (2-4)
PHYSICAL EDUCATION-MEN
LOWER DIVISION
111. Introduction to Men's Physical Education (2) F, S Sandefur, SouterOrientation to physical education, including skill testing in areas basic to theprofessional program. Provides the major and minor the opportunity, through
performance testing, to waive one or more of the following: Men's Physical Education 144, 146, 242, 243, 244, 246, and Physical Education 160. (Lecture, activity.)

## 144. Team Sports I: Softball, Baseball, Basketball and Volleyball (2) $F$, 5

 Edwards, WuesthoffInstruction and practice in the skill basic to successful performance in softball, baseball, basketball and volleyball. Open only to physical education majors and minors. (Laboratory)

## 146. Individual-Dual Sports I (3) F, S Campbell, Reed

Instruction, practice and evaluation in the advanced skills in tennis, badminton, archery, golf and handball.

## 204. Scientific Foundations (4) F Boring, Klafs

Basic information involving human anatomy, kinesiology, exercise physiology, motor learning as related to physical education activities. Not open to physical education majors. (Lecture 3 hours, laboratory 3 hours.)

## 211. Guidance and Evaluation in Physical Education (1) F, S Sandefur, Souter

Required of all transfer students who have completed an introductory physical education course at another institution. Includes motor ability evaluations and guidance in areas basic to the professional preparation program. Provides the transfer student the opportunity, through performance testing, to waive one or more of the following: Men's Physical Education 146, 241, 242, 243, 244, 246 and Physical Education 160.

## 217. Officiating Fall Sports (2) Fonsalves

Rules, mechanics, requirements and problems of officiating football, volleyball, wrestling and water polo. Direct experience in officiating selected intramural sports. (Lecture, laboratory.)

## 218. Officiating Spring Sports (2) 5 Gonsalves

Rules, mechanics, requirements and problems of officiating basketball, baseball, softball, track and field, swimming and diving, and gymnastics. Experience in officiating selected intramural sports. (Lecture, laboratory.)

## 242. Gymnastics (2) F, S Bartlett

Beginning and intermediate instruction and practice in floor exercise, horizontal bar, side horse, parallel bars, rings, tumbling, vaulting and trampoline. (Laboratory)

## 243. Wrestling (2) F,S Boring

Instruction and practice in takedowns, breakdowns, controls, pinholds, escapes, reversals, blocks and counters.
244. Team Sports II: Football, Speedball and Soccer (2) F, S Boyle, Miller, W.

Instruction and practice in the fundamental skills basic to successful performance in football, speedball and soccer. Open to physical education majors and minors. (Laboratory)

## 246. Individual-Dual Sports II (2) F, S Banks, Souter

Instruction, practice and evaluation in the fundamental skills basic to successful performance in cross-country, track and field and conditioning. (Laboratory)

## UPPER DIVISION

## 310. Organization and Conduct of Physical Education (3) F,S Morgan,

Prerequisite: Men's Physical Education 111 or 211. Organization and conduct of activities taught in secondary schools, including skills analysis and class deployment. (Lecture, laboratory)

## 311. Analysis of Aquatics (2) F,S Gambril, Schultz

Prerequisite: Physical Education 241 or equivalent. Theory of coaching and teaching aquatics. (Lecture, laboratory.)

## 312. Analysis of Gymnastics (2) F, S Bartlett

Prerequisite: Men's Physical Education 242 or equivalent. Theory of coaching and teaching gymnastics. (Lecture, laboratory.)

## 313. Analysis of Wrestling (2) F, S Boring

Prerequisite: Men's Physical Education 243 or equivalent. Theory and practice of teaching wrestling. (Lecture, laboratory.)

## 315. History and Principles of Men's Physical Education (3) F, S Boring Montgomery, Rose

History and principles which provide a basis for the development of a sound modern program.

## 317. Organizing Intramural Sports (2) F, S Sinclair

Administrative techniques, motivation, objectives and problems of intramural sports at the secondary and college levels. Direct involvement in the administration of the CSCLB intramural sports program. (Lecture 2 hours.)

## 321. Motor Learning (2) F, S Patterson, Rose

Prerequisites: Anatomy and Physiology 201, 202 or equivalent. Principles of motor learning in the acquisition of movement skills. (Lecture.)

## 346. Conditioning in Physical Education and Athletics (2) $F$ Souter

Prerequisite: Lower division conditioning course or consent of instructor. Theory and practice of conditioning in physical fitness and athletics, including equipment, facilities, organizational procedures, individual adaptations of exercise and varied systems of training. (Lecture 1 hour, activity 2 hours.)
390. Tests and Measurements in Physical Education (2) F, S Delofto, Pafterson, Sinclair
Organization, administration, interpretation and development of measurement devices used in physical education. (Lecture, laboratory)

## 411. Advanced Analysis of Competitive Swimming Techniques (3) F Gambril

Prerequisite: Men's Physical Education 311 or consent of instructor. Advanced study of technical swimming and diving films, review of literature available in the competitive swimming and diving field, discussion of coaching philosophy, techniques and methods.
433. Behavioral Problems in Physical Education and Athletics (2) $\mathbf{F}, \mathbf{S}$ Patterson, Sandefur
Psychological and philosophical factors related to human performance in physical education and athletics.

## 436. Advanced Analysis of Competitive Track and Field Coaching Techniques (3) 5 Rose

Prerequisite: Men's Physical Education 486 or consent of instructor. Advanced study of technical track and field films, review of literature available in the competitive track and field area, discussion of coaching philosophy, techniques and methods.

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## 481. Field Work in Athletic Training (3) F,S Arnheim

Prerequisites: Men's Physical Education 480 and consent of instructor. Supervised experience in athletic training.

## 482. Field Work in Athletic Coaching (3) F,S Pestolesi

Prerequisite: Consent of department. Supervised experience in athletic coaching. Assignment will be in a secondary school in their physical education department. Practical experience working with high school students in all phases of the interscholastic athletic program.
484. Coaching Football (3) F,S Boyle, Stangeland

Prerequisite: Men's Physical Education 244 or equivalent. Theories of coaching, principles and organization of interscholastic tackle football.

## 485. Coaching Basketball (3) F, S Edwards, Tarkanian

Prerequisite: Men's Physical Education 144 or equivalent. Theories of coaching, principles and organization of interscholastic basketball.

## 486. Coaching Cross Country, Track and Field (3) F, S Rose

Prerequisite: Men's Physical Education 246 or equivalent. Theories of coaching, principles and organization of interscholastic cross country, track and field.

## 487. Coaching Baseball (3) F,S Gonsalves

Prerequisite: Men's Physical Education 144 or equivalent. Theories of coaching, principles and organization of interscholastic baseball.
488. Administration of Secondary School Physical Education and Athletics (3) F, S Campbell, Kuklenski
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.

## 489. Organization and Administration of Coaching Football (3) Stangeland

Prerequisite: Men's Physical Education 484 or consent of instructor. Organization and administration of the total program of interscholastic and collegiate football.
497. Independent Study (1-3) F, S Pestolesi

Prerequisites: Major or minor in physical education, junior or senior standing and consent of instructor. Student will conduct independent library or laboratory research under the supervision of a faculty member and write a report of the investigation. May be repeated for a maximum of six units.

## 499. Special Studies (1-3) F, S Staff

Group investigation of selected topics. Topics to be announced in the Schedule of Classes. May be repeated for credit to a maximum of 6 units.

## PHYSICAL EDUCATION-WOMEN

These courses open to physical education majors and minors only with exception of 112 and 114.

## LOWER DIVISION

20. Orientation and Guidance in Physical Education (0) F,S Edmondson,

Required of all transfer students who have completed, in another institution, a course comparable to Women's Physical Education 121. Designed to orient transfer students to the Women's Physical Education Department and policies at CSCLB and guide them in planning their college program. Includes degree and credential requirements and responsibilities of physical education majors.

## 112. Women's Intercollegiate Sports (1) F, S Staff

Variety of team, individual and dual sports are offered. Enrollment is subject to the approval of the faculty member coaching the sport.

## 114. Coeducational Intercollegiate Sports (1) F, S Staff

Variety of individual and dual sports are offered. Enrollment is subject to the approval of the faculty member coaching the sport.

## 120. Fundamentals of Human Movement (2) F, S DuPont, Franklin, Lyon

Designed to develop an understanding of basic mechanical principles as well as principles of physical conditioning as they apply to the improvement of the individual's motor skills and fitness level. (Lecture, laboratory.)

## 121. Introduction to Physical Education (2) $F$ Edmondson, Franklin

Investigation of the profession of physical education with emphasis upon its significance and function in contemporary American culture. Includes a critical examination of professional leadership responsibilities and the concepts upon which they are based. Examination of some of the forces that seem to be shaping our society and how these forces are reflected in physical education. Review of recent research and current trends. Not open to transfer students who have completed a comparable course.

## 140. Tennis, Badminton (2) F, S Franklin, Heck, Leach

Instruction and practice in the fundamental skills basic to successful performance in these activities.
150. Team Sports for Women-Basketball, Softball and Volleyball (2) F, $\mathbf{S}$ Grimmett, Heck, Matthews, Schaafsma
Instruction and practice in the fundamental skills basic to successful performance in these activities.

## 151. Field Sports for Women (2) F, S Grimmeft, Matthews, Miller

Instruction and practice in the fundamental skills basic to successful performance in these activities.
243. Gymnastics, Track and Field (2) F,S Edmondson, Grimmett

Instruction and practice in the fundamental skills basic to successful performance in these activities.
244. Golf, Archery (2) F, S Crogen, Leach, Matthews, Royal, Schaafsma

Instruction and practice in the fundamental skills basic to successful performance in these activities.
250. Sports Officiating for Women I (2) F Heck, Schaafsma

Designed for women physical education majors to develop proficiency in officiating volleyball, field sports (hockey, soccer, speedball and touchdown), tennis and badminton.

## 251. Sports Officiating for Women II (2) S Schaafsma

Designed for women physical education majors to develop proficiency in officiating basketball, softball and aquatic events.

## 261. Fundamentals of Modern Dance (2) F, S Griffith, McComb

Instruction and practice in the fundamental skills basic to successful performance in this activity. Includes musical terminology, notation and elemental music forms with specific reference to modern dance.
263. Instructional Materials in Physical Education (2) Ftaff

Prerequisite: Major or minor in physical education or consent of instructor. Selection and utilization of specialized instructional materials in physical education. (Lecture, laboratory.)

## UPPER DIVISION

321. Principles and Organization of Physical Education (3) F, S Deatherage,
Reid

Principles, aims and objectives of physical education and the relationship to organizational problems in the secondary school physical education program. Observation in a public secondary school physical education department included.
331. Motor Learning and Human Performance (2) F,S Schaafsma, Stock

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. Not open to students with credit in Women's Physical Education 430.

## 340. Advanced Analysis of Tennis and Badminton (2) F, S Deatherage, Heck, Miller

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. Advanced Analysis of Team Sports (2) F, S Grimmett, Heck, Schaafsma <br> 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. Advanced Analysis of Field Sports (2) F,S Matthews, Miller <br> Prerequisite: Women's Physical Education 151 or equivalent. Comprehensive

 analysis of the principles of movement and the motor skills used in hockey, speedball, soccer, speed-a-way and touchdown. (Lecture, laboratory.)
## 360. Advanced Analysis of Social-Recreation Dance (2) F,S DuPont

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. Historical and Cultural Foundations of Physical Education (2) F, S Fornia, Matthews, Miller

Basic survey of the history of physical education. Historical identification of the general purposes and functions of physical education within the more inclusive role of total education.
422. Philosophical Issues of Physical Education (2) F,S Reid, Royal, Schaafsma

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.

## 431. Evaluation in Physical Education (2) F,s Deatherage, Franklin <br> Prerequisite: Senior standing. Principles and techniques of construction, adminis-

 tration and evaluation of measuring devices used in physical education. Not open to students with credit in Women's Physical Education 330.
## 442. Advanced Analysis of Aquatics (2) F, S Ericson, Royal

Prerequisite: Physical Education 241 or equivalent. Comprehensive analysis of the principles of movement and the motor skills used in aquatics. (Lecture, labora-
tory.)

## 443. Advanced Analysis of Gymmastics, Track and Field (2) F, S Edmondson, Grimmett

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. (Lecture, laboratory.)

## 444. Advanced Analysis of Golf and Archery (2) F Crogen, Matthews, Schaafsma

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.)

## 449. Advanced Analysis of Motor Performance (4) SS Staff

Comprehensive analysis of the principles of movement and motor skills used in individual and dual sports, team sports and dance performance. Includes theory and practice in these activities.

## 460. International Folk Dance (2) 5 Johnson

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. Advanced Analysis of Modern Dance (2) F,S Griffith, McComb

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.) Not open to students with credit in Dance 461.

## 465. Special Events in Physical Education (1) F,S Franklin

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.
466. Workshop in Advanced Analysis of Volleyball (Women) (1) SS Schaafsma

Prerequisite: At least upper division standing. Comprehensive analysis of the principles of movement and motor skills used in volleyball, including theory and practice; development of offensive and defensive tactics and strategies.

## 467. Workshop in Advanced Analysis of Basketball (Women) (1) SS Schaafsma

Prerequisite: At least upper division standing. Comprehensive analysis of the principles of movement and motor skills used in basketball, including theory and practice; development of offensive and defensive tactics and strategies.

## 468. Workshop in Advanced Analysis of Tennis (Women) (1) SS, 1971 Staff

Comprehensive analysis of the principles of movement and motor skills used in tennis, including theory and practice; development of singles and doubles tactics and strategies.
469. Workshop in Advanced Analysis of Badminton (Women) (1) S5, 1971 Staff
Comprehensive analysis of the principles of movement and motor skills used in badminton, including theory and practice; development of singles and doubles tactics and strategies.

## 497. Independent Study (1-3) F, S Staff

Prerequisites: Major or minor in physical education, junior or senior standing and consent of instructor. Student will conduct independent library or laboratory research under the supervision of a faculty member and write a report of the investigation. May be repeated for a maximum of six units.

## 499. Special Studies (1-3) $\mathbf{5}$ Staff

Prerequisites: Major or minor in physical education, junior or senior standing and consent of instructor. Group investigation of topics of current interest to women in physical education, selected for intensive development. Topics to be announced in the Schedule of Classes. May be repeated for a maximum of six units of credit with change of topic.

## PHYSICAL THERAPY DEPARTMENT

(School of Applied Arts and Sciences)
Professor: Bok.
Medical Adviser: Douthett.
Associate Professor: Neilsen.
Assistant Professor: Morris.
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 qualifies one to take the State of California examination to practice as a physical therapist. The program is approved by the American Medical Association in collaboration with the American Physical Therapy Association.

## 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. Submit SAT or ACT scores to the department.
4. Have earned or have in progress at the time of application a semester of college credit in anatomy, biology, chemistry, physics, physiology and psychology (all but psychology require laboratory work). Grades of C or better are required. Grades will be an admission factor.
5. Have earned or have in progress at the time of application 60-66 acceptable college units appropriate to college degree requirements, including college general education requirements.
6. Demonstrate satisfactory potential for success in the program as disclosed by previous academic success, work experience, recommendations, mental, emotional and physical fitness and personal interview.
7. File an appropriate application with the Department of Physical Therapy on or before March 1 for the fall semester or November 1 for the spring semester during the semester in which the candidate will be eligible for consideration.

## 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 in the final phases of work for a degree from an accredited four-year institution at the time of application.

The certificate program is the same as the baccalaureate program, i.e., two years or four semesters.

1. Complete or have in progress all other requirements for the baccalaureate degree and/or major at the time of application for admittance to clinical practice.
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 (55 units)

## Lower Division: Physical Therapy 210.

Upper Division: Anatomy and Physiology 300, Chemistry 300, Physical Therapy $300,320,351,353,371,380,430,431,440,460,472,473$, 485A,B; Psychology 370, 374.

## LOWER DIVISION

210. Orientation to Physical Therapy (2) F,S Nielsen

Orientation to the field of physical therapy.

## UPPER DIVISION

## 300. Human Anatomy for Therapists (4) F Williams

Prerequisite: Admittance to professional program by department. Regional human anatomy for therapists, including all gross structures and their functions, using cadavers and prosected human specimens. (Lecture 2 hours, laboratory 6 hours.)
320. Applied Kinesiology for Therapists (4) F,S Bok, Morris

Prerequisites: Physical Therapy 300, consent of instructor. Principles of kinesiology applied to therapeutic techniques and procedures. (Lecture and laboratory.)

## 351. Physical Therapy Procedures I (3) F, S Nielsen, Morris

Prerequisites: Physical Therapy 300 (may be taken concurrently) and consent of instructor. Principles and techniques of patient care, including massage and hydrotherapy and traction procedures. (Lecture 2 hours, laboratory 3 hours.)
353. Physical Therapy Procedures II (2) 5 Nielsen

Prerequisites: Physical Therapy 300 and consent of instructor. Principles and techniques of electrotherapy procedures, including indications and physical and physiological bases. (Laboratory.)

## 371. Clinical Lectures I (3) F Douthett

Prerequisites: Physical Therapy 210 and 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 cardio-
vascular systems.

## 380. Clinical Applications (1-4) F, S Staff

Prerequisites: Physical Therapy 320 and consent of instructor. Supervised experience in various clinical rehabilitation facilities during which the student acquires, through observation and participation, clinical insight and experience in the procedures and practices in the field. (Field work.)
430. Physical Therapy Procedures III (4) F Staff

Prerequisites: Physical Therapy 320 and consent of instructor. the prevention techniques of exercise design and assistive devices as of evaluation. (Lecture and correction of physical disability, including methods of evaluation. (Lectur 3 hours, laboratory 3 hours.)

## 431. Physical Therapy Procedures IV (2) F Staff

Prerequisites: Physical Therapy 430 and consent of instructor. Advanced diagnostic and therapeutic principles and procedures, including appropriate investigative tools. (Lecture 1 hour, laboratory 3 hours.)

## 440. Organization, Administration and Supervision (2) F Staff

Prerequisites: Senior standing in physical therapy and consent of instructor. Organization, administration and supervision of physical therapy departments in various clinical settings. (Lecture 2 hours.)

## 445. Modern Trends in Physical Therapy (3) F Bok

Prerequisite: Consent of instructor. Designed to bring to the active and inactive therapist updated information on trends, procedures and practices. (Lecture 3 hours.)
460. Applied Neuroanatomy and Neurophysiology (3) F, S Morris, Staff

Prerequisites: Physical Therapy 300 and consent of instructor. Correlation of neuroanatomy with pathologies commonly treated by therapists. (Lecture 2 hours, laboratory 3 hours.)

## 472. Clinical Lectures II (2) 5 Douthett

Prerequisites: Physical Therapy 371 and 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) $\mathbf{S}$ Douthett

Prerequisites: Physical Therapy 472 and consent of instructor. Pathology, clinical course, medical and/or surgical implications and the role of the physical therapist in the management of neurological, psychiatric and skin conditions.

## 485A,B. Clinical Practice $(3,3)$ S Nielsen, Staff

Prerequisites: Physical Therapy 380, 473 and consent of department. Directed practices in physical therapy procedures in clinical affiliations of various types for 1640 -hour weeks. (Field work.)

## 490. Special Studies (1-3) F, S Staff

Prerequisite: Consent of department. Independent projects and/or study in any area of physical therapy. May be repeated to a maximum of six units.

## RECREATION AND LEISURE STUDIES DEPARTMENT

## (School of Applied Arts and Sciences)

Professors: Gabrielsen, Gray.
Associate Professors: Cook, R., Jensen.
Assistant Professor: Minar.
Instructor: Vest.
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. Educational programs with financial assistance and recognition by the YMCA and Boys Clubs of America are offered.

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 theatre arts 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: Recreation 211, 241; Theatre Arts 122 or Music 290. Upper Division: Educational Psychology 301 or 302; Speech 434; Journalism 370; Recreation 312, 318 or $330,340,421,425,475,484,485$. Additional Courses: Each major student is required to complete a minimum of eight units in each of two of the following three groups: Creative Arts: Art 304 plus any course in creative arts or crafts offered by the Art or Industrial Arts Departments. Performing Arts: Theatre Arts 358 plus any courses in Music, Theatre Arts, Speech Communication or Dance Departments. Pbysical Recreation Activities: Recreation 315 plus any courses in aquatics, individual, dual or team sports or physical fitness. Courses must have adviser's approval.

## LOWER DIVISION

## 211. The Recreation Program (3) F, 5 Minar

Methods and materials used in planning and conducting organized recreation programs in public and private agencies. Theory and practicum. Special emphasis on supervised programming in field experiences. Not open to students with credit in Recreation 311.

## 217. Camp Counseling (3) F,S Staff

Philosophy and program of the summer camp with special emphasis on the responsibilities of the camp counselor. Designed for students seeking summer camp employment. Not open to students with credit in Recreation 317.

## 241. Community Recreation (3) F,S Cook, Vest

Principles and organization of community recreation. Concepts of community structure. Survey of public and private agencies engaged in community-wide recreation.

## UPPER DIVISION

## 312. Recreation Leadership (3) F, S Jensen, Vest

Theory and application of leadership as it pertains to tax-supported and voluntary agencies. Designed to give theoretical and practical understanding of the individual's role through group dynamics.

## 315. Recreational Sports Supervision (3) F, S Staff

Organization and supervision of recreational sports for community-wide participation. Not open to students with credit in Recreation 315A,B.

## 318. Outdoor Recreation Management (3) F, S Minar

Extensive review of the respective roles of federal, state and local government agencies in the acquisition, development and management of land and water resources for outdoor recreation programs and services.

## 330. Recreation in the Urban Community (3) F,S Cook

Identification and analyses of recreation agencies in the urban environment with emphasis upon recreation program and leadership appropriate to the inner city.
340. Leisure in Contemporary Society (3) F, S Vest

Prerequisite: Sociology 100. Intensive study of the new leisure and its impact on contemporary society.

## 421. Supervision in Recreation (3) F, $\mathbf{S}$ Jensen

Concepts and techniques of supervision in recreation agencies; emphasis on recruitment, assignment, evaluation and in-service training of recreation personnel.

## 425. Organization and Administration of Recreation (3) F,S Cook

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. History and Philosophy of Recreation (3) F,S Gabrielsen, Minar

History and philosophy of recreation and leisure and its influence upon contemporary American society.

## 484. Field Work in Private Recreation Agencies (3) F, S Cook, Minar, Vest

Limited to recreation majors or consent of instructor. Supervised leadership in private and semi-public agencies. Minimum of 80 hours of supervised leadership in an approved agency required.

## 485. Field Work in Public Recreation Agencies (3) F, S Cook, Minar, Vest

Limited to recreation majors or consent of instructor. Supervised leadership in public agencies. Minimum of 80 hours of supervised leadership in an approved agency required.

## 486. Field Work in Outdoor Recreation (3) F, S Staff

Prerequisite: Consent of instructor. Supervised leadership in outdoor recreation program of school, public or other approved agency. Minimum of 80 hours of supervised field experience in an approved agency required.

## 490. Special Studies in Recreation (3) F,S Cook, Minar

Prerequisite: Senior standing in recreation. Identification and critical analysis of current problems in selected areas of recreation.

## 496. Research Methodology (3) F,S Staff

Research methodology in recreation. Must be taken prior to or concurrently with any 500 or 600 level course.
499. Independent Study (1-3) F, S Staff

Prerequisite: Consent of department and approval by department chairman. Individual projects in areas of special interest. Independent study under the direct supervision of a faculty member.

GRADUATE DIVISION
521. Recreation Administration (3)
525. Recreation Areas and Facilities (3)
571. Philosophy, Issues and Trends (3)
575. Problems in Recreation (3)
587. Field Work in Recreation Administration or Supervision (3)
595. Management Studies (3)
697. Directed Studies (1-3)
698. Thesis or Project (2-4)

## VOCATIONAL EDUCATION

(School of Applied Arts and Sciences)
The bachelor of vocational education degree is designed for teachers who are teaching in a vocational education program and qualify for a Swan Bill evaluation through the State Board of Vocational Examiners in Sacramento. To qualify for the evaluation the requirements of the State Education Code, Section 23956 must be met. This regulation stipulates a minimum period of vocational teaching experience amounting to 1,620 clock hours in a full-time position of 1,000 clock hours in an approved trade extension class. Additional information concerning this degree may be obtained from the dean of the School of Applied Arts and Sciences.


## SCHOOL OF BUSINESS ADMINISTRATION

## Administrative Officers

| Dr. Arthur E. Prell | Dean of the School | FO3-102 |
| :--- | :--- | :--- |
| Mr. John T. Martinelli | Associate Dean | FO3-104 |
| Dr. Robert T. Holmes | Associate Dean, Graduate |  |
|  | Studies |  |

## Directory of Departments

## Department

Accounting
Business Education
Finance
Management and Operations Management
Manpower Management
Marketing
Operations Research and Statistics

## Chairman

Dept. Offices
Dr. Talmadge C. Tillman FO3-303
Mr. Ronald L. King
LA5-123
Dr. Raymond G. Schultz FO3-340
Dr. Vernon A. Metzger FO3-314
Dr. Robert M. Simons FO5-216
Dr. William D. Ash FO5-234
See Associate Dean's Office

Other School Offices
Bureau of Business Services Dr. Dale Yoder
and Research

## SCHOOL OF

## BUSINESS ADMINISTRATION

## ACCOUNTING DEPARTMENT

## Professors: Martinelli, Pickel, Williamson. <br> Associate Professors: Cornwell, Gunter, Hickerson, LaPage, McKinnon, Maury, Moustafa, Suttle, Tillman, Wilson, W. <br> Assistant Professors: Andrews, Golden, Lewis, A., Lossett. <br> Lecturer: Grody. <br> BUSINESS EDUCATION DEPARTMENT

Professors: Burras, Henderson, Nelson, D.
Associate Professors: Barber, File.
Assistant Professors: Keester, King, R.
Instructor: Corbin.

## FINANCE DEPARTMENT

Professors: Beecher, Belt, Dilbeck, George, Rhoads, Schultz.
Associate Professors: Farrell, Harlow, Kearney, Runyon, Sanregret, Teweles.
Assistant Professors: Barg, Dagan, Morris, Saxer, Schierholz.

## MANAGEMENT AND OPERATIONS MANAGEMENT DEPARTMENT

Professors: Laufer, Metzger, Stewart.
Associate Professors: Heise, Raymond.
Assistant Professors: DeVoe, Grant, Penderghast, Quinn, Robinson, Rudkin, Smith, R., Stanton.

## MANPOWER MANAGEMENT DEPARTMENT

Professors: Gregory, Kirkpatrick, Teel, Yoder.
Associate Professors: Simons, Mansour.
Assistant Professors: Berry, Bubala, Fife, Klinck.

## MARKETING DEPARTMENT

Professors: Ash, Butcher, Cotta, Hazen, Holmes, Palubinskas, Prell, Sackett, Wolff.
Associate Professors: Frye, Hall, Runyon, Spiller, Stuteville.
Assistant Professors: Ford, Ostraff.
Lecturer: Klein.

# OPERATIONS RESEARCH AND STATISTICS DEPARTMENT 

Professors: Chao, Hamburger, Romig, Stinson, Stone.

Associate Professor: Sawazaki.
Assistant Professors: Gilon, Payne, Wollmer.

## SCHOOL OF BUSINESS ADMINISTRATION

The basic purpose of the School of Business Administration is to provide education and training for careers as professional managers or management specialists. The School program is designed to provide a broad education preparing the student for imaginative and responsible leadership in business and society. The underlying goal of the program is to produce students capable of making valuable contributions to society.

The School of Business Administration offers both undergraduate and graduate courses of study, leading to the following degrees:
Bachelor of Science with options in
Accounting
Finance
Management
Manpower Management
Marketing
Operations Management
Operations Research and Statistics
Bachelor of Science in Business Education
Master of Business Administration
Master of Science (with options)
In addition to the degrees, certification programs are offered in various areas of business administration.
Specific requirements for the bachelor of science degree are located under the appropriate sections in this Bulletin. Information regarding the graduate programs will be found in the Graduate Bulletin.

## Business Courses for General Education

Students in other schools of the College may elect courses offered by the various departments in the School of Business Administration. Many courses are suitable for meeting the general education requirement of eight units of optional electives.

## Accreditation

The School of Business Administration undergraduate program is nationally accredited by the American Association of Collegiate Schools of Business.

## Advisement

In advance of registration day and prior to registration for any course, the new or returning student must contact the Advisement Office of the School and arrange for a conference with the School adviser for advice on degree requirements and appropriate program for the semester.

## Bachelor of Arts Degree in Business Administration

The bachelor of arts degree in business administration will be discontinued effective August, 1971. Students enrolled in the program prior to August, 1971 will be allowed to complete the requirements for the degree.

## BACHELOR OF SCIENCE DEGREE

## WITH A MAJOR IN BUSINESS ADMINISTRATION

## Degree Requirements

A minimum of 124 units, to include:

1. A minimum of 50 units in general education, to include:
a. Meeting of General Education requirements of the College Only one of the mathematics courses and the economics courses listed below may be utilized for meeting the General Education requirements. (Courses in the School of Business Administration may not be used for this General Education requirement.)
b. Philosophy 160 or 170 ; Mathematics 114, 120 (operations research and statistics majors must substitute Mathematics 122 and 123); Economics 200, 201.
2. A minimum of 50 units in business administration and related courses, to include:
Lower Division: Accounting 201, Operations Research and Statistics 210 (operations research and statistics majors must substitute 420), 240; Finance 222.
Upper Division: Accounting 310 (accounting majors must substitute 320, finance majors must substitute 311); Economics 310, 311; Finance 324, 362; Marketing 300; Management and Operations Management 425; Manpower Management 360 or 361.
Business Administration Electives: The School offers certain more specialized courses in the various areas which may be taken as electives. Courses taught by the department offering the student's option, however, may be selected as electives only with the prior approval of the department chairman. The student is encouraged to select his electives for expansion of knowledge, whether for his own intellectual interests or employment preparation purposes. He should consult the School of Business Administration adviser for guidance in selection of electives.

## Option in Accounting

The accounting curriculum offers training in the nature, theory and central problems of business accounting with the objective of responsible leadership in a dynamic business world and community. On a broad base of general education and business administration courses, the accounting preparation seeks to develop in the student an understanding of the rationale and problems of accounting as an element of the organization's information system. The program provides a background both for the student interested in accounting as a career in business or government and for the person planning on entering the field of professional public accounting.

## Accounting Option Requirements:

Accounting 300A-B, 400, 450, 470.

## Option 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 financial management, investments, insurance or real estate.

## Finance Option Requirements:

1. Any two of the following three courses: Finance 302, 342, 382.
2. Three courses in one of the following fields:

Financial Management: Finance 360, 464, 484, 490
Investment: Finance 464, 484, 486, 488
Insurance: Finance 402, 484; Economics 442
Real Estate: Finance 444, 446, 449

## Option in Management

The purpose of the management curriculum is to prepare the student for a career where he will be required to create and maintain an internal environment which, when interfaced with the external environment, will yield a continuously successful enterprise. Human values and ethics important to managers as well as philosophical bases for the practice of management are stressed. With this educational background and appropriate experience, the graduate should be able to eventually fulfill a meaningful role in top management consistent with the above ob-
jective.

## Management and Operations Management Option Requirements:

Management and Operations Management 326, 401 or 422, 405 or

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421,426 .
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## Option in Manpower Management

The manpower management option offers education in the theories, policies and practices relevant to the manager's crucial task of influencing others to work toward organizational goals. The curriculum is designed both for students who wish to specialize in the curriculum is industrial relations field and for those who specialize in the personnel or which will enable them to functione who wish to obtain a background position. The courses offered provide anfectively in any management sonal relationships, like those between in-depth analysis of interperhis staff and intergroup relationships a manager and the members of
and labor. Major objectives of this option are (1) to acquaint students with the types of management problems encountered in modern industry, (2) to develop in them an analytical approach to defining and solving those problems, and (3) to acquaint them with theories on which effective courses of action can be based.
Manpower Management Option Requirements:
Manpower Management 360 or 361 (if not taken in the core), 440, 445, 463, 464.

## Option in Marketing

The marketing curriculum is designed to enable the student to approach analytically the problem of providing consumer and industrial goods and services to a wide variety of markets by equipping him with modern problem-solving tools. The curriculum prepares the student for positions in sales, advertising, promotion, research, product management and marketing management. Further, the study of dynamic problems that affect all enterprises in communicating with their publics helps prepare him for a career in commercial, governmental and service organizations that serve the public in ways other than producing tangible goods.

The integrated sequence of courses gives students broad training in the field of marketing. There is a common body of knowledge basic to understanding of the discipline. Beyond that the student may choose from among a group of elective courses to attain greater depth and sophistication in the field of salesmanship, advertising, transportation, industrial and international marketing.

## Marketing Option Requirements:

Marketing 300, concurrent enrollment in Operations Research and Statistics 210, Marketing 373
Three courses from Group I (Marketing 401, 430, 480) and Group II (Marketing 403, 470, 490) with a minimum of one course from each group

## Marketing 408

## Option in Operations Management

The objective of the operations management curriculum is to stimulate student competence in the conceptual, systemic and analytical tools and managerial philosophy prerequisite for entry and advanced positions in both goods-producing and service-oriented industries. Emphasis is placed on the systems approach which stresses the concepts, techniques and policies essential for the economical and effective design, operation and control of the material, manpower, facilities, capital and informational inputs of organizations.

## Operations Management Option Requirements:

Management and Operations Management 302, 401, 402; one of the following:
Management and Operations Management 406, 407, 426 or Operations Research and Statistics 442.

## Business Administration

Opfion 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.

## Operations Research and Statistics Option Requirements:

Operations Research and Statistics 421, 422, 442 or $445,460,463$.

## BACHELOR OF SCIENCE DEGREE IN BUSINESS EDUCATION

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.

A minimum of 124 units, to include:

1. A minimum of 50 units in general education, to include:
a. Meeting of General Education requirements of the College. (The required mathematics course and the economics courses listed below may not be used to satisfy the General Education requirements nor may any course taught in the School of Business Administration.)
b. English 100, 101; Economics 200, 201; Mathematics 114 or 117 (office administration concentration) or Mathematics 100 or 102 (secretarial science concentration).
2. A minimum of 50 units in business administration, to include:

Business Education Basic Courses: Accounting 201, Business Education 100B, 130, Operations Research and Statistics 240; Accounting 300A or 310 or 320; Business Education 320, 402, 432; Finance 222, 362; Management and Operations Management 300, 425; Manpower Management 360 or 361; Marketing 300; Operations Research and Statistics 210 or equivalent statistics course approved by the department.
Field of Concentration: One of the following fields of concentration must be completed.
Office Administration: Business Education 302, 431, Operations Research and Statistics 442. Secretarial Science: Business Education 302, 312, 413, 431.

## POLICY REGARDING CONCURRENT ENROLLMENT IN JUNIOR COLLEGE OR ANOTHER COLLEGE

Undergraduate students who wish to take course work in a junior college or another college to meet CSCLB School of Business Admin-
istration requirements while enrolled as an undergraduate in business administration at CSCLB must petition the Curriculum CommitteeUndergraduate in advance for permission to enroll in specific courses. College policy must also be complied with. (See "Registration Procedures" and "Transfer of Undergraduate Credit" in this Bulletin.)

## ACCOUNTING

## LOWER DIVISION

## 100. Personal Accounting (3) S Staff

Accounting for personal needs, including budgeting, elementary accounting records, understanding financial reports, income tax returns. Not acceptable for credit for Business Administration degrees.

200A-B. Elementary Accounting (3,3) On demand Andrews, Hickerson, Staff
Introduction to accounting theory and practice. Not open to students with credit in Accounting 201.

## 201. Elementary Accounting (3) F, S Staff

Introduction to accounting theory and practice. Not open to students with credit in Accounting 200A or 200B.

## UPPER DIVISION

## 300A-B. Intermediate Accounting (3,3) F, S Staff

Prerequisite: Accounting 200B or 201. Intermediate accounting theory including recording, valuation, and statement presentation of assets, liabilities, capital, earnings; funds statements; financial analysis.
310. Managerial Accounting (3) F, S Staff

Prerequisite: Accounting 200B or 201. Preparation, use, and interpretation of financial statements; evaluation of internal control, systems, and procedures; accounting for and analysis of costs; budget preparation; interpretation of managerial reports.

## 311. Financial Statement Analysis (3) F, S LaPage, Lossett, Williamson

Prerequisite: Accounting 200B or 201. Analysis of accounting reports and development of information consistent with generally accepted accounting principles and data underlying such reports.
320. Cost Accounting (3) F, S Staff

Prerequisite: Accounting 200B or 201. Theory of cost accounting and cost control, including job order and process costs, standard costs, budgeting, direct costing, and management utilization of cost information.

## 375. Accounting Report Development (3) F,S Williamson

Prerequisite: Accounting 300A. Development and presentation of reports relating to the investigation of accounting problems. Not open to students with credit in Business Education 402.

## 400. Advanced Accounting (3) F, S McKinnon, Martinelli, Suttle,

## Tillman, Williamson

Prerequisite: Accounting 300B or 404G. Specialized problems in partnership and corporate accounting, agencies and branches, consolidated financial statements, organizations in financial distress, estate and trust accounting.
450. Federal and State Tax Law and Accounting I (3) F, S Gunter, Maury, Pickel, Wilson
Prerequisite: One of the following: Accounting 300A, 310, 311, 320, 404G. Federal and state income tax structure as related to individuals, including laws, rulings and regulations.

## 451. Federal and State Tax Law and Accounting II (3) F, S Maury

Prerequisite: Accounting 450. Federal and state income tax structure as related to partnerships, corporations, estates and trusts, and gift taxes, including laws, rulings and regulations.

## 465. International Accounting (3) $F$ Moustafa

Prerequisite: Accounting 300 B or 404 G or consent of instructor. Examination of accounting theory and practice from an international perspective.
470. Auditing (3) F, S Cornwell, Hickerson, Suttle, Staff

Prerequisites: Accounting 320 and 300 B or 404 G . 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.

## 480. Accounting Systems and Data Processing (3) F, S Cornwell, Lewis

Prerequisites: Accounting 320 and 300 B or 404 G or consent of instructor. Design and installation of accounting systems; unification of accounting systems and data processing within organizational structures.

## 495. Selected Topics (1-3) F, S Staff

Prerequisites: Consent of instructor and grade point of 3.0 in accounting. Topics of current interest in accounting selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## 497. Directed Studies $(1-3)$ F, S Staff

Prerequisites: Consent of instructor and department chairman, on Dean's List and 3.0 GPA or higher in accounting. Individual projects, study and research of advanced nature in accounting.

## Graduate Preparatory Courses

## 404G. Intermediate Accounting (3) F Staff

Prerequisites: Graduate standing and Accounting 200B or 201. Accounting theory and practice and report development and presentation. Not open to students with credit in Accounting 300A-B.

410G. Managerial and Financial Accounting (3) F,S Staff
Prerequisite: Graduate standing. Analysis of accounting reports and development of information, consistent with generally accepted accounting principles, of data underlying such reports; evaluation of internal control, systems, and procedures; cost accounting. (A terminal course. Graduate students starting accounting and planning on continuing in that area should select Accounting 201.)

## GRADUATE DIVISION

## 510. Advanced Cost Accounting, Budgeting and Confrol

610. Seminar in Accounting Theory (3)
611. Advanced Tax Law and Accounting (3)
612. Seminar in Accounting Management and Controllership (3)

# Business Education 

## BUSINESS EDUCATION

## LOWER DIVISION

## 100A-B. Typewriting (2,2) F, 5 Corbin, King, Nelson

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. Shorthand ( 3,3 ) F, S Burras, Corbin, Nelson

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. Introduction to Business (3) $F, S$ File

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. Not acceptable for credit for business administration degrees.

## UPPER DIVISION

## 302. Business Communications (3) F,S Henderson

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.

## 312. Advanced Shorthand (3) F, S Burras, Corbin, Nelson

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. Office Machines (2) F, S Burras, File, Keester, King, Nelson

Operation, purposes and adaptations of electronic and rotary calculators, adding machines and duplicating machines.

## 321. Machine Transcription and Duplication (2) $\mathbf{F}, \mathbf{S}$ King

Prerequisite: Business Education 100B or equivalent. Extensive training in dictating and transcribing from transcribing machines; duplicating machines, both liquid and ink process with attention to particular characteristics of products of various manufacturers. (Meets four clock hours.)

## 402. Business Reports (3) F,S Henderson

Prerequisites: English 100 and ability to type accurately. Uses and preparation of reports, specifications, proposals, procedures and other informational writing involved in the administrative management process. Not open to students with credit in Accounting 375.

## 413. Secretarial Procedures (3) F,S Burras, Corbin

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. Office Organization and Management (3) F, S Burras, Keester

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.

## Business Education, Finance

## 432. Office Information Systems (3) S Burras, Keester

Prerequisite: Business Education 431 or consent of instructor. Major types of office information systems; study of design, processing, retention and retrieval of business records; researching for introduction, simplification and elimination of forms. Not open to students with credit in Management 426.

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497. Directed Studies (1-3) F,S Staff
Prerequisites: Consent of instructor and department chairman, on Dean's List and 3.0 GPA or higher in business education. Individual projects, study and research of advanced nature in business education.
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## GRADUATE DIVISION

520. Advanced Business Communications (3)
521. Advanced Administrative Management (3)
522. Issues and Trends in Business Education (3)
523. Survey of Research (3)
524. Case Study in Administrative Management (3)

## FINANCE

## LOWER DIVISION

## 222. Legal Aspects of Business Transactions (3) F, S Staff

Introduction to property and the legal system, elements of contracts and sales, fundamental factors governing commercial paper. Not open to students with credit in Finance 322.

## UPPER DIVISION

302. Insurance Principles (3) F, S Kearney, Schultz

Principles of risk-bearing and insurance; life and property-liability insurance needs of the individual. Types of carriers and insurance markets; organization and functions of carriers; industry regulation.
324. Legal Aspects of Business Organizations (3) F, S Staff

Prerequisite: Finance 222. Laws governing agency, partnerships and corporations.

## 326. Advanced Business Law (3) F, $S$ Farrell

Prerequisite: Finance 222 or 324 or equivalent. Legal environment of business. Analysis of state and federal laws governing business and constitutional limitations on such regulations. Special emphasis on current problems.
342. Real Estate Principles and Practices (3) F, S Kearney, Saxer

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.

## 360. Capital Markets (3) F, S Morris

Capital formation, rates, markets and institutions. Flow of fund analysis, intermediation, interest rate structures, risks and liquidity. Financial management of institutions and regulation of markets.

## 362. Business Finance (3) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisites: Economics 200 or 201 or 300 ; Accounting 201 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.

## 380. Survey of Investment Media (3) F, S Staff

Investment of personal funds under varying economic conditions. Survey of alternative media including savings accounts, securities, mutual funds, commodities, life insurance and pension funds, real estate and foreign exchange. Not open to majors in business administration.

## 382. Investment Principles (3) F, S Harlow, Schierholz

Prerequisite: Finance 362. Development of a rational investment philosophy. Analysis of investor objectives, risks and returns; valuation principles; technical approach to price patterns, trends and turning points. Alternative investment media.
402. Commercial Insurance (3) Staff

Prerequisite: Finance 302. Risk management in the firm. Analysis of all lines of property and liability insurance practices. Business life insurance, pensions and employee benefit plans. Carrier markets and functions for commercial coverages.

## 444. Legal Aspects of Real Estate (3) F, S Sanregret

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. Not open to students with credit in Finance 344.

## 446, Real Estate Appraisal (3) F, S Sanregret

Prerequisites: Accounting 201, Finance 342. Development of the capacity for selection of criteria for establishing real property values and the determination of alternative uses and locations. Not open to students with credit in Finance 306.

## 449. Real Estate Finance and Investments (3) F Sanregret

Prerequisite: Finance 342. Markets, institutions, instruments and techniques involved in real estate finance. Analysis of investment opportunities in residential income, commercial, raw land and other properties from the individual's standpoint.

## 464. Financial Planning and Policy (3) F,S Beecher

Prerequisites: Finance 362 and Accounting 300 B or 310 or 311. Application of financial functions and decisions. Flow-of-funds. Analysis in working capital management; capital budgeting, capitalization and income models. Business combination analysis.
484. Security Analysis (3) F, S Belt

Prerequisite: Finance 382. Analysis of securities by industries and individual companies. Application of quantitative techniques in evaluating financial condition, operations, growth and management. Principles of portfolio management.

## 486. Security Markets (3) F, S Belt, Teweles

Prerequisite: Finance 362. Examination of purposes and functions of over-thecounter 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. Not open to students with credit in Finance 386.

## Finance, Management

488. Commodity Markets (3) F, S Harlow, Teweles

Prerequisite: Finance 362 or Marketing 300 or consent of instructor. History and nature of commodity futures trading. Operation of commodity futures exchanges. Fundamental and technical devices used by successful commodity traders. Not open to students with credit in Finance 388.
490. International Finance (3) F,S Dagan

Prerequisite: Finance 362. Various real and monetary factors in the finance of international business. International capital markets, movements of funds and special problem areas.

## 495. Selected Topics (1-3) F, S Staff

Prerequisites: Consent of instructor and grade point of 3.0 in finance. Topics of current interest in finance selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## 497. Directed Studies (1-3) F, S Staff

Prerequisites: Consent of instructor and department chairman, on Dean's List and 3.0 GPA or higher in finance. Individual projects, study and research of advanced nature in finance.

## GRADUATE PREPARATORY COURSES

## 428G. Legal Environment of Business (3) F, S Barg

Prerequisite: Graduate standing. Framework and role of law in society emphasizing the judicial process, basic concepts of commercial law and evolution of legal attitudes between business and government. Not open to students with credit in Finance 322 or 324.

461G. Finance Survey (3) F, S Dilbeck
Prerequisite: Graduate standing. Financial theory, management and environment of the firm. Not open to students with credit in Finance 360 or 362.

## GRADUATE DIVISION

## 530. Problems in Insurance and Risk Management

531. Estafe Planning (3)
532. Problems in Real Estate
533. Capital Budgeting (3)
534. Seminar in Financial Forecasting
535. Seminar in Business Finance (3)
536. Seminar in Comparative Financial Management (3)
537. Seminar in Investments (3)

## MANAGEMENT AND OPERATIONS MANAGEMENT UPPER DIVISION

300. Operations Management (3) F, S Laufer, Penderghast, Robinson, Rudkin, Stanton
Recommended preparation: ORS 210. Analysis of theory and philosophy of operations management and of the principles of planning and control of the operations system. Emphasis on available tools for decision making.

## 302. Operations Technology (3) F, S DeVoe

Recommended preparation: Management and Operations Management 300 or 412G. Analysis of the principles of industrial processes and of the basic materials in the operations system; philosophies of basic operations and service in the operations system.

## 326. Management and Society (3) F, S Heise

Issues of current concern to corporate oligarchs; analysis of management's responsibilities to stock holders, employees, customers, the government and society. Issues include profits, pollution, ownership of research and social accountability.

## 401. Work Design and Measurement (3) F, S Laufer, Rudkin

Recommended preparation: Management and Operations Management 300 or 412 G . Analysis of principles and theory of motion economy; work place and equipment design with emphasis on ergonomics and human engineering; principles of work measurement.

## 402. Production-Inventory (3) F,S Quinn, Robinson

Recommended preparation: Management and Operations Management 300 or 412G. Analysis of principles and philosophies of production-inventory systems and optimal decision making.

## 405. International and Comparative Management (3) F, S Raymond

Recommended preparation: Management and Operations Management 425 or 412 G . Analysis of the functions of management in international business; comparative management studies, and the impact of the environment on management performance.

## 406. Quality Control and Reliability (3) F, S Rudkin

Recommended preparation: Management and Operations Management 300 or 412 G and ORS 210 or equivalent. Analysis of the principles of quality control for purchased and manufactured products and statistical methods for managerial decision making in quality and reliability.

## 407. Materials and Logistics Management (3) F,S Quinn

Recommended preparation: Management and Operations Management 300 or 412G. Analysis of principles and philosophies of purchasing and procurement in industry and government to result in efficient materials management decision making. Not open to students with credit in Marketing 460.

## 421, Management of Small Business Enterprises (3) F, S Heise

Analysis of the formation of management functions and decision making as related to small enterprise. Cases and problems will be examined.

## 422. Sociotechnical Systems (3) F, S Smith

Design philosophies for identifying and measuring elements of sociotechnical systems. Analysis of the interrelationship of technology and work groups. Technological change and social change models. Technological forecasting.
425. Administrative Organization Systems and Business Policy (3) F, S Laufer, Metzger, Raymond, Stanton, Stewart
Recommended preparation: Senior standing. Analysis of the principles and theory of administrative organizations, information systems, management functions, deci-sion-making tools, strategies and administrative policy formulations. Business problems and cases will be used extensively.

## 426. Management and Information Systems (3) F, S Smith

Evaluation of concepts, analysis and design of management information systems; management decision models, strategies for implementing system changes. Not open to students with credit in Business Education 432.
430. Survey of Health Care Management (3) F Smith

Recommended preparation: Senior standing. Survey of out-patient clinic management, group practice management, both prepaid and fee for service, hospital administration, management in federal, state and local health systems.

## 495. Selected Topics (1-3) F, S Staff

Prerequisite: Consent of instructor and grade point of 3.0 in management and operations management. Topics of current interest in management and operations management selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## 497. Directed Studies (1-3) F, S Staff

Prerequisites: Consent of instructor and department chairman, on Dean's List and 3.0 GPA or higher in management. Individual projects, study and research of advanced nature in management.

## GRADUATE PREPARATORY COURSES

412G. Business Policies, Operations and Organization (3) F, 5 Metzger, Quinn
Prerequisite: Graduate standing. Recommended preparation: ORS 310. Theory and philosophies of industrial management, principles of internal industrial organization and control systems, motion and time study, industrial statistics, industrial safety and industrial research as aids to decision making. Administrative organization systems, information systems, management functions, decision making, strategies and policy formulation. Not open to students with credit in Management and Operations Management 300 or 425.

## GRADUATE DIVISION

## 541. Industrial Logistics (3)

542. Enterprise Structure and Operation (3)
543. International Business Policy (3)
544. Management and Operations Management Decision Making (3)

640A,B. Seminar in Operations Management $(3,3)$
641. Seminar in Advanced Production-Inventory Systems (3)
642. Seminar in Operations Management Simulation (3)
643. Seminar in Sociotechnical Systems (3)

644A,B. Seminar in Health Care Management $(3,3)$
645A,B. Seminar in Management Policy and Problems $(3,3)$
646A,B. Seminar in Organization Analysis $(3,3)$
647A,B. Seminar in Management Planning and Control Systems $(3,3)$
695. Special Topics in Management (3)

## MANPOWER MANAGEMENT <br> UPPER DIVISION

360. Behavioral Sciences and Management (3) F, S Fife, Klinck, Simons, Teel

Contributions of the behaviotal sciences to more effective use of human resources in industry. Emphasis on theories of employee motivation, case studies of human relations problems and techniques for integrating individual and organizational goals.
361. Manpower Management (3) F, S Bubala, Fife, Klinck, Simons

Survey of theories, policies and practices governing employer-employee relations in such areas as labor-management, organization, selection, training, salary administration, communications and management development. Emphasis on the research approach to solving management problems.

## 440. Collective Bargaining (3) F, S Berry

Prerequisite: Manpower Management 361 or 461G. Collective negotiations. Examination of the roles of management, labor and government in structuring work environments. Nature of the process of negotiation and conflict resolution in organization.

## 445. Occupational Information (3) F,S Gregory

Prerequisite: Manpower Management 361 or 461 G . Techniques of obtaining, verifying, organizing, storing and retrieving information about jobs. Analysis of multiple uses of occupational information.

## 463. Personnel Development (3) F, S Bubala

Prerequisite: Manpower Management 361 or 461 G . Criteria for identifying development and training needs of managers, supervisors and employees. Survey and critical analysis of current industrial programs and trends.

## 464. Managerial Psychology (3) F, S Kirkpatrick

Prerequisite: Manpower Management 360. Principles of psychology and their applications to individual, small group and organizational behavior. Emphasis on personnel assessment, management development, morale and organizational effectiveness.

## 495. Selected Topics (1-3) F, S Teel

Prerequisites: Consent of instructor and grade point of 3.0 in manpower management. Topics of current interest in manpower management selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## 497. Directed Studies (1-3) F,S Kirkpatrick

Prerequisites: Consent of instructor and department chairman, on Dean's List and 3.0 GPA or higher in manpower management. Individual projects, study and research of advanced nature in manpower management.

## GRADUATE PREPARATORY COURSES

## 461G. Manpower Management (3) F,S Staff

Prerequisite: Graduate standing. Principles, practices and techniques of employeeemployer relations. Significance of labor-management relations. Effective use of human resources.

## GRADUATE DIVISION

550. Employee Motivation (3)
551. Comparative Labor Relations Systems (3)
552. Labor Arbitration (3)
553. Management of Minority Groups (3)
554. Seminar in Labor Relations (3)
555. Seminar in Personnel Management (3)
556. Special Topics in Manpower Management (3)

## MARKETING

## UPPER DIVISION

## 300. Marketing (3) F,S Staff

Prerequisite: Economics 200 or 201 or 300. Interdependence of elements in the firm's marketing system. Relation of the marketing system to other activities in the firm. The firm's role in domestic and world marketing environments. Economic and social effects on marketing, human behavior as it affects marketing, marketing communications, marketing management problems and their solutions.

## 310. Retail Concepts and Policies (3) F, S Ash, Butcher

Prerequisite: Marketing 300 or consent of instructor. An overview of the retail system. Retail decision making is emphasized in relation to the following areas: store operation and management; merchandise assortment and pricing decisions; store location and layout; advertising and sales communication; consumer analysis; retail accounting and control. Cases and term projects are required.
320. Interpersonal Marketing Communications: Salesmanship (3) F, $\mathbf{S}$ Cotta, Ford
Prerequisite: Marketing 300 or consent of instructor. 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 to salesmanship; evaluation of selling techniques and practices including recruiting, training and compensation.

## 330. Mass Marketing Communications: Advertising (3) F, S Prell, Wolff

Prerequisite: Marketing 300 or consent of instructor. Principles and practices of advertising. Social and economic importance of advertising and its relation to modern business organization; importance of an advertising plan; preparation of advertisements, copy and layout, selection of media and sales promotion.

## 340. Traffic Management (3) F, S Hall

Principles of freight traffic, problems of rates and service, importance of the industrial traffic manager, shipping documents, diversion and reconsignment, routing, carrier liability, shipper responsibility, transits, traffic organizations, economic and financial aspects of transportation facilities, services and patterns of public regulation.

## 373. Marketing Decision Making (3) F, S Frye

Prerequisites: ORS 210 and Marketing 300 (may be taken concurrently) or consent of instructor. Solving marketing problems through the application of analytical techniques. Emphasis is on fundamental understanding and applications. Techniques are reviewed, explained and applied to actual marketing data and to case situations. Problem sets.

## 380. The Enterprise in International Markets (3) F Hazen

Prerequisites: Economics 200 or 300 or equivalent; Marketing 300 or consent of instructor. Principles of foreign trade as they affect an enterprise operating internationally. The extent and expansion of world markets, the flows of trade and U.S. participation therein. Opportunities and problems arising from participation in international operations. Cases, problems, term project and class presentation required.

## 401. Marketing Systems and Environment (3) F, S Ash, Ford, Spiller

Prerequisites: Marketing 300, 373.* Study of marketing institutions and their interrelationships in the distribution process. Economic, behavioral, social and political forces which influence vertical marketing systems are discussed. Cases, problems and term projects are required.

## 403. Marketing Communication Theory (3) F, S Frye, Prell, Spiller

Prerequisites: Marketing 300, 373.* The business communications source; objectives, social and cultural environment. Encoding process in relation to the consumer. Decoding process and the consumer's frames of reference. Consumer attitude formation and change. Term projects with classroom presentations required.

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## 408. Marketing Management (3) F, S Staff

Prerequisites: Marketing 300, 373 *; two marketing courses from Group I (Marketing $401,430,480$ ) and/or Group II ( $403,470,490$ ) ; senior standing. Strategies and techniques in marketing management. Student is required to apply prior material from the marketing curriculum to problems and cases in a seminar setting. Emphasis is on decision making in such matters as distribution and product, pricing and promotional strategies. Problems, cases and term projects required.

## 430. Promotion Strategies (3) F, S Frye, Prell, Spiller, Wolff

Prerequisites: Marketing 300, 373.* Communication as a tool of promotional marketing management. Major strategic promotion problems faced by marketing management, including allocation of resources to communication alternatives, evaluation of communication effectiveness and coordination with other elements of the marketing system. Cases, problems, class presentations and term projects are required.
442. Air Transportation (3) $\mathbf{S}$ Hall

Prerequisite: Marketing 340. Commercial air systems of the U.S.; economic characteristics, management and public regulations; problems and services of commercial air transportation; operations, equipment, passenger and cargo services of airports and airlines.
465. Industrial Marketing (3) S Staff

Prerequisite: Marketing 300. Identification of the influencers and decision makers, input-output analysis and study of the sources of industrial marketing data. Pricing and price negotiation. Product development and testing. Design and control of the channels of distribution. Not open to students with credit in Marketing 365.
470. Marketing Research (3) F, S Cotta, Frye, Palubinskas, Runyon, Spiller

Prerequisites: Marketing 300, 373.* 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. Term projects.
480. International Marketing (3) F, S Palubinskas, Spiller

Prerequisites: Marketing 300,373 * or consent of instructor. Individual enterprise in varying cultural, economic and political environments; international market opportunities; types of foreign operations; international marketing management; financing; legal situation; comparison with domestic marketing. Problems, cases and term projects with classroom presentation are required.

## 490. Consumer Behavior (3) F, S Stuteville

Prerequisite: Marketing 300 or consent of instructor. Nature of parameters of consumer behavior. Socio-psychological factors including personality, small group theory, demographic variables, social class and culture.

## 495. Selected Topics (1-3) F, S Staff

Prerequisite: Consent of instructor and grade point of 3.0 in marketing. Topics of current interest in marketing selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.
497. Directed Studies $(1-3)$ F, S Staff

Prerequisites: Consent of instructor and department chairman, on Dean's List and a 3.0 GPA or higher in marketing. Individual projects, study and research of advanced nature in marketing.

[^11]
## GRADUATE PREPARATORY COURSES

400G. Marketing Concepts (3) F, S Ash, Ford
Prerequisites: Graduate standing, consent of instructor. Critical practices in con-text of changing economic, social and governmental conditions. Readings, caseanalysis, and research on problems of current interest. Not open to students withcredit in Marketing 300.
GRADUATE DIVISION
660. Seminar in Marketing Theory ..... (3)
661. Seminar in Marketing Policies ..... (3)
662. Seminar in Marketing Environment and Institutions ..... (3)
663. Seminar in Advertising Policies ..... (3)
664. Seminar in Transportation ..... (3)
665. Seminar in Marketing Research ..... (3)
666. Seminar in International Marketing ..... (3)
667A. Seminar in International Business-Africa and the Near East ..... (3)
667B. Seminar in International Business-Asia and Oceania ..... (3)
667C. Seminar in International Business-Europe ..... (3)
667D. Seminar in International Business-Latin America ..... (3)
668. Seminar in Consumer Behavior ..... (3)
OPERATIONS RESEARCH AND STATISTICS LOWER division
210. Survey of Probability, Decision Theory and Statistics (3) F,S StaffPrerequisites: Mathematics 114, 120. Random variables, probability distributions,statistical decision theory, hypothesis testing, estimation, correlation and regression.(Lecture 3 hours, problem session 2 hours.)
240. Computer Programming and Data Processing (4) F, S StaffBasic data processing and computer programming fundamentals designed to pro-vide an understanding of the use of digital computers. Not open to students withcredit in Mathematics 270. (Lecture 3 hours, laboratory 3 hours.)
UPPER DIVISION
420. Introduction to Probability and Decision Theory (3) F, S Hamburger, Payne, Stone, Wollmer
Prerequisites: Six units of calculus. Elements of probability theory with emphasis on logical applications of probability models. Random variables, probability distributions and their characteristics. Utility, admissibility and various decision criteria.

## 421. Statistical Decision Theory (3) F, S Hamburger, Payne, Stone, Wollmer

Prerequisites: Six units of calculus and ORS 420 . Sample data and sampling variation. Some important sampling distributions ( t , chi squared, and F distributions). Statistical decision rules and optimal strategies including discussion of a posteriori probabilities and value of information. Elementary theory of estimation, hypotheses testing, regression analysis.

## 422. Statistical Methods (3) F, S Hamburger, Payne, Stone

Prerequisites: Six units of calculus, ORS 421. Important concepts in statistical methodology including analysis of variance introduction to experimental design, multiple and partial correlation, nonparametric methods.

## 442. Computer Methods for Business Decision (4) F, 5 Gilon, Hamburger

Prerequisites: ORS 240 or Mathematics 270 and either ORS 210 or 420 . Current application of digital computers in the business environment. Includes special programming techniques, the design of management information systems and the use of auxiliary storage and input-output devices. Not open to students with credit in ORS 342. (Lecture 3 hours, laboratory 3 hours.)
445. Computer Applications to Operations Research Models (3) F, S Gilon, Hamburger
Prerequisites: Rudiments of computer programming and ORS 460. Computer coding of operations research models including programming models, static and dynamic probability models and simulation of complex systems.
460. Introduction to Operations Research I (3) F, S Payne, Stinson, Stone, Wollmer
Prerequisites: Six units of calculus; three units of probability or statistics. Theory and applications of operations research as an aid to management decision making. Includes programming (linear, non-linear, dynamic, distribution models), simulation, waiting lines, as they apply to inventory, scheduling, transportation, portfolio selection problems.
463. Operations Research II (3) F, S Payne, Stinson, Stone, Wollmer Prerequisite: ORS 460. Continuation of ORS 460.

## 495. Selected Topics (1-3) F,S Staff

Prerequisites: Consent of instructor and grade point of 3.0 in operations research and statistics. Topics of current interest in operations research and statistics selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## 497. Directed Studies (1-3) F, S Staff

Prerequisites: Consent of instructor and department chairman, on Dean's List and 3.0 GPA or higher in operations research and statistics. Individual projects, study and research of advanced nature in operations research and statistics.

## GRADUATE DIVISION

## 570. Economic Theory of Decision <br> (3)

571. Theory of Information and Organization (3)
572. Probability and Stochastic Processes (3)
573. Advanced Statistical Inference (3)
574. Topics in Multivariate Analysis (3)
575. Experimental Design (3)
576. Seminar in Operations Research and Statistics (3)

# BUSINESS ADMINISTRATION THESIS AND RESEARCH <br> GRADUATE DIVISION 

695. Selected Topics (3)
696. Seminar in Research Methodology (3)
697. Directed Studies (1-3)
698. Thesis (2-4)


## Other School Offices

| Credentials Office | Dr. Leland Perry | FO3-120 |
| :--- | :--- | :--- |
| Educational Psychology <br> Clinic | Dr. Robert Swan | LA5-108 |
| Elementary Education <br> Field Experiences | Dr. Rita Jones | FO3-110 |
| Field Work and Services <br> Graduate Office | Dr. Oscar W. Davison | FO3-113 |
| Secondary and Community <br> College Student Teaching <br> Office | Dr. Leland Perry | FO3-120 |
| Library Education Office <br> Pupil Personnel Office <br> Research and Grants in <br> Education | Miss Barbara Ward | LA1-208 |
| Special Education Office | Dr. John Kinzer | Lr. Charles Kokaska |

## SCHOOL OF EDUCATION

The School of Education provides undergraduate and graduate studies in the field of education. It offers specific curricula focusing on the preparation of personnel for educational service in the elementary, junior and senior high schools, junior colleges and other educational agencies of the state.

Requirements for credential programs for students under the revised certification law of 1961 are provided in the Credentials Section of this Bulletin.

Specific information related to master's degree programs is provided in the Handbook for Graduate Studies in Education.

## EDUCATION

LOWER DIVISION
199. Orientation to Change in Education (3) F,S Staff

Emphasis on process-change, communication and reality orientation in school and society. Experiments in learning, the reals and ideals of teaching as a profession, field trips and simulated teaching experiences.

## UPPER DIVISION

## 399. Orientation to Change in Education (3) $\mathbf{F}, \mathbf{S}$ Staff

Emphasis on process-change, communication and reality orientation in school and society. Experiments in learning, the reals and ideals of teaching as a profession, field trips and simulated teaching experiences. Not open to students with credit in Education 199.

## 473. Aerospace Education (4) SS Staff

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.

## GRADUATE DIVISION

696. Research Methods (3)
697. Directed Studies (1-3)
698. Thesis or Project (2-4)

## EDUCATIONAL ADMINISTRATION DEPARTMENT

Emeritus: J. Wesley Bratton.
Professors: Dotson, Nelson, Sehmann, Williams, S., Young, W.
Associate Professor: Jackman.
The Department of Educational Administration provides programs for persons who wish to qualify as principals, deans, supervisors, coordinators and/or department heads at the elementary, secondary and community college levels. It offers internship programs for those individuals requiring an immediate partial fulfillment credential. Practicing school administrators, supervisors and other part-time administrative personnel who wish to acquaint themselves with the latest developments in the field are invited to inquire at the department office about specific offerings.

## UPPER DIVISION

490. Special Topics in School Administration (1-3) On demand Staff

Prerequisite: Consent of instructor. Topics of current interest in school administration selected for intensive study. May be repeated for a maximum of six units. Topics to be announced in the Schedule of Classes.

## GRADUATE DIVISION

541. Principles and Organization of School Administration
542. Legal Aspects of School Administration (2)
543. Financial Aspects of School Administration (2)
544. Techniques of Public School Personnel Management (2)
545. School Housing Administration (2)
546. Organization and Administration of Elementary Schools (3)
547. Instructional Aspects of Administration in Elementary Schools
548. Organization and Administration of Secondary Schools (3)
549. Instructional Aspects of Administration in Secondary Schools (3)
550. Organization and Administration of the Community College (3)
551. Instructional Aspects of Administration in Community Colleges (3)
552. School Administration and Community Relations (3)
553. School District Central Office Management (3)
554. Special Problems in Educational Administration (1-4)
555. Field Work in Administration and Supervision of Elementary Education (3)
556. Field Work in Administration and Supervision of Secondary Education (3)
557. Field Work in Administration and Supervision of the Community College (3)
558. Seminar in Advanced Techniques of Personnel Administration

## EDUCATIONAL PSYCHOLOGY AND SOCIAL FOUNDATIONS DEPARTMENT

## Emeritus: Arnold M. Christensen.

Professors: Blackman, Crossan, Davis, B., Demos, Fogg, Glasser, Graetz, Hamel, Orpet, Peck, R., Poole, Revie, Shaver, Stacker, Tilden. Associate Professors: Britton, Forst, Gibbs, N., Lazar, Michael, Swan. Assistant Professors: Blaylock, Campbell, M., Cash, Gibbs, T., Harris, Hunter, Kokaska, Schmidt, Sundstrom, Suzuki.
Lecturers: Bontrager, Kinzer.
The Department of Educational Psychology and Social Foundations provides instruction in the history and philosophy of education, educational sociology and educational psychology including pupil personnel services and special education. Emphases in social foundations and educational psychology are provided within the master of arts degree in education. The department offers courses to meet the requirements of the California Standard Designated Services Credential with a Specialization in Pupil Personnel Services (school counseling, child welfare and attendance, school psychometry and psychology) and a master of science in counseling degree. It offers courses to meet the requirements of special preparation in mental retardation and a master's degree in the education of children with learning disabilities.

## Educational Psychology and Social Foundations

## EDUCATIONAL FOUNDATIONS

## UPPER DIVISION

470. History and Philosophy of Education (3) $F, S$ Staff

Historical and philosophical foundations of education, from ancient times to the present.
480. School and Society (3) F,S Staff

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 Staff

Prerequisite: Ed. Found. 480. Problems of cultural and educational deprivation; implications for teaching.
490. Special Topics in Social Foundations (1-3) F, S Staff

Prerequisite: Consent of instructor. Topics of current interest in social foundations selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## GRADUATE DIVISION

## 550. Social Foundations of Special Education

575. Philosophy of Education (3)
576. Comparative Education (3)
577. Group Processes in Education (3)
578. Special Problems in Educational Foundations (1-3)
579. Seminar in Curriculum Development (3)
580. Seminar in Current Problems and Issues in Education (3)

## EDUCATIONAL PSYCHOLOGY

## UPPER DIVISION

301. Child Development and Learning (3) F,S Staff

Physical, mental, emotional and social growth and development of the child with emphasis on the learning process.

## 302. Adolescent Development and Learning (3) F, 5 Staff

Prerequisite: General psychology. Physical, social, emotional and mental development during adolescence; learning processes.

## 305. Educational Psychology (3) F, S Staff

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. Mental Hygiene (3) F,S Staff

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 Staff

Prerequisite: Elementary algebra. Introduction to statistical methods with application to educational research problems.
320. Tests, Measurements and Evaluations (3) F,S Staff

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.

## Educational Psychology and Social Foundations

## 350. Edveation of Exceptional Children (3) F,S Staff

Prerequisite: Ed. Psych. 305. Psychology and education of mentally retarded, gifted, physically handicapped, emotionally disturbed and other exceptional children.

## 355. Education of the Gifted Child (3) F Staff

Prerequisite: Ed. Psych. 301 or 302 . Characteristics of the intellectually gifted child; curriculum planning, program development, work with parents, community resources and guidance.

360A. Practicum in Atypical Children (3) F, S Staff
Prerequisite: Consent of instructor. Observation and participation in special education programs for trainable and educable mentally retarded and educationally handicapped.

## 360B. Practicum in Atypical Children (3) F,S Staff

Prerequisite: Consent of instructor. Observation and participation in special education programs for visually, aurally, orthopedically impaired and cerebral palsied.

## 416. Child Welfare and Attendance (3) $F$ Staff

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. Principles of Counseling and Guidance (3) F, S Staff

Prerequisite: Ed. Psych. 305. Purposes, functions, legal aspects and administration of the pupil personnel program.
435. Counseling and Guidance for the Handicapped (3) Staff

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 Staff

Prerequisite: Ed. Psych. 350. Etiology and diagnostic problems; emphasis in dyslexia, language and perceptual motor dysfunction; role of teacher specialist.

## 461. Mental Deficiency (3) F Staff

Prerequisite: Ed. Psych. 350. Causes, diagnostic problems and procedures, required care, and appropriate educational provisions for mentally deficient children.

## 463. Education of the Severely Retarded (3) Ftaff

Prerequisite: Ed. Psych. 464. Characteristics, growth and development, and educational needs of the severely mentally retarded child; methods of working with parents.

## 464. Curriculum for the Mentally Retarded (3) F,S Staff

Prerequisites: Ed. Psych. 350, 360A, 461, consent of instructor. Principles of development and learning as related to the total instructional program for the mentally retarded. Emphasis on behavioral objectives, assessment of placement, behavior, management, administration and evaluation.

## 465. Teaching the Elementary Educable Mentally Retarded (3) F Staff

Prerequisites: Ed. Psych. 464, consent of instructor. Specific methods and techniques for planning and developing academic skills, social and emotional adjustment, sensory motor training for appropriate elementary age educable mentally retarded children.

## 466. Teaching the Secondary Educable Mentally Retarded (3) Staff

Prerequisites: Ed. Psych. 464, consent of instructor. Specific methods and techniques of planning and development of academic skills, social and emotional adjustment, occupational information, in-school work experiences, work.

## 469. Workshop in Education of Mentally Retarded Children (6) SS Staff

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.

## 484A-G. Student Teaching of Exceptional Children (4,4) F, S Staff

Open only to students accepted by the Special Education Teacher Education Committee. 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 a minimum of one complete morning per day or the equivalent for a semester under the guidance of a supervising teacher.

The student teacher will register for four units of 484 for his first assignment of student teaching and an additional four units of 484 for his second assignment (as approved by the Special Education Teacher Education Committee). The two assignments will be on different grade levels, elementary and secondary, in the area of the student's specialization:

484A. Trainable Mentally Retarded $(4,4)$ F, S
484B. Educable Mentally Retarded $(4,4)$ F, S
484C. Educationally Handicapped (4,4) F, S
484D. Visually Handicapped (4,4) F, S
484F. Orthopedically Handicapped, including Cerebral Palsy (4,4) F, S
484G. Multi-Handicapped (4,4) F, S
With the approval of the committee, the two assignments may be taken in two semesters. Students may enroll in four units of 484 concurrent with El. Ed. 481, Student Teaching-Elementary or Sec. Ed. 481A, Student Teaching-Secondary.

## 484H,I. Student Teaching of Exceptional Children (4,4) F,S Staff

Open only to students accepted by the Speech Pathology/Audiology Teacher Education Committee. Student must complete minimum of 90 clock hours of actual teaching in the classroom $(484 \mathrm{H})$ or direct therapy with speech and hearing handicapped children (484I).

484H. Deaf and Severely Hard of Hearing (4) F, S Staff
4841. Speech and Hearing Handicapped (4) F, 5 Staff
490. Special Topics in Educational Psychology (1-3) F, S Staff

Prerequisite: Consent of instructor. Topics of current interest in educational psychology selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## GRADUATE DIVISION

## 519. Advanced Educational Statistics <br> (3)

520. Educational Measurement and Research (3)
521. Individual Pupil Diagnosis (3)
522. Educational Diagnosis (3)
523. Clinical Practice in Educational Remediation (3)
524. Career Development and Decision Theory (3)
525. Counseling Information Resources and Technology (3)
526. Group Counseling (3)
527. Counseling Theory (3)
528. Guidance Practices in the Elementary School (3)

## Educational Psychology and Social Foundations

537. Guidance Practices in the Secondary School ..... (3)
538. Student Personnel Work in Higher Education ..... (3)
539. Counseling the College Student ..... (3)
540. General Case Practice and Field Work ..... (3)
541. Specialized Case Practice and Field Work ..... (2-4)
542A. Field Work-School Counseling ..... (2-4)
542B. Field Work-Child Welfare and Attendance ..... $(2-4)$
542C. Field Work-School Psychology ..... (2-4)
542. Pupil Personnel Practicum ..... (3)
546A-B. Practicum in Special Education ..... $(3,3)$
554A,B. Principles of Educational Remediation ..... $(3,3)$
543. Special Problems in Educational Psychology ..... (1-3)
544. Seminar in Human Development ..... (3)
545. Seminar in School Learning ..... (3)
546. Seminar in Home-School-Community Relations ..... (3)
547. Seminar in Elementary School Counseling ..... (3)
548. Seminar in Secondary School Counseling ..... (3)
549. Seminar in Organization of Pupil Personnel Services ..... (3)
550. Seminar in Special Education ..... (3)

## ELEMENTARY EDUCATION DEPARTMENT

Professors: Burk, Johnston, M., Johnstone, Myers, Nagle, Perry, L., Phearman, Pollach, Rolfe, Roster, Thompson, O.
Associate Professors: Cahn, Gensley, Jamgochian, Jones, Woodfin.
Assistant Professors: Ames, Beck, Bernstein, Garcia, Knowlden, Koppenhaver, Krause, M., Martinez, Newcastle, Rodney, Shafer, Tabor, Thayer, Unkel.
The Department of Elementary Education provides course work for: (a) elementary school credential candidates, (b) candidates pursuing the M.A. in education with a concentration in elementary education, (c) individuals seeking the Reading Specialist Certificate, (d) candidates for the Education for Young Children Certificate, and (e) an elementary teaching internship program.

## UPPER DIVISION

## 310. The Elementary School in American Society (3) F, S Staff

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) $\mathbf{F}$ Gensley

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 Gensley

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.

## 361. Foundations in Mathematics: Emphasis in Geometry (2) F, 5 Burk

Prerequisite: Mathematics 110 or graduate standing. Geometric configurations, interpretation of their relationships and applications. Includes geometrical construction, use of instruments and simple applications of logic in geometry. Not open to students with credit in El. Ed. 461.

## 362. Unifying Concepts in the Mathematics of Number (2) F,S Burk

Prerequisite: Mathematics 110 or graduate standing. Unification and integration of mathematical ideas and procedures. Includes the development of sets, number and number systems, mathematical conditions and mathematical relations. Not open to students with credit in El. Ed. 462.
420. Kindergarten-Primary Methods (2) F, S Bernstein, Johnston, Rodney

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.
423. Supervision of Children's Center Programs (3) F, S Gensley

Prerequisites: Ed. Psych. 301, El. Ed. 321, 322, and consent of instructor. Qualifications of personnel for staffing schools for young children from two to five years of age; duties of staff; financial procedures; annual budgets and records; maintenance; equipment; individual records; attendance records; discipline; health and nutrition; supervision of educational programs.

## 430. Education of Inner-City Children (3) F, S Rodney

Teaching children of varied ethnic and racial backgrounds. Practicum and field work. (Lecture 2 hours, practicum 3 hours arranged.)
440. Language Arts in the Elementary School (2) F, S Staff

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. Teaching Foreign Languages in the Elementary Schools (3) F, S Staff

Methods of teaching foreign languages and of supervising curricular foreign language activities in the elementary schools.
450. Reading in the Elementary School (3) F, S Staff

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. Mathematics in the Elementary School (3) F,S Staff

Prerequisites: El. Ed. 310, Ed. Psych. 301, Mathematics 110 or equivalent. Admission to elementary teacher education. Concepts and principles of modern school mathematics. Includes methods and media that contribute to its meaning and understanding.
463. Implications of New Mathematics for the Elementary School Mathematics Curriculum (2) SS Burk
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. Social Studies in the Elementary School (3) F, S Staff

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.
480. Observation and Participation in the Elementary School (2) F, S Staff

Observation and participation in an elementary classroom for one full morning each week in a selected public school, with two assignments of seven weeks in two different grade levels and a weekly seminar with a college adviser. Enrollment by application only.

## 481. Student Teaching in the Elementary Grades (8) F, S Staff

Prerequisites: Ed. Psych. 301, El. Ed. 310, 440, 450, 460, 470, 480 and official admission by the Teacher Education Committee. El. Ed. 460 may be taken concurrently with El. Ed. 481 if Mathematics 110 or equivalent has been completed. Five mornings per week in a public school elementary classroom, with assignments in two grade levels and a weekly seminar with a college adviser. Enrollment is by application only.
490. Special Topics in Elementary Education (1-3) F, 5 Staff
Prerequisite: Consent of instructor. Topics of current interest in elementary ed-ucation selected for intensive study. May be repeated for a maximum of 6 units.Topics will be announced in Schedule of Classes.
GRADUATE DIVISION
520. Problems in Kindergarten-Primary Education ..... (2)
540. Problems in Teaching the Language Arts in the Elementary School ..... (2)
550. Problems of Teaching Reading ..... (2)
551. Diagnosis and Correction of Reading Disabilities ..... (3)
552. Reading Curriculum and Supervision ..... (2)
560. Problems of Teaching Arithmetic in the Elementary School ..... (2)
570. Problems of Teaching the Social Studies in the Elementary School ..... (2)
580A,B. Elementary Teaching Internship ..... $(3,3)$
581A,B. Internship Problems ..... $(3,3)$
621. Seminar in Kindergarten-Primary Education ..... (2)
653A,B. Seminar and Clinical Laboratory in Reading Disabilities ..... $(3,3)$

## INSTRUCTIONAL MEDIA DEPARTMENT

Professors: Cockrum, Gramlich, Johnson, R., Timmons, Vaughan. Associate Professor: Brent.
Assistant Professors: McLaughlin, Ward.
The Department of Instructional Media offers courses meeting the requirements for the M.A. in education with an emphasis in instructional media, the Library Credential for the State of California and a specialist certificate program in instructional media.

## Instructional Media Advisory Council

The Advisory Council is composed of professional people whose position indicates an involvement with media as a means of instruction in public schools, business and industry. The purpose of this group is to examine and recommend changes in the existing program and assist the department in future planning.

Walter Check, student in instructional media, California State College, Long Beach
Grace Dunkley, Coordinator, Curriculum Materials, Bellffower Unified School Dístrict
Frank B. George, Supervisor of Audio-Visual Services, Long Beach Unified School District
Helen Gores, Personnel Development Assistant, General Telephone Co.
Nancy Hausback, student in instructional media, California State College, Long Beach
Richard J. Johnson, Chairman, Instructional Media Dept., California State College, Long Beach
James N. McClelland, Dean, Instructional Services, California State College, Long Beach
C. L. Nunnelly, Manager, Engineering Training, McDonnell-Douglas Aircraft Co.
Pierce E. Patterson, Director of Audio-Visual Services, Office of Superintendent of Schools, Orange County
Howard Rolfe, Chairman, Elementary Education Dept., California State College, Long Beach
Aldo S. Romiti, Coordinator of Physical Medicine and Rehabilitation Services, Veterans Administration Hospital
Kathy Scranton, student in instructional media, California State College, Long Beach
Barbara Shanks, Training Director, Buffums' Department Store, Long Beach
Joanne Sheppard, student in instructional media, California State College, Long Beach
Richard Thomas, student in instructional media, California State College, Long Beach

## UPPER DIVISION

## 300. Instructional Media (3) F,S Staff

Resource materials and technological advancements related to instructional theory and practice. Laboratory experience includes preparation of instructional media and equipment operation. (Lecture 2 hours, laboratory 2 hours.)

## 301. Curricular Integration of Instructional Media (2) F, 5 Brent

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. Preparation of Graphic Media (2) F, S Brent

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. Programmed Instruction (2) F, S McLaughlin, Timmons

Prerequisite: I.M. 300 or consent of instructor. Primitive, modern and experimental formats. Integration of programmed learning with modern system approaches to instruction.

## 440. Computers and Information Systems (3) F McLaughlin

Prerequisite: Ed. Psych. 319. Introduction to electronic computers and data processing systems as applied to various fields in education. Includes individual projects and field trips to local computer centers. (Lecture 2 hours, laboratory 2 hours.)
490. Special Topics in Instructional Media (1-3) F, S, Staff

Prerequisite: Consent of instructor. Topics of current interest in instructional media selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## GRADUATE DIVISION

## 500. Instructional Systems (3)

501. Theoretical Models Applied to Media (3)
502. Preparation of Photographic Media (2)
503. Preparation of Audio Media (2)
504. Instructional Film Production (3)
505. Multi-Media Message Design (3)
506. Administration of Learning Resource Centers (2)
507. Seminar in Instructional Media (2)

## LIBRARY EDUCATION

## LOWER DIVISION

100. Introduction to Library Use (1) On demand Ward

Introduction to the use of libraries, library tools, materials and services. Particular emphasis on the college library.

## UPPER DIVISION

410. Selection of Materials (3) F Ward

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.
411. Children's Books for School Libraries (3) F Ward

Prerequisite: Junior standing. Survey of children's books, past and present. Critical analysis and selection of books for elementary school libraries, based on interests and needs of children and curriculum demands. Use of books with children and reading guidance activities of school librarians.
412. Adolescent Books for School Libraries (3) S Ward

Prerequisite: Lib. Ed. 411. Survey of adolescent books appropriate for the school library, including classics, popular novel, junior novel, paperback books and nonfiction. Analysis of the criteria upon which selection is based; use of selection tools, techniques of reading guidance for the secondary school librarian. Extensive reading and analysis.

## 420. Basic Reference (3) F Ward

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 Gramlich

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.
441. Classification and Cataloging of Printed Maţerial (3) F,S Ward

Prerequisites: Lib. Ed. 410, 411, 412, 420. Philosophy and use of card or book catalogs. Fundamental principles in classification and cataloging and practice in applying these principles. Acquisition and processing as they relate to classification and cataloging. Commercial services available. Emphasis on work in school libraries and the use of the Dewey Decimal Classification system. Not open to students with credit in Lib. Ed. 400.
450. School Library Administration (3) S Ward

Philosophy, principles and problems of school library service and relationship of library to education program; objectives, standards and their implementation.
481. Field Work in School Libraries (4) F, S Ward

Open only to students approved by the Library Education Field Work Committee. Applications for spring semester must be in the office of the library education coordinator by October 15 and for fall semester by March 15. Students will receive practice in administering a library program and services, under the supervision of a credentialed librarian. Observation periods will be provided.

## 491. Special Topics in School Librarianship (1-3) F, S Staff

Prerequisite: Consent of instructor or library education coordinator. Topics of current interest in school librarianship selected for intensive development. May be taken for a maximum of six units.

GRADUATE DIVISION
541. Advanced Problems in Technical Services (3)

## SECONDARY EDUCATION DEPARTMENT

## Emeritus: Wallace H. Moore.

Professors: Anderson, R., Davison, Fisher, Gorow, Kinsman, McNaughton, Popham.
Associate Professors: Franklin, Kaiser.
Assistant Professors: Graham, Jersin, Marrs, Morris, Sugimoto.
The Department of Secondary Education provides courses for students working toward standard teaching credentials with secondary and community college specializations, advanced courses in curriculum and instruction for experienced teachers, a program leading to the master of arts in education with an emphasis in secondary education and in cooperation with the Elementary Education Department a reading specialist program.

## UPPER DIVISION

NOTE: 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. American Secondary Schools (3) F, S Staff

Historical, sociological and philosophical foundations of secondary education; includes organization and curriculum of secondary schools. (Should be taken early in the credential program.)
410. Principles and Curriculum in Business Education (2) On demand Burras, Henderson, Nelson
Principles, trends and curriculum development in business education; work experience education programs including techniques of evaluating pupil occupational performarice and of relating such performance to classroom instruction.
421. Instruction and Evaluation in Secondary Schools (3) F,S Staff

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.
428. Individual Instruction in Secondary Schools (3) F, S Marrs

Prerequisite: Sec. Ed. 421 or equivalent. Rationale of individualization. Analysis of current models, requirements for course and total school individualization. Media and other instructional variables. Development of an individualized unit or course segment.
430. Education in Inner-City Secondary Schools (3) F, S Franklin

Teaching youth of varied ethnic backgrounds. Discussion, practicum and field work. (Lecture-discussion 3 hours.)
440. Organization and Administration of Distributive Education (3) Offered on adequate demand Burras
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. Curriculum Development in Distributive Education (3) Offered on adequate demand Burras
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. Foreign Language Workshop (4) ss Staff

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.)
450A. Curriculum and Methods of Art Education (3) F,S Purcell, Schultz
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. Not open to students with credit in Sec. Ed. 350A.

## 450C. Curriculum and Methods in Teaching Dance (3) F Schlaich

Curriculum and procedures in teaching dance. (Lecture 2 hours including evaluation in dance, laboratory 3 hours.) Should be taken semester prior to student teaching.
450D. The Teaching of Theatre Arts in the Secondary Schools (2) F,S Bailor
Prerequisites: Major or minor in theatre arts and Theatre Arts 374. Methods and observation of teaching and directing theatre arts in the junior and senior high schools. Students fulfilling requirements for observation should enroll in Sec. Ed. 451D.
450F. Methods of Teaching Foreign Languages (3) F,S Contreras, Kendall
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. Several sections in different languages may be offered. See Schedule of Classes for appropriate section.

## 450G. Teaching English (3) F,S Borowiec, Day, Sullivan

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. Methods and Curriculum in Home Economics Education (3) F, S Moore
Prerequisites: Sec. Ed. 421 and consent of instructor. Objectives, curriculum methods and materials used in teaching home economics. Observation and participation in home economics classes in the secondary schools. Must be taken by majors and minors the semester prior to student teaching.
4501. Curriculum and Methods in Industrial Education (3) F Farr

Objectives, curriculum, materials and procedures in teaching industrial education with emphasis on current practices and the relationship of industrial education to the total school program. Includes observation in the secondary school. Must be taken prior to student teaching.
450M. Teaching and Observation of Music (4) F,S Winslow
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. Teaching the Social Sciences (2) F, S Popham

Scope and content of social science curriculums. Includes teaching procedures in the social sciences. Should be taken concurrently with student teaching.

450S. Teaching Speech (2-4) F,S Applbaum
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.
451D. Observation of Theatre Arts in the Secondary Schools (2) F Bailor
Prerequisite: Major or minor in theatre arts and Theatre Arts 374. Observation of the teaching and directing of theatre arts in the junior and senior high school.
451R. Methods in Bookkeeping and General Business (2) F, S Burras, Henderson, Nelson
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. Methods of Teaching Office Practice and Business Machines (1) F Burras,
Henderson, Nelson
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. Methods of Teaching Secretarial Subjects (2) F Burras, Corbin, Nelson, Shelton
Prerequisites: Business Education 110A-B, 302. 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. Methods of Teaching Typewriting (1) F,S Burras, Nelson
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.

## 455P. Curriculum and Methods in Teaching Physical Education <br> (Men) (3) F, 5 Morgan

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. Curriculum and Methods in Teaching Physical Education
(Women) (3) F,S Stock
Curriculum and procedures in teaching physical education. Two hours lecture; three hours laboratory experience in supervised teaching. Should be taken the semester prior to student teaching.
457. Developmental Reading in the Secondary School (3) F,S Graham

Prerequisites: Sec. Ed. 310 or El. Ed. 310 and Ed. Psych. 301 or 302. Principles, materials and evaluation in a developmental reading program in junior and senior high schools. Special attention to the application of word and basic study skills in the content areas; practical classroom methods of diagnosis and remediation. Includes individualized instruction for students enrolled.
460. The Junior High School (3) On demand Kaiser

Philosophy, curriculum and teaching procedures in the junior high school. Includes characteristics of junior high school students.
480. Observation and Participation in the Secondary School (2) F, S Staff

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. Student Teaching in Secondary Schools (3,3) F, S Staff
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 481 A 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. Student Teaching in the Community College ( $\mathbf{2}, \mathbf{2}$ ) F, S Staff

Open only to Community 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 community 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 483 A 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.

## 490. Special Topics in Secondary Education (1-3) F, S Staff

Prerequisite: Consent of instructor. Topics of current interest in secondary education selected for intensive study. May be repeated for a maximum of 6 units. Topics will be announced in the Schedule of Classes.

## GRADUATE DIVISION

## 510. The Community College (2)

520. Advanced Studies in Secondary School Instruction (3)
521. Instruction and Evaluation in College Classes (3)
522. Advanced Studies in Secondary School Curriculum (3)
523. Problems in Secondary Reading Instruction (3)

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 community 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.

## 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 under the revised credential law of 1961. Students who have finished two years of college and are enrolled in a teacher education program on November 1, 1971 may follow the programs outlined below if all requirements can be met prior to September 15, 1974. Otherwise, students seeking a public school teaching credential or public school service credential must meet the requirements provided for in the Teacher Preparation and Licensing Law of 1970. The 1970 law provides for the establishment of a Commission for Teacher Preparation and Licensing and assigns to this commission major duties such as to develop certification standards and procedures, promulgate appropriate rules and regulations, issuing credentials, approve teacher education programs and develop or employ subject matter knowledge tests. Programs under the 1970 law cannot be offered until after the new commission has adopted credential requirements and has approved proposed programs for the College. This will occur sometime prior to January 1, 1973. Current information may be obtained in the Credentials Office, School of Education, F03-120.

## The Standard Teaching Credential with the following specializations:

Elementary Teaching (Elementary Education)
Secondary Teaching (Secondary Education)
Specialized Preparation
Librarianship (Instructional Media)
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 Science)

## 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)

## Credentials

The Standard Supervision Credential (Educational Administration)
(To serve as supervisor, consultant or other intermediate administrative position including school principal.)

Elementary supervision
Secondary supervision

Elementary principal
Secondary 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 internships in Elementary Teaching, Pupil Personnel Services and School Supervision. Students pursuing professional programs leading to satisfying the credential requirements should report to the appropriate Department Chairman in the School 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, Box 2670, Sacramento, California 95812.

Information concerning the requirements for the community college credentials may be obtained in the Credentials Office, School of Education, F03-120.

## 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 the Undergraduate Record Examination and other proficiency examinations. Students may obtain information concerning required examinations in the Office of Testing and Research, the School of Education Credentials 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 School of Education Credentials Office and Education Departmental offices. Application blanks should be completed directly after registration for the semester preceding enrollment in education courses.
Juniors in clear standing who have completed 60 semester units of course work accepted by this College may enroll in El. Ed. 310 or Sec. Ed. 310 and Ed. Psych. 301 or Ed. Psych. 302, but such enrollment does
not constitute acceptance into the program or give permission to take required 400 level education courses. Students enrolled in this College prior to attaining upper division standing should complete lower division English and speech clearances before enrolling in education courses.

Undergraduate students may not enroll for required education courses beyond those listed above until they have been admitted to the elementary or secondary teacher education program.
Transfer graduate students may enroll in courses in the credential program only if they were accepted for admission to the College for credential purposes, have English and speech clearance and have filed for admission to the program before attending required 400 level education classes.

The Elementary Education Admissions and Standards Committee or Secondary and Community 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 ( 25 th percentile or better on the Undergraduate Record Examination), (b) scholarship, (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

No later than the first month of the semester preceding completion of the credential requirements, the student must (1) pick up a credential application card at the Credentials Office in the School of Education, (2) pay credential fee at the Business Office, and (3) return card to the Credentials Office. The card must be filed in the Credentials Office no later than the second week of instruction of the semester in which the final work is being completed. After filing the card, the Credentials Office will forward an instruction sheet and the necessary papers to candidates in their final semester of work.

When the candidate successfully meets all requirements for the credential, he will be notified by the College. The credential will be available in the Credentials Office or will be mailed upon request.

An application for a credential based upon partial fulfillment is not processed through the College.

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 after the baccalaureate degree has been granted. (Under certain conditions, after the completion of a baccalaureate 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 in a previous section and at the same time meet the requirements specified below.
(a) Forty-five semester units of course work in five of the following six areas: (1) humanities (English, speech, philosophy and journalism); (2) social sciences (anthropology, economics, geography, history, political science, psychology and sociology); (3) natural sciences (biological and physical sciences); (4) mathematics (5) fine arts (music, art and theatre arts), and (6) foreign language.
(b) Two semesters of English course work including a course in English composition. (Undergraduates should take English 100 and English 101. English 317 may be substituted for English 101 for students in certain majors.) In addition, all credential candidates must demonstrate competency in advanced English composition either by passing the STEP Writing Test or by completing English 300A.
(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 361 and 362) or three semester units of course work in calculus. (Mathematics 110 or calculus applies toward the mathematics requirement in 3(a)(4) 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 in $3(\mathrm{a})(2)$ 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 $\mathrm{K}-9$ 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 *
Botany *
Chemistry
Comparative Literature **
Earth Science
Economics
English
Entomology *
French
Geography
Geology
German
History

Journalism
Mathematics
Microbiology *
Music
Philosophy
Physical Science ** (Physics, Chemistry, Geology, Astronomy)
Physics
Political Science
Psychology
Sociology
Spanish
Speech (general)
Theatre Arts
Zoology *

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

Health Science
Home Economics
Industrial Arts

Physical Education
Safety Education

[^12]
## Credentials

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
Nursing

Physical Therapy
Radio-Television
Recreation
Social Welfare
Vocational Education
5. The following professional courses in education:
(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 (3)
EI. Ed. 460 Mathematics in the Elementary School (3)
EI. Ed. 470 Social Studies in the Elementary School (3)
EI. 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 (3)

Ed. Psych. 305 Educational Psychology (3)
EI. 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 may be taken concurrently with El. Ed. 310,
(3) Not more than two of the methods courses should be taken per semester.
(4) Proficiency (shown by test or prescribed course work) in English, mathematics and speech 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. 460 may be taken concurrently with El. Ed. 481 if Mathematics 110 or equivalent has been completed; 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 may be taken concurrently with basic methods courses. The maximum course load is 16 units per semester.
(2) All requirements identified in (4) and (5) above are prerequisites to elementary student teaching.
Any deviation from the prescribed sequence must have prior approval from the Elementary Education Admissions and Standards Committee.

## Elementary Teacher Education Policies and Procedures

1. Admission to elementary teacher education (see Admission to Credential Programs).
Each candidate for the elementary teaching credential must be clear in all required areas, file an application for admission to Elementary Teacher Education and be admitted to the program prior to taking courses beyond El. Ed. 310 and Ed. Psych. 301.

## 2. Registration in required upper division education courses.

Programs of professional education courses should be planned and approved by a faculty member in the Elementary Education Department.

Before acceptance to Elementary Teacher Education each student must achieve a satisfactory score on proficiency tests given by the Office of Testing or successfully complete any appropriate courses in English, mathematics and speech. Students enrolled in the College prior to attaining upper division standing should complete all prescribed elementary proficiency requirements by the end of the sophomore year. If a student enters the College at the upper division level, these proficiency requirements should be completed during the period prior to and/or during the first semester of enrollment.
Undergraduate students are required to complete all proficiency requirements before taking professional education courses beyond El. Ed. 310 and Ed. Psych. 301.

Graduate students are required to complete all proficiency requirements before applying for 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 2.5 or better at this College and a minimum grade of $C$ in each required education course, (3) complete proficiency requirements by appropriate tests or course 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 2.5 or better at this College and a mini-
mum grade of C in each required education course, (3) complete required proficiency tests or appropriate course 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 either El. Ed. 310 or at least one professional education course in reading, social studies, language arts or mathematics.
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, shall be returned to the Elementary Field Experiences office by October 1 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 or Mathematics 110, 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 2.5 or higher. All proficiency requirements must be completed prior to filing the application for elementary student teaching.

Any exceptions to established policy must be approved by the Elementary Education Admissions and Standards Committee.

Following application, the School of Education Credentials Office 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 Field Experiences reviews data and material relating to admission to student teaching.

The Elementary Education Admissions and Standards Committee, upon the Coordinator's recommendation, decides to accept, defer or reject the student for student teaching. The student is notified by the Elementary Field Experiences office of committee action, his teaching assignment, required meeting and other matters pertaining to student teaching.
6. Application for credential. (See previous section. For further information contact Credentials Office, School of Education.)

## 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: Professional programs for reading specialists and education of young children specialists are offered in the School of Education. Information available in that office. An elementary internship program is available.

## 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. 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. (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 in a previous section and at the same time meet the requirements specified below.
(a) Forty-five semester units of course work in four of the following six areas: (1) humanities (English, speech, philosophy and journalism), (2) social sciences (anthropology, economics, geography, history, political science, psychology and sociology), (3) natural sciences (biological and physical sciences), (4) mathematics, (5) fine arts (music, art and theatre arts), and (6) foreign language.
(b) Two semesters of English course work including a course in English composition. (Undergraduates should take English 100 and English 101. English 317 may be substituted for English 101 for students in certain majors.) In addition, all credential candidates must demonstrate competency in advanced English composition either by passing the STEP Writing Test or by completing English 300A.
(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. 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 1 A 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 Collegerecommended credential and will do student teaching only in 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 Taugbt
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*

| A. Single Subject Majors"* | Foreign Languages |
| :--- | :--- |
| Anthropology | (one language) |
| Art - Option III | Geography <br> Biological Sciences *** |
| Chemistry | Geology |
| Earth Sience | History |
| Economics | Journalism |
| English | Mathematics |
|  | Music |

Philosophy Physics
Political Science
Psychology
Sociology
Speech (general)
Theatre Arts

## 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 | Industrial Arts | Safety Education |
| :--- | :--- | :--- |
| Health Science | Physical Education | Vocational Education |

Home Economics
List 3 - Nonacademic - Not Commonly Taught in Public High School
Business Administration** Industrial Technology
Criminology
Engineering

Nursing Physical Therapy

Recreation
Social Welfare

* 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.
** Will be considered a business education credential major if it includes Business Education 100B, 302 and 320.
*** Includes biology, botany, entomology, microbiology and zoology.


## Credentials

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
(All students who plan to do student teaching in mathematics, science, business education, foreign language or any social science area must take Sec. Ed. 480 unless a waiver based on equivalent observation or participation experience is obtained from the Department of Secondary Education.)

## 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. Refer to Sec. Ed. 350 and 450 series in the secondary education section.)

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.

## Sec. Ed. 481A,B. Sfudenf Teaching in Secondary Schools 3,3

## 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. Application cannot be made prior to registration at this College. (See Admission to Credential Programs.) Admission to the program, which qualifies a student to enroll in Sec. Ed. 400 level courses, includes meeting the following requirements:
(a) Be a junior in clear standing ( 60 units accepted by this College) with a satisfactory grade point average.
(b) Have achieved a satisfactory score on the Undergraduate Record Examination.
(c) Have completed one year of English, including a course in English composition.
(d) Have obtained speech clearance by providing assurance of effective speaking, oral reading and voice control through satisfactory performance in an approved speech course or test given by the Testing Office.

## 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 the classification of credential majors offered in relation to the secondary specialization. He is also responsible for consulting his department to plan a program leading to student teaching and to the credential. The criteria which departments may
use in rating and recommending students for secondary student teaching may differ from department to department and students are advised to consult with the department concerned in this matter. 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. If the budgeted resources of the College are inadequate to accept all qualified applicants for student teaching, priority will be given to graduates of CSCLB.

## 4. Program Approval by Minor Department.

The candidate should become familiar with the section of this Bulletin entitled Minors for the Standard Teaching Credential. 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.

Secondary student teaching candidates must meet the minimum scholastic requirement of an overall grade point average of $2.5(\mathrm{C}+)$ or an upper division and graduate grade point average of 2.75 ( $\mathrm{B}-$ ) 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 and Community College Teacher Education Committee will act upon such petitions if evidence exists that compensating factors merit admission to student teaching.

## 6. Summary of Main Requirements for Qualifying for Student Teaching.

To qualify for student teaching, each student must:
(a) Be officially admitted to the secondary teaching education program
(b) Meet health standards
(c) Meet the grade point average requirements of the College and the departments involved in student teaching
(d) Complete the prerequisite professional education program with grades of C or better in all education courses involved
(e) Apply for student teaching prior to the deadline
(f) Have the approval of the department(s) involved and the Secondary and Community College Teacher Education Committee.

## 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 appli-

## Credentials

cation the School of Education Credentials Office 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 and Community College 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. (For further information contact Credentials Office, School of Education.)

## 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.

## STANDARD TEACHING CREDENTIAL WITH A COMMUNITY COLLEGE SPECIALIZATION

The Board of Governors of the California Community Colleges adopted new credential requirements which became effective January 1, 1971. California State College, Long Beach offers programs of study leading to community college credentials, but candidates must apply directly to Chancellor of the California Community Colleges in Sacramento for their credential. Information concerning requirements and application forms may be obtained in the Credentials Office, School of Education, F03-120.

## Community College Teacher Education Policies and Procedures

The community college specialization is designed to meet the requirements for the standard teaching credential and to prepare the candidate to teach at the community college level.

## 1. Admission to the Program.

Each candidate for the community college specialization must file application and be admitted to the program. (See Admission to Secondary Teacher Education.)

## 2. Completion of College Requirements.

(The community college 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 and Community College Teacher Education Committee, which will make the final decision.

## 4. Professional Education for Community College Teaching if Taken as an Elective.

A program of professional education courses including student teaching in a community 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 community 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 community college as shall be approved by the Community College Chancellor's Office and the College.

The program in professional education for community college teaching includes the following:
Ed. Psych. 302 Adolescent Development and Learning 3
Sec. Ed. 510 The Community 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, Sec. Ed. 510 and special methods where available should be taken the semester before student teaching. Under special circumstances, with approval of the Secondary and Community College Teacher Education Committee, Ed. Psych. 302 or Sec. Ed. 510 may be taken concurrently.
Sec. Ed. 483A,B Student Teaching in the Community College 2,2
The steps for admission to community 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. (For information contact Credentials Office, School of Education.)

## Credentials

# 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 Science 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, $321,321 \mathrm{~L}, 422,422 \mathrm{~L}, 423,423 \mathrm{~L}, 460$.
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 School of Education. A program of courses must be completed with a department adviser during the first semester of enrollment. An overall B average must be obtained in this program of courses, with no grade under C in a course required for the credential. 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.

## Credentials

## 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-pupil personnel) and specific course work described below or: a master's degree in social work or rehabilitation counseling or a certificate as a licensed 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, 319, 350.
Basic Requirements: Ed. Psych. 430, 451, 536 or 537, 631 or 632, 639, Psychology 370, Ed. Psych. 311 or Psychology 356, Ed. Psych. 320 or Psychology 315, Ed. Foun. 585 or Psychology 453 or Sociology 336, Ed. Psych. 520 or Sociology 445 or Psychology 311 or 312.
School Counselor Program: Ed. Psych. 533, 605, 615.
Child Welfare and Attendance Program: Ed. Psych. 416, 615, Sociology 345 or 362 or 461.
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 551, Speech 361.
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. For an applicant to qualify for field work at CSCLB, he must have completed 12 units in the credential program at the College or be accepted by the Pupil Personnel Committee.
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 574, 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. School Psychologist Program: Completion of the School Psychometrist Program and Ed. Psych. 554A-B, and two courses selected from Ed. Psych. 533, 605, Psychology 573, 575A-B, 656 or 671.

## Authorization for Service

Authorizations for service are specific to the pattern of the student's elective plan. This credential can be obtained with teaching experience and service limited to pupil counseling, child welfare and attendance and school psychometry or without teaching experience with all areas authorized.

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 basic requirements listed above.
4. Completion of the requirements for the school psychometrist program as specified above will authorize school psychometry.
5. Five units of supervised field experience in the field program specified above.

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 basic requirements specified above, an emphasis in counseling, child welfare and attendance, school psychometry or school psychology and approved electives to complete 60 units.
3. Completion of the requirements for the school psychometrist program as specified above will authorize school psychometry.
4. Completion of the requirements for the school psychology program and verification by the Pupil Personnel Committee that the applicant is a competent school psychologist will authorize school psychology.
5. Ten units of supervised field experience in the field program specified above or completion of the internship program. Students make application for the internship program through the Pupil Personnel Office 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. An internship program must be planned at the time of initial registration in the credential program.

## 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 Science 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

## Credentials

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
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 School of Education Credentials Office 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 vicepresident), (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, Special Education and Library 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 IN THE AREA OF LIBRARIANSHIP

## Admission to Program

Admission to the library education program is through application to the Instructional Media Department. The student planning to enroll in course work in library education should file application the semester prior to enrollment and must secure advisement before taking any course work. To continue courses beyond Library Education 410, the student must be officially admitted to the library education program. Application forms may be obtained from the Instructional Media Department office, the Library Education Coordinator's office or the School of Education.

## 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 librarian and to teach librarianship may be substituted for a minor only when the major is in an academic subject.
(b) Completion of Library Education 481 will satisfy one-half of the student teaching requirement for a standard teaching credential.
2. Thirty units of specialized preparation to include the following:

Requirements: Lib. Ed. 410, 411, 412, 420, 430, 441, 450, 481; I. M. 410.

Electives: Select from the following library education and instructional media courses enough to total 30 units: Lib. Ed. 491, 541; I. M. 510,511 .

## Authorization for Service

A person completing this specialized preparation with either a standard teaching credential with a specialization in elementary, secondary or junior college teaching will be authorized to serve as a librarian in kindergarten and grades 1 through 14.

## Credential with Partial Fulfillment of Requirements

1. Twelve units selected from the library education courses required under (2) above: Lib. Ed. 410, 420, 430, 441, 450.
2. Lib. Ed. 481 (Field Work in School Libraries) is required also.

Students must apply directly to the Commission on Credentials, California State Department of Education, Sacramento.

## Note to Current Credential Holders:

Students who hold a valid California regular teaching credential prior to admission to the program must complete only the specialized preparation to serve as a librarian or to teach librarianship in California public schools.

## Certificate of Completion

For those who are not primarily interested in obtaining a teaching credential a combination of courses in library education and instructional media will be recognized by the School of Education and Instructional Media Department through a Certificate of Completion. Ask an adviser for further information.

## SPECIALIZED PREPARATION TO TEACH THE MENTALLY RETARDED

## Admission to Program

Admission to the program for the credential to teach the mentally retarded is by application to the Special Education Office through the Credentials Office of the School of Education 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 or secondary teaching specialization or toward an undergraduate baccalaureate degree. Students may plan enrollment leading to a credential in one of the three following programs:
Plan A: Authorization to teach the mentally retarded based upon a Standard Teaching Credential with an elementary or secondary specialization, only if the major is in an academic field.

1. Completion of the requirements for the standard teaching credential with either an elementary or secondary teaching specialization.
2. Thirty-five units of specialized preparation to include the following: Requirements: Ed. Psych. 301 or 302, 305, 350, 360A, 435, 461, 463, 464, 465, 466; Speech 361; Art 306A.
Electives: Selected from courses in the special education area of educational psychology. Other electives may be selected upon approval of an adviser.
3. Completion of Ed. Psych. 484B-Student Teaching Educable Mentally Retarded (4) or Ed. Psych. 484A-Student Teaching Trainable Mentally Retarded (4) which will satisfy one-half of the student teaching requirement for a standard teaching credential.

## Authorization for Service

A person completing this specialized preparation will be authorized to teach mentally retarded children in elementary or secondary schools.
Plan B: Restricted teaching credential authorizing service as a teacher of the educable mentally retarded

1. Completion of requirements toward an undergraduate baccalaureate degree. The following undergraduate majors are recommended: psychology, sociology, social welfare, speech, recreation, physical education, fine arts or others determined in advisement,
2. Thirty-three units of specialization to include the following:

Requirements: Ed. Psych. 301 or 302, 305, 350, 360A, 435, 451, 461, 464, 465, 466; Speech 361.
Electives: Selected from courses in the special education area of educational psychology. Other electives may be selected upon approval of an adviser.

## Credentials

3. Completion of Ed. Psych. 484B-Student Teaching Educable Mentally Retarded (8)
4. A fifth year of college postgraduate education:
(a) Thirty semester hours of upper division or graduate level course work, or
(b) Master of Science degree in Special Education

A person completing this specialized preparation will be authorized to teach educable mentally retarded children in elementary or secondary schools.
Plan C: Restricted teaching credential authorizing service as a teacher of the trainable mentally retarded

1. Completion of requirements toward an undergraduate baccalaureate degree. The following undergraduate majors are recommended: psychology, sociology, social welfare, speech, recreation, physical education, fine arts or others determined in advisement.
2. Twenty-nine units of specialization (which may be completed concurrent with a baccalaureate degree) to include the following:

Requirements: Ed. Psych. 301, 305, 350, 360A, 435, 461, 463, 464; Speech 361; Art 306A.
Electives: Selected from courses in the special education area of educational psychology. Other electives may be selected upon approval of an adviser.
3. Completion of Ed. Psych. 484A-Student Teaching Trainable Mentally Retarded (8)

A person completing this specialized preparation will be authorized to teach trainable mentally retarded children in elementary or secondary schools.
Application for this credential under plans B and C is to be made directly to the State Department of Education, Certification Office, 721 Capitol Mall, Sacramento, California 95814.

## SPECIALIZED PREPARATION IN THE AREA OF SPEECH AND HEARING HANDICAPPED

Several different patterns of preparation may be followed to achieve authorization to serve as a speech and hearing specialist in the public schools of California. Interested students are urged to seek counseling from a faculty member of the speech pathology-audiology area of the Speech Department prior to deciding which program of preparation they intend to follow.

## Admission to Program

The student planning to enroll in one of the patterns of specialized preparation to serve as a speech and hearing specialist should file his application with the speech pathology-audiology area of 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 requirements for the standard teaching credentials.
Pattern I-Specialized Preparation Combined with a Standard Teaching Credential, if the Major Is in an Academic Field.

## 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 with a major in an academic field.
(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 pathology-audiology area credential advisers before selecting an academic major.
(b) Completion of Speech 469 (two units), 479 (one unit) and Ed. Psych. 484 I (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 pathology-audiology area 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 pathology-audiology area advisers for the specific education courses required.
2. Forty-seven units of specialized preparation to include the following: Speech $361,371,448,461,465,466,469$ (two units), 471, 472, 473, 476, 477, 479 (one unit), 564, 570, Psychology 370, Ed. Psych. 350, 484I (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 community college teaching will be authorized to teach speech and hearing handicapped children in grades 7 through 14 , inclusive.
Pattern II-Restricted Credential Authorizing Service as a Speech and Hearing Specialist. Obtained upon direct application to Sacramento.

## Credentials

## General Requirements

1. A baccalaureate degree with a major in speech with a concentration in speech pathology or its equivalent.
2. A fifth year of postgraduate education which shall include 30 units of upper division or graduate level course work or a master's degree in speech with a concentration in speech pathology.

## Specific Requirements

Specialized preparation for this restricted credential to serve as a speech and hearing specialist shall include 62 units of course work and clinical practice as follows. These units may be included as part of the baccalaureate degree program and the year of postgraduate education or master's degree program.

1. Course work: Speech $361,371,448,461,465,466,471,472,473,474$, $475,476,477,564,570$; Ed. Psych. 301 or 302, 350, 451;'El. Ed. 310 or Sec. Ed. 310; Psychology 370.
2. Clinical practice, including 275 clock hours of clinical practice with speech, hearing or speech and hearing handicapped children; Speech 469 (three units)-student may substitute one or two units of Speech 669 for one or two units of the Speech 469 requirement, 479 (one unit), Ed. Psych. 484 I (4 units).

## Authorization for Service

The holder of this credential may provide service at all grade levels, but is restricted to service only as a speech and hearing specialist. This type of service includes activities such as: identification, assessment, and placement of pupils with disorders of speech, hearing and language; speech and language therapy for pupils with such disorders; specialized instruction for pupils on all grade levels who have such disorders, and counseling of parents, teachers, other school personnel and specialists in the community with respect to a pupil's handicap.
Pattern III-Specialized Preparation for Holders of Current Regular Credentials
The holder of a valid California regular general elementary, general secondary or community college teaching credential needs to complete only the specialized preparation specified under Pattern I to secure a standard teaching credential valid for life on the level to correspond to his basic teaching credential (Education Code Section 13197.55).

MAJORS AND MINORS FOR THE STANDARD TEACHING CREDENTIAL

| Subject field | Acceptable as a MAJOR for |  | Acceptable as a MINOR for ${ }^{5}$ |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Elem. | Sec. ${ }^{4}$ | Elem. | Sec. |
| Anthropology .--.-.---.-.- | yes | yes ${ }^{1}$ | yes | yes ${ }^{1}$ |
| Art (See appropriate option) | yes | yes | yes | yes |
| Asian Studies..- | no yes | no | yes yes | yes yes |
| Botany (See Biology) |  |  |  |  |
| Business Education. | no ${ }^{3}$ | yes ${ }^{5}$ | no ${ }^{8}$ | yes |
| Chemistry.-.----.-.- | yes | yes | yes | yes |
| Comparative Literature | yes | yes | no | no |
| Criminology - | no | no | no | no |
| Dance --.. | no | no | yes | yes |
| Earth Science | yes | yes | no | no |
| Economics. | yes | yes | yes | yes |
| English | yes | yes | yes | yes |
| French -- | yes | yes | yes | yes |
| Geography | yes | yes | yes | yes |
| Geology. | yes | yes | yes | yes |
| German | yes | yes | yes | yes |
| Health Science. | no ${ }^{3}$ | yes ${ }^{5}$ | yes | yes |
| History | yes | yes | yes | yes |
| Home Economics | no ${ }^{2}$ | yes ${ }^{5}$ | yes | yes |
| Industrial Arts. | no ${ }^{3}$ | yes ${ }^{5}$ | yes | yes |
| Journalism.-- | yes | yes | no ${ }^{5}$ | yes |
| Library Education | no | no | yes | yes |
| Mathematics_ |  |  | yes |  |
| Microbiology | yes yes | yes ${ }^{1}$ | yes yes | yes ${ }^{1}$ yes |
| Music.--- | yes | yes | yes | yes |
| Philosophy | yes | yes ${ }^{1}$ | yes | yes ${ }^{1}$ |
| Physical Education (See appropriate option) | no ${ }^{3}$ | yes ${ }^{5}$ | yes | yes |
| Physical Science...--- | yes | yes | no | no |
| Physical Therapy | no | no | no | no |
| Physics_..--.-- | yes | yes | yes | yes |
| Political Science. | yes | yes | yes | yes |
| Psychology... | yes | yes ${ }^{1}$ | yes | yes ${ }^{1}$ |
| Recreation...-. | no ${ }^{3}$ | yes ${ }^{7}$ | no ${ }^{6}$ | no ${ }^{6}$ |
| Safety Education. | no ${ }^{3}$ | no | yes | yes |
| Sociology |  | yes ${ }^{1}$ | yes | yes ${ }^{1}$ |
| Spanish_. | yes | yes | yes | yes |
| Speech (general) | yes | yes | yes | yes |
| Theatre Arts --....-. | yes | yes | yes | yes |
| Zoology (See Biology) |  |  |  |  |

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# MINORS AND ADDITIONAL MAJOR REQUIREMENTS FOR THE STANDARD TEACHING CREDENTIAL 

## Anthropology

Minor Requirements. The minor in anthropology for a teaching credential requires a minimum of 20 units and must include:
Lower Division: Anthropology 110, 120.
Upper Division: Three units selected from each of the following combinations: (a) Anthropology 305, 307, 360, 361, 403, 405, 411, 413, 414, 415, 416, 496; (b) Anthropology 321, 322, 323, 324, 325, 327, 331, 332, 333, 334, 336; (c) Anthropology 341, 342, 345, 347; six units of anthropology electives.

## Art

## Major Requirements Beyond Degree Requirements

Major for the Secondary Teaching Credential. Other specific requirements are Art 401 which must be completed for the A.B. degree and Art 499P and Sec. Ed. 450A 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, 401.

Minor Requirements.
Elementary Specialization: 20 units which must include Art 300, 401 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 401, 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.

## Asian Studies

The minor in Asian Studies is offered to encourage and promote the study of Asian cultures and civilizations with a specialization in China, India or Japan.
Minor Requirements. A minimum of 20 units which must include: (a) two semesters of Asian language related to the area of concentration and (b) 18 units selected from the following three groups with a concentration of 12 units from one group and six units from one or both of the other groups selected in consultation with the student's adviser.

Group I: Art 113B, 319A-B, 494A-B, 499Q (China-Japan); Anthropology 332; Comparative Literature $325^{*}$, 439; Economics 362, 367; Geography 313; History 181A,B, 382A,B, 488; Philosophy 306; Political Science 341, 390; Religious Studies 152, 341, 343; Theatre Arts 325 *.
Group II: Art 113A ,415A-B, 491, 492, 499Q (India); Anthropology 333; Comparative Literature $325^{*}$, 439; Economics 362; Geography 314; History 181A,B, 385A,B, $481^{* *}$; Indic 335; Music 295E; Philosophy 307; Political Science 341, 390; Religious Studies 152, 341, 343, 481 **; Theatre Arts 325 *.
Group III: Art 113B, 319A-B, 494A-B, 499Q (China-Japan); Anthropology 332; Comparative Literature $325^{*}$, 439; Economics 362; Geography 313; History 181A,B, 383A,B, 487; Philosophy 306; Political Science 341, 390; Religious Studies 152, 341, 343; Theatre Arts $325^{*}$.
Courses used to meet the minimum of 20 units required in the Asian studies minor cannot be used to satisfy minimum requirements for the degree major or for the general education program.

## Biology

Major Requirements for the Elementary Teaching Credential. Any four units of upper division or graduate work in biological sciences in addition to the 24 units of upper division biological sciences required for the baccalaureate degree.
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 or 201.
Non-Secretarial: Bus. Ed. 100B, 130, 320, Accounting 200A-B or 201, Finance 302, 322, 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.

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## Credentials

## Chemistry

Minor Requirements. A minimum of 20 units of chemistry which must include Chemistry 111A-B.

## Dance

Secondary and Junior College Specializations. 21 units which must include: Dance 107, 108, 109, 220, 320, 331, 441, 490.

## Economics

## Minor Requirements.

Elementary Specialization. 21 units which must include Economics 200 and 201.*
Secondary Specialization. 21 units which must include Economics 200, $201, * 310,311$ or 320 , and one of the following: $360,361,368,412$.

## English

Minor Requirements. A minimum of 20 units which must include: (a) one course selected from English 101, 184, 205, 206, 300A, B, 405, 406, (b) one course selected from English 320, 321A-B, 323, (c) elementary candidates, English 481; secondary candidates, English 482, (d) two courses selected from English 250A,B, 370A,B, (e) English electives to total 20 units except that English 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, 360, 444, 452, 466, 470.

## Minor Requirements.

## Geology

Elementary and Secondary Specializations: 20 units which must include:
Lower Division: Geology 102, 103, 104, 221, 223.
Upper Division: Eight units of geology. Students having non-academic majors must have 12 upper division units in geology.

## German

Minor Requirements. A minimum of 20 units which must include: German 301A, 301B, 305.

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## Health Science

Minor Requirements. A minimum of 23 units which must include:
Lower Division: Microbiology 101.
Upper Division: Health Science 321 or 322, 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) environmental factors: housing and interiors, (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) electricity-electronics, (d) drawing, (e) graphic arts, (f) automotive, (g) industrial crafts-plastics, (h) photography. 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 an adviser in the Industrial Arts Department.

## Journalism

Requirements in the Major for the Elementary or Secondary Specialization. The major in journalism for the secondary specialization re-

## Credentials

quires a minimum of 27 units of upper division work. Course requirements for the journalism teaching major are as follows:
Lower Division: Journalism 110, 120, 140 and 230.
Upper Division: Journalism 322A, 342A, 370, 410, 460, and 14 units selected from Journalism 320, 322B, 342B, 350, 352, 355, 420, 430 or 499.

Minor Requirements. A minimum of 23 units ( 15 units in upper division) which must include:
Lower Division: Journalism 110, 120, 140, 230.
Upper Division: Three units selected from Journalism 322A or B, 342A or B, 422 A or B; nine units selected from Journalism 350, 352, 355, 370 or 460.

## Latin

Minor Requirements. A minimum of 20 units which must include Latin 331, 332, 341, 342. A teacher credential candidate who desires to have this minor listed on his credential must make application through Sacramento.

## 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.

## 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) $360 \mathrm{~A}-\mathrm{B}$ or (c) 452 and 453.

## Music

Recommended Electives for the Major in Music.
For the bachelor of music degree, see instrumental or choral-vocal option patterns in the degree section. For the bachelor of arts degree the student planning to teach music should complete the degree major with the course pattern of one of the three following areas: (a) secondary vocal music-Music 327, 421, 422, 483A,B, (b) secondary instrumental music-Music $425 \mathrm{~A}-\mathrm{B}, 482 \mathrm{~A}, \mathrm{~B}$, and units by advisement from Music 125 and/or 325, (c) elementary school music-Music 381, 382, 383, 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, 280,260 or 390,421 or 425 A , and six units selected by advisement from Music 120A-B, 220A-B, 122A-B, 125, 320, 322 and 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.

## Physical Education

Minor Requirements.
Elementary Specialization: 20-21 units as follows: Physical Education 270, 271, 373, 374, 378, 470, 490; Women's Physical Education 321 or Men's Physical Education 488; Women's P.E. 421 or Men's P.E. 315; Women's P.E. 321 or Men's P.E. 321.

## Women's Physical Education

Secondary Specialization. 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; Sec. Ed. 456P, 481.

## Men's Physical Education

Additional Requirements in the Major for the Secondary Specialization. The major in men's physical education for the secondary specialization is the same as for the bachelor of arts degree with the additional requirement of Sec. Ed. 455p.
Minor Requirements. 20 units which must include: Men's Physical Education 111, 204, 310, 390; nine units selected from the following: P.E. 160 , Men's P.E. 146, 241, 242, 243, 244, 246. In addition, Sec. Ed. 455p must be taken prior to student teaching.

## 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.

## Political Science

## Minor Requirements.

Elementary Specialization. A minimum of 21 units which must include: Political Science 100 or 421,109 or 200A, 425, 430.

## Credentials

Secondary Specialization. A minimum of 21 units which must include: Political Science 100 or 421,109 or 200A, and five courses selected from Political Science 300, 330, 375, 400, 425, 430, 460.

## Psychology

Minor Requirements. A minimum of 20 units which must include:
Lower Division: Psychology 100, 221A, 221B.
Upper Division: Either of the following: (a) 321 or 322 or (b) 351 or 370; and one of the following: Psychology 331, 333, 337, 341.

## Recreation

Minor Requirements. A minimum of 20 units approved by departmental adviser which must include: Recreation 211, 217, 241, 312, 315, 425; 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: Industrial Technology 307; Safety Education 321, 321L, $422,422 \mathrm{~L}, 423,423 \mathrm{~L} ; 7$ units of electives selected from the following: P.E. 248, Health Education 327, Criminology 271, 455, C.E. 429, Safety Education 335, Industrial Arts 161.

## 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, 356, 368, 410, 419, 420, 422, 425, 428, 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 Theatre Arts 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.

## Credentials

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, 446, 447, 449, (c) 371 or 448 .

Recommended Courses: Sec. Ed. 450S, Theatre Arts 372, Speech 236 or 336 .

## Theatre Arts

Minor Requirements. A minimum of 20 units which must include:
Lower Division: Theatre Arts 114, 124, 242.
Upper Division: Theatre Arts 314, 372, secondary candidates 340A, 374 and 474 ; elementary candidates 352,353 and 354 .


## SCHOOLً OF ENGINEERING

Administrative Officers<br>Dr. Richard C. Potter<br>Mr. Rodney C. Lewis<br>Dean of the School<br>Engr. 1-104<br>Associate Dean<br>Engr. 1-108

Directory of Departments

Department
Civil Engineering
Electrical Engineering Mechanical Engineering

Chairman Mr. Willard H. Reed Engr. 2-101
Mr. Robert W. Winchell Engr. 1-406
Dr. James L. Dyer
Engr. 1-207

## SCHOOL OF ENGINEERING

## Emeritus: Robert E. Vivian

## CIVIL ENGINEERING DEPARTMENT

Professors: Alexander, Armour, McIlvaine, Mostafa, Neidengard. Associate Professors: Al-Chalabi, Bakker, Chelapati, Dudley, Eshett, King, C., Reed, W., Yen, Ying, Zagustin.

## ELECTRICAL ENGINEERING DEPARTMENT

Professors: Hill, J., Houde, Lewis, R., MacMillan, Washburn, Winchell, R. W.
Associate Professors: Arnett, Cain, G., Frankland, Goldman, Jordanides, Kendall, L., Lane, Patrick, Schwartz, M., Strawn.
Assistant Professors: Carissimo, Evans, E. N., Hostetter, Paal, Swarthout.

## MECHANICAL ENGINEERING DEPARTMENT

Professors: Gold, Leutwiler, Potter, Tsao.
Associate Professors: Dyer, deSoto, Edelman, Gilpin, Goff, Jorgensen, Kundis, Kyle, Mijares, Miller, Roman, Sungu, Torby, Unt, VanderMeyden.
Assistant Professor: Kellam.

## CHEMICAL ENGINEERING

Associate Professor: Reeds, J.
Assistant Professor: Hile.

## SCHOOL OF ENGINEERING

The School 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 master of science degree is offered in civil, electrical and mechanical engineering, and an interdisciplinary degree, the master of science degree in engineering, is offered also. Information on these graduate degrees is obtainable in the Graduate Bulletin. The undergraduate program includes a minimum of 132 semester units and provides opportunity in the upper division to specialize in options in the areas of chemical, civil, electrical, industrialmanagement, materials, mechanical and ocean engineering. For administrative purposes the School of Engineering includes departments of civil, mechanical and electrical engineering. New options that are of an interdisciplinary nature are initially administered by the office of the dean of the School of Engineering. The options in civil, mechanical and electrical engineering were accredited by the Engineers' Council for Professional Development in 1963. Materials engineering was offered for the first time in the fall of 1966. The industrial-management option is a new option first offered in the fall of 1968 and the ocean engineering option in the fall of 1969. 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.
A cooperative college-industry program, whereby a student may divide his time between taking classes and obtaining practical engineering experience, is now in operation under an agreement with certain local industries.

## Engineering Advisory and Development Council

The Professional Advisory Council for the School of Engineering government in the area served by California State College, Long Beach. 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 membership consists of the following:

Mr. Raymond F. Berbower, Assistant General Manager,
Port of Long Beach
Mr. Hobart A. Cress, Division Chief,
Long Beach Ocean Engineering Facility, Battelle Memorial Institute
Mr. Warren H. Eckert, Attorney at Law,
Taubman, Simpson, Young and Eckert
Dr. Manuel N. Mayuga, Assistant Director,
Department of Oil Properties, City of Long Beach
Dr. Jack E. McKee, Professor, Environmental Health Engineering,
California Institute of Technology
Mr. William J. Neff, Vice President for Sales and Services,
Western Region, Trans-World Airlines
Mr. Robert D. Nichol,
Moffat and Nichol Engineers
Mr. Charles R. Strang, Director, Technical Services, Douglas Aircraft Company 3677
Dr. Edward Van Driest, Professor of Engineering, Virginia Polytechnic Institute
Dr. Robert E. Vivian, Dean Emeritus
CSCLB School of Engineering
Mr. Donald A. Voorhees, General Manager, Golden Gate Fields
Mr. Donald P. Walker, Vice President Farmers and Merchants Bank
Mr. Fred Wunderlich, Area Engineer Guy F. Atkinson Company
Dr. Russell Riese, Chief Higher Education Specialist Coordinating Council for Higher Education

## ENGINEERING FACILITIES

The engineering buildings house the School of Engineering and permit all engineering laboratory and design facilities, school and departmental offices and faculty offices to be grouped in a central location. A new five-story engineering building completed in the spring of 1971 provides ample laboratory, classroom and office space for expanding programs. The engineering building complex includes laboratory facilities in each of the instructional areas described in the following paragraphs.

## School of Engineering

## Bachelor of Science in Chemical Engineering

Chemical engineering is concerned with the conversion of chemical materials into products of increased economic utility and benefit to consumers.
The chemical engineering curriculum gives the student a thorough background in chemistry, mathematics, physics, engineering science, and engineering design and analysis to be applied to current technical problems as well as potential technical problems that might arise in the future. The objectives are to serve as preparation for immediate employ-

## Engineering

ment as a chemical engineer in industry, to provide a basis for later graduate study and research or to offer a background for possible advanced study in business administration, marketing or law.
All chemical engineering students must have received a minimum grade of C in each of the prerequisites for any chemical engineering course. In addition to any other all-college requirements regarding grade point average for graduation, a chemical engineering student must achieve a minimum 2.0 average in all chemical engineering courses attempted.

## Industrial-Management Engineering Option

In addition to departmental programs, the School of Engineering offers an option in industrial-management engineering that is designed to prepare graduates for responsible engineering positions in the growing field of technical management. The option is of a highly interdisciplinary nature having a number of courses from the School of Business Administration in the curriculum. The option is composed of a core of mathematics, physics and engineering science supplemented by courses in business law, economics, statistics, accounting, management, operations research, processing and production control.

## Ocean Engineering Option

Also under the direction of the School of Engineering is a new option in ocean engineering. It includes a background in engineering fundamentals, mathematics and natural science and concerns the engineering aspects of corrosion, fluid forces, acoustics, instrumentation, information systems and other ocean-related topics.
Programs offered by the School of Engineering normally make use of the laboratory facilities operated by the departments.

## 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 analysis and design, transportation systems, environmental systems, soils and foundations, hydraulic and coastal engineeering, construction materials and urban 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 four engineering buildings house laboratory facilities in fluid mechanics and hydraulics, materials of construction, transportation, soils and foundations, structures, photo measurement, surveying, urban and environmental engineering.

## Civil Engineering Professional Advisory Council

The Civil Engineering Professional Advisory Council provides a major link between the department and the community served by the College. It provides for an exchange of ideas essential to optimum performance and understanding. The council assists the department as appropriate and recommends on matters pertinent to the graduate and undergraduate programs at the College. The council consists of the following members:

Mr. William J. Carroll, James M. Montgomery Consulting Engineers, Inc.
Mr. John Curtis, Southern California Rapid Transit District
Mr. Elias J. Garcia, City of Garden Grove
Mr. Frank B. Harvie, The Fluor Corporation
Mr. Bruce Hecox, Port of Long Beach
Mr. Bob N. Hoffmaster, Harbor Department, City of Long Beach
Mr. Edward A. Killingsworth, Killingsworth-Brady and Associates
Mr. Robert L. McNeill, Woodward-Clyde \& Associates
Mr. John Martin, John A. Martin \& Associates
Mr. John Maulding, Los Angeles County Department of Engineers
Mrs. Adele Miller, Los Angeles County Road Department
Mr. H. G. Osborne, Orange County Flood Control District
Mr. Donald Van Norman Roberts, Dames and Moore Consulting Engineers
President, CSCLB Student Chapter American Society of Civil Engineers
Immediate Past President, CSCLB Student Chapter American Society of Civil Engineers

## Electrical Engineering Department

## Computer Engineering Option

The Electrical Engineering Department offers an option in computer engineering which has curriculum similar to the electrical engineering option, but allowing the student to acquire substantive competence in computer sciences and related fields, similar in content to that acquired in a typical computer science department. The program builds upon a strong base of mathematics, physics and engineering science. It includes a core of standard electrical engineering courses as well as courses in digital systems and circuitry, programming languages and computer applications. Opportunity to explore a particular area of interest is provided by elective units in the senior year.
Laboratory facilities in the field of electrical engineering and digital circuitry are available in the engineering building. Campus computers plus a tie-in with the California State Colleges, Southern Regional Data Center provide ample computing facilities.
No computer 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

## Engineering

regarding grade point averages for graduation, a computer engineering student must achieve a minimum 2.0 average in all electrical engineering courses attempted.

## Electrical Engineering Option

The option in electrical engineering is designed to prepare graduates for responsible engineering positions in design, development, research, applications and operation in the field of electronic circuits, physical electronics, electromagnetics, underwater acoustics and instrumentation and information theory. 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 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

Modern engineering applications in all fields require new materials having properties well beyond those obtainable with the alloys available several years ago. New materials are needed for such diverse applications as the supersonic air transports, undersea deep submergence vessels, magnetic tapes and semiconducting devices. Scientific knowledge in this area has expanded recently at a rate comparable to that experienced by the field of electronics, and materials options are being offered throughout the country to satisfy the demand for materials oriented engineers.

Course work is directed toward the understanding of the properties of materials in terms of their atomic structure, and emphasis is placed on the behavior of materials in engineering applications. The laboratories have excellent equipment for studies in this field and include facilities for the determination of crystal structure, microscopic and X-ray diffraction examination of solids, thermal and mechanical treatment and the determination of properties at low and high 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 enginerring option

Lower Division: C.E. 101, 205, 206, 225; M.E. 172; E.E. 210; 9 units of physics selected from 110, 120, 230, 240; Mathematics 122, 123, 224; Chemistry 111A, Chemistry 111B or 377 or Ch.E. 300.
Upper Division: Mathematics 370A; C.E. 301A,B, 305, 328, 335, 345, 358, 406, 409, 455, 458, 459, 464, 490A,B; Geology 370; M.E. 330, 371, 373; any five laboratories selected from C.E. 102, 336, 346, 404; M.E. 323, 331, 374, or E.E. 210L; a course in economics; electives to total 132 units, including no fewer than six units of civil engineering courses not specified for the degree.

## COMPUTER ENGINEERING OPTION

Lower Division: C.E. 101, 102; M.E. 172; Physics 110, 230, 240; Mathematics 122, 123, 224; Chemistry 111A; Ch.E. 300; E.E. 102, 102L, 210, 210L, 240L, 241.
Upper Division: Economics 300; Mathematics 370A; C.E. 301A,B, 406; M.E. 330, 331, 371; E.E. 310, 320, 330, 330L, 340, 360, 410, 431, 431L, $440,442,445,470,470 \mathrm{~L}$, approved electives to total 132 units.

## ELECTRICAL ENGINEERING OPTION

Lower Division: C.E. 101, 102; M.E. 172; Physics 110, 230, 240; Mathematics $122,123,224$; Chemistry $111 \mathrm{~A}, 111 \mathrm{~B}$ (or Ch.E. 300 or 3 units of approved chemistry); E.E. 102, 102L, 210, 210L, 240L, 241.
Upper Division: Economics 300; Mathematics 370A; C.E. 301A,B, 406; M.E. 330, 331, 371; E.E. 310, 320, 330, 330L, 360, 410, 430, 430L (or $431,431 \mathrm{~L}$ ) , 450, $450 \mathrm{~L}, 470,470 \mathrm{~L}$; approved electives to total 132 units.

## ENGINEERING MATERIALS OPTION

Lower Division: M.E. 172, 205, 222, 272; C.E. 101, 205; E.E. 210, 210L; Physics 110, 230, 240; Mathematics 122, 123, 224; Chemistry 111A-B. Upper Division: M.E. 322, 323, 330, 371, 373, 374, 375, 421, 423, 425, 427; E.E. 420A; C.E. 301A,B, 406; Chemistry 371A-B; Economics 300; Mathematics 370 A ; approved electives to total 132 units.

## industrial management option

Lower Division: M.E. 172, 205, 222; C.E. 101, 205; E.E. 210, 210L; Physics 110, 230, 240; Mathematics 122, 123, 224; Chemistry 111A, 111B (or 381 or 3 units of approved chemistry); Accounting 201.

Upper Division: M.E. 330, 331, 371, 373; C.E. 301A-B, 406; E.E. 330, 330L, 480; Mathematics 370A; Economics 300; Finance 322, 324, 362; Management 300, 402; Operations Research and Statistics 342, 460; and 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, 230, 240; Mathematics 122, 123, 224; Chemistry 111A, 111B (or 381 or 3 units of approved chemistry).
Upper Division: M.E. 322, 323, 330, 331, 336, 337, 371, 373, 374, 375, 471, 472; C.E. 301A,B, 335, 336, 406; E.E. 310, 330, 330L; Mathematics 370A; Economics 300; approved electives to total 132 units.

## ocean engineering option

Lower Division: Biology 201; Chemistry 111A, 111B (or Ch:E. 300 or 3 units of approved chemistry); Physics 110, 230, 240; Mathematics 122, 123, 224; C.E. 101, 205; E.E. 210, 210L, 265; M.E. 172; C.E. 206 or E.E. 240 or M.E. 205.
Upper Division: Mathematics 370A; Geology 462; C.E. 301A,B, 335, 336, 406, 468; E.E. 310, 330, 330L, 365, 425; M.E. 330, 331, 371, 373, 426 , to total a minimum of 132 units.

## bachelor of science degree in chemical enginerring

Lower Division: Chemistry 111A-B, 251, 251L; C.E. 101, 205; E.E. 210, 210L; Mathematics 122, 123, 224; Physics 110, 120, 230, 240.
Upper Division: Ch.E. 300, 305, 310, 320, 330, 410, 420, 430, 440, 450, 460, 470; Chemistry 321A, 322, 371A-B; Mathematics 370A; 3 units of economics; 3 approved elective units in chemical, civil, electrical or mechanical engineering; 3 units of technical writing; approved electives to total 132 units.

## CHEMICAL ENGINEERING

## UPPER DIVISION

300. Chemical Engineering Fundamentals (3) F,S Reeds

Prerequisites: Chemistry 111A, Mathematics 123, Physics 120, consent of instructor. Dimensional analysis of units, steady and transient balances of mass, momentum and energy, the mathematical solution of chemical engineeering problems. (Lecture, problems 3 hours.) Not open to students with credit in Chemistry 381.
305. Computer Methods in Chemistry (2) F, S Hile, Reeds

Prerequisites: Chemistry 111A-B, Mathematics 224, Physics 120 . Beginning Fortran programming applied to typical problems in chemical engineering and chemistry. (Lecture 1 hour, laboratory 3 hours.) Not open to students with credit in Chemistry 385 .

## 310. Chemical Engineering Thermodynamics I (3) S Hile, Reeds

Prerequisite: Chemistry 371A. Thermodynamics of real gases and liquids including molecular thermodynamics and statistical concepts. (Lecture, problems 3 hours.) Not open to students with credit in Chemistry 384.

## 320. Fluids (3) 5 Hile, Reeds

Prerequisites: Ch.E. 300, Chemistry 371A, C.E. 205, Mathematics 370A. Study of the deformation and flow of fluids. (Lecture, problems 3 hours.) Not open to students with credit in Chemistry 382.

## 330. Separation Processes (4) S Hile

Prerequisites: Ch.E. 300, 305; Chemistry 371A. Computational methods for predicting the separation of materials by absorption, distillation, extraction, reverse osmosis and other methods. (Lecture 3 hours, laboratory 3 hours.) Not open to students with credit in Chemistry 383.
410. Chemical Engineering Thermodynamics II (3) F Reeds

Prerequisite: Ch.E. 310. Multiphase properties including advanced equations of state. (Lecture, problems 3 hours.) Not open to students with credit in Chemistry 484.

## 420. Heat and Mass Transport (3) F Hile, Reeds

Prerequisite: Ch.E. 320. Heat exchange by conduction, convection and radiation. Diffusion in fluids and solids. Simultaneous heat and mass transport. (Lecture, problems 3 hours.) Not open to students with credit in Chemistry 382.

## 430. Chemical Reactor Kinetics (3) $F$ Hile

Prerequisites: Chemistry 371A-B. Homogeneous and heterogeneous reaction and reaction mechanisms. (Lecture, problems 3 hours.) Not open to students with credit in Chemistry 487.

## 440. Chemical Engineering Laboratory I (2) $F$ Hile

Prerequisites: Ch.E. 310, 320, 330. Laboratory study of fluid mechanics, separation processes and thermodynamics. Experimental design and analysis and preparation of engineering reports. (Laboratory 6 hours.) Not open to students with credit in Chemistry 482.

## 450. Chemical Engineering Laboratory II (2) $\mathbf{S}$ Hile

Prerequisites: Ch.E. 420, 430, 440, 460 (may be taken concurrently). Laboratory study of heat and mass transport, chemical kinetics and control theory. (Laboratory 6 hours.) Not open to students with credit in Chemistry 483.
460. Chemical Process Control (3) S Reeds

Prerequisites: Ch.E. 420, 430; E.E. 210, 210L. Control theory and practice including electrical analogs of processes, root-locus and Bode plots and stability criteria. (Lecture, problems 3 hours.) Not open to students with credit in Chemistry 485.

## 470. Chemical Engineering Design (4) $S$ Reeds

Prerequisites: Ch.E. 310, 330, 420, 430. Design based upon economics and chemical engineering design and analysis. (Lecture 3 hours, problem-design session 3 hours.) Not open to students with credit in Chemistry 486.

## 475. Environmental Pollution (3) On demand Reeds

Prerequisites: Chemistry 321B or 322, 371A-B. Application of chemistry to the problems of pollution. (Lecture 3 hours.)
480. Theoretical Methods in Chemical Engineering (3) On demand Hile

Prerequisites: Ch.E. 305, 310, 420, 430. Simulation and optimization of chemical engineering processes by mathematical formulation and computer modeling. (Lecture, problems 3 hours.)

## 490. Special Topics in Chemical Engineering (1-3) On demand Hile, Reeds

Prerequisites: Senior standing in chemical engineering and consent of instructor. Selected topics from recent advances in chemical engineering. Course content will vary from year to year and may be repeated once for credit. Specific topic will be recorded on the transcript of the student.

## CIVIL ENGINEERING

## LOWER DIVISION

## 101. Introduction to Engineering and Engineering Design (1) F, S Armour, Mellvaine, Reed

Elementary application of engineering methods to case histories. (Lecture-problems 1 hour.)
102. Introduction to Engineering Design Laboratory (1) F, S Mcllvaine, Reed

Prerequisite: C.E. 101 or concurrent registration in C.E. 101. Experimental design of a device or a subsystem. The problems selected will involve more than a single engineering discipline and will usually be oriented toward engineering problems on the campus or in the community. Limited to freshmen. (Laboratory 3 hours.)

## 151. Fundamentals of Architecture I (2) $S$ Neidengard

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. Materials of Engineering Construction (2) On demand Alexander, Reed

Prerequisites: Chemistry 111A, lower division physics. Use, properties and limitations of materials of engineering construction. (Lecture-problems 2 hours, field trips.)
205. Analytical Mechanics I (Statics) (3) F, S Chelapati, King, Zagustin

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) $\mathbf{F}, \mathbf{S}$ Ying

Prerequisites: Mathematics 122, Physics 110. Introduction to Fortran programming and application of computers to elementary civil engineering problems. (Laboratory 3 hours.)

## 225. Surveying and Mapping (3) F, S Bakker, Reed

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

## 301 A,B. Engineering Forum ( 0,0 ) F, S Dudley, Mcllvaine, Reed

Discussion and presentation by students, alumni, faculty, visiting engineers and engineering organizations.

## 305. Engineering Reports (3) F,S Neidengard

Prerequisite: English composition. Preparation and presentation of the various reports and communications relative to the practice of engineering. (Lectureproblems 3 hours.)

## 328. Transportation Engineering Materials (3) F, S Alexander

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. Fluid Mechanics (3) F, S Eshett, Mostafa, Sungu

Prerequisites: M.E. 330, 371. Properties of fluids, compressible and incompressible; fluid statics; measurements of flow in pipes, open channels; fluid machinery. (Lec-ture-problems 3 hours.)
336. Fluid Mechanics Laboratory I (1) F, S Mostafa, Reed

Prerequisite or co-requisite: C.E. 335. Experiments in and the study of the phenomena of fluid flow. (Laboratory 3 hours.)

## 345. Soils and Foundations (3) F, S Dudley, Yen

Prerequisites: M.E. 373, Geology 370. 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 Dudley, Yen

Prerequisite or co-requisite: C.E. 345. Laboratory investigation and experiments in the phenomena of soil mechanics. (Laboratory 3 hours.)

## 358. Structural Analysis (2) F, S Al-Chalabi, Chelapati

Prerequisite: M.E. 373. Determinations of shear, moment and deflections in statically determinate beams, trusses and bents. (Lecture-problems 3 hours.)

## 390. Engineering and Civilization (3) On demand Mellvaine

Readings and lectures providing perspective and insight into current problems at the interfaces between engineering and other disciplines, especially anthropology, art, ecology, economics, philosophy, psychology, science and the social sciences.
400. Engineering Contracts and Specifications (2) F, 5 Armour

Prerequisite: Senior standing. Principles of contracts and specifications, codes, drawings, and estimates. Application of business law to engineering. (Lectureproblems 2 hours.)
401. Engineering Analysis I (3) F, S Kennedy, King

Prerequisite: Mathematics 370A. Cross referenced and described under Mechanical Engineering 401. (Lecture-problems 3 hours.)
402. Engineering Analysis II (3) F, S Eshett, Kennedy

Prerequisite: Mathematics 370A. Analysis of engineering mechanics by matrix theory and complex variables; introduction to numerical techniques. (Lectureproblems 3 hours.)
403. Systems Engineering (3) S Al-Chalabi

Prerequisites: Senior standing and C.E. 206. Theory and application of logic and current techniques in the planning, scheduling and managing of engineering projects. (Lecture-problems 3 hours.)
404. Laboratory Techniques (1) On demand Reed, Staff

Prerequisites: Senior standing in civil engineering and consent of instructor. Study in the techniques of organizing and directing of the civil engineering laboratory. May be repeated for maximum credit of 3 units. (Conference 1 hour, laboratory 3 hours.)
405. Special Topics in Civil Engineering (3) On demand Dawson, Reed

Prerequisite: Senior standing in civil engineering or consent of instructor. Selected topics from recent advances, in civil engineering. Course content will vary from year to year. Specific topic will be recorded on the student's transcript. (Maximum credit 6 units.)

## 406. Engineering Economy and Administration (3) F, $s$ Dudley, Mellvaine

Prerequisite: Senior standing. Management principles and economic analysis of engineering projects. (Lecture-problems 3 hours.)

## 407. Urban Engineering (3) F Neidengard

Prerequisite: C.E. 328 or consent of instructor. Administration, coordination and planning of city engineering departments. (Lecture 3 hours.)
408. Special Problems (1-3) F, S Reed, Staff

Prerequisite: Senior standing in civil engineering. Assigned topics in technical literature or laboratory projects and reports on same.

## 409. Professional Practice (1) F, $\mathbf{S}$ Neidengard

Prerequisite: Senior standing in civil engineering. Written and oral technical reports on current engineering developments. Licensing and other problems of the professional engineer.

## 420. Higher Surveying (3) $S$ Reed

Prerequisite: C.E. 225. Advanced techniques in surveying. (Lecture 2 hours, field work 3 hours.)

## 426. Transportation Engineering (3) On demand Neidengard

Prerequisite: C.E. 328 or consent of instructor. Theory, design and operation of fixed facilities for various modes of transportation. (Lecture-problems 3 hours.)

## 427. Highway Engineering (3) On demand Alexander

Prerequisite: C.E. 328 or consent of instructor. Administration, planning, economics, design, construction and maintenance of highways. (Lecture-problems 3 hours.)

## 428. Engineering Photogrammetry (3) $F$ Neidengard, Reed

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 3 hours.)

## 429. Traffic Engineering (3) F Staff

Prerequisite: C.E. 328 or consent of instructor. Traffic engineering as related to studies, planning, operation and administration. (Lecture-problems 3 hours.)

## 435. Hydrology (3) On demand Eshett, Reed

Prerequisite: C.E. 335. Fundamental surface and ground water hydrology, concepts and quantitative methods. Selected topics and procedures of the hydrological cycle. (Lecture-problems 3 hours.)

## 436. Groundwater Hydrology and Hydraulics (3) On demand Eshett

Prerequisite: C.E. 435 or consent of instructor. Occurrence, movement development extraction and replenishment of groundwaters. (Lecture, problems 3 hours.)

## 437. Open Channel Flow (3) F Mostafa

Prerequisite: C.E. 335. Theory and analysis of flow in open channels. Effect of transitions and other structures, back water curves and energy relationships. (Lec-ture-problems 3 hours.)
438. Hydraulic Engineering (3) 5 Mostafa

Prerequisite: C.E. 335. Application of hydraulic principles to the design of dams, water courses, water systems and their related structures and devices. (Lec-ture-problems 3 hours.)

## 445. Soil Behavior (3) S Yen

Prerequisites: C.E. 345, 346 or consent of instructor. Investigation and interpretation of soil behavior as a function of environment factors and soil components with emphasis on soil strength in engineering application. (Lecture-problems 3 hours.)

## 454. Computer Methods in Structural Mechanics (3) F Al-Chalabi

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. Structural Design (3) F, S Armour, King

Prerequisite: M.E. 373. Detailed design of structural components in accordance with typical codes and specifications. (Lecture 2 hours, Design Session 3 hours.)

## 456. Timber Design (3) F, S Staff

Prerequisite: C.E. 455. Design of stressed skin panels, supporting members, frames and their connections. Applications to timber structures and concrete formwork. (Lecture 2 hours, laboratory 3 hours.)

## 458. Statically Indeterminate Structures (3) F, S Chelapati, Zagustin

Prerequisite or co-requisite: C.E. 358. Methods of determining shear, moment and deflections in statically indeterminate structures. (Lecture-problems 2 hours.)

## 459. Reinforced Concrete (3) F, S Armour

Prerequisites: C.E. 358, 458. 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.)
463. Land Environment Engineering (3) S Bakker, Reed, Staff

Prerequisite: Senior standing in civil engineering or consent of instructor. Engineering aspects of optimal land utilization including modification of current land use practices, reclamation and reassignment. (Lecture, problems 3 hours.)
464. Environmental Engineering (3) F, S Bakker, Reed

Engineer and his community. Source, use and management of land, air, water and related resources. (Lecture 2 hours, laboratory 3 hours.)
465. Water Environment Engineering (3) F Bakker, Reed

Prerequisite: Senior standing in civil engineering or consent of instructor. Engineering aspects of optimal water utilization and water quality modification and maintenance. (Lecture, problems 3 hours.)
467. Water Resources Engineering (3) F Bakker, Eshett

Prerequisites: C.E. 406,464 or consent of instructor. Economics, planning, development and management of water resources. (Lecture-problems 3 hours.)
468. Marine Pollution Control (3) On demand Staff

Prerequisite: C.E. 464 or consent of instructor. Marine and domestic pollution of coastal and estuarine waters. (Lecture-problems 3 hours.)
469. Air Environment Engineering (3) F Bakker, Reed, Staff

Prerequisite: Senior standing in civil engineering or consent of instructor. Engineering aspects of optimal atmosphere utilization including natural and technological modification, quality concepts. (Lecture, problems 3 hours.)

## 482. City Planning (3) F Neidengard

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-problems 3 hours.)
490A,B. Creative Design (2,2) F,S Al-Chalabi, ArmourPrerequisites: C.E. 305 and senior standing. Must be taken in last two semestersof undergraduate program. A supervised laboratory design of an individual orgroup project incorporating all aspects from concept to completed design andpresentation. (Laboratory 6 hours.)
GRADUATE DIVISION
500. Numerical Analysis in Applied Mechanics ..... (3)
501. Advanced Technical Writing for Engineers ..... (3)
502. Finite Element Methods ..... (3)
504. Advanced Topics in Civil Engineering ..... (3)
505. Marine Civil Engineering ..... (3)
506. Engineering Economy in Complex Programs ..... (3)
507. Port Engineering Management ..... (3)
522. Transportation Planning ..... (3)
524. Geometry of Highway Design ..... (3)
525. Airports and Harbors ..... (3)
526. Advanced Pavement Materials ..... (3)
530. Hydromechanics and Wave Theory ..... (3)
531. Groundwater and Seepage ..... (3)
532. Sediment Transportation ..... (3)
533. Coastal Hydrodynamics ..... (3)
534. Hydraulic Models ..... (3)
536A,B. Marine Civil Engineering Laboratory ..... $(2,2)$
545. Thermal Soil Mechanics ..... (3)
546. Theory and Design of Foundation Structures ..... (3)
547. Soil Dynamics ..... (3)
548. Advanced Soil Mechanics ..... (3)
549. Advanced Soil Mechanics Techniques ..... (3)
551. Prestressed Concrete ..... (3)
552. Theory of Plates and Shells ..... (3)
554. Similitude and Experimental Stress Analysis ..... (3)
556. Advanced Structural Analysis I ..... (3)
557. Advanced Structural Analysis II ..... (3)
558. Dynamics of Structures ..... (3)
559. Elastic-Plastic Instabilities ..... (3)
560. Environmental Engineering Laboratory I ..... (3)
562. Environmental Engineering Design I ..... (3)
563. Environmental Engineering Design II ..... (3)
564. Public Health Engineering ..... (3)
565. Environmental Waste Engineering ..... (3)
602. Seminar in Civil Engineering ..... (3)
697. Directed Studies ..... (1-3)
698. Thesis and/or Project ..... (2-4)

Electrical Engineering

## ELECTRICAL ENGINEERING

## LOWER DIVISION

## 102. Electrical Engineering Problems (1) F,S Hill

Prerequisite or co-requisite: Physics 240. Application of physical principles to problems in electrical engineering. (Lecture-problems 1 hour.)

## 102L. Electrical Engineering Problems Laboratory (1) F, S Staff

Prerequisite: E.E. 102. Laboratory study of electrical measurements. (Laboratory 3 hours.)

## 210. Electric Circuits I (3) F,S Staff

Prerequisites: Physics 240, Mathematics 224. Linear circuit analysis techniques including Kirchhoff's laws, Network Theorems, Mesh and nodal analysis. Resonance, transformers and balanced 3 phase systems. (Lecture-problems.)

## 210L. Electric Circuits I Laboratory (1) F,S Staff

Prerequisite or co-requisite: E.E. 210. Laboratory study of electric and magnetic circuits, instrumentation, transformers and rotating machinery. (Laboratory 3 hours.)

## 240L. Computer Methods in Electrical Engineering (1) F, S Hill, MacMillan

Prerequisites: Mathematics 122, Physics 110. Digital computer language, programming and applications to electrical engineering problems. (Laboratory 3 hours.)

## 241. Numerical Methods in Electrical Engineering (2) F, $\mathbf{S}$ Hill, Paal

Prerequisite: E.E. 240. Application of numerical methods to the solution of electrical engineering problems. (Lecture-problems 2 hours.)

## 265. Engineering for Ocean Environment (3) $F$ Kendall

Problems involved in engineering ventures and activities in the ocean environment and coastal waters. Engineering contributions to development and use of the coastal interface of populated areas and marine environment. (Lecture, discussion.)

## UPPER DIVISION

## 310. Electric Circuits II (3) F, S Staff

Prerequisites: E.E. 210, Mathematics 370A. Continuation of circuit analysis including Fourier and LaPlace transform techniques, signal flow graphs and analogous systems. (Lecture-problems.)

## 320. Fundamentals of Electron Devices (3) F,S Frankland, Winchell

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. Introduction to Properties of Matter (3) F, S Staff

Prerequisites: Mathematics 370A, Physics 110, 230, 240. Introduction to the basic concepts of the structure of matter and its properties. (Lecture-problems 3 hours.)

## 330. Engineering Electronics I (3) F, S Staff

Prerequisites: E.E. 210, 210L. Co-requisite: E.E. 330L. Transistor characteristics, equivalent circuits, rectifier and amplifier circuits, introduction to vacuum tubes. (Lecture-problems 3 hours.)

## 330L. Engineering Electronics I Laboratory (1) F, S Staff

Co-requisite: E.E. 330. Laboratory study of electron tubes, transistors and crystal diodes, electronic circuits and instruments. (Laboratory 3 hours.)

## Electrical Engineering

## 340. Computers in Engineering (3) $F$ Staff

Prerequisite: E.E. 240. Concepts in analysis, design and utilization of computers. Basic digital computer structure. Representation and processing of information. (Lecture-problems.)

## 345. Computers' Role in Today's Society (3) On demand Staff

Nonquantitative survey of the impact of computer technology on contemporary society. Topics include computer organization and structure, commercial applications, computers in the arts, hospital information systems. (Lecture, discussion.)

## 360. Electrical Engineering Fields (3) F, 5 Evans, Houde

Prerequisite: Mathematics 370A, Physics 240. Electric and magnetic static and dynamic field theory through Maxwell's Equations. (Lecture-problems 3 hours.)

## 365. Ocean Engineering I (3) $S$ Kendall

Prerequisite: E.E. 265. Principal aspects of the technology of ocean engineering. Undersea manned operations, deep ocean structures and platforms, undersea vehicles, work systems, instrumentation and communications, materials selection for ocean engineering. (Lecture, problems.)

## 405. Special Topics in Electrical Engineering (3) On demand Staff

Prerequisite: Senior standing in electrical engineering or consent of instructor. Selected topics from recent advances in electrical engineering. Course content will vary from year to year and may be repeated once for credit with the consent of the department. Specific topic will be recorded on the student's transcript. (Lec-ture-problems.)

## 410. Electric Circuits III (3) F, S Washburn, Winchell

Prerequisite: E.E. 310. Two port networks, matrix methods, introduction to network synthesis, distributed parameter circuits. (Lecture 2 hours, laboratory 3 hours.)

## 420A-B. Electrical Properties of Matter (3,3) F, S Houde

Prerequisite: E.E. 321. Electrical properties and characteristics of materials which comprise engineering devices and systems. (Lecture-problems 3 hours.)

## 425. Underwater Instrumentation Systems (3) F,S Staff

Prerequisite: E.E. 430 or E.E. 470. Analysis of underwater instrumentation systems; with emphasis on sensing techniques, readout methods, calibration and dependability. (Lecture-problems.)

## 425L. Underwater Instrumentation Laboratory (1) $\mathrm{F}, \mathrm{s}$ Staff

Co-requisite: E.E. 425. Laboratory study and analysis of underwater instrumentation systems, with emphasis on sensing techniques, readout, calibration, placement and retrieval. Laboratory demonstration of instruments and handling equipment. (Laboratory 3 hours.)
430. Engineering Communication Electronics (3) F,S Staff

Prerequisites: E.E. 241, 310, 320, 330. Analysis of transistor circuits, small and large signal amplifiers and oscillators. Analysis of detection and modulation. Use of ECAP. (Lecture, problems.)
430L. Engineering Communications Electronics Laboratory (1) F, 5 Staff
Co-requisite: E.E. 430. Laboratory study of amplifiers, oscillators, detection and modulation. (Laboratory 3 hours.)

## 431. Engineering Digital Electronics (3) $F, S$ Staff

Prerequisites: E.E. 241, 310, 320, 330. Analysis of transistor circuits, wave shaping circuits, logic circuits and non-linear waveform generation. Use of ECAP. (Lecture, problems.)

## 431L. Engineering Digital Electronics Laborafory (1) F, S Staff

Co-requisite: E.E. 431. Laboratory study of wave shaping, non-linear waveform generation and logic circuits. (Laboratory 3 hours.)

## 432. Semi-Conductor Circuit Design (3) F, S Patrick

Prerequisite: E.E. 430. Design of semi-conductor circuits considering variation in circuit and device parameters and switching circuits. (Lecture-problems.)

## 432L. Semi-Conductor Circuit Design Laboratory (1) F, S Staff

Co-requisite or prerequisite: E.E. 432. Laboratory study of semi-conductor devices and circuits. (Laboratory 3 hours.)
440. Logical Design of Digital Computers (3) F, $\mathbf{S}$ Lane

Prerequisites: E.E. 330, 330L and senior standing. Number systems, Boolean algebra, minimal functions, logic and design of sequential circuits. (Lecture 2 hours, laboratory 3 hours.)
441. Numerical Methods in Electrical Engineering II (3) 5 Paal

Prerequisite: E.E. 241. Numerical methods in applied engineering problems including matrix inversion, numerical differentiation and integration. (Lectureproblems.)
442. Programming Languages and Systems I (3) 5 Carissimo

Prerequisite: E.E. 340. Formal definition of programming languages including specification of syntax and semantics including a comparative study of several widely used programming languages. (Lecture 2 hours, laboratory 3 hours.)
444. Programming Languages and Systems II (3) F, $\mathbf{S}$ Staff

Prerequisite: E.E. 442. Syntax directed compiler theory. Organization of a compiler and overall design. Use of compiler writing languages and boot-strapping. (Lecture, problems.)
445. Digital Subsystems and Systems (3) F, S Staff

Prerequisite: E.E. 440. Basic digital circuits. Design of digital subsystems such as sequences, adders, registers and memories. Integration of digital components into an overall system. (Lecture, problems.)
450. Electromagnetics (3) F, S Strawn

Prerequisite: E.E. 310. Co-requisite or prerequisite: E.E. 360. Analysis and performance of electro-mechanical energy conversion devices and transformers. (Lecture, problems 3 hours.)
450L. Electromagnetics Laboratory (1) F, 5 Staff
Co-requisite: E.E. 450. Laboratory study of electro-mechanical devices, transformers and magnetic amplifiers. (Laboratory 3 hours.)

## 452. Power Systems I (3) S Hill

Prerequisite: E.E. 450. Power transmission line and terminal equipment parameters and characteristics, system performance. (Lecture, problems.)

## 453. Power Systems II (3) 5 Hill

Prerequisite: E.E. 450 . Power systems in the steady state, short circuit calculations, equipment characteristics. (Lecture, problems.) Not open to students with credit in E.E. 451.

## 460. Guided Waves and Antennas (3) F, S Hostefter

Prerequisites: E.E. 360, 410. Propagation of plane and guided wave in lossless and dissipative media; radiation. (Lecture-problems.)

## Electrical Engineering

## 465. Underwater Sonics (3) 5 Staff

Prerequisite: C.E. 335 or E.E. 410. Analysis of distributed parameter systems; wave generation, propagation and detection. Application to transmission media and waves in liquids and solids. (Lecture-problems.)

465L. Underwater Sonics Laboratory (1) Staff
Co-requisite or prerequisite: E.E. 465. Laboratory study and analysis of distributed parameter systems; wave generation, propagation and detection. Laboratory measurement of sonic performance. (Laboratory 3 hours.)
466. Underwater Sonics II (3) $\mathbf{s}$ Staff

Prerequisite: E.E. 465. Application of sonic principles to engineering problems. Directional arrays and detectors. Transmission types and levels. Noise and reverberation effects.
467. Underwater Information Systems (3) S Staff

Prerequisite: E.E. 465. Selection, collection and processing of underwater information obtained by active and passive systems. Engineering consideration for optimizing selection of bandwidth, modulation type, signal levels and processing techniques. (Lecture, problems.)
470. Control Systems (3) F, S Staff

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. Control Systems Laboratory (1) F, 5 Staff
Prerequisites: E.E. 430L, E.E. 450L. Co-requisite: E.E. 470. Laboratory study of control systems. (Laboratory 3 hours.)
480. Engineering Probability and Statistics (3) F, S Arnett, Schwartz

Prerequisite: E.E. 310. Introduction to probability, statistics, random variables and their application. (Lecture-problems.)

## 482. Communication Theory (3) F, S Cain

Prerequisites: E.E. 410, 430. Modern theory of communication with emphasis on noise processes and their effect on transmission of information. (Lecture, problems.)
490. Special Problems (1-3) F, $S$ Staff

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

505. Analytical Methods in Engineering (3)
506. Linear Network Synthesis (3)
507. Active Network Synthesis
508. Physical Electronics I (3)
509. Physical Electronics II (3)
510. Semiconducting Materials (3)
511. Semi-Conductor Circuit Design (3)

530L. Semi-Conductor Circuit Design Laboratory (1)
531. Digital Computer Component Design (3)

531L. Digital Computer Component Design Laboratory (1)
540. Digital Computer System Analysis (3)
541. Computer Arithmetic Unit Design ..... (3)
542. Systems Engineering ..... (3)
544. Analog Analysis ..... (3)
545. Advanced Engineering Applications of Digital Computers ..... (3)
560A-B. Applied Electromagnetic Theory ..... $(3,3)$
565. Underwater Acoustics ..... (3)
566. Underwater Detection Systems ..... (3)
570. Advanced Control Systems I ..... (3)
571. Advanced Control Systems II ..... (3)
572. Electronic Instrumentation and Control ..... (3)
580. Information Theory ..... (3)
582. Random Processes in Engineering ..... (3)
583. Decision Theory ..... (3)
590. Special Topics in Electrical Engineering ..... (3)
610. Seminar in Network Theory ..... (3)
630. Seminar in Electrical Circuit Design ..... (3)
640. Seminar in Digital Computer Systems ..... (3)
670. Seminar in Control Systems ..... (3)
697. Directed Research ..... (1-3)
698. Thesis and/or Project (2-4)
MECHANICAL ENGINEERING

## LOWER DIVISION

## 172. Engineering Design Graphics I (3) F, S Goff, Kundis

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. Elementary creative design. (Lecture-laboratory 6 hours.)

## 200. Impact of Technology on Society (3) F,S deSoto

Study of the interaction between man, society, engineering and science. Philosophical viewpoints of anthropology and engineering will be used as starting points. Guest lecturers from disciplines associated with the study of man will be used. Divergent views will be explored in structured and unstructured discussion. (Lecture, discussion 3 hours.)

## 205. Computer Methods in Mechanical Engineering (1) F,S Staff

Prerequisites: Mathematics 122, Physics 110. Digital computer programming with applications to mechanical engineering problems. (Laboratory 3 hours.)

## 222. Manufacturing Processes (2) F,S Staff

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. Engineering Design Graphics II (2) F, 5 Goff, Kundis

Prerequisite: M.E. 172. Graphical expression with emphasis on sketching, machine drawing, detail and assembly drawing, gears, cams, fastenings, piping, welding. Stress on original design. (Lecture-laboratory 4 hours.)

## UPPER DIVISION

## 322. Engineering Metallurgy I (2) F, S Gilpin, Miller

Prerequisite: Chemistry 111A. Structure and properties of crystalline materials, crystal lattices, phase equilibria and transformations, nucleation and grain growth. Effects of heat treatment and mechanical working. (Lecture-problems 2 hours.)

## 323. Engineering Metallurgy I Laboratory (1) F, S Gilpin, Miller

Prerequisite or co-requisite: M.E. 322. Metallographic study of the effects of thermal treatments on the structures and mechanical properties of metals and alloys. (Laboratory 3 hours.)

## 330. Engineering Thermodynamics I (3) F, S Staff

Prerequisites: Mathematics 224, Physics 110 and approved chemistry. 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. Engineering Thermodynamics I Laboratory (1) F, S Staff

Co-requisite: M.E. 330. Measurements of thermodynamic properties, fluid flow and heat transfer; calorimetry. (Laboratory 3 hours.)

## 336. Engineering Thermodynamics II (3) $\mathbf{F}, \mathbf{S}$ Staff

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. Engineering Thermodynamics II Laboratory (1) F,S Staff

Co-requisite: M.E. 336. Measurements of energy and power. Testing and evaluation of the performance of thermodynamic equipment. (Laboratory 3 hours.)

## 371. Analytical Mechanics II (Dynamics) (3) $\mathrm{F}, \mathrm{S}$ Staff

Prerequisites: M.E. 172, 205, 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. Mechanics of Deformable Bodies (3) F, S Staff

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. Mechanical Properties of Materials (1) F, S Staff

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. Kinematics and Dynamics of Mechanisms (4) F, S Edelman, Leufwiler

Prerequisites: M.E. 222, 272, 322, 371. Fundamentals of linkages, cams, gears and gear trains. Velocity and acceleration analysis of machines. Static and inertia loading of machine parts. Dynamic analysis. (Lecture 3 hours, design application 3 hours.)
401. Engineering Analysis I (3) F, S Gold, Roman

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.)

Prerequisite: Mathematics 370A. Cross referenced and described under Civil Engineering 402.

## 405. Special Topics in Mechanical Engineering (3) On demand Staff

Prerequisite: Senior standing in mechanical engineering or consent of instructor. Selected topics from recent advances in mechanical engineering. Course content will vary from year to year and may be repeated once for credit with the consent of the department. (Lecture-problems.)

## 421. Metallurgy II (3) F, S Gilpin

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 Staff

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.)

## 424. Structural Ceramics and Refractories (3) Staff

Prerequisite: M.E. 322. Structure of vitreous and crystalline non-metallics and its relation to thermal, optical and electrical properties. Includes intermetallics, oxides, borates and silicates, particularly those resistant to high temperatures.

## 425. Theory of Metallurgical Processes (3) F, S Miller

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.)
426. Corrosion Engineering (3) Ftaff

Prerequisite: M.E. 322. Principles of oxide film growth and electrochemical corrosion, corrosion testing, environmental and metallurgical effects on corrosion, environmental stress crackling, corrosion control and prevention. (Lecture-problems 3 hours.)
427. Mechanical Metallurgy (3) Staff

Prerequisite: M.E. 421. Plasticity, deformation of single crystals and polycrystalline aggregates, dislocations, fracture, internal friction, brittle failure, residual stresses, plastic forming. (Lecture, problems.)
431. Heat Transfer (3) $F, S$ deSoto

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.)
434. Oceanographic Waves and Currents (3) F Kyle

Prerequisites: Mathematics 370A; M.E. 331, 373; C.E. 335. Mechanics of surface wave motion, tides, currents, shore processes, effects of waves and currents on marine structures, theory of moorings. (Lecture-problems 3 hours.)

## 436. Statistical Thermodynamics (3) F,S Dyer

Prerequisite: M.E. 336 or consent of instructor. Fundamentals of combinatorial analysis, statistical mechanics, independent particles, monoatomic solids, chemical equilibrium studies, collision theory, real gases and liquids. (Lecture-problems.)

## 437. Intermediate Fluid Mechanics (3) F Kyle

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. Air Conditioning and Refrigeration (3) F,S Sungu

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. (Lectureproblems 3 hours.)

## 439. Introductory Gas Dynamics (3) F Staff

Prerequisites: M.E. 336, C.E. 335. Basic concepts of gas dynamics. Steady and unsteady compressible flow, basic wave phenomena. (Lecture-problems 3 hours.)

## 441. Aerodynamics (3) $F$ Kellam

Prerequisites: C.E. 335, M.E. 336. Application of theoretical and experimental fluid mechanics to aerodynamic theory of lift and drag; finite wing theory; compressibility and viscosity; slender body theory. (Lecture 2 hours, laboratory 3 hours.)

## 442. Flight Vehicle Propulsion Systems (3) S Mijares

Prerequisites: C.E. 335; M.E. 322, 336. Analysis and performance of aircraft and missile propulsion systems including reciprocating, turboprop, ramjet, pulse jet and rocket. Limitations on performance imposed by thermodynamics, fluid mechanics and strength. (Lecture 3 hours.)

## 443. Aircraft and Missile Structures (3) S Staff

Prerequisites: M.E. 322, 373. Introduction to the analysis of interminate structures, shear flow, torsion, column stability, plates and shells. (Lecture-problems 3 hours.)

## 444. Flight Vehicle Dynamics and Control (3) F Mijares

Prerequisites: C.E. 335, E.E. 310, M.E. 371, Mathematics 370A. Equations of motion for vehicles in flight. Solution of linearized equations by methods of Laplace transforms and dynamic system analysis using computer techniques. (Lectureproblems 3 hours.)

## 450. Special Problems (1-3) F, S Staff

Prerequisite: Senior standing. Assigned topics in technical literature or laboratory projects and reports on same.

## 471. Analysis and Design of Machine Components (3) F,S Leutwiler

Prerequisites: M.E. 373, 374, 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.)

## 472. Design of Mechanical Engineering Systems (3) $F$ Edelman

Prerequisites: M.E. 322, 336, 373, 375; C.E. 335. Project approach to mechanical engineering systems design stressing creative and methodical techniques in problem definition, design conception and problem solution. (Lecture 2 hours, laboratory 3 hours.)

## 473. Dynamics of Machinery (3) On demand Staff

Prerequisite: M.E. 471. Balancing of rotating and reciprocating parts, energy variation in machinery, speed control of machines, design project. (Lecture problems.)


#### Abstract

475. Analytical Mechanics III. Particle and Rigid Body Mechanics (3) F, S Staff 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. Engineering Vibrations (3) $\mathbf{F}, \mathbf{S}$ UntPrerequisites: M.E. 371, Mathematics 370A. Introduction to fundamentals ofmechanical vibrations, types of oscillatory motions. Free, forced and transientvibrations; damping, vibration isolation, vibration measuring instruments. Coupledoscillations of lumped systems; use of Lagrange's equations; Rayleigh and matrix-iteration method. (Lecture 2 hours, laboratory 3 hours.)
477. Advanced Mechanics of Deformable Bodies (3) $\mathbf{F}, \mathbf{S}$ TsaoPrerequisites: M.E. 373, 374. Stress concentration; photoelastic method of stressanalysis. Failure theories. Fatigue. Flexure and shear of unsymmetrical sections;shear center. Deformations beyond the elastic limit. Energy methods; Castigliano'stheorem. (Lecture-problems 3 hours.)
478. Engineering Acoustics (3) F Staff
Prerequisites: Mathematics 370A, E.E. 310, M.E. 371 or equivalent. Theory and application of acoustical principles to generation, transmission, measurement and control of sound. (Lecture, problems.)
GRADUATE DIVISION
479. Semiconducting Materials ..... (3)
480. Fracture of Engineering Materials ..... (3)
481. Heat and Mass Transfer ..... (3)
482. Mechanics of Ideal Fluids ..... (3)
483. Mechanics of Real Fluids ..... (3)
484. Analytical Thermodynamics ..... (3)
485. Gas Dynamics ..... (3)
486. Advanced Aerodynamics ..... (3)
487. Supersonic Aerodynamics ..... (3)
488. Advanced Aircraft and Missile Structures ..... (3)
489. Bioengineering in Flight Vehicle Design ..... (3)
490. Optimum Design of Mechanical Elements ..... (3)
571A-B. Random and Nonlinear Vibrations ..... $(3,3)$
491. Stress Analysis in Design ..... (3)
492. Theory of Elasticity ..... (3)
493. Advanced Design of Mechanical Engineering Systems ..... (3)
494. Advanced Dynamics ..... (3)
495. Engineering Vibrations II ..... (3)
496. Creep and Fatigue ..... (3)
497. Theory of Elastic Stability ..... (3)
498. Seminar in Mechanical Engineering ..... (3)
499. Directed Research ..... (1-3)
500. Thesis and/or Project ..... (2-6)


## SCHOOL OF FINE ARTS

Administrative Officers Dean of the School

Directory of Departments

Department
Art
Dance
Music
Theatre Arts

Chairman
Mr. Thomas Ferreira
Dept. Offices
FA4-106
Mrs. Joan M. Schlaich
Dr. Gerald M. Daniel
FA3-100
MU-104
Dr. Stanley Kahan
FO4-164

## ART DEPARTMENT

## (School of Fine Arts)

Emeritus: Bela L. Biro
Professors: Archer, Crafts, Dillingham, Ferreira, Glenn, Hitchcock, Krause, Leland, Martin, Merlino, Ramsey, Schultz, J., Swift, Thompson, C., Tyrnauer, Van Eimeren, Youry.
Associate Professors: Borders, Click, Covell, Graff, Gross, Moryl, Mul-ler-Stach, Oden, Pine, Shaak, Turnbull, Wallin, Werlick.
Assistant Professors: Aall, Brisker, Cooper, Dame, Day, Dukes, Greer, Hendler, Jones, Kammermeyer, Lincoln, Martel, Purcell, Serfaty, Snidecor, Spille.

## Instructors: Cummings, de Heras.

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.

The Art Department holds membership in Division Two of the National Association of Schools of Art. The B.A., B.S. in industrial design and M.A. are accredited by the association.

## 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 seeking 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. Total art units required:
47 ( 23 lower division, 24 upper division).
Lower Division Requirements: Art 111 or 161, 112A, 112B, 121, 131, 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 (Professional) is for students who are specializing in a specific area of art with the intention of entering one of the professional art fields. Total art and support units required:
65 (29 lower division, 36 upper division).

## Programs of Specialization: Course Requirements

1. Art History. Lower Division: Art 112A, 112B, 113A, 113B, 121, 181, 111 or $213 ; 3$ additional units of art studio; 6 units selected from philosophy, history, English, social science, psychology or
anthropology with adviser's approval. Upper Division: 3 units selected from Art 310, 314A, 314B, 314C, 315A, 315B, 316A, 413A; 3 units selected from Art 311, 313A, 313B; 3 units selected from 316B, 413B, 414, 317A, 317B; 3 units selected from Art 319A, 319B, 494A, 494B; 3 units selected from Art 415A, 415B, 491, 492; 6 units selected from upper division studio; 6 units selected from philosophy, history, English, social science, psychology or anthropology with adviser's approval; 6 units of art electives.
2. Drawing and Painting. Lower Division: Art 112A, 112B, 121, 131, 161, 181, 184, 187, 281, 284, 287. Upper Division: Art 372, 381, 384A, $385,387 \mathrm{~A}, 389,487 \mathrm{~A} ; 6$ units of art history; 12 units of art outside specialization.
3. Printmaking. Lower Division: Art 111, 112A, 112B, 121, 131, 181, 184, 187, 277, 161 or 281, 2 units of art electives. Upper Division: Art 378, 379, 477A; 9 units selected from Art 477B, 478A, 478B, 499R; Art 317 and 3 additional units of art history; Art 318, 384A and 7 additional units of art outside specialization.
4. Sculpture. Lower Division: Art 111, 112A, 112B, 121, 131, 161, 181, 184, 187, 263, 2 units of art electives. Upper Division: Art 361, $362 \mathrm{~A}, 362 \mathrm{~B}, 363,461,463 ; 6$ units of art history; 12 units of art outside specialization.
5. Illustration. Lower Division: Art 111 or 161, 112A, 112B, 121, 131, 181, 184, 187, 223, 271, 284. Upper Division: Art 371A, 371B, 372, 373, 385, 471A, 471B; 6 units of art history; Art 323A, 323B, 387A, 499F.
6. Graphic Design. Lower Division: Art 111 or 161, 112A, 112B, 121, 131, 181, 184, 187, 223, 237, 271. Upper Division: Art 322A, 322B, $323 \mathrm{~A}, 323 \mathrm{~B}, 422 \mathrm{~A}, 422 \mathrm{~B}$; Art 418 and 3 additional units of art history; Art 331A, 341A, 371A, 384A, 385.
7. Interior Design. Lower Division: Art 111 or 161, 112A, 112B, 121, 131, 181, 184, 187, 224, 237, 271. Upper Division: Art 341A, 341B, $342 \mathrm{~A}, 342 \mathrm{~B}, 343,441 \mathrm{~A}, 441 \mathrm{~B}$; Art 418 and 3 additional units of art history; 11 units of art outside specialization which must include Art 322 A or $331 \mathrm{~A}, 327 \mathrm{~A}$ or $385,332,417$.
8. Theatre Design. Lower Division: Art 111 or 161, 112A, 112B, 121, 131, 181, 184, 187; 6 units of theatre arts with adviser's approval. Upper Division: Art 341A, 347A, 347B, 418, 499 O ( 6 units), 3 units of art electives; 6 units of art history; 12 units of theatre arts with adviser's approval.
9. Textile Design. Lower Division: Art 111, 112A, 112B, 121, 131, 181, 184, 187, 271, 281, 2 units selected from 161, 223 or 237. Upper Division: Art 327A, 327B, 328A, 328B, 428A, 428B; 6 units of art history; Art 419 and 9 additional units of art outside specialization.
10. Ceramics. Lower Division: Art 111 or 161, 112A, 112B, 121, 131, 151, 181, 184, 187, 251; Industrial Arts 281. Upper Division: Art $351 \mathrm{~A}, 351 \mathrm{~B}, 352 \mathrm{~A}, 352 \mathrm{~B}$ or $353,451 \mathrm{~A}, 451 \mathrm{~B}, 316$ or $317 ; 3$ units selected from 411, 412 AB ; Art 416 and 10 additional units of art outside specialization.
11. Metalsmithing and Jewelry. Lower Division: Art 111 or 161, 112A, 112B, 121, 131, 181, 184, 187, 271; Industrial Arts 282, Photography 210. Upper Division: Art 357A, 358A, 357B or 358B, 458A; 3 units selected from Art 357B, 358B, 458B; 3 units selected from ceramics, drawing, crafts, sculpture; 6 units of art history; 12 units of art outside specialization.
Option III-Bachelor of Arts (Secondary Teacher Preparation) is the four-year art major degree program required of those students seeking a Standard Secondary Teaching Credential. Art units required for the bachelor of arts degree: 47 ( 23 lower division, 24 upper division). Lower Division Requirements: Art 112A, 112B, 121, 131, 181, 184, 187, and either 111, 151 or 161.
Upper Division Requirements: A minimum of 24 units of upper division art which must include: (1) Art 317 and one additional course in art history; (2) two courses in design; (3) Art 385 or 387A, and one additional course in drawing, painting, illustration or printmaking, and (4) Art 354A and one additional course in crafts or sculpture.
Additional requirements for the Standard Secondary Teaching Credential (including 30 units beyond the B.A. degree) and the requirements for completing a teaching minor in art are listed in the Credential Section.
Option IV-Bachelor of Arts (Elementary Teaching Preparation) is the four-year art major degree program required of those students seeking a Standard Elementary Teaching Credential. Art units required for the B.A. degree include 18 lower division and 24 upper division. 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 Art 300, 401 and two courses from each of the following: (1) art history; (2) design; (3) drawing, painting, illustration, printmaking, and (4) crafts, sculpture.
Additional requirements for the Standard Elementary Teaching Credential (including 30 units beyond the B.A. degree) are listed in the Credential Section.

## BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL DESIGN

This degree program is planned for students concerned with development of professional competence in combining current technology with concepts and principles developed by the visual arts. It will provide the backgrounds in science and technology and the aesthetic awareness demanded by the responsibilities of the industrial design profession as well as a broad background in general education necessary for a functioning relationship with modern society.
Lower Division: Art 112A, 112B, 121, 131, 181, 184, 187, 223, 224, 237, 271; Industrial Arts 101, 281, 282; Mechanical Engineering 172.
Upper Division: Art 331A, 331B, 332, 333A, 333B, 431A, 431B, 418 and
12 art elective units of which 9 must be outside the area of speciali-
zation of industrial design. Approved lower and upper division elec-
tives to total 132 units.

## LOWER DIVISION

## 100. Introduction to Art Studio (3) $\mathbf{F}, \mathbf{S}$ Staff

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. Introduction to Art (3) F,S Cooper

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. Fundamentals of Art (2) F, S Greer, Krause

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. History of Western Arts: Survey (3,3) F, S Jones, Martel

Development of art as an integral part of Western culture. 112A: From prehistory to the Renaissance; 112B: From the Renaissance to the present day.

113A,B. History of Oriental Art: Survey (3,3) F, S Covell
Art 113A: Art of India and Southeast Asia; 113B: Art of China, Japan and Korea. Not open to students with credit in Art 412A,B.

## 121. Two-Dimensional Design (3) F, S Staff

Investigation and problems in the organization of two-dimensional visual phenomena.

## 131. Three-Dimensional Design (3) F, S Staff

Prerequisites: Art 121, 181. Investigation and problems in the organization of three-dimensional phenomena.

## 151. Beginning Ceramics (2) $F, S$ Staff

Handbuilding techniques used in the design, forming, glazing and firing of ceramic materials.
161. Life Modeling (2) F,S Staff

Prerequisites: Art 181, 184. Modeling based on the human figure.

## 181. Beginning Drawing (3) F, S Staff

Introduction to drawing with emphasis on perspective, light, shadow and volume in composition using a variety of media.

## 184. Beginning Life Drawing (3) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisite: Art 181. Drawing from the human figure.

## 187. Beginning Painting (3) $\mathrm{F}, \mathrm{S}$ Staff

Prerequisites: Art 121, 181. Introduction to painting problems using opaque and transparent water color.

## 213. Aspects of Art: Western and Non-Western (3) F, S Staff

Comparison of art theory and aesthetics in Western and non-Western cultures.

## 223. Lettering (2) $F, S$ Staff

Prerequisites: Art 121, 181. Theory and techniques of lettering.

## 224. Perspective (2) F,S Staff

Use of measuring devices and the mechanical development of volume, space and shadow projection.
237. Applied Design (2) F,S Staff

Prerequisites: Art 121, 131, 181 or 224 . Form in design and an introduction to the varying applied aspects of design.
251. Intermediate Ceramics (2) F, S Ramsey, Youry

Prerequisite: Art 151. Ceramic materials and design emphasizing the use of the potter's wheel to develop forms.
263. Beginning Sculpture (2) F, S Harris Prerequisites: Art 121, 131, 181. Principles of sculpture.
271. Rendering (2) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisites: Art 121, 181 or 224 . Graphic visualization for convincing representation.
277. Beginning Printmaking (2) F,S Wakefield Prerequisites: Art 121, 181, 184. Fundamental printmaking processes.
281. Infermediate Drawing (2) F, S Staff

Prerequisite: Art 181. Drawing in various media with emphasis on space and form.
284. Intermediate Life Drawing (2) F, S Staff

Prerequisites: Art 181, 184. Drawing from the human figure.
287. Beginning Life Painting (2) $F, S$ Staff

Prerequisites: Art 184, 187. Painting from the figure.

## UPPER DIVISION

## ART EDUCATION

300A-B. Elementary Art Education (3,3) F,S Staff
Planning, developing and evaluating objectives and procedures for teaching the visual arts in the elementary school. Art 300A: Experiences in drawing, painting and design with media appropriate to child growth and development. Art 300B: Augmentation of 300 A with emphasis on crafts and three-dimensional media appropriate for the elementary classroom.
304. Art for Recreational Leaders (2) F, 5 Archer

Prerequisites: Art 100 or equivalent. Creative use of art materials for recreation programs and leisure time activities.
306A,B. Arts and Crafts for Exceptional Children $(2,2)$ F, S Schmidt
Methods and materials for teaching arts and crafts to mentally retarded, educationally handicapped, visually impaired, aurally impaired, multi-handicapped, orthopedically impaired and disadvantaged children.
400. Advanced Art Studio (3) F, S Staff

Prerequisite: Art 100. Advanced studio experience in color, drawing, painting, design and three dimensional form.
401. Theory of Creative Development in Art (2) F,S Staff

Prerequisite: Consent of instructor. Application of theory to art classes for young people of various school levels.
402. Criticism in Art Education (2) F,S Schultz

Prerequisite: Consent of instructor. Principles of art criticism applicable to teaching the visual arts in the public schools. Emphasis on techniques for developing an appreciative response to art at elementary and secondary school levels. Not open to students with credit in Art 301.

## 403. Crafts for Secondary Schools (3) F, S Hitchcock

Prerequisite: Art 354A. Experiences with a variety of craft processes using materials and equipment appropriate for junior and senior high school art programs. Consideration of objectives and procedures for teaching crafts. Not open to students with credit in Art 303.
404. Ceramics for Secondary Schools (3) F, S Staff

Prerequisite: Art 151. Experience with ceramic processes, materials and equipment appropriate to junior and senior high school art programs. Consideration of objectives and procedures for teaching ceramics at these levels. Not open to students with credit in Art 305A-B.
405. Drawing and Painting for Secondary Schools (3) F, S Staff

Prerequisite: One upper division course in drawing or painting. Experiences with a variety of drawing and painting techniques and materials appropriate for junior and senior high school art programs. Consideration of objectives and procedures for teaching drawing and painting at these levels. Not open to students with credit in Art 308A-B.

499P. Special Studies in Art Education (3) F,S Staff
Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in art education. Limited to six units.

## ART HISTORY

310. Classical Art (3) F, 1971 and alternate years Martel

History of Greek and Roman art: 1000 B.C.-300 A.D.
311. Early Christian and Byzantine Art (3) S, 1973 and alternate years Staff

Arts of Southern Europe from decline of Roman Empire through Byzantine Empire to 1200.
312. Ancient Art (3) F, 1972 and alternate years Greer

Prehistoric, Near Eastern, Egyptian and Aegean art.
313A,B. Medieval Art (3,3) F, S, 1972-73 and alternate years Martel
Art 313A: Arts of Northern Europe from Merovingian through the Romanesque periods; 313B: Gothic art.

314A. Renaissance Art (3) $F$ Greer
Art of the Renaissance, 1300-1500.
314B. Renaissance Art (3) 5 Greer
Art of the Northern Renaissance in the Netherlands, France and Germany, 1300-1500.

314C. Renaissance Art (3) S, 1972 and alternate years Greer
High Renaissance and Mannerist art of the 16 th Century in Europe.
315A,B. Baroque and Rococo Art (3,3) F, 5, 1971-72 and alternate years Martel Art 315A: Art of 17th Century Europe; 315B: Art of 18th Century Europe.

316A,B. Nineteenth Century Art (3,3) F, S Cooper
Art 316A: European art from Neo-Classicism through Realism; 316B: From Impressionism through Post-Impressionism.

317A,B. Twentieth Century Art (3,3) F, 5 Gross
Art 317A: Art from 1900 to 1945; 317B: From 1945 to the present.

## 318. History of Prints (2) Fteen

Printmaking and printmakers in Eastern and Western cultures from their origins to contemporary developments in the 20th century.

## 319A,B. Chinese Art (3,3) F, 5, 1971-72 and alternate years Covell

Art 319A: Chinese art third millenium B.C. through the 10th Century A.D.; 319B: From the 10th Century A.D. through the 20th Century.

## 393A,B. Pre-Hispanic Art of the Americas (3,3) F, S Staff

Art 393A: Art of Mexico and Central America from origin to high civilizations of Aztec and Maya; 393B: Art of South America from origin through Inca Empire.

411A. Primitive Art (3) F, 1971 and alternate years Jones
Art of Sub-Saharan Africa.
411B. Primitive Art (3) 5, 1972 and alternate years Jones
Oceanic art.
411C. Primitive Art (3) S, 1973 and alternate years Jones
North American Indian art.
412A,B. Oriental Art $(3,3)$ F, $S$ Covell
Art 412A: History of the art of India, Southeast Asia, the Islamic World; Art 412B: Art of China, Japan and Korea.

## 413A,B. North American Art (3,3) F, 5 Gross

Art 413A: Art of the United States from the Colonial period through the Civil War; 413B: From the Reconstruction period to the present.

## 414. Post-Conquest Art of Latin America (3) F, 1971 and alternate years

 JonesArts of Central and South America from the Spanish conquest to the present.
415A,B. Art of India $(3,3)$ F, S Aall
Art 415A: Indian art and architecture, Buddhist and Hindu from 2500 B.C. to 1000 A.D.; 415B: From 1000 A.D. to the 20th Century.
416. History of Ceramics (2) 5 Ramsey

Materials and techniques as they relate to the historical development of pottery styles and forms.

## 417. History of Architecture: Interior and Exterior (3) F Krause

Evolution of architecture relative to the human need to shape environment in accordance with governing concerns of specific periods in history.

## 418. History of Design (3) S Krause

Development of design as an independent creative activity including a consideration of both pre-technological and technological culture.

## 419. History of Textiles (3) S Leland

Historical survey of textile structure and design as they relate to use, materials and invention of processes in determining character, quality and stylistic concepts.
491. Buddhist Art of Southeast Asia (3) S, 1973 and alternate years Aall, Covell
Arts of Thailand, Cambodia, Vietnam and Indonesia with reference to arts of Burma, Laos and Malaysia.

Islamic art and architecture of Persia and its transformation in India during the Mughal period.

## 494A,B. Japanese Art (3,3) F,S 1972-73 and alternate years Covell

Art 494A: The art of Japan from 1200 B.C. to the end of the Kamakura period; 494B: From the Muramachi period to the present day.

## 499Q. Special Studies in Art History (3) F, S Staff

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in art history. Limited to six units.

## CERAMICS

## 351A-B. Ceramic Processes $(3,3)$ F,S Youry

Prerequisites: Art 131, 251. Design problems with ceramic materials emphasizing wheel thrown forms.

## 352A-B. Technical Ceramics ( 3,3 ) F, $S$ Ramsey

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) S Ferreira

Prerequisites: Art 131, 151 and consent of instructor. Modeling and sculpturing of clay into non-utilitarian expressive forms and consideration of the technical problems inherent to the process and material.

## 451A-B. Advanced Ceramics (3,3) F, S Ferreira, Ramsey

Prerequisite: Art 351B. Individual problems in ceramics.

## 452. Ceramic Shop Planning (2) Ferreira

Prerequisite: Art 351B. Ceramic equipment including kilns, their design and construction.

499A. Special Studies in Ceramics (3) F, S Ferreira
Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in ceramics. Limited to six units.

## DISPLAY AND EXHIBITION DESIGN

## 344A-B. Display and Exhibition Design (1,1) F,S Dame, Day

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.

## 499C. Special Studies in Display and Exhibition Design (3) F,S Dame

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in display and exhibition design. Limited to six units.

## DRAWING AND PAINTING

380. Painting for the Non-Art Major (3) F, S Staff

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 Staff

Prerequisite: Art 181. Problems and concepts in drawing using a variety of media.

## 384A-B. Advanced Life Drawing (3,3) F, S Staff

Prerequisite: Art 284. Continued study in drawing from the human figure.

## 385. Watercolor Painting (2) F, S Staff

Prerequisites: Art 121, 181, 187. Nature and use of the water color media.

## 387A-B. Painting $(3,3)$ F, S Staff

Prerequisites: Art 121, 181, 187. Painting with emphasis on representation, organization and expression.

## 389. Materials and Craft of Drawing and Painting (2) F,S Staff

Prerequisites: Art 121, 181, 387A. Theory and practice in the craft of drawing and painting.

## 487A-B. Advanced Life Painting ( 3,3 ) F, 5 Staff

Prerequisites: Art 287, 384A, 387A.
499D. Special Studies in Drawing (3) F, S Staff
Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in drawing. Limited to six units.

## 4991. Special Studies in Life Drawing (3) F, S Staff

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in life drawing. Limited to six units.

## 499K. Special Studies in Painting (3) F, S Staff

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in painting. Limited to six units.

## GENERAL CRAFTS

## 354A-B. General Craíts $(3,3)$ F, 5 Cummings, Snidecor

Prerequisites: Art 121, 131, 181. Crafts processes, techniques and concepts in the design and making of utilitarian art objects.

## 499B. Special Studies in General Crafts (3) F, S Cummings, Snidecor

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in general crafts. Limited to six units.

## GRAPHIC DESIGN

## 322A-B. Graphic Design $(3,3) \quad$ F, $S$ Dukes, Turnbull

Prerequisites: Art 121, 181, 187. Layout and ideas appropriate to specific graphic design problems.

## 323A-B. Graphic Design Production Processes (3,3) F, S Turnbull

Prerequisites: Art 121, 181, 223. Printing processes relative to the needs of the graphic designer from typographic design to reproduced form.

## 324A-B. Film Animation ( $\mathbf{2 , 2}$ ) F, S VanEimeren

Prerequisite: Consent of instructor. Design and production of animated films. (Field trips to film studios.)

## 325. Packaging Design (2) $F$ VanEimeren

Prerequisites: Art 322B, 323B. Materials, processes and the design of packaging and point-of-sales pieces.

## 422A-B. Advanced Graphic Design (3,3) F, S VanEimeren

Prerequisites: Art 322B, 323B.

## 4995. Special Studies in Graphic Design (3) F, S Staff

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in graphic design. Limited to six units.

## ILLUSTRATIONS

## 371A-B. Illustration ( 3,3 ) $\mathbf{F}, \mathbf{S}$ Oden

Prerequisites: Art 111, 112A,B, 121, 131, 161, 181, 184, 187. Creative magazine and book illustration.

## 372. Anatomy for Artists (2) F, S Mendez, Oden

Prerequisites: Art 181, 184. Skeletal and muscle structure emphasizing the development of skill in depicting the human figure.

## 373. Fashion Illustration (2) S Oden

Prerequisites: Art 371A, 372. Fashion drawing for reproduction.

## 471A-B. Advanced Illustration (3,3) F, S Oden

Prerequisite: Art 371B.

## 499F. Special Studies in Illustration (3) F,S Oden

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in illustration. Limited to six units.

## INDUSTRIAL DESIGN

## 330A-B. Industrial Design Technology (2,2) F, S Staff

Application of design principles to specific problems in the fields of industry. Not open to art majors or art minors.

## 331A-B. Industrial Design (2,2) $\mathbf{F}, \mathbf{S}$ Kammermeyer

Prerequisites: Art 121, 131, 181 or 224; Art 331B: Art 237, 271. Planning and design of useful products for industrial production.

## 332. Rapid Visualization (2) F, $\mathbf{S}$ Myers

Prerequisites: Art 181 or 224,271 or consent of instructor. Visual presentation of concepts with emphasis on qualitative and quantitative techniques of communication as used in contemporary industrial design.

## 333A-B. Industrial Design Methodology (2,2) F, S Kammermeyer

Prerequisites: Mathematics 100, 101 or consent of instructor. Examination of methods and techniques in design problem solving.

431A-B. Advanced Industrial Design (4,4) F,S Tyrnauer
Prerequisite: Art 331B, Physics 100A,B, Industrial Technology 301 and 306 or consent of instructor. Advanced planning and design of projects in the area of mass produced objects, packaging, traffic, transportation, mechanical design and shelter.

## 499G. Special Studies in Industrial Design (3) F, 5 Staff

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in industrial design. Limited to six units.

## INTERIOR DESIGN

341A-B. Interior Design (3,3) F, S Brisker
Prerequisites: Art 112A,B, 121, 131 and 181 or 224; 341B: 224, 271. Design of interior environments emphasizing interrelationships between interior space, architectural form and human factors in design.

## 342A-B. Architectural Drawing and Rendering (2,2) F, S

Prerequisites: Art 121, 131, 181, 187, 224, 271. Drawing, rendering and techniques of graphic expression for interior designers. Includes working drawings.
343. Materials of Architecture and Interiors (3) F Serfaty

Materials, processes and resources as they relate to architecture and interior design. Examination of technology and application through lecture, demonstration and field trips.

## 441A-B. Advanced Interior Design (3,3) F,S Brisker

Prerequisites: Art 341B, 342A-B or consent of instructor. Advanced design and space planning problems emphasizing relationships between the environment and human factors in design.

499H. Special Studies in Interior Design (3) F, S Staff
Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in interior design. Limited to six units.

## METALSMITHING AND JEWELRY

## 357A-B. Jewelry (3,3) F, S Muller-Stach, Pine

Prerequisite: Art 131. The design and creation of jewelry.

## 358A-B. Metalsmithing ( 3,3 ) F, S Muller-Stach, Pin

Prerequisites: Art 357A, Industrial Arts 282. The design and creation of flatware and holloware.

458A-B. Advanced Metalsmithing and Jewelry ( 3,3 ) F, S Muller-Stach, Pine
Prerequisites: Art 357B or 358 B and consent of instructor. Individual problems in metalsmithing and jewelry.

## 499J. Special Studies in Metalsmithing and Jewelry (3) F, S Staff

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in metalsmithing and jewelry. Limited to six units.

## PRINTMAKING

## 378. Intaglio and Relief Printmaking (3) F,S Swift

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 Swift

Prerequisite: Art 277. Black and white and color lithography and silk screen processes.
477A-B. Advanced Intaglio and Relief Printmaking $(3,3) \quad$ F, 5 Swift
Prerequisite: Art 378.

## 478A-B. Advanced Lithography and Serigraphy $(3,3)$ F, S Swift

Prerequisite: Art 379.
499R. Special Studies in Printmaking (3) F,S Swift
Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in printmaking. Limited to six units.

## SCULPTURE

## 361. Life Sculpture (3) F, S Cohen

Prerequisite: Art 161. Sculpture based on the human figure.

## 362A,B. Sculpture Processes (3,3) F, S Glenn, Harris

Prerequisites: Art 161, 263. Traditional and non-traditional sculpture processes.

## 363. Sculpture (3) F,S Cohen

Prerequisite: Art 362A or B. Composition in sculpture.

## 461. Advanced Life Sculpture (3) F, S Cohen

Prerequisites: Art 361, 362A or B.
463. Advanced Sculpture (3) F, S Cohen

Prerequisites: Art 361, 362A,B, 363.

## 499M. Special Studies in Sculpture (3) F, S Staff

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in sculpture. Limited to six units.

## TEXTILE DESIGN

327A-B. Surface Design $(3,3)$ F, S Leland
Prerequisites: Art 121, 181, 187. Variety of design concepts in relation to media and processes appropriate to both hand and commercial application to textile and other surfaces.

## 328A-B. Weaving (3,3) F, S Leland

Prerequisites: Art 121, 181, 187; consent of instructor for 328B. Weaves, techniques, and materials of structural textile design.

## 428A-B. Advanced Weaving $(3,3)$ F, $S$ Leland

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.

## 499N. Special Studies in Textile Design (3) F, $S$ Leland

Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in textile design. Limited to six units.

## THEATRE DESIGN

## 347A-B. Theatre Design (2,2) F, S Merlino

Prerequisites: Art 112A,B, 121, 131, 181, 187. Sets, costumes and properties for the contemporary theatre in education.
4990. Special Studies in Theatre Design (3) F, S Merlino
Prerequisite: Consent of instructor. Opportunity for extensive work with faculty supervision on individual problems in theatre design. Limited to six units.
GRADUATE DIVISION
509A-B. Studio Problems in Art Education (2,2)
599. Studio Problems in Art ..... (3)
601A-B. Seminar in Art Education ..... $(3,3)$
611. Seminar in Art History ..... (3)
696. Research Methodology ..... (2)
697. Directed Studies ..... (1-3)
698. Thesis or Project ..... (2-6)

## DANCE DEPARTMENT

## (School of Fine Arts)

Assistant Professors: Kennedy, Schlaich.
Instructor: Hamilton.
The Dance Department provides a comprehensive instructional program in both traditional and contemporary dance and in the cultural background of dance. Students appear in public performances sponsored by the department and in dance roles in the musical-theatre productions sponsored jointly by the Theatre Arts, Music and Dance Departments. The department sponsors the Long Beach Summer School of Dance, a comprehensive summer course in dance designed to meet the needs of dance teachers, college dance students, performers and choreographers. This six-week program is instructed by leading professional artists from all parts of the country and involves about 200 full time students. The department also offers a minor in dance.

## MINOR IN DANCE

Lower Division: Dance 107, 108, 109, 220.
Upper Division: Dance 320, 331, 441, 490 (3 units).

## LOWER DIVISION

## 107. Modern Dance Techniques I (2) F,S Staff

Basic skills and techniques of modern dance.

## 108. Ballet Technique I (2) $F$ Staff

Prerequisite: Basic dance course or consent of instructor. Ballet skills and techniques. History and appreciation of ballet.

## 109. Modern Dance Technique II (2) S Staff

Prerequisite: Dance 107. Increased skill and development in the techniques of modern dance.
162. Introduction to Dance for the Theatre (2) F, S Hamilton

Fundamentals of movement theories and techniques with direct application to stage movement.

## 180A,B. Dance Performance (1,1) F, S Staff

Prerequisite: Consent of instructor. Participation in College-sponsored dance concerts. Some concert participation is by audition only.
210. Modern Dance Technique III (2) F Hamilton

Prerequisite: Dance 109 or consent of instructor. Increased skill in the techniques of modern dance.

## 220. Elements of Choreography (3) S Schlaich

Prerequisites: Two dance technique courses or consent of instructor. Theory and practice in the basic elements of dance composition.

## UPPER DIVISION

## 303. Modern Jazz I (2) F Staff

Basic theory and practice of modern jazz dance.

## 305. Ballet Technique II (2) 5 Staff

Prerequisite: Dance 108 or consent of instructor. Increased skill in the techniques of ballet.

## Dance

320. Solo and Small Group Composition (3) F Kennedy

Prerequisite: Dance 220. Development of theme and style in solo and small group studies.

## 331. Music for Dance (3) F Abeling

Prerequisite: Dance 107 or consent of instructor. Theoretical and practical analyses of musical forms and instruments for dance accompaniment related to class work and performance. Includes a music repertoire for dance.

## 380A,B. Dance Performance ( 1,1 ) F,S Staff

Prerequisite: Consent of instructor. Participation in College-sponsored dance concerts. Some concert participation is by audition only.

## 403. Jazz II (2) $F$ Staff

Prerequisite: Dance 303 or consent of instructor. Advanced theory and practice in jazz dance.

## 441. History of Dance (3) S Schlaich

History of dance from primitive to contemporary times. Cultural importance of dance as an art form.
462. Advanced Dance Movement for the Theatre (2) F, 5 Hamilton

Prerequisite: Dance 162 or consent of instructor. Movement, modern dance and choreography for the actor, teacher and director of theatre arts and musical theatre.
469. Long Beach Summer School of Dance (6) SS DuPont, Schlaich

Comprehensive course in dance offering students an opportunity to work with professional artists. Includes theory and practice in dance areas from beginning to advanced levels.

## 485. Contemporary Dance and the Fine Arts (2) F Kennedy

Advanced theory and practice relating contemporary dance to the fine arts. Not open to students with credit in Women's Physical Education 561.
490. Directed Studies in Dance (1-3) S Schlaich

Prerequisite: Consent of instructor. Independent projects and research of advanced nature in any area of dance.

# MUSIC DEPARTMENT 

(School of Fine Arts)
Professors: Anderson, Becker, Dallin, Daniel, Gibson, Helm, Lampl, McGarrity, Musafia, Neiswender, Pooler, Squire, Stroud, Temianka, Tyndall, Winslow.
Associate Professors: Curtis, Rayner.
Assistant Professors: Andrus, Applebaum, Ardrey, Crockett, Martin, Reed, Sindelar.
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 to the satisfaction of the faculty.

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 (Choral Organizations, Symphony Orchestra or Band) is required of each music major each semester.

A satisfactory senior project is a prerequisite to graduation.
The Music Department holds an associate membership in the National Association of Schools of Music. The bachelor of music and the bachelor of arts degrees in music are accredited by the association.

## MAJOR IN MUSIC FOR THE BACHELOR OF MUSIC DEGREE

A minimum of 64 units including the core and one area of concentration, which should include at least 12 upper division units. Concentrations include history and literature, composition, instrumental music, choral-vocal music and individual performance. Admission to the concentration by audition and approval of the chairman of the department. Application for admission to concentration must be submitted no later than the beginning of the junior year, and significant progress must be demonstrated during the remaining two years.
Core: Music history and literature (Music 160, 260, 360 plus 2 additional units from Music 460, 461, 462, 463, 465, 466, 490); music theory (Music 141A-B, 142A-B, 241, 341, 342); music performance (Music 100, 300-at least one unit each semester in residence); keyboard proficiency (equivalent to Music 220B); semester recital (Music 020 -each semester in residence); senior project (Music 428).

## Music

## Options:

History and Literature. Required: performance level of grade 8 in piano or grade 6 in other performance mediums, Music 469, 490, 2 units of 499 by advisement. Elect 10 units from Music 460, 461, 462, 463, 464, 465, 466; may elect additional units from Music 429, 442, 444, 445, 491. Recommended general education courses: English 101, foreign language equivalent to 201 A , art history, theatre history, history.

Composition. Required: performance level of grade 8 in piano or grade 6 in other performance mediums; 12 units selected from the following: Music 422, 425B, 429, 441, 442, 443, 444, 445, 491, 499.

Instrumental Music. (This option is intended for teaching credential candidates.) Music 429 (4 units); Music 425A, 425B, 442, 481, 482A, 482B; 10 units of individual instruments, Music $125 / 325$, to be distributed by advisement over brass, woodwinds, strings and percussion. Required: performance level of grade 8.

Choral-Vocal Music. (This option is intended for teaching credential candidates.) Music 429 (4 units); Music 320 or $322,327,328,421$, 422, 426, 483A, 483B; 8 units selected from Music 130, 330, 425A, 425B, $442,444,460,461,462,466$. Required: performance level of grade 8.

Performance. 2 units of individual instruction required each semester in residence with an achievement of grade 10 . Music 335 will replace 8 units of this requirement in certain concentrations when offered and advised by the department.

Piano: Music 321, 431, 460; Music 200/400 (4 units); Music 335 (8 units in place of Music 429).

Organ: Music 421, 423, 444, 461.
String Instruments: Music 425A, Music 200/400 (4 units); Music 335 ( 8 units in place of Music 429, when available).

Wind Instruments: $425 \mathrm{~A}, 425 \mathrm{~B}, 464,465$; Music 200/400 (4 units).
Voice: Music 328, 332, 421, 426, 432A,B, 462.
Opera: Music 328, 332, 421; Theatre Arts 231; Music 463 to complete core; 3 additional units selected from Theatre Arts 242, 244, 246, 362; Music 130/330 allowed for 4 units of activity credit.

Piano Accompanying: Music 326, 421, 431; Music 200/400 (4 units); Music 462 to complete core.

## MAJOR IN MUSIC FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Music 020 (four semesters), 100 (four semesters), 141A-B, 142A-B, 241, 260, keyboard competency equivalent to 220B.
Upper Division: At least 24 units of upper division music courses, including: Music 300 (four semesters), 341, 342, 360, 429 (four semesters), 428. Undergraduates carrying more than 6 units are required to take Music 020 every semester except the semester of the senior project.

## Teaching Credentials:

See Credential Section and Instrumental Music and Vocal-Choral Music options under B.M. degree.

## MUSIC PERFORMANCE

Opportunities to participate in various instrumental and vocal ensembles are available to all students. 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 in Music 100 or 300 may be counted toward a bachelor's degree. Simultaneous enrollment in more than one section is permitted.

## LOWER DIVISION

## 020. Semester Recital (0) F,S Staff

Recital attendance and performance on principal instrument or voice. Required of undergraduate music majors each semester.

## 100. Performance (1) F, S Staff

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. Class Piano ( 1,1 ) $\mathrm{F}, \mathrm{S}$ Staff

Technique, tone production, rhythm, sight-reading, interpretation and keyboard facility. Meets piano requirement for music majors and minors.

## 121A-B. Piano for Elementary Teachers (1,1) F,S Gibson

Techniques, rhythm, sight-reading, keyboard facility. Piano materials for the classroom teacher.

## 122A-B. Class Voice ( 1,1 ) $F$, $S$ Staff

Fundamental technique of singing, tone production, voice placement, breathing, diction. Repertoire and song interpretation.
125. Beginning Instruments (1) F,S Staff

Prerequisite: Limited to music majors and minors. 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.

## 130. Opera (1) F,S Lampl

Preparation, rehearsal and public performance of traditional and contemporary opera. May be repeated for credit.

## 140. Basic Music Theory (3) F, S Staff

Notation and reading of music. Written, aural and performance experience with scales, intervals, chords, and melodies. Provides essential background for more advanced courses in music theory. (Lecture 2 hours, laboratory 3 hours.)

## 141A-B. Musicianship ( $\mathbf{2 , 2}$ ) F, S Staff

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. Harmony (3,3) F, S Staff

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.

## 145. Fundamentals of Music (3) F, S Staff

Music reading and writing related to the special creative and performance interests of the students. Not open to music majors.

## Music

## 160. The Arts and Society (3) F, S Daniel

Examination of the nature of the arts, the creative process, the materials and media, and its changing role in history and in society.

## 180. Exploring Music (3) F, S Staff

Fundamentals of music and essentials of music listening. Performance skills in singing and playing music.

## 190. Listener's Approach to Music (3) F, S Staff

Nontechnical course open to all students except music majors. Materials, forms and styles of music with extensive listening.
200. Performance (1) F,S Staff

Prerequisite: Consent of instructor. Specialized performance groups, such as madrigal singers, chamber music, brass or woodwind ensembles, string quartet, etc.

## 220A-B. Class Piano $(1,1)$ F, $S$ Staff

Continuation of 120A-B.

## 222A-B. Class Voice $(1,1) \quad F, S$ Staff

Continuation of $122 \mathrm{~A}-\mathrm{B}$.

## 241. Counterpoint (3) F, S Staff

Prerequisites: Music 141B and 142B. Counterpoint in two, three and four parts.

## 260. History of Music (3) F,S Rayner

Primarily for music majors and minors, but open to others who read music. Chronological study of music from 1750 to the contemporary scene. Selected readings, recordings and scores intensively studied.

## 280. Music Theory for Classroom Teachers (3) S Squire

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. Community and Recreational Music (2) F, S Neiswender

Singing for enjoyment. Survey, singing and directing of song materials used in camps, scouting, schools, church youth groups, banquets. Techniques of song leading.
290. Music in General Culture (3) F, S Squire

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 Staff

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. Intermediate Piano (2) $F, S$ Staff

Prerequisite: Music 220 B or consent of instructor.

## 321. Piano Methods (2) F Musafia

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. Intermediate Voice (2) $S$ Neiswender

Prerequisite: Music 222B or consent of instructor.

## 323. Vocal Techniques for Teachers (2) F,S Neiswender

Prerequisite: Music 122B or consent of instructor. Philosophy, principles, methods of teaching vocal music in the public schools. Techniques of teaching individual and class voice.
324. Introduction to Organ Technique (2) $F$ Stroud

Prerequisite: Music 220B or consent of instructor. Acquaints pianists with organplaying technique; registration, pedal technique, repertoire; performance of simple compositions, accompaniments and hymns.
325. Intermediate Instruments (1) F, S Staff

Prerequisite: Music 125 or consent of instructor. Class instruction in applied music. May be repeated for credit.

## 326. Piano Accompanying (2) 5 Lampl

Prerequisite: Piano major or consent of instructor. Instruction and training in the art and the techniques of accompanying for singers, instrumentalists and ensembles. Not open to students with credit in Music 228. (Lecture 1 hour, laboratory 3 hours.)
327. Techniques of Choral Singing (2) $S$ Pooler

Vocal and aural training of the choral musician.

## 328. Diction for Singers (2) $F$ Neiswender

Prerequisites: Music 122A-B or equivalent. Principles of pronunciation and enunciation of English, German, French and Italian texts, with special emphasis on the rhythmic and dramatic aspects of articulation. Use of international phonetic alphabet.
330. Opera (1)

F, $s$ Lampl
See Music 130.
332. Opera Repertoire (2) 5 Lampl

Prerequisites: Two years of voice study or equivalent and consent of instructor. Study and musical preparation of representative opera excerpts (arias, ensembles, and entire roles). Vocal interpretation as function of the dramatic action.

## 335. Advanced Performance (2) F, S Musafia, Temianka

Prerequisite: Consent of instructor. Advanced study in a performance medium with equal emphasis on concert repertoire and technique. Includes special training for a performing career. May be repeated for credit to a maximum of 8 units.

## 341. Musical Form (3) F, S Staff

Prerequisites: Music 142B, 241. Small, large, multimovement, variation, and contrapuntal forms in instrumental and vocal music.
342. Maferials of Modern Music (3) F,S Staff

Prerequisites: Music 142B, 241. Melodic, harmonic, rhythmic and contrapuntal materials of 20th Century music. Analysis of representative compositions and writing in typical contemporary styles.

## 360. History of Music (3) F,S Rayner

Primarily for music majors and minors, but open to others who read music. Chronological study of music from antiquity to 1750 . Selected readings, recordings and scores intensively studied.

## Music

380. Elementary Music Education (3) F, S Gibson

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. Recommended for the Elementary Credential candidate. Not open to music majors.
381. Foundations of Music Education (3) F,S Gibson

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. Children's Literaure in Music (2) F, S Staff

Music materials designed for children's listening and singing, together with principles of presentation.

## 383. Problems in Elementary School Music (2) SS Gibson

Prerequisite: Music 380 or 381 or consent of instructor. Procedures and materials used in elementary school music. Specific projects based upon individual needs.

## 385. Musical Concepts (3) F, S Anderson

Prerequisite: Music 180. Effects and interrelations of melody, rhythm, harmony and form in the music of various periods and cultures. Advanced applications through reading, writing, performing and listening to music.

## 386. Music for Early Childhood (3) F, S Gibson

Prerequisite: Music 180 or consent of instructor. Comprehensive analysis of music materials and activities suitable for early childhood.
390. Music in Western Civilization (3) $F$, $\mathbf{S}$ Helm

Music from the Renaissance to the present; lectures, readings and listening. Not open to music majors.

## 393. Jazz, An American Music (3) F, S Helm

Studies from recordings, readings and live performances, the informative influences of jazz and its historical development up to the present. Musical style in jazz compared to that of other music and to other concepts of form in art.

## 395. Field Study in Music (6) SS Staff

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 Staff

Prerequisite: Consent of instructor. Specialized performance groups, such as madrigal singers, chamber music, brass or woodwind ensembles, string quartet, etc.

## 421. Choral Conducting (2) F,S Pooler, Reed

Prerequisite: Music 327 or consent of instructor. 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. Advanced Choral Conducting and Literature (2) F Pooler

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. Organist's Practicum (2) S Stroud

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 Stroud

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 Lampl, MeGarrity
Three hours weekly. (425A not open to students with credit in Music 420.)
426. Vocal Pedagogy (2) Feiswender

Prerequisite: Consent of instructor. Theory and techniques of teaching voice.
428. Senior Project (0) F,S Staff

Standard literature for solo instrument or voice and performance of a balanced program in solo recital or a written project in certain options in the bachelor of music degree. Enrollment restricted to music majors passing the qualifying examination.
429. Individual Instruction for Music Majors (1) F, S Staff

Open to music majors only. Private lessons in their major performance medium. Application must be made to the chairman of the Music Department during the semester prior to registration. Registration is subject to his approval. May be repeated for credit.

## 431A,B. Score and Sight Reading (2,2) F, S Musafia

Prerequisite: Consent of instructor. Instruction in reading piano music at sight and in reducing vocal and instrumental scores at the piano. Studies in transposition.

## 432A,B. Song Repertoire (2,2) F, S Neiswender

Prerequisite: Voice major or consent of instructor. Selecting and preparing song literature for public performance. Coaching in languages, musical style and vocal techniques.
441. Studies in Musical Analysis (2) F Staff

Prerequisite: Music 341. Intensive individual and class analysis of representative compositions of various periods and styles.
442. Instrumentation (3) F,S Staff

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 Staff

Prerequisite: Music 442. Scoring and arranging for orchestras of various sizes, for band and symphonic wind ensemble, and for voices.
444. Composition I (2) F, S Staff

Prerequisite: Music 341 or consent of instructor.
445. Composition II (2) F,S Staff

Prerequisite: Music 444 or consent of instructor. May be repeated to a maximum of 6 units.
460. Keyboard Literature (2) S Musafia

Prerequisite: Music 360 or Music 390 or consent of instructor.

## 461. Organ Literature (2) 5 Stroud

Prerequisite: Music 360 or Music 390 or consent of instructor. Organ music from the Renaissance to the present.

## 462. Song Literature (2) Staff

Prerequisite: Music 360 or Music 390 or consent of instructor. Music for solo voice composed after 1600 . Vocal proficiency not required.

## Music

## 463. Music of the Theater (2) $F$ Lampl

Prerequisite: Music 360 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. Chamber Music Literature (2) S Temianka

Prerequisite: Music 360 or Music 390 or consent of instructor. Music for various instrumental ensembles representative of various periods and composers.
465. Symphonic Literature (2) Ftaff

Prerequisite: Music 360 or Music 390 or consent of instructor. Symphony and symphonic poem from their inception to the present time.

## 466. Church Music (2) F Squire

Prerequisite: Music 360 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.

## 469. Music in the Humanities (2) S Odd years Helm

Prerequisites: Music 160, 260, 360. Exploration of the nature of the musical medium and its logic in relation to various philosophical, artistic and esthetic frameworks, past and present. Required of all music literature majors.

## 480. Marching Band Techniques (2) Furtis

Marching fundamentals, charting formations, precision drills, parade technique and half-time pageantry.
481. Instrumental Organization and Literature (3) 5 Curtis

Procedures for organization and development of instrumental programs and literature for performing groups.

## 482A,B. Instrumental Music Laboratory (1,1) F, S Curtis, Martin

Laboratory experience in performance on secondary instruments of elementary and junior high level music materials.

## 483A,B. Choral Repertoire ( 1,1 ) F, $S$ Reed

Traditional and contemporary choral repertoire for public school teachers and church choir directors.

## 490. Musical Cultures of the World (3) F, S Musafia

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 Rayner

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, 5 Staff

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. Advanced Instrumental Conducting

541. Studies in Homophonic Music (3)
542. Studies in Polyphonic Music (3)
543. Music of the Renaissance

Music of the Baroque Period
Music of the Classic Era
(3)

Music of the Romantic Era (3)

Twentieth Century Music
(3)

Studies in Contemporary Music Education

1. Studies in Elementary School Music
(3)
2. Studies in Secondary School Music Seminar in Musical Analysis (3) Seminar in Advanced Composition Seminar in Instrumental Music Teaching Seminar in Choral Music Teaching Research Methods (3) Thesis or Project (2-6)

## THEATRE ARTS DEPARTMENT

(School of Fine Arts)

Professors: Camburn, Duckwall, Green, Kahan, MacArthur, Stiver, Wright.
Associate Professor: Lyman.
Assistant Professors: Bailor, Eggers, Rankin, Rugg, Shoup, Skalka.
Instructors: French, Parvaresh, Smith, Sorrels, Travis.
The Department of Theatre Arts offers three basic programs leading to the bachelor of arts degree with opportunities for options in performance (acting/directing), technical theatre (scenery/costume/lighting design) and children's theatre. Each program provides appropriate background for its respective teaching credential at the elementary or secondary level. Each program will provide a background for the master of arts degree in theatre arts which, in turn, is the basis for a junior college credential and other professional objectives.

This flexibility of program planning in theatre arts 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 theatre arts 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 theatre arts 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 professional theatre. Several course offerings in theatre and dramatic literature are available jointly with the Comparative Literature Department. These courses cover the full range of world drama from both the viewpoint of theatre and dramatic literature.

All majors are required to participate with or without credit in the departmental production program each semester. Furthermore, majors enrolled in any acting course are expected to be available, try out and participate in departmental productions in that semester. Majors are also expected to seek approval from their advisers before making any commitment to a theatre program which lies outside of the departmental academic atmosphere.

## MAJOR IN THEATRE ARTS FOR THE BACHELOR OF ARTS DEGREE

The theatre arts core is required of all majors regardless of option. Lower Division: Theatre Arts 112, 114, 124, 242, 244, 246; Dance 162. Upper Division: Theatre Arts 321, 322, 346, 348, 374, 476. Theatre Arts 010 (no unit credit) is required each semester of enrollment. No more than 8 units of theatre arts activity (cast and/or crew) will apply toward degree requirements.

## Theatre Arts

## Option in Performance: Acting/Directing

Theatre Arts 314, 216A or B or 316A or B, 426, 432, 443 and 9 units of approved electives selected from Theatre Arts 231, 310A,B, 359, 363, 414, 431, 474 and 498.

Option in Technical: Scenery/Costume/Lighting Design
Theatre Arts 341, 347, 444, 446, 448 and 8 units of approved electives selected from Theatre Arts $342 \mathrm{~A}, \mathrm{~B}, 440 \mathrm{~A}, \mathrm{~B}, 443,445$ and 447.

## Option in Children's Theatre

Theatre Arts 352, 353, 354, 356, 358, 359 and 6 units of electives.
For additional requirements for the credential major and minor see the Credential Section.

## LOWER DIVISION

10. Theatre Arts Showcase (0) F, S Staff

Participation in weekly programs dealing with all aspects of theatre arts. Required of theatre arts majors each semester.

## 110A,B. Theatre Arts Activity-Cast (1,1) F, S Staff

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. Stage Diction (3) F, S Staff

Theory and practice in developing command of oral techniques for stage.

## 114. Elementary Acting (3) $F, S$ Staff

Introduction to problems of acting; lectures, readings and exercises in developing and projecting a character through voice, emotion and physical movement.

## 122. Appreciation of Theatre Arts (3) F, S Eggers, Wright

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 Theatre Arts 124.

## 124. Introduction to World Theatre and Drama (2) F, S Staff

Introduction to all aspects of theatre, including criticism, dramatic literature, movements, themes, historical background and theatrical production from different parts of the world. (Same course as Comparative Literature 124.)

## 140A,B. Theatre Arts Activity-Crew (1,1) F, S Staff

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. Theatre Arts Activity-Cast (1,1) F, S Staff

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. Rehearsal and Performance (2,2) F,S Lyman, Parvaresh

Prerequisite: Theatre Arts 114 or equivalent. Preparation and rehearsal for performance in short scenes, one-act plays and College-sponsored productions; no more than 4 units of Theatre Arts 216 and/or Theatre Arts 316 may be applied for graduation credit.

## Theatre Arts

## 231. Acting for the Musical Theatre (3) F Shoup

Prerequisite: Consent of instructor. Problems of performing in opera, operetta and musical comedy. (Not open to students with credit in Theatre Arts 230A-B, formerly 66A,B.

## 240A,B. Theatre Arts Activity-Crew (1,1) F, S Staff

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. Elementary Stagecraft (2) F, S Skalka

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 Theatre Arts 246.

## 244. Stage Make-up (1) F, S Smith

Practical introduction to techniques of theatrical make-up; crew assignment required in College sponsored productions.

## 246. Costume Crafts (2) F, S Camburn, Travis

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 Theatre Arts 242.)

## 270. Summer Theatre (1-6) SS Kahan, Staff

Preparation, rehearsal and public performance of College sponsored productions in an organized summer theatre similar to professional stock company; students devote full time in all phases of production. Amount of credit dependent upon amount of participation. Not more than eight units total credit in any combination of 270 and 470 may apply toward the B.A. degree.

## UPPER DIVISION

## 310A,B. Theatre Arts Activity-Cast (1,1) F, S Staff

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.

## 312. Advanced Stage Diction and Dialects (3) Even years Staff

Prerequisite: Theatre Arts 112 or equivalent. Advanced study and special problems in stage speech and a study of special dialects for the stage.

## 314. Intermediate Acting (3) F, S Staff

Prerequisite: Theatre Arts 114 or equivalent. Advanced problems of acting; developing a character through emotional, vocal and bodily expression.

## 316A,B. Rehearsal and Performance (2,2) F,S Lyman, Parvaresh

Prerequisite: Theatre Arts 114 or equivalent. Preparation and rehearsal for performance in short scenes, one-act plays and College-sponsored productions; no more than 4 units of Theatre Arts 216 and/or Theatre Arts 316 may be applied for graduation credit.
321. History of the Theatre and Drama to 1660 (3) $F$ MacArthur

Development of theatre arts from primitive origins through Moliere.
322. History of the Theatre and Drama Since 1660 (3) S MacArthur

Prerequisite: Theatre Arts 321 or consent of instructor. Development of theatre arts from the Restoration to the present.

## 324. World Theatre Today (3) 5 Rugg, Wright

Current trends, problems and achievements of the theatre of the present day from an international point of view, with an examination of influences of the avant-garde movement of post World War I (Expressionism, Dada, Surrealism, the Absurd, Existentialism). (Same course as Comparative Literature 324.)

## 325. Asian Theatre and Drama (3) $F$ Shoup

History and background of Asian theatre; style of execution and production; influence of Asian theatre on Europe and America; emphasis on India, China and Japan. (Same course as Comparative Literature 325.)

## 340A,B. Theatre Arts Activity-Crew (1,1) F, S Staff

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.

## 341. Graphics for the Theatre (3) Famburn

Interpretation of form, architecture, landscape, drapery and the costumed figure for the theatre designer through basic drawings, watercolor, gouache and mixed media. (No previous art training required.)

## 342A-B. Advanced Technical Theatre (2,2) F, S Duckwall, Skalka

Prerequisite: Theatre Arts 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.

## 346. Costume History for the Stage (3) F,S Camburn, Duckwall

Chronological study of fashions, modes and mores of major historical periods and their application in contemporary stage productions.
347. Advanced Costume History (3) F Camburn

Prerequisite: Theatre Arts 346 or equivalent. Specialized consideration of historical costume periods for the theatre designer. Emphasis on research source, textiles, color, structure and technical reproduction for the stage.

## 348. Stage Lighting (2) F,S Green, Skalka

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. Creative Dramatics for Children (3) F,S Rugg, Smith

Theory and techniques of developing creative capacities of children through original dramatizations; participation and leadership in creative dramatics; application of principles to elementary school and recreational programs.
353. Dramatic Literature for Children's Theatre (3) F Rugg

Survey of dramatic literature for the child audience.
354. Theatre for Children (2) $F$, $S$ Rankin

Problems of presenting plays for children; examination of organizations for children's theatre productions.

## 356. Puppetry (3) 5 Odd years Staff

Introduction to the history and forms of puppetry. Practical experience in productions of puppet plays.

## 358. Recreational Dramatics (3) $F, S$ Rugg

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 Rugg

Prerequisites: Theatre Arts 354, 374, or consent of instructor. Technical problems, production experience in College sponsored children's theatre productions, recreational dramatics, field work.

## 363. Mime (2) F,S Hamilton

Prerequisite: Dance 162 or consent of instructor. Fundamentals in the art of communication through movement. Use of the human body as an instrument for the expression of emotions, dramatic narrative and characterization.

## 372. Play Production (3) S Stiver

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 theatre arts majors.

## 374. Fundamentals of Play Direction (3) F, 5 Lyman, Stiver

Interpretation of the play; casting; composition and movement; vocal techniques; tempo and climax; organization of production staff. For theatre arts majors and minors only.

## 380. Playwriting (2) F Lyman

Creative writing for the stage.
410A,B. Theatre Arts Activity-Cast (1,1) F,S Staff
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. Advanced Acting (3) F, S Shoup, Wright

Prerequisite: Theatre Arts 314. Advanced study and exercises; familiarity with historical acting styles. Factors of costume, socio-cultural attitudes and dramatic forms.

## 421. Classical Drama (3) F Staff

Greek and Roman drama, in translation. (Same course as Comparative Literature 421.)
422. Renaissance Theatre and Drama (3) $F$ Staff

Prerequisites: Two courses in literature or theatre arts or consent of instructor. Achievements, problems, trends of Renaissance theatre and drama in Spain, France, Italy and England. (Same course as Comparative Literature 422.)
423. Continental Drama to Ibsen (3) Staff

European drama, in translation, from the Middle Ages to Ibsen, excluding British. (Same course as Comparative Literature 423.)
426. Dramatic Theory and Criticism (3) F Kahan, Wright

Study of dramatic types including tragedy, comedy and melodrama; major historical and modern criticism.
428. Selected Periods in Theatre and Drama (3) $S$ Staff

Prerequisites: Two courses in literature or theatre arts or consent of instructor. Study of special movements and periods in the history of drama and theatre, to be selected each semester. (Same course as Comparative Literature 428.)

## 431. Directing for the Musical Theatre (3) F Shoup

Prerequisite: Consent of instructor. Direction and rehearsal of short scenes, oneacts and College sponsored musical theatre productions. (Not open to students with credit in Theatre Arts 430A, formerly 166A.)

## 432. Lyric Theatre (3) $F$ Kahan, Shoup

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) 5 Duckwall

Prerequisite: Consent of instructor. 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 Theatre Arts 430B, formerly 166B.)

## 440A,B. Theatre Arts Activity-Crew (1,1) F, S Staff

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 Smith

Prerequisite: Theatre Arts 244 or equivalent. Makeup techniques for characterization, style and technical processes. Creative planning and projects for specific College sponsored productions.

## 444. Scene Design (3) $F$ Duckwall

Prerequisite: Theatre Arts 342A or consent of instructor. Creative planning and projects of designs for specific College sponsored productions.

## 445. Period Scenic Design (3) S Camburn, Duckwall

Prerequisite: Theatre Arts 444 or consent of instructor. Creative planning of scenic designs for various types of period plays with emphasis on Greek, Elizabethan, 18 th and 19th century dramas.

## 446. Costume Design (3) F, S Camburn, Travis

Prerequisite: Theatre Arts 246 or equivalent. Technique of designing stage costumes of various historical periods; creative planning and projection of designs for specific College sponsored productions.
447. Advanced Costume Crafts (3) S Odd years Camburn, Travis

Prerequisite: Theatre Arts 246 or equivalent. Advanced technical problems in costume and accessory construction; production planning pattern drafting.

## 448. Stage Lighting Design (3) F Green, Skalka

Prerequisite: Theatre Arts 348 or equivalent. Techniques of designing lighting for various stage forms; creative planning and projection of designs for specific productions.
470. Summer Theatre (1-6) SS Kahan, Staff

See Theatre Arts 270.
474. Advanced Play Direction (3) F,S Bailor, Sorrels

Prerequisites: Theatre Arts 114, 242, and 374 or equivalent. Lecture and workshop in directing scenes and producing all College plays.
476. Theatre Management (3) F Eggers

Examination of administration, management and promotion of a producing theatre organization; practical application required in College sponsored productions.
480. Advanced Playwriting (2) F Lyman

Prerequisite: Theatre Arts 380 or consent of instructor. Creative writing for the stage.

## Theatre Arts

## 498. Special Studies in Theatre Arts (3) F,S Staff

Prerequisite: Consent of instructor and department chairman (consent of instructor and graduate coordinator if taken for graduate credit). Independent projects and research of advanced nature in the area of theatre arts under faculty supervision. Limited to six units in any one area. Area will be designated by letter at time of registration as (a) acting, (b) directing, (c) costume, (d) scenery, (f) playwriting, ( g ) children's theatre, ( h ) theatre management, ( i ) dance, ( j ) theatre history, (k) theatre criticism, (l) lighting, (m) makeup.

## GRADUATE DIVISION

514. History and Theory of Acting ..... (3)
515. Architecture of the Theatre ..... (3)
516. Directing the Period Play ..... (3)
621A,B. Seminar in Theatre History and Dramatic Literature ..... $(3,3)$
623A,B. Seminar in Contemporary Theatre $(3,3)$
626A,B. Seminar in Dramatic Theory and Criticism ..... $(3,3)$
642A,B. Seminar in Theatre Decor $(3,3)$
517. Advanced Studies in Theatre Arts ..... (3)
518. Research Methods ..... (3)
519. Thesis or Project ..... (2-4)


## SCHOOL OF LETTERS AND SCIENCE

Administrative Officer
Dr. Jerome Manheim Dean of the School HOB-215
Dr. Richard H. Wilde Associate Dean, Educational
Policy
HOB-204
Dr. Robert B. Henderson Associate Dean, Fiscal Affairs HOB-208
Dr. John T. Amendt Associate Dean, Faculty and Staff Affairs

HOB-201

## Directory of Departments

| Department | Chairman | Dept. Offices |
| :--- | :--- | ---: |
| Anthropology | Dr. Douglas Osborne | Psych. 145 |
| Biology | Dr. Bruce H. Carpenter | SC1-111 |
| Black Studies | Mr. Arthur Montgomery | FO4-251 |
| Chemistry | Dr. Roger D. Bauer | SC3-242 |
| Comparative Literature | Dr. H. L. (Peter) Carr | HOB-517 |
| Economics | Dr. Wallace N. Atherton | FO1-105 |
| English | Dr. Blaze O. Bonazza | HOB-419 |
| French-ltalian | Dr. Lindsay Thomas | FO4-174 |
| Geography | Dr. James N. Wilson | LA4-105 |
| Geology | Dr. Paul J. Fritts | SC1-115 |
| German, Classics and |  |  |
| $\quad$ Eastern Languages | Mrs. Johanna W. Roden | LA4-263 |
| History | Dr. Eugene L. Asher | FO2-106 |
| Journalism | Mr. Dixon L. Gayer | LA4-206 |
| Mathematics | Dr. Charles W. Austin | FO5-118 |
| Mexican American |  |  |
| Studies | Mr. Frank H. Cruz | FO4-274 |
| Microbiology | Dr. Frank E. Swatek | SC2-212 |
| Philosophy | Dr. Virginia H. Ringer | HOB-917 |
| Physics-Astronomy | Dr. Cramer W. Schultz | SC3-126 |
| Political Science | Dr. Robert L. Delorme | FO5-104 |
| Psychology | Dr. Earl R. Carlson | SC1-211 |
| Radio and Television | Dr. B. Joe Langston | FA1-201 |
| Social Welfare | Mrs. Erma L. Hutton | FO4-172 |
| Sociology | Dr. George W. Korber | FO4-151 |
| Spanish-Portuguese | Dr. Daniel N. Cardenas | HOB-818 |
| Speech Communication | Dr. Dale D. Drum | HOB-717 |

Other School Offices
American Indian Studies Dr. David C. Hood
Bldg. B
Asian American Studies Dr. Lloyd T. Inui
Speech and Hearing
Clinic
Dr. J. J. Thompson
LAB-112

## ANTHROPOLOGY DEPARTMENT

## (School of Letters and Science)

Emeritus: William J. Wallace.
Professors: Dixon, Ewing, McCone, Osborne.
Associate Professors: Fenenga, Key, Libby, McCorkle.
Assistant Professors: Bates, Gregory, Harman, Kershaw, Lord, Luth, Pilcher, Shermis, Swartout, Weide.
The anthropology program is designed to provide the student with a broad knowledge of the various fields of anthropology and also to provide an opportunity for emphasis of particular topical or geographic interests. Instruction is planned to meet the needs of those who wish a liberal arts background for teaching and other public service careers as well as to meet the needs of those who wish to pursue advanced degrees leading toward a career in research, advanced teaching or application of anthropological knowledge in such fields as public service, health and welfare programs and foreign service.

## MAJOR IN ANTHROPOLOGY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Anthropology 110, 120, 170; recommended, Anthropology 220, 230, 240, Sociology 100.
Upper Division: A minimum of 24 units in anthropology as follows: Anthropology 301; 3 units of topical courses selected from Anthropology 305, 307, 403, 405, 411, 413, 414, 415, 416, 496; 3 units of regional courses selected from Anthropology 321, 322, 323, 324, 325, 327, 331, $332,333,334,336 ; 3$ units of physical anthropology selected from 360 or $361 ; 3$ units of archaeological courses selected from Anthropology $341,342,345,347$; and 9 units of upper division elective courses selected in consultation with adviser.

## LOWER DIVISION

## 110. Introduction to Physical Anthropology (3) F, S Staff

Origin and present nature of man; man's relation to other animals, heredity and principles of evolutionary change, fossil evidence of prehistoric man, significance of racial variation in modern man; the origin and adaptive value of cultural behavior.

## 120. Introduction to Cultural Anthropology (3) $\mathbf{F}, \mathbf{S}$ Staff

Nature of culture; a comparative and historical approach to the religion, social organization, subsistence patterns and other aspects of the cultures of primitive, peasant and more complex societies.
170. Introduction to Linguistics (3) F, S Key

Nature of language; its structure and processes of change; language universals, contrasts and relationships; emphasis on non-Indo-European languages. Not open to students with credit in Anthropology 270.
220. Social Anthropology (3) S Kershaw

Prerequisite: Anthropology 120 or Sociology 100 or consent of instructor. Introduction to the methods, aims and development of social anthropology with an emphasis on the structural-functional approach.

## Anthropology

## 230. Comparative World Ethnology (3) F,S Gregory, Libby

Prerequisite: Anthropology 120 or consent of instructor. Primitive and peasant cultures representing major world areas and different levels of development; emphasis on the interaction of environment, technology, social system and culture history. Not open to students with credit in Anthropology 300.
240. Introduction to Archaeology (3) F, S Fenenga, Weide

Contributions of archaeology toward understanding the growth and development of human cultures; survey of world-wide prehistory from the Old Stone Age to the Iron Age.

## UPPER DIVISION

## 301. History of Anthropology (3) F, S Lord

Prerequisite: Anthropology 120 or consent of instructor. Growth of Anthropology from the earliest times to the present. Various schools of thought and outstanding contributors and their works will be studied.

## 302. Quantitative Methods in Anthropology (3) F Bates

Prerequisites: High school mathematics and consent of instructor. Survey of sampling statistics with emphasis on anthropological data. Basic statistical measures, common sampling distributions, tests of hypotheses.
305. Comparative Religion: the Anthropological Approach (3) $F$ Dixon

Prerequisite: Anthropology 120 or consent of instructor. Variety of religious beliefs and practices in cultures throughout the world, analyzed from a broad comparative view of religion as a universal human institution, emphasis on the nature, meaning, and functions of religion in human society.

## 307. Folklore (3) S Ewing, Swartout

Prerequisite: Anthropology 120 or consent of instructor. Myths and tales of peoples of the world; the place of folklore in cultural life and its spread from one people to another.
321. Indians of North America (3) F Fenenga

Prerequisite: Anthropology 120 or consent of instructor. Introduction to the history, physical characteristics and cultures of the Indians north of Mexico.
322. Indians of California (3) 5 Fenenga

Prerequisite: Anthropology 120 or consent of instructor. Origin, physical characteristics, languages, history and cultures of the Indians of California.
323. Indians of Mexico and Central America (3) S, 1972 and alternate years Harman, McCorkle
Prerequisite: Anthropology 120 or consent of instructor. Cultural background and current economic, social and religious institutions of the Indians of Mexico and Central America.

## 324. Native Peoples of South America (3) S, 1972 and alternate years

## Harman, McCorkle

Prerequisite: Anthropology 120 or consent of instructor. Origin and development of the peoples, technologies and social systems of the native American Indian cultures of South America. Acculturation and roles of native peoples in colonial and recent national contexts.
325. Contemporary Cultures of Latin America (3) F, 1972 and alternate years Harman, McCorkle
Prerequisite: Anthropology 120 or consent of instructor. Descriptive survey of the major Latin American cultural groupings; their conquest and colonial back-
grounds and their emerging characteristics, with special attention to folk cultures and their relations to cultural change and national life. Not open to students with credit in Anthropology 323.

## 327. Peoples of the Pacific (3) F, 1971 and alternate years Osborne

Prerequisite: Anthropology 120 or 240 or consent of instructor. Origins, prehistory, physical characteristics, languages and culture patterns of Oceania; influence of island ecology on the development of cultural patterns; trends in acculturation. Not open to students with credit in Anthropology 346.

## 331. Native Peoples of the USSR (3) 5, 1972 and alternate years Libby

Prerequisite: Anthropology 120 or consent of instructor. Origins, physical characteristics, languages, environmental and historical influences on the development of cultural patterns, traditional cultures and modern development of peoples in the Soviet Union.

## 332. Cultures of China and East Asia (3) F, 1971 and alternate years Ewing

Prerequisite: Anthropology 120 or consent of instructor. 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, 1973 and alternate years Ewing
Prerequisite: Anthropology 120 or consent of instructor. 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, 1972 and alternate years Ewing

Prerequisite: Anthropology 120 or consent of instructor. 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, 1973 and alternate years Kershaw

Prerequisite: Anthropology 120 or consent of instructor. Origins, physical characteristics, languages, traditional cultures and acculturation problems of African peoples, south of the Sahara.
341. Prehistoric Cultures of Europe (3) S, 1972 and alternate years Osborne, Weide
Prerequisite: Anthropology 120 or 240 or consent of instructor. 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. Early Civilizations of the Old World (3) F, 1972 and alternate years McCone

Prerequisite: Anthropology 120 or 240 or consent of instructor. 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. Ancient Civilizations of the New World (3) 5, 1973 and alternate years Dixon

Prerequisite: Anthropology 120 or 240 or consent of instructor. 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.

## 347. Prehistoric Cultures of North America (3) F, 1971 and alternate years Fenenga

Prerequisite: Anthropology 120 or 240 or consent of instructor. Origin, growth and prehistory of American Indian cultures north of Mexico; changing economic patterns through time; development of agriculture and changes in population densities.

## 360. Human Evolution (3) F,S Bates, Luth, Shermis

Prerequisite: Anthropology 110 or consent of instructor. Fossil evidence for human evolution with a consideration of the importance of cultural factors.

## 361. Human Variation (3) F,S Bates, Luth, Shermis

Prerequisite: Anthropology 110 or equivalent or consent of instructor. Influence of culture and environmental factors upon the composition and distribution of human populations. Genetic basis for human variation and the biological validity of the race concept.

## 403. Political Anthropology (3) 5, 1973 and alternate years Staff

Prerequisite: Anthropology 220 or consent of instructor. Discussion of the principles involved in political organization and law, emphasizing tribal and other traditional social systems.
405. Economic Anthropology (3) F, 1971 and alternate years Staff

Prerequisites: Anthropology 220, 230. General principles underlying non-Western economic systems of production and redistribution.

## 411. Personality and Culture (3) S McCone

Prerequisite: Anthropology 120 or consent of instructor. Relationships between cultural, social and personality factors in human behavior; development of personality in representative cultures; changing viewpoints in culture-personality studies.

## 413. Language and Culture (3) F, S Key, Pilcher

Prerequisite: Anthropology 120 or 170 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.

## 414. Linguistic Anthropology (3) S McCone

Prerequisite: Anthropology 170 or structural linguistic courses from other departments. Language and linguistic methods for anthropological research in specific cultures. Application and use of these resources in research.
415. The Dynamics of Cultural Change (3) S Gregory

Prerequisite: Anthropology 120 and 230 or consent of instructor. 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.

## 416. Urban Anthropology (3) F Pilcher

Prerequisites: Anthropology 220, 230, any two area courses or consent of instructor. Substantive and theoretical consideration of the anthropology of cities and urban societies with special reference to societies and nations in the process of modernization.

## 450. Field Methods in Archaeology (3) S Fenenga, Weide

Prerequisites: Anthropology 120 or 240 and consent of instructor. Locating and recording of archaeological sites. Methods of excavation and recording of field data. Excavation at a local archaeological site.
451. Analysis and Interpretation of Archaeological Data (3) F Fenenga, Weide

Prerequisites: Anthropology 120 or 240 and consent of instructor. Laboratory processing and description of archaeological materials within a framework of the
theory of typology, quantitative and statistical approaches to analysis of archaeological assemblages.
460. Methods in Ethnology and Social Anthropology (3) F, S Gregory, Kershaw
Prerequisites: Anthropology 220, 230 and 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 Key

Prerequisite: Anthropology 170 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 Key

Prerequisite: Anthropology 170 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 Shermis

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. Development of Anthropological Theory (3) F, S Kershaw, Lord

Prerequisites: Fifteen upper division units in anthropology and senor 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.
496. Foundations of Anthropological Knowledge (3) S McCone

Prerequisites: Senior or graduate standing, Anthropology 495 or consent of instructor. Critical study of concepts and theory developed in anthropology, their relationship to the culture in which they have developed and to other disciplines of the study of man, the ethical and moral implications of anthropological research and knowledge; its applications to the problems of modern man.
498. Proseminar (3) F, S Libby

Prerequisites: Six units of upper division anthropology courses and consent of instructor. Survey of anthropological research methods, gathering of data, data manipulation and the writing of technical and interpretive reports.
499. Guided Studies in Anthropology (1-3) F, S Staff

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

516. Urban Anthropology (3)
517. Kinship Systems (3)
518. Advanced Field Method in Linguistics (3)
519. Directed Readings in Anthropology (1-3)
520. Seminar in Cultural and Social Anthropology (3)
521. Seminar in Archaeology (3)

## 630. Seminar in Anthropological Linguistics <br> (3)

640. Seminar in Physical Anthropology (3)
641. Directed Research (1-3)
642. Thesis (2-6)

## BIOLOGY DEPARTMENT

(School of Letters and Science)
Emeritus: Ernest L. Miner
Professors: Baird, Cox, Durbin, Hardy, R., Hrubant, Johnson, K. L., Kluss, Kroman, Lincoln, Loomis, Maxwell, Menees, Rainey, Reish, Shipley, Sleeper, Stephens, L., Stockton.
Associate Professors: Alender, Alfieri, Beekman, Bourret, Carpenter, Dailey, Keating, Mansfield-Jones, Nelson, D., Schatzlein, Warter, Wellhouse, Widdowson.
Assistant Professors: Anand, Baker, P., Biedebach, Callison, Collins, Dash, Hill, Ho, Jenkins, Jones, I., Lane, Leamy, Renshaw, Ting, Tjioe, Wood, E.
Instructor: Parmley.
Programs in biology are offered to provide adequate preparation for advanced study at the graduate level, pre-professional programs in medicine, dentistry and allied fields, as well as for teaching or careers in industry and government.

The department offers a varied program in the biological sciences which can lead to a degree in any one of the following: biology, botany, entomology or zoology. Courses in any of these degree programs should be selected in consultation with the major adviser who will be assigned by the department office. Elective courses may be selected that provide an emphasis in one, or a combination, of the following: biosystematics, ecology, genetics, marine biology, morphology and plant or animal physiology.

The department occupies facilities in three science buildings and has an electron microscope, a sea water system, greenhouses and research and teaching collections of vertebrates and invertebrates, including insects. Courses are offered in several areas of experimental biology. Because the campus is near the ocean, mountains, and deserts, the department is able to offer a number of field and laboratory courses in marine biology, ecology, entomology and vertebrate zoology.

## DEGREES OFFERED

## 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.
Upper Division: Chemistry 327 and a minimum of 24 units in biological sciences including the following: Anatomy and Physiology 340 and 340 L or 342 and 342 L or 440 or Botany 440 ; Biology 311; Botany (two courses, one of which must be Botany 321, 331, 440, or 450); Entomology 310 or Zoology 310; Zoology 330 or 331. Remaining electives should be selected in consultation with the major adviser.

## 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.

## Biology

Upper Division: Chemistry 327; 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.

## MAJOR IN ENTOMOLOGY FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Botany 212 (or 210 and 211); Zoology 210A-B; Chemistry 111A-B; Physics 100A-B; and Mathematics 102 (unless waived by placement examination).
Upper Division: Chemistry 327; Biology 311; Botany 321 or 341 or 440 (selected with adviser); a minimum of three units of ecology (Biology 350 or Botany 450 or Zoology 350) or Chemistry 441A or 448; Entomology 310; a minimum of 15 additional units in entomology (to be selected with adviser); Anatomy and Physiology 340 and 340L or 342 and 342 L or 440 or Entomology 440 and six additional units of electives in biological science or chemistry selected in consultation with the major adviser.
Four options within the general field of entomology will be offered: ecology, systematics, physiology and toxicology. Those interested in ecology or systematics will take the following courses not specified in the major: Botany 321; Entomology 320, 420, 421, 450. Those interested in a physiology or toxicology option will take the following courses not specified in the major: Botany 440, Chemistry 328 and 441A or 448, Entomology 440, 461 and electives specified by an appropriate adviser depending upon the option.

## MAJOR IN MARINE BIOLOGY FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: Botany 212, Chemistry 111A-B, Mathematics 120, Physics 100A-B, Zoology 210A-B.
Upper Division: Biology 311, 416, Anatomy and Physiology 340, 340L or 440, Botany 320, Zoology 310, 320, Chemistry 327, Geology 462; 6 units of electives in marine biology and related areas selected from Biology 452, Geology 464, Zoology 311, 312, 351, 420, 450, and C.E. 468 ; plus 6 units of electives from the following: Biology 350, 360, 361, 430; Botany 330, 331, 440; Zoology 313, 330, 331, 332, 350; and 12 units of general electives.

## MAJOR IN ZOOLOGY FOR THE BACHELOR OF SCIENCE 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).
Upper Division: Chemistry 327 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 340 and 340 L or 342 and 342 L or 440 . Remaining electives should be selected in consultation with the major adviser.
§ Students planning to enter medical, dental, or veterinary schools should substitute Entomology 311 for Entomology 310.

## ANATOMY AND PHYSIOLOGY LOWER DIVISION

## 200. Anatomy and Physiology (3) F,S Alender

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. Human Anatomy (3) F, S Parmley

General introduction to the structure of human body systems with emphasis on skeletal and muscular systems. Not open for credit to biological science majors. (Lecture 2 hours, laboratory 3 hours.)

## 202. Human Physiology (4) F, S Biedebach

General introduction to the functional integration of human body systems. Not open for credit to biological science majors. (Lecture 3 hours, laboratory 3 hours.)

## 203A-B. Anatomy and Physiology (4,4) F, S Keating, Tjioe

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, physical therapy or related disciplines. Not open for credit to biological science majors. (Lecture 3 hours, laboratory 3 hours.)

## UPPER DIVISION

## 300. Physiology for Therapists (4) F,S Anand

Prerequisites: Physical Therapy 300, Biology 200, Chemistry 300, Physics 104. Mechanisms of action and interaction of the various body systems, including the implications related to clinical and therapeutic treatment procedures. (Lecture 3 hours, laboratory 3 hours.) Not open for credit to majors in biological science.
330. Human Prosection (2) $\mathbf{F}$ Tioe

Prerequisites: Consent of instructor and Zoology 210B or Anatomy and Physiology 203B. Detailed dissection of the human body. (Laboratory 6 hours.)
340. Comparative Animal Physiology (3) F, S Beekman

Prerequisites: Zoology 210A-B, Chemistry $111 \mathrm{~A}-\mathrm{B}$. Comparison of the fundamental physiological processes of the major animal phyla. (Lecture 3 hours.)

## 340L. Laboratory in Comparative Animal Physiology (1) S Beekman

Prerequisite: Anatomy and Physiology 340 (may be taken concurrently). Laboratory course designed to acquaint students with direct observation and measurement of physiological processes in various animal groups, both invertebrate and vertebrate. (Laboratory 3 hours.)

## 341. Endocrinology (3) $F$ Schatzlein

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.)

## 342. Vertebrate Physiology (3) F, S Johnson

Prerequisites: Zoology 210A-B, Chemistry 111A-B. Principles of the function of the systems of vertebrates including man. Not open to students with credit in Anatomy and Physiology 240. (Lecture 3 hours.)

## 342L. Laboratory in Vertebrate Physiology (1) F,S Johnson

Prerequisite: Anatomy and Physiology 342 (may be taken concurrently). Laboratory course with applications to the principles included in Anatomy and Physiology 342.

## 440. General and Cellular Physiology (4) F, S Schatzlein

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 Keating

Prerequisite: Anatomy and Physiology 340 or 342 or 440 or 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 Biedebach

Prerequisite: Anatomy and Physiology 340 or 342 or 440 or consent of instructor. Emphasis upon the mechanisms by which nerve and muscle cells function. Representative examples will be selected from vertebrate and invertebrate phyla. (Lecture 2 hours, laboratory 3 hours.)
444. Special Topics in Physiology (2) On demand Staff

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.)

## 445. Digestive Physiology (2) On demand Staff

Prerequisite: Anatomy and Physiology 340 or 342 or 440 . Study of the vertebrate digestive tract with emphasis on the nervous and endocrine control of the various phases of digestion. (Lecture 2 hours.)

## 446. Respiratory Physiology (2) On demand Alender

Prerequisite: Anatomy and Physiology 340 or 342 or 440 . Analysis of respiratory mechanisms and function in higher vertebrates. (Lecture 2 hours.)

## GRADUATE DIVISION

540. Experimental Endocrinology (3)

## BIOLOGY

## LOWER DIVISION

## 100. Man and His Environment (3) F, S Staff

Biological perspective on human problems including interactions between man and the world he lives in; the problems resulting from ignoring known ecological principles and the cultural implications of biological concepts. Not open for credit to biological science majors.

## 200. General Biology (3) F, S Dash, Staff

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. Marine Natural History (3) F Staff

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.)

## 203. Conservation of Natural Resources (2) F,S Shipley

Natural resources of the world, with emphasis on those of the United States; extent, value, wise utilization and conservation of these resources for future generations. Not open for credit to biological science majors. (Lecture 2 hours.)

## Biology

## 204. Heredity (3) F,S Hrubant

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. California Natural History (3) F, S Stockton, Wellhouse

Common plants, animals, rocks and minerals; the solar system; emphasis on local species and environments. Not open to biological science majors. (Lecture 2 hours, demonstration 2 hours.)
301. Science in the Elementary School (3) F, S Durbin, Stockton

Prerequisites: Six units of natural 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. (Lecture 2 hours, demonstration 2 hours.)

## 302. Elementary School Science Workshop (2) SS Stockton

Program in carrying out science activities in grades one through eight. Not open for credit to biological science majors or minors. (Laboratory and field 4 hours.)
305. Unifying Concepts of Science (3) F,S Stockion

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. Conservation (3) F Shipley

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. Genetics (4) F,S Staff

Prerequisites: Six units of biological science including Zoology 210A or Botany 212 or 210 , Mathematics 102 . 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. Biology and Human Affairs (3) F Hardy

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. General Ecology (3) F Hardy

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. Microtechniques (3) S Kluss, Wood

Prerequisites: Six units of biological science including Zoology 210A or Butany 210. Principles and methods employed in preparation of plant and animal tissue for microscopic study. (Lecture 1 hour, laboratory 6 hours.)

## 363. Biological Graphics (2) S Johnson, R.

Prerequisite: Photography 210 or consent of instructor. Experience in the preparation of photographic and graphic material for scientific publication and science classroom instruction. Course is designed specifically for science majors. (Laboratory 6 hours.)

## 411. Mammalian Physiological Genetics (3) S Hrubant

Prerequisites: Biology 311, Chemistry 327. Genetic basis of metabolic disorders in mammals with special emphasis on man.

## 412. Quantitative Genetics (3) $S$ Leamy

Prerequisite: Biology 311. Analysis and application of genetic principles underlying genetic characters exhibiting continuous variation. Response to inbreeding and selection and the role of quantitative characters in evolutionary theory.

## 413. Molecular Genetics (3) S Ting

Prerequisites: Biology 311, Chemistry 327. Nature, replication, regulation and mode of action of the genetic material. (Lecture 3 hours.)

## 415. Special Topics in Biology (2) On demand Staff

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.)

## 416. Marine Biology (3) F, S Renshaw

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.)

## 430. Cytology (2) F, $S$ Wood

Prerequisites: Zoology 210A-B or Botany 212. Structure, organization and function of protoplasm at the microscopic and submicroscopic levels, including techniques of study.

## 431. Cytology Laboratory (2) 5 Wood

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. Cytogenetics (2) Frubant

Prerequisite: Biology 311. Development of the mitotic apparatus and chromosomal movement during cell reproduction. Structure and replication of the chromosome, synapsis and chiasma formation and aberrant chromosomal behavior.

## 432L. Cytogenetics Laboratory (2) F Even years Hrubant

Prerequisites: Biology 311 and 432 which may be taken concurrently. Microscopic study of the processes of mitosis, meiosis and aberrant chromosomal behavior. Chromosome culture, karyotyping and the effects of external agents on the chromosomes. (Laboratory 6 hours.)

## 451. Field Natural History (2-6) On demand Staff

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.)

## 452. Marine Plankton (4) F Renshaw

Prerequisite: Zoology 310. Identification, adaptations, life histories and distributions of the organisms in the sea. (Lecture 2 hours, laboratory and field 6 hours.)

462A-B. Laboratory Techniques ( 1,1 ) $\mathrm{F}, \mathrm{S}$ Staff
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.)

## Biology

## 464. Environmental Toxicology (3) F Maxwell

Prerequisites: Zoology 210A-B or Botany 210 or 212 and Chemistry 327. Metabolism, mode of action and detoxication mechanisms of extraneous chemical substances in living processes. Effects of pollutants, waste products, chemicals of commerce, warfare agents, drugs and narcotics on human health and survival, wildlife and the biotic environment.

## 496. Investigations in Biology (1-3) F, S Staff

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

500. Topics in Biology (2)
501. Organic Evolution (3)
502. Advanced Cytology (2)
503. Ecology of Marine Organisms (2)
504. Biological Literature (2)
505. History of Biology (2)
506. Biometry (3)
507. Seminar in Cellular Biology (2)
508. Field Biology and Ecology (3)
509. Seminar (1)
510. Seminar in Botany (1)
511. Seminar in Ecology (1)
512. Seminar in Entomology (1)
513. Seminar in Genetics (1)
514. Seminar in Marine Biology (1)
515. Seminar in Physiology (1)
516. Seminar in Biology (2)
517. Directed Studies (1-3)
518. Thesis (2-4)

## BOTANY

## LOWER DIVISION

200. Trees and Shrubs (3) F Baker

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. Plant Production (3) $F$ Lincoln

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. General Botany (3) Ftaff

Development of structures, functions and genetics of plants. (Lecture 2 hours, laboratory 3 hours.)

## 211. General Botany (2) Staff

Prerequisite: Botany 210. The morphology and life history of the major groups of plants. (Lecture 1 hour, laboratory 3 hours.)

## 212. General Botany (5) F, S Staff

A course combining Botany 210 and 211. (Lecture 3 hours, laboratory 6 hours.)

## UPPER DIVISION

## 310. Botany of Economic Plants (3) F Staff

Prerequisite: Botany 212. History, nature and use of the more common plants and plant products. (Lecture 2 hours, laboratory 3 hours.)

## 320. Algae (3) F,S Widdowson

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. Taxonomy of Vascular Plants (4) 5 Baker

Prerequisite: Botany 212. Principles and methods of vascular plant systematics, including history, nomenclature and phylogeny; emphasis in the laboratory is on the identification and classification of native and introduced plants of Southern California. (Lecture 2 hours, laboratory and field 6 hours.)

## 330. Plant Anatomy (3) S Alfieri

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. Plant Morphology (4) F Cox

Prerequisite: Botany 212. Comparative structure, life history and phylogenetic relationships of plants. (Lecture 2 hours, laboratory 6 hours.)

## 332. Crytogamic Botany (3) S Bourret

Prerequisite: Botany 212. Morphology, physiology and biology of the nonphotosynthetic cryptogamic plants. (Lecture 2 hours, laboratory 3 hours.)

## 341. Plant Pathology (3) F Bourret

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. Plant Physiology (4) F, S Carpenter, Lincoln

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. Plant Ecology (3) 5 Mansfield-Jones

Prerequisite: Botany 321 (may be taken concurrently). Relationship of plants to their environment and principles of plant distribution. (Lecture 2 hours, laboratory and field 3 hours.)

## GRADUATE DIVISION

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## ENTOMOLOGY

## LOWER DIVISION

## 200. Insects and Man (3) F, S Wellhouse

Discussion of the insects and their allies with emphasis on insect behavior and the role of beneficial forms in the natural environment. Not open for credit to biological science majors. (Lecture, discussion 3 hours.)

## UPPER DIVISION

## 310. General Entomology (3) F, S Sleeper

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. Medical Entomology (3) F, S Menees

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. Medical Entomology Laboratory and Field Procedures (1) S Menees

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. Terrestrial Arthropods (3) Ftockton

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. Economic Entomology (3) F Maxwell

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. Immature Insects (3) F Sleeper

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. Systematic Entomology (3) S Sleeper

Prerequisite: Entomology 310. Classification of insects, taxonomic categories and procedure; bibliographical methods; nomenclature; museum practices. (Lecture 2 hours, laboratory and field 3 hours.)

## 430. Insect Morphology (3) F Menees

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. Insect Embryology and Histology (3) $s$ Wellhouse

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. Insect Physiology (3) 5 Menees

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.)

## 450. Insect Ecology (3) S Sleeper

Prerequisite: Entomology 310 or 311 . Field and experimental studies of abundance dispersal, distribution and behavior. (Lecture 2 hours, laboratory and field 3 hours.)

## 460. Biological Control of Insects (3) F Sleeper

Prerequisite: Entomology 310. 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. Toxicology of Pesticides (3) $S$ Maxwell

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.)

## 490. Special Topics in Entomology (2) F, S Staff

Prerequisites: Entomology 310 or 311 and six additional units of upper division entomology. Advanced study in various fields of entomology. Course content will vary semester to semester with several topics each semester. May be repeated for credit with consent of instructor to a maximum of 4 units.

## GRADUATE DIVISION

## 521. Advanced Insect Systematics

## 561. History of Entomology (2)

## ZOOLOGY

## LOWER DIVISION

## 200. Animal Life in Southern California (3) F, S Staff

Ecology, aesthetics and economic importance of some common amphibians, reptiles, birds and mammals of Southern California. Not open for credit to biological science majors. (Lecture 2 hours, demonstration 2 hours.)

## 201. Birds (3) $S$ Collins, Warter

General identification, life histories, ecology and conservation of local birds. Not open for credit to biological science majors. (Lecture 2 hours, laboratory and field 3 hours.)

## 210A-B. General Zoology (4,4) F, S Staff

210 A 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. Invertebrate Zoology (4) F, S Ho, Reish

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.)

## Biology

## 311. Biology of the Protozoa (4) F Jones

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. General Animal Parasitology (4) S Dailey

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.)

## 313. The Vertebrates (4) F, $\mathbf{S}$ Hill, Warter

Prerequisites: Zoology 210A-B. Natural history, ecology and evolution of the vertebrates. Not open for major credit if more than one of the following courses has been previously taken: Zoology 320, 321, 322 or 323. (Lecture 3 hours, laboratory 3 hours.)
320. Ichthyology (3) F, S Lane

Prerequisites: Zoology 210A-B. Taxonomy, morphology and ecology of fishes. (Lecture 2 hours, laboratory 3 hours.)

## 321. Herpetology (3) $S$ Loomis

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. Ornithology (3) F, S Collins, Warter

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. Mammalogy (3) F, S Hardy

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. Comparative Anatomy (4) F, S Callison

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. Vertebrate Embryology (4) F, S Jenkins, Stephens

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. Histology (3) F Kluss

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. Dynamics of Animal Populations (3) F Rainey

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, S Nelson

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. Invertebrate Systematics (3) $\mathbf{S}$ Reish

Prerequisite: Zoology 310. Systematics of invertebrates, excluding insects. (Lecture 1 hour, laboratory and field 6 hours.)
430. Vertebrate Paleontology (3) $\mathbf{S}$ Callison

Prerequisite: Zoology 330 or Geology 101. Stratigraphic history of skeletal modifications in vertebrates. (Lecture 2 hours, laboratory and field 3 hours.)

## 431. Experimental Embryology (2) S Jenkins, Stephens

Prerequisite: Zoology 331. Selected topics in developmental biology; emphasis on fertilization, embryonic induction, regeneration and metamorphosis. (Lecture 2 hours.)
450. Quantitative Ecology of Fishes (3) $S$ Lane

Prerequisites: Zoology 320 and a knowledge of elementary statistics. Selected studies in the quantitative ecology of marine and freshwater fishes with emphasis on those of commercial importance. (Lecture 2 hours, laboratory 3 hours.)

## 452. Physiological Ecology (3) F Hill

Prerequisites: Anatomy and Physiology 342 or 440 and Biology 350. Study of physiological responses of animals to environmental factors with emphasis on distributional and evolutionary aspects. (Lecture 2 hours, laboratory 3 hours.)

## GRADUATE DIVISION

520. Advanced Ichthyology ..... (2)
521. Advanced Herpetology ..... (2)
522. Advanced Ornithology ..... (2)
523. Advanced Mammalogy ..... (2)
524. Principles of Taxonomy ..... (2)
525. Advanced Parasitology ..... (3)
526. Adaptive Vertebrate Morphology ..... (3)
527. Invertebrate Embryology ..... (4)
528. Zoogeography ..... (2)
529. Advanced Animal Behavior ..... (2)

## CHEMISTRY DEPARTMENT

## (School of Letters and Science)

Professors: Bauer, Becker, E., Harris, Henderson, R., Kalbus, Kierbow, Marsi, Mayfield, Simonsen, Stern, Tharp.
Associate Professors: Freeman, Goldish, Hunt, Lieu, Perlgut, Senozan, Wynston.
Assistant Professors: Baine, Devore, Jensen, J., Kuwahara, Legg, Loeschen, Osborne, C., Po, Schachter.
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 B.S. in chemistry 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, 224, and one of the following: Botany 210, 212, Microbiology 210 or Zoology 210A. A reading knowledge of scientific German or Russian is required.
Upper Division: Chemistry 321A-B, 371A-B, 373, 431, 451, either 491 and 499 or English 300 A or 317, and an additional six units of upper division chemistry. A maximum of three units from Chemistry 496 and Chemical Engineering 320, 305 or 430 may be used to fulfill this six-unit requirement.
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 321 B or Chemistry $371 \mathrm{~A}-\mathrm{B}$ requirement. (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.) To receive credit toward the major for Chemistry 321 A and 321 B , which have been taken elsewhere, the consent of the department chairman is required.

## MAJOR in Chemistry for the bachelor of arts degree

Lower Division: Chemistry 111A,B, 251, 251L; Physics 100A,B; Mathematics 120 or 122 . (Students who contemplate further study in chemistry or biochemistry are advised to take Mathematics 122.)
Upper Division: Chemistry $321 \mathrm{~A}, \mathrm{~B}, 377,451$ and 3 additional units of chemistry selected from Chemistry $421,434,441 \mathrm{~A}, \mathrm{~B}, 491,499$. For the teaching major, students must take an additional 4 units of chemistry (to make a total of 24 upper division units) selected from the list above or the following: Chemistry $371 \mathrm{~A}, \mathrm{~B}$ (in place of 377),

422, 443, 461, 496. Other students are advised to select 4-9 additional units in consultation with the adviser, in accordance with the student's individual goals and interests. Courses in biological sciences are recommended for pre-medical and pre-dental students, in business for those interested in marketing, in English and journalism for those interested in technical writing.
Transfer Students: A student who transfers to the College must take at least 12 units of upper division chemistry courses here. To receive credit toward the major for Chemistry 321 A and B , which have been taken elsewhere, the consent of the department chairman is required.

## LOWER DIVISION

## 100. Fundamentals of Chemistry (4) F, S Staff

Prerequisite: One year of high school algebra or consent of instructor. General course including elementary inorganic, organic and biological chemistry. Not open to majors or minors in the physical sciences or to students with credit in Chemistry 111A. (Lecture 3 hours, laboratory 3 hours.)

## 107. Chemistry and the Environment (3) F,S Staff

Discussion of problems of current concern to man regarding his interactions with the environment and how chemistry plays a role either as a cause of or a solution to such problems as environmental pollution of the soil, water and atmosphere; use and abuse of drugs, medicine and food additives; the population explosion; use of pesticides and herbicides and chemical processes of general importance. (Lecture, discussion and demonstration, 3 hours.)

## 111A-B. General Chemistry $(5,5) \quad$ F,S Staff

Prerequisite: Mathematics 101 or 102 (may be taken concurrently). High school chemistry and physics are recommended. 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.)

## 200. Introduction to Chemistry (4) F, S Staff

Prerequisite: High school algebra. Introduction to the fundamental principles of chemistry and the beginning study of organic chemistry. Not open to students with credit in Chemistry 111A. (Lecture 3 hours, laboratory 3 hours.)

## 251. Quantitative Analysis (2) F,S Staff

Prerequisites: Chemistry 111B and 251L or concurrent registration in 251 L . Introduction to the theories and techniques of gravimetric and volumetric analysis, with emphasis on the latter. This course, together with 251 L , meets the requirements of most medical schools. (Lecture 2 hours.)

## 251L. Quantitative Analysis Laboratory (2) F, S Staff

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

## 300. Bio-organic Chemistry (4) F, 5 Staff

Prerequisite: Chemistry 200. Continuation of the study of organic chemistry and an introduction to biochemistry. Does not meet the requirements of medical or dental schools. (Lecture 3 hours, laboratory 3 hours.)

## Chemistry

## 321A-B. Organic Chemistry $(5,5) \quad$ F, 5 Staff

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.)

## 322. Organic Chemistry Lecture (3) F, S Staff

Prerequisite: Chemistry 321A. Designed for pre-medical and engineering students and others who need 8 units of organic chemistry. Not open to chemistry majors or to students with credit in Chemistry 321B.

## 323. Organic Chemistry Laboratory (2) F,S Staff

Prerequisites: Chemistry 322 and consent of department chairman. For students who have credit in Chemistry 322 and change to a major requiring 10 units of organic chemistry.

## 327. Organic Chemistry (3) F, 5 Staff

Prerequisite: Chemistry 111A. 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. Organic Chemistry Laboratory (3) F, S Staff

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. Physical Chemistry $(3,3) \quad$ F, $S$ Staff

Prerequisites: Chemistry 111B, Physics 240 and Mathematics 224. Fundamental physical laws, theoretical principles, and mathematical relations of chemistry. Consists of the extensive application of mathematical methods to chemical systems and the solution of typical problems. (Lecture 3 hours.)

## 373. Physical Chemistry Laboratory (3) F, S Staff

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. Fundamentals of Physical Chemistry (3) F,S Staff

Prerequisites: Chemistry 111A, Mathematics 120 or 122, Physics 100B or 120. Principles and mathematical methods of physical chemistry, with solution of problems on the thermodynamics and kinetics. Not open to students with credit in Chemistry 371A. Not applicable to an M.S. degree in chemistry. (Lecture 3 hours.)

## 421. Physical Organic Chemistry (3) F Staff

Prerequisites: Chemistry 321 B ; 371 B or 377 . Theoretical interpretations of the chemical and physical properties of organic compounds including the following: mathematical derivations of rate equations from experimental results, calculations of reaction rate constants from experimental data, quantitative comparison of the reactivities of organic compounds, mathematical correlations of structure and properties. Practice in solving problems relating reaction mechanisms to the factors derived above.

## 422. Identification of Organic Compounds (3) S Staff

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. Advanced Inorganic Chemistry (3) $F$ Staff

Prerequisite: Chemistry 371A or consent of instructor. Detailed quantitative study of the atomic structure of elements and relationships to chemical behavior; review of the properties of elements and compounds; application of mathematical methods to the solution of problems illustrating these properties.

## 432 Inorganic Chemistry Laboratory (3) $\mathbf{F}$ even years Staff

Prerequisite: Chemistry 431. Preparation and properties of inorganic compounds. Reference to chemical literature is required. (Lecture 1 hour, laboratory 6 hours.)

## 434. Radiochemistry (4) S Staff

Prerequisite: Chemistry 371A or consent of instructor. Properties and uses of natural and artificial radioactive isotopes. (Lecture 2 hours, laboratory 6 hours.)

## 441A-B. Biological Chemistry (3,3) F, S Staff

Prerequisite: Chemistry 321A or 327; one biology or microbiology course recommended. Quantitative dynamic metabolic processes involved in the maintenance of life, a mathematical treatment of the energetics and kinetics of chemical reactions in living systems; chemistry and metabolism of carbohydrates, lipids, amino acids, proteins and nucleic acids.

## 443. Biological Chemistry Laboratory (3) F, S Staff

Prerequisites: Chemistry 251, 251L, and 441A. Laboratory study of the chemical process of life. (Lecture 1 hour, laboratory 6 hours.)

## 447. Clinical Chemistry (3) F, S Staff

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) $\mathbf{F}$ Staff

Prerequisite: Chemistry 327. Major principles of biochemistry including metabolic processes, biological control and regulatory processes, nutrition and chemical energetics and kinetics of animals, plants and microorganisms. Emphasis on major concepts and problem solving. 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. Instrumental Methods of Analysis (4) F, S Staff

Prerequisites: Chemistry 251, 251L. Theory and quantitative application of instrumental methods to chemical problems. Laboratory work includes experiments in colorimetry, spectrophotometry, polarography, refractometry and other modern techniques. (Lecture 2 hours, laboratory 6 hours.)

## 461. Glass Blowing (1) F,S Staff

Demonstrations and practice in elementary laboratory glass manipulation. Open only to natural science majors. (Laboratory 3 hours.)
471. Chemical Thermodynamics (3) $\mathbf{F}$ Staff

Prerequisites: Chemistry 371A and consent of instructor. Mathematical derivation and quantitative application of thermodynamic relationships of particular importance in all fields of chemistry with extensive problem solving to show the application of these relationships. (Lecture 3 hours.)

## 472. Advanced Physical Chemistry (3) Staff

Prerequisite: Chemistry 371B. Topics in physical chemistry, including quantum chemistry and spectroscopy. The mathematical method required by these topics are used to calculate exact solutions to various physiochemical problems.

## 491. Chemical Literature and Report Writing (2) F,S Staff

Prerequisites: English 100 or equivalent, Chemistry 321A or 371A, Chemistry 499 or 696 must be taken concurrently. Use of the chemical literature and practice in writing technical reports based on literature.

## 496. Special Problems in Chemistry (1-3) F, S Staff

Prerequisite: Consent of instructor. Problems selected for considered and mature analysis. May be repeated to a maximum of six units.

## 499. Directed Reading (1) $F$, $S$ Staff

Prerequisite: Concurrent enrollment in Chemistry 491. Thorough survey of the chemical literature on some topic of current interest under the supervision of a faculty member. Preparation of a written report based on this reading. Not open to graduate students.

## GRADUATE DIVISION

## 521. Advanced Physical Organic Chemistry <br> (3)

522. Special Topics in Organic Chemistry ..... (3)
523. Advanced Organic Chemistry Laboratory ..... (2)
524. Advanced Inorganic Chemistry I ..... (3)
525. Advanced Inorganic Chemistry II ..... (3)
526. Biochemistry of Macromolecules ..... (3)
527. Special Topics in Biochemistry ..... (3)
528. Advanced Biochemistry Laboratory ..... (2)
529. Special Topics in Analytical Chemistry ..... (3)
530. Advanced Thermodynamics ..... (3)
531. Advanced Physical Chemistry ..... (3)
532. Advanced Physical-Analytical Chemistry Laboratory ..... (2)
595A. Colloquium in Biochemistry ..... (1)
595B. Colloquium in Organic Chemistry ..... (1)
595C. Colloquium in Physical and Inorganic Chemistry ..... (1)
533. Directed Reading ..... (1)
534. Seminar in Chemistry ..... (1)
535. Directed Research ..... (1-3)
536. Research and Thesis ..... (2-6)

# COMPARATIVE LITERATURE DEPARTMENT 

(School of Letters and Science)
Professors: Carr, Coppola, Hubble.
Associate Professor: Markman.
Assistant Professor: Jernigan.
Instructor: Bush.
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, philosophy, theatre arts, religious studies and creative writing.

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 chairman and professors in the area of specialization.
Courses to fulfill these requirements must be approved by a departmental adviser.

## MAJOR IN COMPARATIVE LITERATURE FOR THE BACHELOR OF ARTS DEGRE

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 (at least one concentration must be in a foreign language):
Comparative Literature: 18 units selected from any comparative literature course offerings and English 331, 398, 489. No more than three comparative literature/theatre arts courses may be counted toward these 18 units without special consent from the department.
Primary Concentration: 21 upper division units from any one of the following: English, foreign language, philosophy, religious studies or theatre arts. If this concentration is English or foreign language, 18 of these units must be in literature. If the concentration is English/ creative writing, 12 units of creative writing will be permitted, with the remaining units in literature. If the concentration is theatre/drama, courses in dramatic literature may be chosen from English, theatre arts, foreign languages or comparative literature/theatre arts courses.
Secondary Concentration: 12 upper division units (nine of which must be in literature) in one modern foreign language. In the case of classical languages (Latin, Greek, Sanskrit) 4 semesters of study in one of these languages are needed to fulfill the foreign language requirement. If a foreign language has been chosen for the primary concentration, the student may elect the secondary concentration in English, philosophy, another foreign language, fine arts, music, religious studies, creative writing or theatre/drama ( 9 units of which must be in comparative literature/theatre arts).

## LOWER DIVISION

## 124. Introduction to World Theatre and Drama (2) F, S Staff

Introduction to all aspects of theatre, including criticism, dramatic literature, movements, themes, historical background and theatrical production from different parts of the world. (Same course as Theatre Arts 124.)

## 184. Introduction to Comparative Studies (4) F, S Staff

Prerequisite: English 100. Designed for the comparative literature major. Open to other students by consent of instructor. A study of the methods of approaching the comparative study of literature, including particularly an introduction to the basic cultures, periods and genres with which comparative literature is involved. Frequent writing assignments will prepare the student to confront the problems of literary comparison and to practice a variety of critical approaches, based on his experience with the literature. (Same course as English 184.)
230. Introduction to World Literature (3) F,S Staff

Readings in translation from masterpieces of world literature with emphasis on the technique and form of literary art as developed in various cultures.

## 232. Folklore and Mythology (3) F, S Staff

Introduction to mythology and folklore, with emphasis on myths of Eastern and Western civilization and their application in literature.

## UPPER DIVISION

## 324. World Theatre Today (3) S Staff

Current trends, problems and achievements of the theatre of the present day from an international point of view with an examination of influences of the avant-garde movements of post World War I (Expressionism, Dada, Surrealism, the Absurd, Existentialism). (Same course as Theatre Arts 324.)
325. Asian Theatre and Drama (3) F Staff

History and background of Asian theatre; style of execution and production; influence of Asian theatre on Europe and America; emphasis on India, China and Japan. (Same course as Theatre Arts 325.)
$330 A, B$. Survey of European Literature ( 3,3 ) F, 5 Staff
Representative selections, in translation, from European writers to and since 1600 , in relation to the development of Western civilization.

## 340. Methods in Comparative Literature (3) $s$ Staff

History and theory of comparative analysis, including objectives and methods of research and the interrelations of the various artistic media.

## 342. The Bible as Literature (3) S Staff

Reading of representative Biblical selections evaluated by literary criteria.

## 346. Readings in World Poetry (3) Ftaff

Representative selections, in translation, from the poetry of the world, from the earliest examples to the present.

## 349. Literary Movements (3) F Staff

Intensive study of a movement or theme in world literature. Specific movement or theme will be announced in the Schedule of Classes. (May be repeated for credit to a maximum of six units by consent of instructor.)

## 421. Classical Drama (3) F Staff

Greek and Roman drama, in translation. (Same course as Theatre Arts 421.)
422. Renaissance Theatre and Drama (3) F Staff

Prerequisites: Two courses in literature or theatre arts or consent of instructor.

Achievements, problems, trends of Renaissance theatre and drama in Spain, France, Italy and England. (Same course as Theatre Arts 422.)

## 423. Continental Drama to Ibsen (3) Staff

European drama, in translation, from the Middle Ages to Ibsen, excluding British. (Same course as Theatre Arts 423.)
428. Selected Periods in Theatre and Drama (3) 5 Staff

Prerequisites: Two courses in literature or theatre arts or consent of instructor. Study of special movements and periods in the history of drama and theatre, to be selected each semester. (Same course as Theatre Arts 428.)
431. Medieval Literature (3) $\mathbf{S}$ Staff

Representative selections, in translation, from writings of the medieval period, reflecting dominant ideas of the time.
432. Continental Renaissance Literature (3) F Staff

Major themes, authors and works of Renaissance Europe.
438. Twentieth Century European Literature (3) S Staff

European literature, in translation, from about 1900 to the present.
439. Oriental Literature (3) 5 Staff

Representative selections, in translation, from literature of the Near East, India, China and Japan.
447. Nineteenth Century Continental Novel (3) F Staff

Representative European novels, in translation, of the 19th century, excluding British.
449. Critical Studies in Major Continental Writers (3) S Staff

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. May be repeated for credit to a maximum of six units by consent of instructor.
450. Comparative Studies (3) F Staff

Interrelation of two or more disciplines, emphasizing reciprocal influences and borrowing of materials during various literary periods. The class will feature a different interdisciplinary study each semester, to be announced in the Schedule of Classes. May be repeated for a maximum of 6 units with consent of instructor.
451. The Novel and the Motion Picture in Contemporary Society (3) F Staff

Interdisciplinary study of two genres, with particular focus on novels made into films and on the aesthetic distinction of both forms as major genres in the 20th century.
452. Advanced Studies in Mythology and Folklore (3) F, S Staff

Prerequisite: Consent of instructor. Intensive study of methods and content in fundamental mythic systems throughout the world, with special attention to theories of origin and artistic expression.
455. Theory and Practice of Translation (4) S Staff

Prerequisite: Command of one foreign language, equivalent to three years of college foreign language, or consent of instructor. Theory and practice of literary translation. Each student will plan and produce a translation of high quality, including an introduction explaining the special problems involved.
499. Directed Studies (1-4) F, S Staff

Prerequisite: Consent of instructor. Independent study of special topics under supervision of a faculty member.

## GRADUATE DIVISION

501. Advanced Interdisciplinary Study (3)

## ECONOMICS DEPARTMENT

(School of Letters and Science)
Professors: Atherton, Dvorak, Palmer, P., Powell, J. R., Simonson, Strain.
Associate Professors: Cole, Rooney, Segelhorst.
Assistant Professors: Anderson, R. C., Beaumont, Billings, Crowther, Farrell, Glezakos, Ishimine, Keller, Larmore, Merrett, Saleh, Stern, A., Tennenbaum, Wargon.

Lecturer: Koslow.
Economics is a social science dealing with resource allocation, productive processes, income distribution, and levels of output, employment and prices. Its purpose is prediction of the economic behavior that may be expected within existing or proposed institutional frameworks.
The bachelor of arts degree with a major in economics prepares the student to qualify for a variety of positions in business and government. The degree also provides the foundation for teaching in elementary and secondary schools and for more advanced study in economics, business, law and other related fields.
Students anticipating graduate study should consult the Graduate Bulletin for information pertaining to the master of arts degree program in economics.

## MAJOR IN ECONOMICS FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Economics 200, 201, Accounting 200A or 201 and two upper division or lower division courses (totaling 6 or more units) selected from the departments of anthropology, geography, history, mathematics, operations research and statistics, political science, psychology and/or sociology. These courses shall be in addition to courses fulfilling categories II and V of the General Education requirement. The student who declares economics his major in upper division status may, with departmental consent, substitute Economics 300 for Economics 200 and 201. Students planning graduate study in economics are strongly urged to take analytic geometry and calculus.
Upper Division: Economics 310, 311, 320, 360 or 361, 380, 412, one unit of 499 in senior year and two additional upper division economics courses, exclusive of Economics 300, 309 and 499.

## LOWER DIVISION

## 200. Principles of Economics (3) F, S Staff

Money and banking, price changes, national income analysis, business cycles, economic growth, fiscal and monetary policy, international trade. (Macro Economics.)

## 201. Principles of Economics (3) F,S Staff

Business organization, price theory, allocation of resources, distribution of income, public economy. (Micro Economics.)

## UPPER DIVISION

## 300. Fundamentals of Economics (3) F, S Staff

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. Not open to students with credit in Economics 200 or 201 except by consent of the Economics Department.

## 308. Consumer Economics (3) F, S Staff

Consumer demand; advertising and other influences affecting demand; consumer sovereignty; patterns of consumer expenditure; the consumer protection movement; consumer taxes, family incomes and related public policy issues.
310. Microeconomic Theory (3) F,S Staff

Prerequisites: Economics 200 and 201, or 300 with consent of Economics Department. 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. Macroeconomic Theory (3) F, S Staff

Prerequisites: Economics 200 and 201, or 300 with consent of Economics Department. 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. Money and Banking (3) F, S Anderson, Dvorak, Palmer, Stern

Prerequisites: Economics 200 and 201, 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. Government and Business (3) F, S Powell, Rooney

Prerequisites: Economics 200 and 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. Economics of Transportation (3) $\mathbf{F}$ Staff

Prerequisites: Economics 200 and 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. Public Utilities (3) 5 Rooney

Prerequisites: Economics 200 and 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.

## 334. Environmental Economics (3) $F$ Rooney

Environmental impacts of economic growth including air and water pollution, urban congestion and natural resource depletion; population pressures on natural resources and the quality of life; economic implications of divergences between private and social costs; transaction costs and information costs; public policies for environmental control.

## Economics

## 335. Agricultural Economics (3) Offered on adequate demand Staff

Prerequisites: Economics 200 and 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.

## 336. Regional Economics (3) S Segelhorst

Prerequisites: Economics 200 and 201, or 300. Analysis of intranational regions, determination of regional income levels, stability, economic growth, specialization and trade. Application of analytical tools to the problems of the Los Angeles region. Not open to students with credit in Economics 366.
340. Labor Economics (3) F,S Anderson, Atherton, Strain

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.

## 345. Economics of Health (3) $F$ Larmore

Prerequisite: Economics 201 or 300 . Analysis of health as an economic good. Health services as scarce resources. Use of tools of economic theory in study of special problems of health resource, markets, manpower shortages, nonprofit enterprises, insurance programs and Medicare.

## 350. Public Finance (3) F Beaumont, Segelhorst, Wargon

Prerequisites: Economics 200 and 201, or 300 . Sources of revenues and types of government expenditures. Emphasis on government taxing and spending policies and their effect upon production, employment, price level and distribution of income.

## 351. State and Local Finance (3) $S$ Beaumont

Prerequisites: Economics 200 and 201, or 300 . State and local fiscal systems; economic analysis of government functions, revenues and intergovernmental relations; implications for regional development.

## 360. American Economic History (3) F,S Keller

Prerequisites: Economics 200 and 201, or 300 . Economic analysis of growth and welfare in the American economy from the beginnings of industrialization to the present, with emphasis upon the material and social factors affecting the transformation of our economy since the early nineteenth century.

## 361. European Économic History (3) F, S Crowther

Prerequisites: Economics 200 and 201, or 300. Economic analysis of the principal features of the European economy from the Industrial Revolution to the present, with emphasis upon the problems of economic growth, capital formation and technological and demographic change in this era.

## 362. Asian Economic Problems (3) F Staff

Prerequisites: Economics 200 and 201, or 300. Economic development of the Asian economies. Contemporary problems, policies and patterns of institutional change. Analysis of influences affecting growth and prospects for economic progress. Procedures stress individual studies and reports.

## 363. Latin-American Economic Problems (3) S Powell

Prerequisites: Economics 200 and 201, or 300 or consent of instructor. Development and current problems of the Latin-American economies. Emphasis on factors affecting growth rates and distribution of income. Procedures stress individual studies and reports.
364. Soviet Economy (3) S Merrett

Soviet economic history; historical and ideological background; early policy experiments; the "Stalin model;" policies and performance in growth, income distribution, consumption. Recent economic problems, proposed reforms.

## 365. Economic Development (3) F,S Billings, Farrell, Glezakos

Prerequisites: Economics 200 and 201, 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.
367. Chinese Economy (3) F, 5 Merreft

Chinese heritage: China's traditional, underdeveloped economy. The Communists' guerrilla experience. Communist China's economic development: achievements, failures, policies, costs. Recent economic policy: Mao Tse-tung's attempted short cut routes to Communist society.
368. Comparative Economic Systems (3) F,S Merrett

Prerequisites: Economics 200 and 201, or 300 . 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. Internetional Economics (3) F,S Billings, Farrell, Glezakos, Stern

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. Economic Statistics (3) F, S Glezakos, Rooney, Saleh

Prerequisites: Mathematics 100 or equivalent. Elementary statistical analysis of economic data, probability theory, sampling, distributions, statistical inference, testing of hypotheses, simple linear regression and correlation, time series, index numbers.

## 390. Issues of the 70's (3) S Koslow

Prerequisites: Economics 200 and 201, or 300. Economic analysis of current institutions and problems, evaluating alternatives and solutions. Topics include poverty, discrimination, pollution, others. Radical as well as conventional views are represented in the readings.

## 410. Problems of Microeconomic Analysis (3) S Tennenbaum

Prerequisite: Economics 310. Detailed analysis and examination of particular markets and contemporary issues in light of economic theory. Emphasis on the role of information and transaction costs, property rights and economic efficiency, alternative models of firm's cost functions, capital budgeting and implications of the theory of market structures for particular markets. Students will be required to make seminar presentations of their analyses.

## 412. History of Economic Thought (3) F,S Cole, Simonson

Prerequisites: 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. Business Cycles (3) F,S Staff

Prerequisites: Economics 200 and 201, or 300 . Business cycle, its characteristics and economic consequences; forecasting general business conditions; proposals for modifying the business cycle.

## Economics

## 422. Monetary and Fiscal Policy (3) F Beaumont

Prerequisites: Economics 311, 320. Application of monetary and fiscal theories to a nation's economic problems. Specific effects of Federal Reserve and Treasury policy actions which affect income, employment and prices. Procedures stress individual studies and reports.

## 436. Urban Economics Problems (3) $F$ Segelhorst

Prerequisites: Economics 200 and 201, or 300. Intensive study and analysis of selected urban economic problems. Students prepare reports for class discussion, proposing policy solutions for such problems as poverty, political fragmentation, segregated housing and traffic congestion.

## 440. Labor and the Law (3) $F$ Strain

Prerequisite: Economics 340. Legislation, administration and judicial control of employer/employee relations. Focus on legal aspects of labor union activities. Analysis of economic effects of public policies. Procedures stress individual studies and reports.

## 441. Development of the Labor Movement (3) F Anderson, Keller

Prerequisite: Economics 340 . Growth of the labor movement in the United States from the colonial period until the present. Emphasis on the economic, political and social impact of the labor movement in the United States.
442. Social Insurance (3) S Strain

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. Procedures stress individual studies and reports.
444. Economics of Poverty (3) S Staff

Prerequisites: Economics 200 and 201, or 300. Incidence and causes of poverty in the United States. Welfare and other programs designed to alleviate poverty. Procedures stress individual studies and reports.

## 470. International Trade and Finance (3) F Billings, Farrell, Stern

Prerequisite: Economics 370. Pure theory of trade. Consequences of balance of payments disequilibrium for national income and prices. Tariffs, customs, unions and the theory of commercial policy. Foreign exchange market and international financial institutions.

## 481. Intermediate Economic Statistics (3) F Glezakos

Prerequisites: Economics 380, and either Mathematics 122 or Economics 483 or consent of instructor. A rigorous treatment of statistics emphasizing aspects relevant to economics. Statistical inference, probability distributions, applications of simple and multiple regression analysis to economic problems, analysis of variance and structural analysis of time series.

## 483. Introduction to Mathematical Economics (3) F Glezakos, Saleh

Prerequisites: Economics 310, 311, Mathematics 120 or consent of instructor. Applications of calculus, linear algebra and other mathematical tools in formulating and solving economic problems.

## 486. Introduction to Econometrics (3) S Glezakos

Prerequisites: Economics 380, 483, or consent of instructor. Elementary mathematical expression of economic theory. Combined use of mathematics and statistics to solve economic problems. Use of econometric models for formulating economic policy. Not open to students with credit in Economics 480.

## 490. Special Topics in Economics (3) On demand Staff

Prerequisite: Consent of instructor. Topics of current interest in economics selected for intensive development. May be repeated for a maximum of six units. Topics will be announced in the Schedule of Classes.

## 499. Directed Study (1-2) F, S Staff

Prerequisite: Consent of instructor. Independent study under the supervision of a faculty member. May be repeated for a maximum of six units of credit.

## GRADUATE DIVISION

510. Advanced Microeconomic Theory ..... (3)
511. Advanced Macroeconomic Theory ..... (3)
512. Seminar in Monetary Theory ..... (3)
513. Seminar in Industrial Organization and Economic Policy ..... (3)
514. Seminar in Urban and Regional Economics ..... (3)
515. Seminar in Labor Economics ..... (3)
516. Seminar in Public Finance ..... (3)
517. Seminar in Economic History ..... (3)
518. Seminar in Economic Development ..... (3)
519. Seminar in International Economics ..... (3)
520. Seminar in Econometrics ..... (3)
521. Directed Research ..... (1-3)
522. Thesis ..... (2-6)

## ENGLISH DEPARTMENT

## (School of Letters and Science)

Emeriti: Ralph K. Allen, George R. Cerveny, Harry S. Wilder
Professors: Allen, C., Aspiz, Baker, C., Bonazza, Brooks, Crane, Darbee, Day, Foote, Gilde, Hermann, James, Lee, R., Lubbe, Lyon, Nielsen, E., Orgill, Purcell, Rodabaugh, Rose, A., Sawyer, Schwab, Skarsten, Stephens, G., Williams, L., Wilson, S., Wylder.
Associate Professors: Avni, Axelrad, Betar, Crawford, Knafel, Lawson, Lim, Locklin, Lothamer, Masback, Mittleman, Niva, Rose, S., Stetler, Williams, J.
Assistant Professors: Ames, Anatol, A., Bell, Black, Borowiec, Brekke, Brophy, Fine, Fried, E., Garrott, Hertz, Hipkiss, Jaquith, Jeffers, L., McCullough, May, C., Nelson, D., Peck, D., Peterson, A., Plourde, Polk, Pomeroy, Rosenfelt, Ross, S., Samuelson, Skov, Spiese, Sullivan, Weinstock, Williams, O.
Instructor: Sims.
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.

Since one of the requirements of the M.A. in English is demonstrated proficiency in an approved foreign language, it is recommended that students intent on pursuing a graduate degree in English include foreign language courses in their undergraduate program.

## MAJOR IN ENGLISH FOR THE BACHELOR OF ARTS DEGRE LItERATURE OPTION

A total of 41 units in English:
Lower Division: 9-12 units distributed as follows: English 184, 250A, B. Upper Division: 29 units or more distributed as follows: English 370A, B, 464A; at least one period course from English 451, 452, 453, 454, 455, 456, 457, 458, 459; English 469 or 479; English 499; Electives, 9 units or more selected from any upper division courses in English or comparative literature, except English 317, 413 or 483; English 481 or 482 may be elected but not both in satisfying this requirement. Upper division literature courses in black studies are also acceptable as electives.

See credential adviser.

## CREATIVE WRItING OPTION

A total of 41 units in English as follows:
Lower Division: 12-15 units distributed as follows: English 184, 205 or 206, 250A,B.
Upper Division: 26 units or more distributed as follows: General principles, 3 units selected from English 489, Philosophy 361, Theatre Arts 426, Radio-TV 416, 418; Genre and authors, $6-12$ units selected from English 385, 386, 398, 462, 464A, 465, 467A,B, 468A,B, 469 or 479, 475, 476, 477, 478 and Comparative Literature 346, 447; Creative writing, 6-12 units selected from English 405, 406, 407, Radio-TV 304, Theatre Arts 480; Literary history, 3-7 units selected from English 370B, 451, 452, 453, 454, 455, 456, 457, 458, 459, 474; 1-3 units of English 499.

## Language and composition option

Lower Division: English 101 or 184, 220, 250A,B.
Upper Division: English 321A-B, 370A,B, 428, 464A, 499; one course selected from English 323, 423, 425; one course selected from English 300A, 300B, 405, 406, 407, 409.
Four college semesters or equivalent of a language other than English.

## CERTIFICATE IN HONORS ENGLISH

Description: The Honors English program offers qualified students an additional opportunity to pursue excellence through seminar courses; it encourages students to develop skills in independent study cutting across traditional course boundaries.
Eligibility: Following requirements or their equivalent: Satisfactory composition of a one-hour essay; grade point average of 3.00; completion of 30 units of college work, including English 101 or 184 and English 250A and B; personal interview by a member of the Departmental Honors Committee.
Certificate Requirements: Completion of a recognized degree program in English (presently 41 units), including a course in Shakespeare, a course in advanced composition or a satisfactory score on the Sequential Test of Educational Progress (STEP), a senior seminar and three or more Honors English courses (minimum of nine upper division units) with at least a B average; reading knowledge of a foreign language, or completion of two semester of a foreign language at the college level with a grade of C or better; passing grade in a two-hour comprehensive examination.
Interested students should contact the English Department.

## LOWER DIVISION

100. Composition (3) F, S Staff

Writing expository prose. (Open to students who score 18 or above on the ACT or who have passed a college level remedial English course.)
Students needing a remedial English course may satisfy that requirement by passing such a course at a two or four year college provided the passing of the course would entitle them to take that school's regular first semester English composition course.
101. Composition (3) F,S Staff

Prerequisite: English 100. Writing expository prose, with emphasis on the research paper.

## 110A. English for Foreign Students (3) F, S Ross, Skov

Elementary course in English for foreign students with limited skill in American usage, idiom and colloquial and written language structures. Admission by placement test taken at the International Student Affairs Center. Oral drill, elementary grammar and composition. Five hours per week of composition and laboratory work.

## 110B. English for Foreign Sudents (3) F, S Ross, Sawyer, Skov, Weinstock

Intermediate course in English for foreign students. Admission by placement test conducted by the International Student Affairs Center or by satisfactory completion of English 110A. Intermediate level grammar and composition, reading and vocabulary drill. Five hours per week of composition and laboratory work.

## 110C. English for Foreign Students (3) F, S Ross, Skov, Weinstock

Advanced course in English for foreign students. Emphasis on reading and composition. Admission by placement examination at the International Student Affairs Center or satisfactory completion of English 110B. This course meets the English Department requirement in freshman English (English 100) for foreign students. Five hours per week of composition and laboratory work.

## 180. Appreciation of Literature (3) F, S Staff

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.)

## 181. Developmental Reading (2) F, S Crane

Rigorous practice, using all levels of mature reading materials, in the techniques of more efficient comprehension at faster rates. Study of expository devices and structures. Extensive vocabulary training. Three hours per week.

## 184. Composition and Literature (4) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisite: English 100. Writing expository prose primarily of a critical nature related to selected readings in literature. Required of all English majors in the literature or creative writing options. Open to non-majors with consent of instructor.

## 205. Introduction to Creative Writing: Fiction (3) S Fried, Hermann, Jeffers, Polk

Prerequisite: English 100. Practice in the basic elements of fiction writing: character sketch, plot development, description, dialog. Not open to students with credit in English 202.

## 206. Introduction to Creative Writing: Poetry (3) F Fried, Lee, Polk

Prerequisite: English 100. Theory and techniques of poetry. Practice in creative work, with group discussions and individual conferences. Not open to students with credit in English 204.
220. Introduction to Language Study (3) F,S McCullough

Prerequisite: English 101 or 184 . Introduction to the study of spoken and written language.

## 250A,B. Survey of English Literature $(4,4)$ F, S Staff

Prerequisite: English 100. Representative selections from English writers to and since the mid-eighteenth century.

## 294. Contemporary Literature (3) $S$ Mittleman

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. Readings in the Novel (3) Staff

Prerequisite: English 180 or 184. Reading and discussion of selected novels.

## UPPER DIVISION

300A. Advanced Composition (3) F, S Staff
Prerequisite: English 101 or 184 or 317 or a baccalaureate degree. Writing expository prose, with emphasis upon organization, style and diction. (Not acceptable for graduate credit toward the master's degree.) Not open to students with credit in English 300. English 300A is required of all credential majors failing to make a satisfactory score on the STEP Writing Test.

300B. Advanced Composition (3) F, 5 Ames, Aspiz, Schwab
Prerequisite: English 101 or 184 or 317 with a grade of B or better, English 300 or 300 A . Intensive practice in expository prose, with emphasis on increasing competence in organization, style and diction.

## 317. Technical Writing (3) F,S Staff

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. English Grammar (4) F,S Staff

Advanced study of the principles of English grammar.

## 321A-B. Structure of Modern English (3,3) F, S Hertz, McCullough, Ross, Sawyer

Phonology, morphology and syntax of American English studied by the methods of scientific linguistics.

## 323. Development of Modern English (3) F, S Knafel, Ross

Development of the English language from its beginnings to the present day.

## 331. Classical Background of English Literafure (3) $F$ Lubbe

Greek and Roman literature, in translation, in relation to English literature; the interrelations of classical literature with philosophy and art.

370A,B. Survey of American Literature (4,4) F, S Staff
Representative selections from American writers to and since about 1865.
385. The Short Story (3) F Fried, Hermann, Lothamer, May, Polk, Williams, L.

The short story as a literary genre, with emphasis on analysis of individual stories.
386. Poetry (3) $S$ Ames, Lee, Lim, Mittleman, Polk

Poetry as a literary genre, with emphasis on analysis of individual poems.
398. Modern Drama (3) S Betar, Lyon, Stephens

Continental, English, and American drama from Ibsen to the present.
405. Creative Writing: Short Story (3) F, S Foote, Fried, Hermann, Jeffers, Polk
Prerequisite: English 205 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.)

## English

## 406. Creative Writing: Poetry (3) F, S Jeffers, Lee, Polk

Prerequisite: English 206 or consent of instructor. Writing 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. Creative Writing: Novel (3) S Hermann, Jeffers

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 Staff

Prerequisite: English 101 or 184. Critical writing, with attention to published models of scholarly and evaluative essays.
413. Workshop in Teaching Composition (3) SS Staff

Prerequisite: Teaching credential. Techniques of teaching composition; includes observing classes, preparing and presenting lessons, and evaluating student work under supervision.
417. Advanced Technical Writing (3) S Staff

Prerequisite: English 317 or consent of instructor. Writing activities of the professional person engaged in scientific or technical work in government, industry or education with special emphasis on problems of writing reports in the student's field of concentration.
423. Semantics (3) $F$ Williams, J.

Prerequisite: English 101 or 184 . Study of meaning in language.
425. Rhetoric and Style (3) $S$ Williams, J.

Prerequisite: English 101 or 184. Principles of effective written and oral communication.
428. Applied Linguistics (3) F Sawyer

Prerequisite: English 321B. Linguistic research applied to the study and teaching of the English language.
451. English Literature to 1500 (3) $F$ Axelrad, Bell, Knafel, Lubbe English literature before 1500, including Old and Middle English in translation.
452. English Literature 1500-1603 (3) F Crane, Gilde, Niva, Orgill, Skov

English literature of the Tudor period, especially non-dramatic.
453. English Literature 1603-1660 (3) S Ames, Axelrad, Gilde, James, Niva, Purcell
English literature of the Stuart and Commonwealth periods, especially nondramatic.

## 454. English Literature 1660-1740 (3) F Purcell, Skarsten

English literature of the Restoration and Augustan periods, especially nondramatic.
455. English Literature 1740-1798 (3) S Black, Skarsten

English literature of the Johnsonian and pre-Romantic periods, especially nondramatic.
456. English Literature 1798-1832 (3) 5 Avni, Lim, Rodabaugh, Rose, S., Skarsten
English literature of the Romantic period, especially non-dramatic.

## 457. English Poetry 1832-1900 (3) F Darbee, Peterson, Rodabaugh English poetry of the Victorian period.

## 458. English Prose 1832-1900 (3) S Baker, Darbee, Lothamer, Rodabaugh <br> English prose of the Victorian period, especially non-fiction.

## 459. Twentieth Century English Literature (3) F Locklin, Niva, Mittleman, Peck, Samuelson, Wilson

English literature from about 1900 to the present.

## 462. Chaucer (3) 5 Lubbe

Works of Geoffrey Chaucer in Middle English.

## 464A. Shakespeare I (4) F, 5 Staff

Principal plays of Shakespeare. Not open to students with credit in English 464.

## 464B. Shakespeare II (3) F, S Bonazza

Prerequisite: English 464 or 464 A . Advanced study of some of the plays of Shakespeare.
465. Milton (3) F Purcell

Works of John Milton.

## 467A,B. The English Novel (3,3) F,S Lothamer, Lyon, Nielsen

History and development of long prose fiction in the British Isles to and since 1832.

## 468A,B. English Drama (3,3) F, 5 Brooks, Crane, Orgill

History and development of English drama, to and since 1642, excluding Shakespeare.

## 469. Critical Studies in Major English Writers (4) F, S Staff

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.

## 472. Literature of the American West (2) F Staff

Literary expression of the impact of the West on American culture and the development of literary symbols associated with the West.
474. Twentieth Century American Literature (3) S Staff

American literature from about 1914 to the present.

## 475. The American Short Story (3) F Staff

History and development of the short story and its criticism in the United States.

## 476. American Poetry (3) $F$ Staff

History and development of poetry and its criticism in the United States.

## 477A,B. The American Novel $(3,3) \quad$ F, S Staff

History and development of the novel and its criticism in the United States to and since the 1920 's. Not open to students with credit in English 477.

## 478. American Drama (3) S Staff

History and development of drama and its criticism in the United States.
479. Critical Studies in Major American Writers (4) F,S Staff

Prerequisites: Senior standing, 12 units of upper division English including English $370 \mathrm{~A}, \mathrm{~B}$. 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.

## English

481. Children's Literature (3) F, S Baker, Lawson, Masback, Rose, S.

Prerequisite: one college course in literature. Survey of literature suitable for children.

## 482. Literature for Adolescents (3) F, S Black, Borowiec, Brekke, Nelson, Peck, Rose, A., Rose, 5.

Prerequisite: one college course in literature. Survey of literature suitable for adolescents.
489. History of Literary Criticism (3) F Avni, Lee

Works of representative critics, ancient and modern.

## 498. Topics in English (1-3) F, 5 Staff

Exploration of topics in language and literature, specific topics to be announced in the Schedule of Classes. May be repeated with different topics to a maximum of six units.

## 499. Directed Studies (1-3) F, S Staff

Prerequisite: Consent of instructor. Independent study undertaken under the supervision of a faculty member. May be repeated for credit to a maximum of 4 units. Not applicable toward the Master of Arts in English.

## GRADUATE DIVISION

521. Historical Linguistics ..... (4)
522. Analytical Phonology ..... (3)
523. Old English Literature ..... (4)
524. Middle English ..... (3)
525. Seminar in Special Topics in Linguistics ..... (3)
526. Seminar in Dialect Study ..... (4)
527. Seminar in the English Renaissance ..... (4)
528. Seminar in the Age of Milton ..... (4)
529. Seminar in Restoration Literature ..... (4)
530. Seminar in Eighteenth Century Literature ..... (4)
531. Seminar in Romantic Literature ..... (4)
532. Seminar in Victorian Literature ..... (4)
533. Seminar in Twentieth Century English Literature ..... (4)
534. Seminar in Beowulf ..... (4)
535. Seminar in Nineteenth Century American Renaissance ..... (4)
536. Seminar in American Realism ..... (4)
537. Seminar in Twentieth Century American Lierature ..... (4)
538. Seminar in Major Authors ..... (4)
539. Seminar: Special Topics in Literafure ..... (4)
540. Seminar in Techniques of Literary Study ..... (4)
541. Directed Research ..... (1-3)
542. Thesis or Project ..... (2-6)

## ETHNIC STUDIES AMERICAN INDIAN STUDIES

The American Indian Studies program exists to explore and make more widely known the American Indian heritage and role in the development of America and to investigate the condition and problems of the American Indian today with a view to formulating possible solutions and publicizing the results of its investigations. The program aims not only to meet the needs of the reservation and urban American Indian but also to enlighten students generally who are interested in widening their own understanding and cultural backgrounds. Since the program will draw upon a variety of traditional disciplines, the student will be exposed to diverse courses designed to present various aspects of the Indian community and way of life which will reveal differing opinions about this minority, its problems, and future. Specifically, this program is designed to serve the interests and goals of (1) American Indian students who wish to broaden their own knowledge about American Indians, (2) Indians and non-Indians alike who may enter such diverse fields as teaching, social work, anthropology, school administration and psychology, (3) the general student who wishes to explore a further educational dimension by focusing on an ethnic minority.

## CERTIFICATE IN AMERICAN INDIAN STUDIES

Students pursuing any approved degree or credential program of the college may at the same time earn a Certificate in American Indian Studies. Courses taken to meet the requirements may also simultaneously be used, where applicable, to meet General Education requirements or the degree or credential requirements of cooperating departments. Certification of successful completion of requirements will be issued upon the recommendation of the Director of the American Indian Studies Program.

## Requirements for the Cerlificate in American Indian Studies

1. A bachelor's degree with a major in a traditional discipline. (Certificate requirements may be completed prior to the completion of the B.A. requirement.)
2. A minimum of 24 units distributed as follows: Anthropology 170; Indian Studies 132 and 332; 9 units selected from Indian Studies 130, 131, 334, Anthropology 120; and 6 or more units selected from: Indian Studies 330, 331, 335, Anthropology 321, 322.
Interested students should apply to the Director, American Indian Studies Program.

## LOWER DIVISION

## 130. Introduction to American Indian Studies (3) F Staff

Broad survey and introduction to American Indian history and culture.

## 131. The American Indian in Transition (3) S Staff

Prerequisite: American Indian Studies 130 or consent of instructor. Study of the American Indian of the 20th century. Comparison of social, economic and cultural factors in the life of the Indian on and off the reservation.

## Etbnic Studies

## 132. Arts and Crafts of the American Indian (3) 5 Staff

Prerequisite: Consent of instructor. Study of various tribal designs to promote an appreciation of the arts and crafts of the American Indian. Costume design and information and practice with materials, methods and procedures. (Lecture/ activity.)

## UPPER DIVISION

330. Indians of the Pacific Coast (3) F Staff

Prerequisite: American Indian Studies 130 or 131 or Anthropology 421 or consent of instructor. A comparative study of the Indians of the Pacific Coast including Alaska, Canada, and the United States, with emphasis on their cultural differences and likenesses.
331. Indians of the Great Plains (3) Staff

Prerequisite: American Indian Studies 130 or 131 or Anthropology 321 or consent of instructor. A comparative study of the numerous American Indians of the Great Plains area. Tribal similarities, differences; overall life-style of the Plains Indians.

## 332. The Bureau of Indian Affairs (3) $\mathbf{F}$ Staff

Prerequisite: American Indian Studies 130 or 131 or consent of instructor. The origins, history and functions of the Bureau of Indian Affairs with emphasis on its influence upon today's American Indians.

## 334. The American Indian in the 19th Century (3) F, S Staff

Prerequisite: American Indian Studies 130 or 131 or Anthropology 321 or consent of instructor. The westward expansion of the United States from the Indian point of view. Expropriation of lands and destruction of the Indian way of life; impact of American Indian upon American history.

## 335. American Indian Religion and Philosophy (3) S Staff

Prerequisite: American Indian Studies 130 or 131 or Anthropology 305 or 321 or Religious Studies 301, or consent of instructor. A comparative study of the religious beliefs and philosophical thought of the American Indian. Some tribal differences and similarities; the American Indians' special contribution.

## 499. Directed Studies (1-3) F, S Staff

Prerequisite: Consent of instructor. Directed Studies to permit individual students to pursue topics of special interest. May be repeated for a maximum of six units.

## ASIAN AMERICAN STUDIES

## Director: Lloyd T. Inui

Asian American Studies is a unique program with two distinct functions: to research and investigate the Asian American from a variety of perspectives in order to provide information heretofore unavailable and to make this information known not only to Asian Americans but to all people.

The program is an interdisciplinary curriculum leading to knowledge and training necessary for (1) professional work in the Asian American community, (2) various occupational skills including teaching, school administration, social work, government work, urban planning, communications, (3) exploring an educational dimension offered by emphasizing and focusing on ethnic minorities.

## CERTIFICATE IN ASIAN AMERICAN STUDIES

Students pursuing any approved degree or credential program of the College may at the same time earn a Certificate in Asian American Studies. Courses taken to meet the requirements may also simultaneously be used, where applicable, to meet General Education requirements or the degree or credential requirements of cooperating departments. Certification of successful completion of requirements will be issued upon the recommendation of the Director of the Asian American Studies Program.

## Requirements for the Certificate in Asian American Studies

1. A bachelor's degree with a major in a traditional discipline. (Certificate requirements may be completed prior to the completion of the B.A. requirement.)
2. A minimum of 30 units distributed as follows: eight units of an Asian language; Asian American Studies 102, 220, 345 and 370 which are core courses; a minimum of three units selected from Asian American Studies, $315,400 \mathrm{~A}, \mathrm{~B}, 420 \mathrm{~A}, \mathrm{~B}, 425,440$; additional courses selected from Asian American Studies 200, 310, 320, 330, 340, 380, 499.
Interested students should apply to the Director, Asian American Studies Program, Dr. Lloyd Inui.

## LOWER DIVISION

## 102. The Asian American: Conflict and Identity (3) F, S Staff

Quest for identity of the Asian minorities in America; issues, problems and alternatives which confront the Asian American. Emphasis on small group interaction and counseling of individual students.

## 200. Asian American Inter-Ethnic Relations (3) F Staff

Behavior and orientation of the Asian Americans as a minority group; emphasis on the nature of their relations and their patterns of inaction with other minorities as well as the majority culture.

## 210A,B. Conversational Japanese (3,3) F, S Staff

Prerequisite: Consent of instructor. Intensive instruction in developing conversational skill in Japanese. Emphasis on speaking and understanding spoken Japanese as a tool for working in the Japanese American community.

## 220. Asian American History (3) F, S Staff

History of the arrival, settlement and experiences of Asians in America from the 1840 's to the present.

## UPPER DIVISION

## 310. Education and the Asian American (3) F,S Staff

Examining problems and potentials of a multi-racial classroom for the understanding of and relating to students of diverse cultural backgrounds, with an emphasis on the Asian American. Small group interaction and counseling of individual students.

## 315. Asian American Theatre Workshop (3) Staff

Exploration of various methods of presenting the minority experience of Asian American people in dramatic form. Using both classroom and workshop techniques, the students will gain knowledge of Asian theatre and participate in an actual Asian American theatre production at the semester's end.

## Etbnic Studies

320. Mass Media and the Asian American (3) S Staff

Prerequisite: Asian American Studies 102 or consent of instructor. Structure and operation of the various forms of mass communications; impact on American society and the Asian American image. Emphasis on student research and writing.
330. Politics and the Asian American (3) S Staff

Prerequisite: Asian American Studies 102 or consent of instructor. Background, development and character of the political attitudes, behavior and roles of the Asian American. Emphasis on survey and analysis of the contemporary aims and activities of Asian Americans.

## 340. Asian American Family (3) F, S Staff

Study of the Asian American family as a social institution; emphasis on the influence and consequences of the traditional Asian values and the impact of Western culture in the formation of a distinct family life style.

## 345. Asian American Community Analysis (4) Ftaff

Prerequisite: Asian American Studies 102 or consent of instructor. Socio-economic, political and cultural profile of Asian American communities; role and function of community organizations. Training in community surveys and service. (Lecture, activity.)

## 370. Asian Man and Woman in America (3) F,S Staff

Prerequisite: Asian American Studies 102 or consent of instructor. Roles as individuals, as sexual counterparts and their relationship to each other and to the majority culture. Small group interaction and counseling of individual students.
380. Asian Philosophies and Religions in America (3) S Staff

Influence of and changes in Asian philosophies and religions in the American environment. Emphasis on Confucianism, Taoism, Hinduism, Buddhism and Shintoism in relation to individual and social values in America.

## 400A,B. Martial Arts $(3,3)$ F, $S$ Staff

Prerequisite: Asian American Studies 102 and consent of instructor. Analysis of the martial arts including the development of techniques and study of the philosophic concepts and values that underlie the idea of achieving and integration of the mind and body. (Lecture, activity.)

## 420A,B. Asian American Cinematography (3,3) F, S Staff

Prerequisite: Consent of instructor. Utilizing the motion picture camera the class will explore the visual perspective of Asian people as related to their cultural evolution. Students will study the cinemagraphics of Asian film makers and will make films as a means of self-expression.
425. Creative Writing and Literary Workshop (3) F Staff

Prerequisite: Consent of instructor. Study and analysis of selected Asian and Asian American authors with special emphasis on literature as a means of creative expression. Students will participate in a creative writing workshop concentrating on poetry, prose fiction, playwriting or journalistic writing.

## 440. Community Workshop (3) 5 Staff

Prerequisite: Asian American Studies 345. Field work in community organizations for the purposes of analyzing their intent, function, limitations and effectiveness; creating working models for the improvement of organizations as well as creating new organizations to meet community needs.
499. Directed Studies (1-3) F, S Staff

Prerequisite: Consent of instructor. Directed studies to permit individual students to pursue topics of special research interest. May be repeated to a maximum of six units.

## BLACK STUDIES DEPARTMENT

## (School of Letters and Science)

Assistant Professors: Akoni, Evans, Jeffers, Montgomery, Uku.
The black studies curriculum is designed to provide general knowledge of black culture and history and to offer training for professional work in the black community. It offers programs to serve (1) teachers; (2) those entering a variety of occupations, including social case work, school administration, urban planning, government, recreation, journalism, business, criminology, law, foreign service, communications, speech and linguistics, psychology; (3) majors in other fields, such as history, literature, creative writing, anthropology, who wish to include additional dimensions to their course of study.

Information regarding black studies can be obtained at the Black Studies Department Office.

## CERTIFICATE IN BLACK STUDIES

Students majoring in other departments of the College but interested in Black Studies may at the same time pursue a program leading to a Certificate in Black Studies. Courses used to meet the certificate requirement may, where applicable, also be used simultaneously to meet General Education requirements or the major and minor requirements of cooperating departments.

## Requirements for the Certificate in Black Studies

1. A bachelor's degree with a major in a traditional discipline. (Certificate can be completed prior to or simultaneously with completion of the B.A. requirement.)
2. A minimum of 24 units of which at least 12 must be in upper division courses, with two or more courses selected from each of the following: Group A: Black Studies 180, 210, 330, 325, 370, 420A,B; Group B: Black Studies 140, 160, 340, 343, 346; Group C: Black Studies 120, 200, 201, 202, 304, 337, 400.

## LOWER DIVISION

## 120. Survey of Afro-American History (3) S Staff

Chronological sequence of events, their causes and their effects upon the lives of Afro-Americans. Survey of United States history through the eyes of the black man. (Lecture-discussion 3 hours.)
140. Introduction to African and Afro-American Literature (3) F, 5 Evans

Study of representative works, in English and translation, of black writers from Africa and non-African countries.

## 155. Afro-American Music (3) Ftaff

Non-technical survey of Afro-American music.

## 160. Black Arts (3) F Staff

Survey course in the development of the student's understanding of Pan-African music, drama and visual arts as they grow out of the black experience.

## Etbnic Studies

## 167. Exploitation of the Black Athlete (3) F Montgomery

Study of the socio-dynamics of amateur, professional and collegiate sports activity in the United States as it relates to the Afro-American community.
176. Preparation of Soul Food (3) F, S Staff

Introduction to the selection, buying and preparation of soul food.
180. Black Reality (3) F, S Akoni, Montgomery

Prerequisite: Consent of instructor. Introduction to a systematic understanding of black reality through the perspectives of various disciplines.
200. Black World: Ancient Beginnings to European Incursions (3) F,S Staff

Historical study of black peoples, tracing their earliest appearances in Africa, migrations, ancient and medieval empires and kingdoms, styles of culture and civilization, and their situations at the time of contact with the Western world.

## 201. Black World: History of Slavery (3) F, S Uku

Historical examination of the trans-Atlantic slave trade and its impact on Africa and the Western Hemisphere. Includes inquiry into the nature of slavery in Africa, the Caribbean, North and South America, with major emphasis on slavery and its meaning in the United States.

## 202. Black World: After Slavery (3) F, S Uku

History of social and political change in the black world in the last two centuries, including the decline of slavery; the rise of colonialism and partition, independence, nationalism and the struggle against colonialism, neo-colonialism and racism.

## 210. Afro-American Community (3) F,S Staff

Social structure and change in the community life of Afro-Americans. Institutional and stratification patterns, demographic changes, social movements and community organization programs.

## UPPER DIVISION

## 304. World Colonialism (3) F,S Uku

Analytical study of colonialism, examined as a crucial phenomenon in regards to the development of world civilizations.
325. Psychology of the Afro-American (3) F, $S$ Montgomery

Examination of the psychological conflicts of Afro-Americans in relation to their social situations.

## 330. Politics of the Black Community (3) F, S Staff

Study of the devices, styles, problems and dynamics of political activity in the black community.
337. Culture of Pan-African Peoples (3) F, S Staff

Analysis of Pan-African cultural geography and a study of human behavior in Pan-African societies. Not open to students with credit in Black Studies 110E.
340. Development of Afro-American Literature (3) $F$ Jeffers

Representative selections from black writers of the United States, from colonial times to the present.

## 343. Literature of Africa and the Caribbean (3) F,S Staff

Individual and group pursuit of special problems and projects in African and Caribbean literature.

## 346. Black Theatre Workshop (3) F, S Evans

Workshop to develop creative techniques for projecting the black image through the theatre; includes study of acting, directing, staging, lighting, and other arts of the theatre.

## 363. History of African Art (3) F,S Staff

Survey of African art from antiquity to the present, with principal focus on sub-Saharan art.
370. The Black Man and the Mass Media (3) F Staff

Examination of the uses and abuses of mass media in the projection of the black community and its people, past and present. Primary emphasis will be on the press, the radio, the television and the film industry.
400. Afro-American Social Thought (3) S Staff

Survey of Afro-American intellectual history with emphasis on social theories and polemic writing.
404. Twentieth Century Revolution in the Third World (3) F, $\mathbf{S}$ Montgomery

Emphasis is on the bourgeois, democratic revolution after World War I to the current revolutions which take the form of a proletarian-socialist world revolution.
410. The Black Family (3) F,S Staff

Prerequisite: Consent of instructor. Historical study of the psychological development of the black family.

## 420A,B. Psychological Needs of the Ghetto Child $(3,3)$ F, S Jeffers

Study of the psychological needs of children, followed by an exploration of the strengths and weaknesses of the black community as it influences the black child. Study of the ways education may benefit the black child.
499. Directed Studies (1-3) F, 5 Staff

Prerequisite: Consent of instructor. Permits individual students to pursue topics of special research interest. May be repeated to a maximum of six units.

## MEXICAN AMERICAN STUDIES DEPARTMENT

(School of Letters and Science)
Professor: Johnson, H.
Associate Professor: Cruz.
Assistant Professors: Lopez, J., Osuna, Sanchez.
Instructors: Lopez, C., Mascorro, Sandoval.
Mexican American studies courses are designed to provide a general knowledge of the history and culture of the Mexican Americans of the Southwest. The department offers programs to serve the interests and goals of (1) those entering a variety of occupations including urban planning, government, journalism, social work, school administration, business, criminology, law, foreign service and other related areas, (2) teachers, (3) majors in other fields such as history, sociology, psychology, literature, anthropology, who wish to include additional scope to their field of study.
The department is currently in the process of developing a bachelor of arts degree in Mexican American studies. Information regarding Mexican American studies can be obtained at the Mexican American Studies Department office.

## CERTIFICATE IN MEXICAN AMERICAN STUDIES

The Mexican American Studies Department has established a program which offers students interested in this field the opportunity to pursue courses leading to a certificate in Mexican American Studies. Courses used to meet this certificate requirement may be counted also, where applicable, toward the General Education requirements and the major and teaching minor requirements of the cooperating departments.

## Requirements for the Certificate in Mexican American Studies

1. A bachelor's degree with a major in a traditional discipline.
2. A minimum of 24 units distributed as follows:
(a) Core requirement: either Mexican American Studies 420 or 425, nine units taken from Mexican American Studies 300, 310, 350, 443.
(b) Electives: 12 or more units selected in consultation with an adviser, preferably with at least one course in each of the following groups: Group A: Mexican American Studies 205, 305, 312, 420, 425, 460A-B; Group B: Mexican American Studies 100, 210A,B, 220, 230, 300, 310, 350, 360, 375, 380, 400, 443, 450, 499; Group C: Mexican American Studies 340, 442, 443, 444.

## LOWER DIVISION

## 100. The Chicano in United States Society (3) F, S Lopez, J., Sandoval

Focuses on the Hispano, Mexican and Indian heritage of the Chicanos of the Southwest and their contribution to the United States with emphasis on the political, educational, economic and sociological facets of their role in contemporary U.S. society.
103. Bilingual Communication Skills-Spanish (4) F, S Lopez, C., Osuna

Designed for students who have some knowledge of spoken Spanish; emphasis will be placed on the development of oral and aural skills as well as written communication.
104. Bilingual Communication Skills-English (3) F, S Mascorro, Osuna

Prerequisite: To be taken concurrently with Mexican American Studies 103. Fundamentals of English communication for students of bilingual background.
203. Spanish for the Native Speaker (3) F, S Lopez, C.

Meets the needs of bilingual students whose cultural background has prepared them for special forms of accelerated Spanish instruction. The successful completion of this lower division course will enable the student to enter upper division classes in Spanish.

## 205. Mexican Literature in Translation (3) F, S Osuna

Survey of Aztec and Mayan literature, the first chroniclers of Mexico, the Colonial Period, patriotic writers of Independence, the Romantic Period and Contemporary Mexican and Mexican American authors.

## 210A,B. Mass Media and the Barrio $(3,3)$ F, $S$ Mascorro

Prerequisite: Mexican American Studies 104 or its equivalent. Examination of mass media and its total impact on the Chicano community. Journalistic techniques and publication of a newspaper including coverage of all facets of the Chicano community and field work.

## 220. Teatro Chicano (3) F,S Staff

Utilizes both traditional and innovative theatre methods such as satire, pantomine, parodies, the absurd and improvisation to communicate the historical and contemporary problems confronting the Chicano. Emphasis on street type theatre as a vehicle of communication.

## 230. Chicano Community Organization (3) F, S Lopez, J.

Analysis of Chicano community groups; emphasis on development of community organizational techniques. (Lecture 2 hours, field trips.)

## UPPER DIVISION

300. History of the Chicano in the Southwest (3) F, S Sanchez

Chicano's role in the settlement and development of the Southwest and in contemporary U.S. society; Chicano experience as a U.S. minority group; emerging civil rights movement of La Raza.

## 305. Contemporary Mexican Literature in Translation (3) S Staff

Prerequisite: Completion of a lower division literature course. Focuses on 20th century Mexican literature, with emphasis on the literature of the revolution and the current psychological novel in Mexico.

## 310. Chicano Thought (3) F,S Cruz

Study of the ideas, philosophies and events affecting Chicano life; identification and examination of the Chicano world view, of a Chicano reality.

## 312. Mexican Thought (3) F Staff

Inquiry into the nature of Mexican thought and a critical examination of Mexican world views and views about the nature of morality, beauty, society, religion and intellect.

## 340. The Chicano and Education (3) F, S Johnson

Analysis of the failure of school systems to meet the needs of Chicano students, evaluation and consideration of the changes in philosophy, curriculum, methodology and testing and guidance procedures that must be made.

## 350. Sociology of the Barrio (3) Fruz, Sandoval

Analysis of social institutions in the Chicano community. Survey of educational, political, religious, economical and social systems. Field work will be required to provide relative experiences.

## 360. Justice and the Chicano (3) F, S Staff

Study of the administration of justice as it relates to the barrio and the Chicano; examination of police-community relations, administrative procedures, courts and jury systems and their relationship to Chicanos. Analysis of civil rights legislation and its effectiveness on the Chicano community.

## 375. The Chicano in the Penal System (3) $\mathbf{F}, \mathbf{S}$ Staff

Examines via discussion and observation rehabilitational, educational and vocational programs in the penal system in terms of overall effectiveness relative to the Chicano. Selected field trips will be scheduled throughout the semester.

## 380. Chicano Roots in Precolumbian Mexico (3) F Cruz

History of Meso-America from prehistoric times to the Spanish conquest, emphasizing the study of the societies and the religious and intellectual life of people of ancient middle America.

## 400. Chicano Roots in Modern Mexico (3) Staff

Effects of the political and cultural evolution of modern Mexico on the Chicanos of the Southwest as demonstrated by the conquest, War of Independence, the revolution and contemporary times.

## Etbnic Studies

## 420. Chicano Meritage in the Arts of Mexico and the Southwest (3) F, S Staff

Historical and philosophical analysis of Indian Mestizo and Chicano plastic arts, music and dances with a view to understanding the Chicano heritage.

## 425. Mexican and Chicano Folklore (3) F, S Staff

Prerequisite: Mexican American Studies 103 or equivalent. Study of folklore with special reference to the folkloric contribution of Mexico and the Southwest to the United States. Emphasis on narrative genres of folklore employing a humanistic and cultural approach. Field work and recording of materials. Reading and oral comprehension of Spanish required.

## 442. Counseling Chicanos (3) F, S Johnson

Prerequisite: Upper division standing in Mexican American Studies or consent of instructor. Present day theories of counseling, theoretical issues and special problems encountered in counseling Chicanos. Goals, processes and techniques of counseling.

## 443. Psychology of the Chicano (3) F,S Johnson

Prerequisite: Mexican American Studies 100 or consent of instructor. Significance of the "psi" phenomena and its related variables on the cognitive and conative development of the Mexican American in the segregated barrio and integrated suburban environments. Will deal with basic physiological and psychological theories, principles and practices relative to the individual's personality dynamics. Included will be a comparison of Mexican and Western methodology in educational and psychological research endeavors.

## 444. Chicano Community-School Relations (3) S Staff

Comparative study of the pressing issues facing the school and the barrio; development of functional school-barrio relationships based on barrio expectations and educational practices.

## 450. Research Methods in the Chicano Community (3) F,S Sfaff

Prerequisite: Consent of instructor. Supervised research experience in problems pertaining to the Chicano community, including private and public agencies in education, welfare and law enforcement; includes a review of basic techniques of social research.

## 460A-B. Chicano Creative Writing Workshop (3) F, S Mascorro

Prerequisites: Mexican American Studies 203 or equivalent, six upper division units of Mexican American Studies. A workshop allowing maximum independence for the pursuit of creative work in the genre of one's choice while investigating works by accomplished Chicano writers. Use of Southwest Spanish dialects.

## 499. Directed Studies $(1-3)$ F, S Lopez, C., Sanchez

Prerequisite: Consent of instructor. Preparation of research reports on selected topics relating to the Chicano.

# FRENCH-ITALIAN DEPARTMENT 

(School of Letters and Science)
Professors: Baltzell, Leggewie, Swensen.
Associate Professors: Thomas, L., Winter.
Assistant Professors: Caprioglio, Kessler, Quillen, Yperman.

## 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, French 214. 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, 335, 336, 411, 440 and three of the following courses: $470,471,472,474,477,479$.
Departmental Requirement: One year of a second foreign language is required of all majors.

Teaching Credentials:
See Credential Section.

## LOWER DIVISION

## 101A-B. Fundamentals of French $(4,4) \quad F, S$ Staff

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.

## 103A-B. Beginning Reading for Non-Majors (3,3) F,S Yperman

103A. Course designed for students in any field who are preparing to satisfy reading examination requirements in French. Concentration on vocabulary and sentence structure to enable a student to read independently specialized literature in his major field.
103B. Prerequisite: French 103A or equivalent.

## 201A-B. Intermediate French (3,3) F, S Staft

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.

## French-Italian

203A-B. Advanced Reading for Non-Majors $(3,3)$ F, 5 Yperman
203A. Prerequisite: French 103B or equivalent. Continuation of 103A-B. Perfects skills acquired in $103 \mathrm{~A}-\mathrm{B}$ to meet stated objectives.

203B. Prerequisite: French 203A or equivalent.
214. Beginning Conversation (3) F,S Thomas

Prerequisite: French 201A or equivalent. Should be taken concurrently with French 201B. Designed to develop basic conversational skills and to prepare for more advanced work in French 314.

## UPPER DIVISION

312. Advanced French I (3) F, S Staff

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. Advanced French II (3) F, S Staff

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. Advanced Conversation (3) F,S Staff

Prerequisite: French 214 or consent of instructor. Continuation of French 214.
335. Survey of French Literature I (3) F Kessler, Quillen

Prerequisite: Upper division standing in French. From the Middle Ages to the Nineteenth Century.

## 336. Survey of French Literature II (3) S Kessler, Quillen

Prerequisite: Upper division standing in French. Nineteenth and Twentieth Centuries.

## 358. The French Short Story (3) SS Baltzell

Prerequisite: Upper division standing in French. Most representative short story writers as Flaubert, Daudet, Maupassant, Maurois, Sartre, and Aymé.

## 411. Advanced French Syntax and Composition (3). F Baltzell

Prerequisites: French 312 and 313 or equivalent. Special emphasis on the writing of short composition and commercial letters with advanced work in translation.

## 414. French Phonetics (3) S Thomas

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 Staff

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) $F, S$ Yperman

Prerequisite: French 314 (may be taken concurrently with French 335 or 336 or with consent of instructor). Significant aspects of French art, culture and social institutions.

## 455. Modern French Drama (3) S5 Winter

Prerequisites: French 335,336 or consent of instructor. Survey of contemporary French theatre.

## 456. Contemporary French Novel (3) SS Winter

Prerequisites: French 335, 336 or consent of instructor. Readings in contemporary French writers, such as Gide, Rolland, Proust, Romains and Sartre for understanding of current literary trends.

## 470. French Literature of the Middle Ages (3) $F$ Baltzell

Prerequisites: French 335,336 or consent of instructor. Study of representative drama, poetry and prose of the period. Texts in modern French.
471. French Literature of the Renaissance (3) $F$ Baltzell

Prerequisites: French 335,336 or consent of instructor. Study of representative drama, poetry and prose of the 16 th Century.
472. French Literature of the Seventeenth Century (3) $S$ Quillen

Prerequisites: French 335,336 or consent of instructor. Study of representative drama, poetry and prose of the century.
474. The Age of Enlightenment (3) $F$ Kessler

Prerequisites: French 335,336 or consent of instructor. Study of representative writers and thinkers of the century. Drama, poetry and prose.

## 476. French Romanticism (3) SS Swensen

Prerequisites: French 335,336 or consent of instructor. Most representative French writers in the Romantic movement from Chateaubriand to Victor Hugo, with readings in prose, drama and poetry.
477. French Literature of the Nineteenth Century (3) F Swensen

Prerequisites: French 335,336 or consent of instructor. Study of representative writers of the century. Drama, poetry and prose.
478. French Realism and Naturalism of the Nineteenth Century (3) $\mathbf{5 S}$ Yperman
Prerequisites: French 335,336 or consent of instructor. Most representative French writers in the movements of Realism and Naturalism. Readings from such writers as Balzac, Flaubert, Maupassant and Zola.

## 479. French Literature of the Twentieth Century (3) Saltzell <br> Prerequisites: French 335,336 or consent of instructor. Study of representative writers of the century. Drama, poetry and prose.

## 499. Directed Studies $(1-3)$ F, S Leggewie

Prerequisite: Consent of instructor. Independent study undertaken under the supervision of a faculty member.

## GRADUATE DIVISION

## 551. Poetry from Baudelaire to the Symbolists (3)

552. Poetry of the 20 th Century (3)
553. Development of the French Novel (3)
554. Development of Drama in France (3)
555. Seminar in the History of the French Language (3)
556. Seminar in a Century of French Literature (3)
557. Seminar in French Literary Masters (3)
558. Seminar in Explications de Texte (3)
559. Seminar in Literary Themes (3)
560. Directed Research (1-3)
561. Thesis (2-6)

## ITALIAN LOWER DIVISION

## 101A,B. Fundamentals of Italian $(4,4)$ F, S Staff

Practice in grammar, reading, pronunciation, writing and conversation.
101A. For those who are beginning the study of Italian or who have had one year of high school Italian.

101B. Prerequisite: Italian 101A or two years of high school Italian. Continuation of Italian 101A.

## 201A,B. Intermediate Italian (3,3) F, S Staff

Readings of representative writers with oral and written practice.
201A. Prerequisite: Italian 101A-B or three years of high school Italian or equivalent.

201B. Prerequisite: Italian 201A or four years of high school Italian or equivalent.

## UPPER DIVISION

## 312. Advanced Italian I (3) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisite: Italian 201B. Extensive reading of Italian writings, review of grammatical principles and a general consolidation of the four language skills: reading, comprehension, composition and conversation.

## 313. Advanced Italian II (3) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisite: Italian 312 or equivalent. A sequel of Italian 312 with continuing emphasis on extensive reading of Italian texts, regular composition work based on these readings and the development of increased mastery of the spoken language through student discussion of the readings.

## GEOGRAPHY DEPARTMENT

## (School of Letters and Science)

Professors: Anderson, B., Ericksen, Steiner, Wilson, J.
Associate Professors: Karabenick, Kimura.
Assistant Professors: Josif, Outwater, Scantling, Splansky, Tyner, Wheeler.
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 degre

Lower Division: Geography 100, 140, and 152 or equivalents.
Upper Division: A minimum of 24 units including Geography 380, 440 and either Geography 387 or $388,444,482$, and 496, plus 6 units chosen from $360,452,466,470$ and 490 ; or Geography 304, 306, plus 9 units chosen from $360,387,388,444,452,466,470,482,490$ and 496.

## Teaching Credentials:

See Credential Section.

## LOWER DIVISION

## 100. World Regional Geography (3) F, S Staff

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. Introduction to Geography (3) F, S Staff

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. Economic Geography (3) F, 5 Staff

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. California (3) F,S Splansky, Steiner, Wheeler, Wilson

Physical patterns in relation to natural resources, resource utilization, transport and population distribution. Not open to students with credit in Social Science 104.

## 306. United States and Canada (3) F,S Anderson, Josif, Outwater

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.

## Geography

## 308. Sub-Saharan Africa (3) F, S Splansky

Regional examination of Africa south of the Sahara with particular emphasis placed upon the political and developmental problems of emerging states. Not open to students with credit in Geography 310.

## 309. North Africa and the Middle East (3) S Karabenick

Culture areas of North Africa and the Middle East are examined. Recent economic and political trends are stressed. Not open to students with credit in Geography 310.

## 313. Eastern Asia (3) F, S Kimura

Regional synthesis of the physical and cultural features which characterize the economic, social and political geography of China, Korea and Japan. Not open to students with credit in Geography 312.

## 314. Southern Asia (3) F, S Staff

Regional synthesis of the physical and cultural features which characterize the economic, social and political geography of Pakistan, Ceylon, India, Southeast Asia, Indonesia and the Philippines. Not open to students with credit in Geography 312.

## 316. Western Europe (3) F,S Wilson

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.

## 317. Eastern Europe (3) Staff

Systematic and regional study of the physical, economic and cultural geography of the nations of Eastern Europe, excluding the Soviet Union.

## 318. The Soviet Union (3) F, S Ericksen

Systematic and regional study of the physical, economic and cultural geography of the Soviet Union. Not open to students with credit in Geography 324.
321. Middle America (3) $F$ Staff

Systematic and regional study of Mexico, Central America and the Caribbean Islands. Emphasis upon the geographic background of social, economic and political problems. Not open to students with credit in Geography 320.
322. South America (3) $F$ Staff

Topical and regional examination of the various physical and cultural patterns of South America as they relate to the social, economic and political problems of the area. Not open to students with credit in Geography 320.
326. Pacific Ocean Area (3) S Scantling

Regional synthesis of the physical and cultural geography of Australia, New Zealand and the island groups of Oceania.

## 350. Principles of Geography (3) F,S Staff

Designed for non-majors. 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.

## 360. Cultural Geography (3) F, S Scantling, Splansky

Prerequisite: Geography 100 or consent of instructor. Nature of culture and its geographic aspects. Environmental perception, attitudes and cultural dynamics examined with reference to the formation of patterns of man's use of the land.

## 380. Map Reading and Interpretation (3) F, S Tyner

Prerequisite: Geography 100 or 140 or 152 or 350 . Information retrieval techniques applicable to maps, including the study of symbolization, scale and projections. (Lecture, problems 3 hours.)

## 387. Field Methods in Rural Landscape Analysis (3) S Scantling, Splansky

Prerequisites: Geography 140, 152, 380, or consent of instructor. Introduction to field techniques and methods by which field studies of rural areas are made. Emphasis on physical geography, agricultural geography and man-land relationships. Not open to students with credit in Geography 386. (Lecture-discussion 2 hours, supervised field work 2 hours.)

## 388. Field Methods in Urban Analysis (3) F Karabenick

Prerequisites: Geography $140,152,380$, or consent of instructor. Introduction to urban field techniques, including formulation of field plans, recording direct observation, field mapping, sampling techniques, interviewing and compilation of data. Not open to students with credit in Geography 386. (Lecture-discussion 2 hours, supervised field work 2 hours.)

## 396. Geographic Materials and Projects (1) F, S Staff

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. Physical Geography (3) F, S Josif, Kimura, Steiner, Wheeler

Prerequisites: Geography 380, Geography 140 or 350 or consent of instructor. Explanatory description of climate, landform, vegetation and soil distributions and interrelations at world and local levels.

## 444. Climatology (3) F, S Kimura

Prerequisites: Geography 140,350 or Geology 463. The elements, controls, descriptive and explanatory analysis of the distributional characteristics, classification of climates and the relationship of climate to the other major elements of geography.

## 452. Industrial Geography (3) F Anderson

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. Urban Geography: Principles (3) F, S Karabenick, Outwater

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.

## 467. Urban Geography: Metropolitan Problems (3) S Outwater

Prerequisite: Geography 466 or consent of instructor. Geographic components of metropolitan problems and their solutions. Problems related to transportation systems, housing, evolution of ghettos, urban perception and behavioral patterns will be discussed in terms of theoretical and practically applied urban planning solutions. (Lecture, problems 3 hours.)

## 470. Political Geography (3) F,S Wilson

Prerequisite: Geography 100 or 350 or consent of instructor. The earth's politically organized regions examined from the point of view of development, function and viability. Application of basic geographic concepts will be made in related areas.

## Geography

## 482. Elements of Cartography (3) F,S Tyner

Prerequisites: Geography 380, consent of instructor. Advanced techniques in construction of maps, charts and diagrams, including experience in the use of cartographic tools. (Lecture-discussion 2 hours, laboratory 3 hours.)

## 490. Quantitative Methods (3) F Staff

Prerequisites: Geography 100,140 and 152 or equivalents; one course in elementary statistics such as Economics 380, Educational Psychology 319 or Sociology 255 or equivalent experience. Statistical concepts and techniques applied to geography, with emphasis on areal distribution and interconnections.

## 496. Literature and Methods in Geography (3) F Ericksen

Prerequisites: Geography 140 and 380 , consent of instructor. Undergraduate seminar in the methods, theory and techniques of geographic investigation with emphasis upon classical and contemporary literature.

## 497. Directed Studies (1-3) F, S Staff

Prerequisite: Consent of instructor. Individually directed studies of special problems in geography.

## GRADUATE DIVISION

600. Seminar in Regional Geography (3)
601. Seminar in Physical Geography (3)
602. Seminar in Cultural Geography (3)
603. Seminar in Economic Geography (3)
604. Seminar in Urban Geography (3)
605. Directed Research (1-3)
606. Thesis (2-6)

## GEOLOGICAL SCIENCES DEPARTMENT

## (School of Letters and Science)

Professors: Conrey, Ehrreich, Lumsden.
Associate Professors: Chan, Dennis, Fritts, Walker, C., Winchell, R. Assistant Professor: Grannell.
Geology is the study of the solid earth. Within the broad field of geology the student may elect to follow one of several alternative routes in his study: general geology, marine geology, mineralogy-petrology, paleontology-stratigraphy, structural geology. Refer to earth science baccalaureate degree for options other than geology in earth science.

All earth science and geology majors must obtain a departmental adviser.

## MAJOR IN GEOLOGY FOR THE BACHELOR OF SCIENCE DEGREE

Lower Division: Geology 103, 104, 140, 221, 222; Mathematics 117, 122, 123; Chemistry 111A-B; Civil Engineering 225, Zoology 210A. Additional required courses for the several emphases are listed below. (1) General geology: Physics 100A-B, (2) Marine geology: Mathematics 224; Physics 110, 120, 240, (3) Mineralogy-petrology: Mathematics 224; Chemistry 251, 251L; Physics 110, 120, 240, (4) Paleon-tology-stratigraphy: Physics 100A-B, (5) Structural geology: Mathematics 224; Physics 110, 120, 240.
Upper Division: Geology 321, 330, 341, 342, 423, 441, 449; English 300 or 317. Additional required courses for the several emphases are listed below. (1) General geology: Geology 450, and 10 units of upper division courses approved by adviser, (2) Marine geology: Geology 460 and 461 or Chemistry 371A-B; Geology 462, 463, 464; Biology 416, (3) Mineralogy-petrology: Geology 450, 490d; Chemistry 371A-B, 451, (4) Paleontology-stratigraphy: Geology 443, 450; three courses selected from Geology 461, 462, 464; Biology 361, 416; Zoology 420, (5) Structural geology: Geology 450, 460, 490j and four additional units approved by adviser.

## 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 103, 104, 105 (3 units), 140, 221, 223; Astronomy 100; courses to support major include Biology 200, Chemistry 111A-B, Mathematics 117, Physics 100A-B.
Upper Division: Geology 310, 331, 380, 430, 360 or 462, 463; Geography 444.

## LOWER DIVISION

## 102. General Geology (3) F, S Staff

Elementary study of the earth, particularly the structure, composition, distribution and modification of earth materials. (Lecture, demonstration.) Not open to students with credit in Geology 100 or 103.

## 103. Introductory Geology (2) F,S Staff

Prerequisite: Concurrent enrollment in Geology 104 or 105. Elementary study of the earth, particularly the structure, composition, origin, distribution and modification of earth materials. Not open to students with credit in Geology 100 or 102.

## 104. Geology Laboratory (1) F, S Staff

Prerequisite: Concurrent or prior enrollment in Geology 102 or 103. Laboratory study of earth materials. (Laboratory 3 hours.)
105. Geology Field Laboratory (1) F, S Staff

Prerequisite: Concurrent or prior enrollment in Geology 102 or 103. Field trips to areas of geologic significance and field study of earth materials. May be repeated for credit with consent of instructor to a maximum of 3 units. (Field trips, 6 days per unit.)
140. Historical Geology (3) F,S Fritts

Prerequisite: Geology 104. History of the earth and evolution of plants and animals. Not open to students with credit in Geology 101. (Lecture 2 hours, laboratory 3 hours, field trips.)

## 160. Introduction to Oceanography (3) F,S Staff

Origin and extent of the oceans; nature of the ocean floor, cause and effect of currents, tides and waves; and life in the sea. (Lecture, discussion.)
190. Environmental Geology (3) F, S Ehrreich, Grannell

Interrelationships of man and landslides, floods, erosion, subsidence, volcanism, earthquakes and seismic sea waves. Case histories will be discussed.

## 191. Air and Water Pollution (3) F, S Chan, Walker

Survey course dealing with the causes and nature of pollution of the air, fresh water lakes and streams and the ocean. Effects of pollution on man's environment.

## 221. Elements of Mineralogy (2) F, S Winchell

Prerequisite: One year of high school chemistry or equivalent. Classification, origin, occurrence and association of common ore, gangue and rock forming minerals; mineral identification by physical and chemical tests. (Laboratory 6 hours, field trips.)
222. Elements of Crystallography (2) F, S Winchell

Prerequisites: Chemistry 111A, trigonometry. Introduction to morphological and structural crystallography; elementary application of crystallographic concepts to physical and chemical properties of crystalline materials. (Lecture 1 hour, laboratory 3 hours, field trips.)

## 223. Introductory Petrology (2) S Staff

Prerequisite: Geology 221. Macroscopic characteristics, origins, modes of occurrence and nomenclature of common rocks. Not open to students majoring in geology. (Lecture 1 hour, laboratory 3 hours, field trips.)

## UPPER DIVISION

## 306. Field Geology Laboratory (1-3) F, S, Staff

Study of earth materials and processes at selected field localities. Elementary study of common rocks and minerals will accompany an introduction to glaciation, river erosion, desert activity, oceanic processes and structural geology. Minimum of six days in the field for each unit of credit.

## 310. Life of the Past (3) F, S Lumsden

Prerequisites: High school biology; 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.

## 321. Optical Crystallography (4) 5 Ehrreich

Prerequisites: Geology 221, 222 and 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. Not open to students with credit in Geology 421. (Lecture 2 hours, laboratory 6 hours.)

## 330. Structural Geology (4) F Dennis

Prerequisites: Geology 104, 140 and Mathematics 117. Deformation of earth's crust, fracturing, folding and flow of rocks; graphic solutions of structural problems. (Lecture 2 hours, laboratory 6 hours, field trips.)

## 331. Geomorphology (3) F, S Conrey

Prerequisite: Geology 102 or 104 or 370 . Nature, evolution and classification of land forms; physiographic provinces of U.S.A. (Lecture 2 hours, discussion session 2 hours, field trips.)

## 341. Principles of Paleontology (4) F Lumsden

Prerequisites: Zoology 210A, Geology 104 and 140 or Zoology 210B or consent of instructor. Morphologic, systematic, and ecologic aspects of invertebrate fossils; uses of fossils in stratigraphic work. (Lecture 2 hours, laboratory 6 hours, field trips.)

## 342. Sedimentary Rocks (3) S Conrey

Prerequisites: Geology 104 or Civil Engineering 340, Geology 221. Methods of analysis; description and classification of, and processes involved in, the formation of sedimentary rocks. (Lecture 1 hour, laboratory 3 hours, field trips 5-6 days.)

## 360. Principles of Oceanography (3) F,S Conrey

Prerequisites: High school chemistry, physics, trigonometry. Oceanographic principles: chemistry and physics of ocean's waters and floor; cause and effect of currents, tides and waves and their role in modifying coasts and providing sediments to the ocean basins. Discussion of current studies in oceanography. Shipboard time will be provided. (Lecture, discussion.)

## 370. Engineering Geology (2) F, S Fritts

Prerequisites: Mechanical Engineering 172, Civil Engineering 225. Earth processes and materials which influence the design, construction and operation of engineering works; construction materials. Not open for credit to geology majors. (Lecture 2 hours, field trips.)

## 380. Earth Science Techniques (3) $\mathbf{S}$ Grannell

Prerequisites: Geology 104, 140, 223. Models, methods and materials of earth science. (Lecture 2 hours, laboratory 3 hours, field trips.)

## Geology

## 422. General Crystallography (3) F Winchell

Prerequisites: Physics 100B or equivalent, Chemistry 111B, Geology 222. Introduction to geometrical, structural, chemical and physical crystallography. (Lecture 2 hours, laboratory 3 hours.)
423. Igneous and Metamorphic Petrology (4) F Ehrreich

Prerequisites: Chemistry 111B and Geology 321. Characteristics, origins, modes of occurrence and nomenclature of igneous and metamorphic rocks. Laboratory is coordinated macroscopic and microscopic study of rocks. (Lecture 2 hours, laboratory 6 hours, field trips.)
430. Solid Earth Processes (3) S Dennis, Grannell

Geometry and origin of folded and faulted rocks; regional structural geology; physics and chemistry of the earth's interior; effect of mantle and core processes on the crust. Not open for credit to geology majors. (Lecture 2 hours, laboratory 3 hours.)
441. Principles of Stratigraphy (3) F Fritts, Walker

Prerequisites: Geology 321, 330, 341, 342. Occurrence, lithology, fossil content, succession and mutual relations of rocks and their classification. (Lecture 2 hours, laboratory 3 hours, field trips.)
443. Micropaleontology (3) $S$ Fritts

Prerequisites: Geology 104, 140, 341; or upper division standing in biology with consent of instructor. Morphology, taxonomy and ecology of microfaunas; biostratigraphy. (Lecture 2 hours, laboratory 3 hours, field trips.)
449. Field Geology (3) S Staff

Prerequisites: Geology 423, 441; Civil Engineering 225. Geologic mapping; interpretation of geologic maps and aerial photographs; preparation of geologic illustrations. (Laboratory 3 hours, field trips 8-5 Saturdays.)
450. Advanced Field Geology (6) SS Staff

Prerequisites: Geology 330, 449. 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. Introduction to Geophysics (3) $F$ Grannell

Prerequisites: Physics 100B, Mathematics 120 or 122. Introduction to geophysics; principles and processes; methods of investigation. (Lecture 2 hours, laboratory 3 hours, field trips.)

## 461. Introduction to Geochemistry (3) $\mathbf{S}$ Walker

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. (Lecture 2 hours, laboratory 3 hours, field trips.)
462. Elements of Physical and Chemical Oceanography (3) F Chan

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, field trips.)
463. General Meteorology (3) S Chan

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, field trips.)

## 464. Geological Oceanography (3) On demand Conrey

Prerequisites: Geology 102 or 103 or 370 ; Geology 160 or 360 or 462 or Mechanical Engineering 434; Chemistry 111B and Physics 100B. Sediments, topography and structure of the ocean floor; sedimentary processes as they affect the shore, continental shelf and ocean basins. (Lecture 2 hours, laboratory 3 hours, 2 day field trip.)

## 471. Petroleum Geology (2) F Fritts, Walker

Prerequisite: Geology 330. 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 trips.)
490. Current Topics in Geological Sciences (3) F, S Staff

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, (d) X-ray crystallography, (f) Aerial photo interpretation, (g) Paleoecology, (h) Statistical methods in geology, (i) Planetary geology, (j) Tectonics, (k) Economic mineral deposits. May be repeated for a maximum of 6 units. ( 3 hours, field trips may be required.)

## 496. Investigations in Geology and Other Earth Sciences (1-4) F, S Staff

Prerequisites: Senior standing in geology, earth science or related fields, completion of an upper division course in geology or earth science in the area of the topics chosen and approval of the topic chosen by the geology faculty. Supervised research in geology or the other earth sciences. (Field trips may be required.)

# GERMAN, CLASSICS AND EASTERN LANGUAGES DEPARTMENT 

(School of Letters and Science)
Professor: Walter.
Associate Professors: Bartenbach, Kendall, McKay, Pelters, Roden.
Assistant Professors: Barz, Ctvrtlik, Malone, Spring. Lecturer: Miyazaki.

## 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.

At present the classics program includes a number of courses in Greek and Latin on the sophomore, junior and senior level.

In the Eastern languages the College offers Chinese, Hindi, Japanese and Sanskrit including Indic literature. A teaching minor in Russian is offered and will be expanded. Another language offering is Modern Hebrew.

## 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 301A-B, 305, 401.
Departmental Requirement: One year of a second foreign language is required of all majors.

Teaching Credential:
See Credential Section.

## LOWER DIVISION

101A-B. Fundamentals of German (4,4) F, Staff
101A. For those who are beginning the study of German. 101B. Prerequisite: German 101A or equivalent. Continuation of German 101A.

201A-B. Intermediate German (4,4) F,S Staff
Reading of representative modern German literature. Deeper penetration into German grammar.

201A. Prerequisites: German 101A-B.
201B. Prerequisite: German 201A.

## 203A-B. Scientific German $(3,3)$ F, S Staff

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

## 301A-B. Advanced German (3,3) F, S Staff

Intensive practice and the consolidation of the basic language skills: reading, comprehension, composition and conversation. Not open to native speakers.

301A. Prerequisite: German 201B or equivalent. Emphasis on reading, comprehension, vocabulary building and idiomatic usage. Not open to students with credit in German 312.
301B. Prerequisite: German 301A or equivalent. Emphasis on composition, oral reports and discussion. Not open to students with credit in German 313.
305. German Conversation (3) Staff

Prerequisite: Upper division standing in German. Intensive practice of spoken German with stress on vocabulary building, pronunciation, intonation and oral comprehension. Not open to students with credit in German 314.

## 315. Survey of German Literature I (3) $\mathbf{F}$ Staff

Prerequisite: Upper division standing in German. German literature from the oldest extant words to the middle of the 17th century. Not open to students with credit in German 335.
316. Survey of German Literature II (3) Staff

Prerequisite: Upper division standing in German. German literature from Lessing to the death of Goethe. Not open to students with credit in German 336.

## 317. Survey of German Literature III (3) F, 1971 Staff

Prerequisite: Upper division standing in German. Development of literary writings from 1832 to the present time.
370. German Literature in Translation (3) On demand Bartenbach, Kendall Study of significant German writers, German literary movements or a specific literary genre in English translation. No subject credit will be allowed for German majors.
401. Advanced German Syntax and Composition (3) F Staff

Prerequisites: German 301A-B or equivalent. Practice in developing a style and vocabulary suitable for the writing of reports and essays on cultural and literary topics. Not open to students with credit in German 411.

## 410. German Civilization (3) On demand Bartenbach, Pelters, Roden

Prerequisite: Upper division standing in German. Historical development of important German institutions, customs and thought. Not open to students with credit in German 440.

## 422. German Drama I (3) On demand Kendall

Prerequisite: Upper division standing in German. Representative dramatists of the 19th century. Not open to students with credit in German 450.

## 424. German Drama II (3) On demand Malone, Walter

Prerequisite: Upper division standing in German. German drama from Hauptmann to the present.

## 430. German Lyric Poetry I (3) On demand Pelters

Prerequisite: Upper division standing in German. German lyric poetry from the baroque through realism. Not open to students with credit in German 451.

## 432. German Lyric Poetry II (3) On demand Malone, Pelters

Prerequisite: Upper division standing in German. German lyric poetry from Hofmannsthal to the present.

## 441. German Novelle (3) On demand Walter

Prerequisite: Upper division standing in German. The German novelle as a separate literary genre, represented by Goethe, Tieck, Kleist, Keller, Meyer, Storm, Spielhagen, Heyse, Kafka, Thomas Mann and others. Not open to students with credit in German 452.
446. The German Novel (3) On demand Bartenbach, Walter

Prerequisite: Upper division standing in German. The German novel from Goethe to Thomas Mann as represented by Goethe, Keller, Stifter, Raabe, Fontane, and Thomas Mann. Not open to students with credit in German 456.
453. German Literature of the Enlightenment and "Sturm und Drang" (3) On demand Bartenbach, Pelters
Prerequisite: Upper division standing in German. Literary trends of the 18th century with emphasis on Lessing, Wieland, Klopstock, Herder and the authors of the "Sturm und Drang."
454. Literature of the Classical Period (3) $\mathbf{S}$ Pelters, Walter

Prerequisite: Upper division standing in German. Theory and major works by Goethe and Schiller. Not open to students with credit in German 471.
457. German Romanticism (3) F Bartenbach, Pelters

Prerequisite: Upper division standing in German. Philosophical thought and representative works in prose, lyric poetry and drama of German romanticism. Not open to students with credit in German 476.
458. Nineteenth Century Literature (3) 5 Bartenbach, Walter

Prerequisite: Upper division standing in German. Representative literary works of the "Biedermeier," "Junges Deutschland" and "Poetischer Realismus" against the background of the historical, philosophical and cultural movements of the times.

459A. German Literature from 1890-1945 (3) F Kendall, Malone, Roden, Walter
Prerequisite: Upper division standing in German. Major German prose, drama and poetry from naturalism to the end of World War II. Not open to students with credit in German 463.

459B. German Literature from 1945 to Present (3) S Malone, Walter
Prerequisite: Upper division standing in German. Significant contemporary German writers of prose, drama and poetry.
490. Methods in the Study of Literature (3) On demand Bartenbach, Kendall, Roden
Prerequisite: Upper division standing in German. Problems and methods in the interpretation of literature and the use of bibliographical aids to research.
499. Directed Studies (1-3) F, S Malone, Roden

Prerequisite: Consent of instructor. Independent study undertaken under the supervision of a faculty member.

## GRADUATE DIVISION

505. Middle High German (3)
506. German Stylistics (3)
507. History of the German Language (3)
508. Twentieth Century Novel ..... (3)
509. Medieval German Liferature ..... (3)
510. Literature of the Renaissance and Reformation ..... (3)
511. Literature of the Baroque (3)
512. Seminar in German Literature ..... (3)
513. Seminar in Goethe ..... (3)
514. Seminar in Schiller ..... (3)
515. Directed Research ..... (1-3)
516. Thesis ..... (2-6)
CLASSICS
Greek
LOWER DIVISION
517. Fundamentals of Greek ..... (4) $F, S$ Spring
Introduction to Greek grammar with emphasis on the rapid reading of gradedAttic prose. Exercises in the writing of Greek sentences will be regularly required.Main objective of the course is to provide the student with the groundwork foran approach to the great Greek masters of poetry and prose in the originallanguage. Not open to students with credit in Greek 101A.

## 222. Intermediate Greek (4) S Spring

Prerequisite: Greek 221 or equivalent. Reading of Plato's Apology and other dialogs. Introduction to the Homeric dialect. Regular assignments of English sentences for translation into Greek. Introduction to prose composition. Not open to students with credit in Greek 101B.

## UPPER DIVISION

331. Greek Tragedy and Advanced Composition (3) F, 1971 and alternate
years McKay

Prerequisite: Greek 222 or its equivalent. History of Greek tragedy and analysis of the extant plays of Aeschylus, Sophocles and Euripides. Translation and literary study of two specific plays and advanced composition.

## 332. Greek Lyric Poets and Advanced Composition (3) S, 1972 and alternate years McKay

Prerequisite: Greek 331. Development and growth of the Greek lyric and Elegiac poetry from its earliest proponents. Advanced composition.

## 341. Greek Historians and Advanced Composition (3) F, 1972 and alternate years McKay

Prerequisite: Greek 222 or equivalent. Translation and literary study of works of Herodotus or Thucydides. Advanced composition.
342. Homer and Advanced Composition (3) S, 1973 and alternate years MeKay
Prerequisite: Greek 341. Translation and literary study of selected books of the lliad or Odyssey. Advanced composition.

## 499. Directed Studies (1-3) F, S Staff

Prerequisites: 12 units of upper division Greek. Translation and literary study for one semester of the works of an individual author such as Plato, Aristophanes, Demosthenes or other important author not specifically covered in other upper division courses. Choice of author in consultation with the instructor. (May be repeated for credit with study of a different author.)

## Latin

## LOWER DIVISION

## 221. Fundamentals of Latin (4) Fpring

Introduction to Latin grammar with emphasis on the rapid reading of graded Latin prose. Exercises in the writing of Latin sentences will be regularly required. Main objective of the course is to provide the students with the groundwork for an approach to the great Roman masters of poetry and prose in the original language. Not open to students with credit in Latin 101A-B.

## 222. Intermediate Latin (4) $S$ Spring

Prerequisite: Latin 221 or its equivalent. Reading of selected poems from Catullus and from Horace's Odes. Reading of a generous portion of Cicero's Verrine Orations. Regular assignments of English sentences for translation into Latin. Introduction to prose composition. Not open to students with credit in Latin 201A-B.

## UPPER DIVISION

331. Virgil and Advanced Composition (3) F, 1971 and alternate years McKay

Prerequisite: Latin 222 or equivalent. Translation and literary study of Virgil's poetry. Advanced composition.

## 332. Roman Comedy and Advanced Composition (3) S, 1972 and alternate years McKay

Prerequisite: Latin 331. Translation and literary study of one or more plays of Plautus or Terence. Advanced composition.
341. Roman Elegiac Poets and Advanced Composition (3) S, 1972 and alternafe years McKay
Prerequisite: Latin 221 or equivalent. Translation and literary study of representative poems of Catullus, Tibullus, Propertius and Ovid. Advanced composition.
342. Roman Historians and Advanced Composition (3) S, 1973 and alternate years McKay
Prerequisite: Latin 341. Translation and literary study of works of Sallust, Livy or Tacitus. Advanced composition.
377. Studies in Medieval Latin Prose (3) F Staff

Prerequisite: Latin 222 or consent of instructor. Intensive studies in a wide variety of secular and ecclesiastical prose from the fourth to the fourteenth century with occasional lectures by instructor.
378. Studies in Medieval Latin Poetry (3) S Staff

Prerequisite: Latin 377 or consent of instructor. Intensive studies in a wide variety of secular and ecclesiastical Latin poetry from the fourth to the fourteenth century with occasional lectures by instructor.
499. Directed Studies $(1-3) \quad$ F, S Staff

Prerequisites: 12 units of upper division Latin. Translation and literary study for one semester of the works of an individual author such as Cicero, Horace or other important author not specifically covered in other upper division courses. Choice of author in consultation with the instructor. (May be repeated for credit with study of a different author.)

## EASTERN LANGUAGES

## Chinese

## LOWER DIVISION

## 221A-B. Fundamentals of Chinese (4,4) F, S Staff

Prerequisite for 221B: Chinese 221A. Introduction to grammar, reading, pronunciation, writing and conversation. Not open to students with previous training or to native speakers of Chinese.

## UPPER DIVISION

## 331A-B. Intermediate Chinese (3,3) F, S Staff

Continuation of first year Chinese. Reading and translation of simple stories and essays; emphasis on grammar, composition and conversation.
331A. Prerequisite: Chinese 221A-B. 331B. Prerequisite: Chinese 331A.
499. Directed Studies in Chinese (1-3) $\mathbf{F}, \mathrm{S}$ Staff

Prerequisite: Consent of instructor. Independent study under supervision of a faculty member. May be repeated for a maximum of 6 units.

## Hebrew

## IOWER DIVISION

101A-B. Introductory Hebrew (4,4) F,S Staff
101A. Beginning course. Hebrew alphabet, essential facets of grammar, reading, writing, mastery of basic vocabulary.
101B. Prerequisite: Hebrew 101A or two years of high school Hebrew. Continuation of Hebrew 101A. Simple conversation, reading of selected verses from Genesis and essay texts in modern Hebrew.

## 201A-B. Intermediate Hebrew $(4,4)$ F, 5 Staff

Prerequisites: Hebrew 101A-B or consent of instructor. Reading of representative modern Hebrew literature and review of grammar.

## Hindi

## LOWER DIVISION

## 221A-B. Fundamentals of Hindi (4,4) F, S Barz

Reading and writing of Hindi using the devanagari alphabet. Introduction to grammar, conversation and elementary composition. Not open to students with credit in Hindi 101A-B.

## UPPER DIVISION

331A-B. Intermediate Hindi (4,4) $F$, $S$ Barz
Reading and writing of Hindi using the devanagari alphabet. Introduction to grammar, conversation and elementary composition. 331A. Prerequisite: Hindi 221B. 331B. Prerequisite: Hindi 331A.

## 499. Directed Studies in Hindi (1-3) F, S Barz

Prerequisite: Consent of instructor. Independent study under supervision of a faculty member. May be repeated for a maximum of 6 units.

## Indic <br> UPPER DIVISION

335. Introduction to Indic Literature (3) F,S Barz

Readings of representative texts from the literature of India in English translation.

## German, Classics and Eastern Languages

Japanese

## LOWER DIVISION

## 221A-B. Fundamentals of Japanese (4,4) F, S Staff

Introduction to grammar, reading, pronunciation, writing and conversation. Not open to students with credit in Japanese 101A-B.

## UPPER DIVISION

## 331A-B. Intermediate Japanese (4,4) F, S Miyazaki

Continuation of first year Japanese. Progressive drill on syntax and grammar and sentence patterns: reading, translation and composition. 331A. Prerequite: Japanese 221A-B. 331B. Prerequisite: Japanese 331A.

## 441A-B. Advanced Japanese (3,3) F, S Miyazaki

Prerequisite: Japanese 331 B or its equivalent as determined by the instructor. Study of modern spoken and written Japanese involving advanced patterns, expressions. (Limitations: 4 hours per week, plus 1 hour laboratory.)
499. Directed Studies in Japanese (1-3) F, S Miyazaki

Prerequisite: Consent of instructor. Independent study under supervision of a faculty member. May be repeated for a maximum of 6 units.

## Russian

## LOWER DIVISION

## 101A-B. Fundamentals of Russian (4,4), F, S Ctvrtlik

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. Intermediate Russian (3,3) F,S Ctivrtlik

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.

## UPPER DIVISION

## 312. Advanced Russian I (3) Ftaff

Required background or experience. Ability to read general material in Russian and to translate non-technical material into the language. Extensive reading of Russian writings, review of grammatical principles, and a general consolidation of the four language skills: reading, comprehension, composition and conversation.

## 313. Advanced Russian II (3) S Staff

Required background or experience. Ability to read Russian stories, articles, and periodicals with facility; ability to draft non-technical reports of compositions in the language and a basic fluency in conversational Russian. Sequel to 312 with continuing emphasis on extensive reading of Russian texts and periodicals, regular composition work based on these readings and the development of increased mastery of the Russian language.
314. Russian Conversation (3) S Staff

Prerequisites: 14 units of lower division Russian or consent of instructor. Functional course in conversation. Intended to meet specific, everyday situations and to provide help to those who intend to speak Russian in travel, work or classroom instruction.
315. Survey of Russian Literature I (3) $F$ Staff

Prerequisite: Upper division standing in Russian. Development of literary writings from Pushkin to Chekov.
316. Survey of Russian Literature II (3) $\mathbf{S}$ Staff

Prerequisite: Upper division standing in Russian. Development of literary writings from Chekov to present day.
401. Russian Syntax and Composition (3) F Staff

Prerequisites: Russian 301A-B. Primarily writing course and some points in advanced Russian grammar.
410. Russian Civilization (3) $F$ Staff

Prerequisite: Upper division standing in Russian. Development of important Russian institutions, taught in Russian.

## Sanskrit <br> UPPER DIVISION

331. Fundamentals of Sanskrit (3) F McKay
Reading and writing of Sanskrit using the devanagari alphabet. Introduction to Reading and writing of Sanskrit using the dreading of classical Sanskrit. Translation and explanation of selections from the Bhagavad Gita.
332. Intermediate Sanskrit (3) S McKay

Prerequisite: Sanskrit 311. Translation and explanation of Sanskrit didactic fables and folk tales and the code of law as handed down by Manu. Classical Hindu society and culture. Indo-European comparative grammar.
341. Advanced Sanskrit and Pali (3) F McKay

Prerequisite: Sanskrit 332. Classical and pre-classical prose and verse including the Upanishads. Study of Pali, a simplified form of Sanskrit in which the works of the Buddhist canon are written.
342. Vedic Sanskrit and Pali (3) S McKay

Prerequisite: Sanskrit 341. Hymns from the Rig Veda. Further study of Pali literature.

## HISTORY DEPARTMENT

(School of Letters and Science)
Professors: Ahlquist, Appelgate, Asher, Frazer, Hardeman, Kimball, Lindgren, Lipski, Melom, Nichols, Peters, Ragland, Wilde.
Associate Professors: Abou-el-Haj, Higgins, Hood, McFaul, McNeally, Svec, Walzer, Williams.
Assistant Professors: Abrahamse, Berk, Bernstein, Black, Boutelle, Buchanan, Burke, Cerillo, Collins, Furth, Gosselin, Gunns, MacLachlan, Mangat, Mazaraki, Polakoff, Raun, Rodriguez, Sater, Sievers, Springer, Stuart, Weber, Youngs.
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 StudentsAny 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, $151 \mathrm{~A}, \mathrm{~B}$ or $181 \mathrm{~A}, \mathrm{~B}$; and $161 \mathrm{~A}, \mathrm{~B}$ or $171 \mathrm{~A}, \mathrm{~B}$.
Upper Division: History 301, 3 units of History 495, 498 or 499 and a minimum of 21 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.

## LOWER DIVISION

## 131A-B. Western Civilization (3,3) F, S Staff

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. Not open to students with credit in Honors 130A,B.

## 151A-B. History of England and Great Britain (3,3) F,S Staff

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. History of the Americas ( 3,3 ) F, S Staff

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. History of the United States (3,3) F, S Staff

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 $161 \mathrm{~A}, \mathrm{~B}$.

## 181A,B. History of Asia ( 3,3 ) $\quad$, $S$ Staff

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

## 301. Writing History (3) F,S Staff

Required of all history majors in the first semester of upper division work. Practice in the use of historical evidence, reconstruction of events and presentation of findings. Emphasis on the preparation and analysis of written student exercises.

## ANCIENT AND MEDIEVAL

## 313. Ancient Greece (3) F Appelgate, Hood

History of the Greeks and the Greek world from the earliest times to the Roman Conquest.
314. Roman History (3) 5 Appelgate, Hood

History of Rome and the Roman world from the Eighth Century B.C. to the Fifth Century A.D.

## 316. Early Middle Ages (3) F Abrahamse, Boutelle

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. High Midale Ages (3) S Abrahamse, Boutelle

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.
318A,B. History of the Byzantine Empire $(3,3)$ F, S Abrahamse
Political development of the Byzantine Empire from the fourth century A.D. to the fall of Constantinople in 1453; the cultural heritage of the Roman Empire in the eastern Mediterranean; religious controversies and the development of eastern Christianity; relations with Islam and medieval Europe.

## MODERN EUROPEAN

332. The Age of Renaissance (3) $F$ Gosselin

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. The Age of Reformation (3) $\mathbf{S}$ Gosselin

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. The Age of Absolutism (3) $F$ Asher, Lindgren

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.

## 335. Age of Enlightenment (3) F, S Asher, Lindgren

Intellectual, political and economic changes caused by evolution in thought and economy; persistence of the absolute state and the modifications of enlightened despotism; intellectual and cultural aspects of the enlightenment.

## 336. The French Revolution and Napoleon (3) S Asher, Lindgren

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. Europe in the Nineteenth Century (3) F McNeally, Weber

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. Europe Since 1914 (3) F, S Weber

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. Early Balkan and Near Eastern History (3) Abou-El-Haj

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. Recent Balkan and Near Eastern History (3) S Abou-El-Haj

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.

## 432A,B. Northern Europe (3,3) F, S 1971-72 and alternate years Lindgren

Historical foundations; the Vikings; medieval changes; the Reformation; emphasis on institutions, political development and social-economic changes. Emergence of the modern state, development of parliamentary and constitutional governments; social-economic changes and cultural movements.
439. Social History of Europe since 1800 (3) F Weber

The industrial revolution, the labor movement and forms of social protest; the transformation of class structure; mass communications and the new popular culture; education and social mobility in 20th century society.

## RUSSIAN

## 341A. Foundations of Russia (3) $F$ Springer

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. Modern Russia (3) 5 Raun

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. Russian and Soviet Cultural History (3) F Raun, Springer

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. Tudor and Stuart England (3) $F$ Youngs

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. Hanoverian England (3) S Kimball

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. Victorian Britain (3) Fimball

Special emphasis on economic and social conditions, classes and class conflict, intellectual ferment, advance of democracy, changing role of the state, imperialism and Britain's changing world position.

## 357. Recent Britain (3) $S$ Kimball

Special emphasis on economic and social conditions, rise of the Labor Party, effects of two world wars, impact of communism and fascism, development of the welfare state and Britain's changing imperial and world position.

## 451A,B. British Empire and Commonwealth (3,3) F, 5 Mangat

British expansion overseas from the earliest times to the present. 451 A 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.

## 455A,B. Constitutional History of England (3,3) F, 5 Youngs

Development of the English constitution and its elements-monarchy, parliament, church and the law-in the medieval and modern periods.

## LATIN AMERICAN

## 360. Latin American Peoples <br> (3) $\mathbf{F}, \mathbf{S}$ Staff

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 MacLachlan, Nichols, Svec

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.

## History

363. The Emerging Latin American Nations (3) S Rodriguez

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. Modern Latin America (3) F, S Sater, Svec

Political, economic, social and intellectual developments and issues in 20th century Latin America.

## 462. History of Mexico (3) S MacLachlan, Rodriguez

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. The Caribbean Area (3) $F$ Nichols

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.

## 464. Argentina (3) $F$ Svec

Discovery and settlement, colonial institutions, democracy and dictatorship following independence, economic and social modernization, Peronism and its aftermath. Not open to students with credit in History 461.

## 465. Brazil (3) $S$ MacLachlan, Svec

Settlement of Brazil and the development of a tropical society; political, economic, social and cultural problems of the Empire and the Republics to the present day. Not open to students with credit in History 461.

## 466. Andean Nations of South America (3) F, S Rodriguez

Indian peoples; Spanish conquests; colonial developments; independence; emergence of the Republics of Ecuador, Peru and Bolivia; struggle for social, political and economic stability in the 19th and 20th centuries.

## 467. History of Chile (3) F,S Sater

Indian background; imposition of Spanish Rule; development of colonial Chile; struggle for nationhood; freedom and anarchy; the autocratic republic; the liberal republic; the Parliamentary; the Chile Revolution of 1925 and its aftermath.

## UNITED STATES

## 372. United States: Colonial Period (3) F Buchanan, Walzer

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. United States: Age of Revolution (3) 5 Buchanan, Walzer

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. United States: Early National Period (3) F Bernstein, McFaul

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. United States: Jacksonian Democracy and Sectional Crisis (3) S Bernstein, McFaul

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. United States: Civil War and Reconstruction (3) F, S Ahlquist, Polakoff

Sectional rivalry, manifest destiny, mid-century divisive forces, Civil War and reconstruction.
377. United States: Emergence of an Industrial Society (3) F Mazaraki

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. United States: The Progressive Period and the Twenties (3) $\mathbf{S}$ Cerillo

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. United States: The Great Depression, War and Its Aftermath (3) F Gunns,

## Ragland

Depression and the beginnings of welfare democracy; United States in World War II; post-war problems and world affairs.
471A,B. History of the Westward Movement $(3,3)$

F, S Frazer, Hardeman,

## Williams

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. History of the South (3) F Ahlquist, Polakoff

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. Early California History (3) F Hardeman, Williams
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. Recent California History (3) $s$ Hardeman, Williams
American period of California history; political organization, progressivism, recent political, social and cultural developments.
474A,B. American Urban History ( $\mathbf{3}, \mathbf{3}$ ) F, $\mathbf{S}$ Cerillo, Mazaraki
Survey of urban America from the colonial period to the present, with emphasis on the process of urbanization, urban problems and politics.
475A,B. Economic History of the United States $(3,3)$ F, $S$ Black
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. Social History of the United States (3,3) F, S Stuart
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. American Intellectual History (3,3) F, S Berk, Higgins

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. Diplomatic History of the United States $(3,3)$ F, S Peters
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. Constitutional History of the United States $(3,3)$ F, S Burke
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.

## 486. History of the Afro-American in the United States (3) F, S Staff

Survey of the role of the Afro-American in American history from colonial times to the present, including the African heritage, nature of the American slave system, emancipation and the struggle for equal rights.

## 489. Legal History of the United States (3) F Burke

Development of law in America from colonial times to the present: English common law heritage, puritan and frontier influences, formative stages of American legal development and modern trends.

## FAR EASTERN AND SOUTH ASIAN

## 382A. Imperial China (3) F Furth

Introduction to the classical civilization, stressing the evolution of imperial institutions, the Chinese world order and China's traditional cultural heritage. Not open to students with credit in History 482A.

## 382B. Modern China (3) S Furth

Chinese society since 1800 . Impact of imperialism, reform and revolutionary movements, the background of Chinese communism. Not open to students with credit in History 482B.

## 383A. Traditional Japanese Civilization (3) F Sievers

Japanese civilization from its origins to the 19th Century. Emphasis on intellectual and cultural developments on the selective adoption and modification of Chinese culture. Not open to students with credit in History 483A.

## 383B. Modern Japan (3) S Sievers

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. Not open to students with credit in History 483B.

## 385A. The Early History of India (3) F Lipski

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. Not open to students with credit in History 485A.

## 385B. History of Modern India (3) S Lipski

Impact of the West on India since the 16th Century; the British period, Indian renaissance and independence movements; India and Pakistan since independence. Not open to students with credit in History 485B.
481. Modern Hindu Religious Thought (3) 5 Lipski

Prerequisite: History 385 B or consent of instructor. Western impact on traditional Hinduism. Renascent Hinduism. Worldwide significance of contemporary Hindu thought. (Same course as Religious Studies 481. To be taught by History.)

## 487. Intellectual History of Recent Japan (3) F, alternate years Sievers

Prerequisite: History 181B or 383B or consent of instructor. Japanese thought on the eve of the Meiji Restoration; response of Japanese intellectuals to industrialization; role of Emperor-centered ideology in Japan since 1868; socialism and communism in Japan.

## 488. The Chinese Revolution (3) F, 1971 and alternate years Furth

Prerequisite: History 181B or 382B or consent of instructor. Traditional peasant revolts, the Taiping and Wuchang uprisings; the Nationalist and Communist revolutions; westernization and cultural revolution since 1898.

## GENERAL

## 490. Special Topics in History (3) F, S Staff

Prerequisite: Consent of instructor. Topics of current interest in history selected for intensive development. May be repeated for a maximum of six units. Topics will be announced in the Schedule of Classes.

## 491A. Africa Before Partition (3) $F$ Mangat

North Africa and the Mediterranean civilizations; pre-colonial state systems; Bantu, Sudanic and non-centralized societies; expansion of Islam; changing patterns of trade relations; growth of European influences.

## 491B. Modern and Contemporary Africa (3) 5 Mangat

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 Staff

Prerequisite: 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.

## 498. Directed Studies (1-3) F, $\mathbf{S}$ Staff

Prerequisite: Consent of instructor. Independent study under the supervision of a faculty member.

# 499. Historians and Historiography (3) F, S Staff <br> A critical study of the nature of history and the writings of historians. 

## GRADUATE DIVISION

510. The Literature of History ..... (2)
511. Select Problems in History ..... (2)
512. Seminar in Ancient and Medieval History ..... (3)
513. Seminar in European History ..... (3)
514. Seminar in British and Empire History ..... (3)
515. Seminar in Latin American History ..... (3)
516. Seminar: The United States to 1900 ..... (3)
517. Seminar in Twentieth Century United States ..... (3)
518. Seminar in Asian History ..... (3)
519. Directed Research ..... (1-3)
520. Thesis or Project (2-4)

## JOURNALISM DEPARTMENT

(School of Letters and Science)
Professors: Bliss, Gayer, Steffes.
Associate Professors: Cunningham, Davis, McKnight.
Assistant Professor: Jackson.
The Journalism Department offers two major programs leading to the bachelor of arts degree, option one for a career in professional journalism, option two for the teaching of journalism. The professional journalism option provides instruction in the skills necessary to develop a journalist who can work in such areas as newspaper reporting and editing, magazine writing and editing, public relations, advertising, radio and television reporting and related fields. The teaching option meets the requirements for the standard teaching credential with a secondary specialization and prepares the student to teach journalism and to advise student publications on the secondary level.

## MAJOR IN JOURNALISM FOR THE BACHELOR OF ARTS DEGREE

## Professional Journalism Option ( 30 units required):

Lower Division: 10-13 units which must include Journalism 110, 120, 222 A or B , and 230 . Additional units to be selected from Journalism $115,140,235,242 \mathrm{~A}$ or B, 262 A or B, 280, Industrial Arts 151 or Radio-TV 209. (Only one unit each will be accepted toward major from Journalism $222 \mathrm{~A}, \mathrm{~B}, 242 \mathrm{~A}, \mathrm{~B}$ and $262 \mathrm{~A}, \mathrm{~B}$.)
Upper Division: 17-20 units which must include Journalism 320 and/or 352, 322A or B, and 430. Additional units to be selected from Journalism 342 A or $\mathrm{B}, 350355,362 \mathrm{~A}, \mathrm{~B}, 370,371,420,422 \mathrm{~A}$ or $\mathrm{B}, 460,475$, 476,490 or 499 . (Only two units each will be accepted toward the major from Journalism 322A,B 342A,B and $362 \mathrm{~A}, \mathrm{~B}$; and only one unit will be accepted toward the major from Journalism 422A,B.)
In addition to the above courses each student will be counseled in an area of study outside journalism which will best suit his professional objectives. A minimum of 15 units in this specialization will be recommended.

## Teaching Option (36 units required):

Lower Division: Journalism 110, 120, 140 and 230.
Upper Division: Journalism 322A, 342A, 410, 430, 460, 475 and 11 units selected from Journalism 320, 322B, 342B, 350, 352, 355, 362A or B, $370,371,420,476,490$ or 499.

## Journalism Minor:

Lower Division: Journalism 110, 120, 140 and 230.
Upper Division: Three units selected from Journalism 322A or B, 342A or B, 422 A or B; and nine units selected from Journalism 350, 352, $355,430,460$, or 475 .

## LOWER DIVISION

110. Introduction to Mass Communications (3) F, 5 Cunningham

Origins, development and contemporary role of newspapers, magazines, radio, television, books, and films, and such related fields as advertising and public relations.

## 115. History of American News Media (3) F,S Staff

American news media from colonial times to the present day. Effects of print and broadcast journalism on political, social and economic life. Progress toward free and responsible news media. (Lecture, discussion 3 hours.)

## 120. News Writing and Reporting (3) F, S Staff

Prerequisite: Ability to type. Study of news sources, reporting and interviewing methods and news writing; ethics and responsibilities of the reporter. Practical exercises in reporting and writing news and preparing copy for publication. (Lecture, laboratory.)
140. Yearbook and School Magazine Fundamentals (2) F Bliss, Jackson

Functions, organization and planning of school yearbooks and magazines. Ordering, cropping and proportioning pictures. Writing and editing captions, copy and headlines. Printing and binding, covers, budgeting and sales.

## 222A,B. Newspaper Production (1,1) F,S Cunningham, Gayer

Prerequisite: Any previous journalism writing course or consent of instructor. Participation in the publication of the College newspaper, The Forty-Niner, or The Lantern, college magazine. Includes reporting, writing, photography, art, copyreading, proofreading, advertising and business. (Laboratory 3 hours.) Maximum credit 2 units.

## 230. Copy Editing (3) F, S Davis

Study of methods and practice in preparing copy for publication, including editing, headline writing and handling wire copy. Editorial aspects of newspaper makeup and design. Not open to students with credit in Journalism 330.

## 235. Typography and Makeup (3) F Davis

Techniques of graphic arts as applied to the printed media. Provides background for supervising and understanding layout with respect to type composition, printing methods and machines and photoengraving. Examination of contemporary typography and practice in creating layouts and preparing printing specifications for newspapers, magazines, books and advertising.

## 242A,B. Yearbook Production (1,1) F, S Bliss, Jackson

Participation in publication of the College yearbook-The Prospector. Practical experience in writing, editing, photography, layout and other activities related to school yearbook production. (Laboratory 3 hours.) Maximum credit 2 units.

## 262A,B. Magazine Production ( $\mathbf{1}, 1$ ) F, S Davis

Practical experience in magazine and publications planning, organization, writing, photography, art, layout, advertising and production. Supervised work on the college magazine, The Lantern. (Publications laboratory 3 hours.)

## 280. Photojournalism (2) F Bliss, Jackson

Prerequisite: Industrial Arts 101 or consent of instructor. Introduction to photojournalism as used in newspapers, magazines and public relations with emphasis on the news and communication values in pictures. Experience with various types of photography equipment. (Lectures, demonstrations, field trips and practical assignments.)

## UPPER DIVISION

## 320. Reporting Public Affairs (3) $\mathbf{S}$ Davis

Prerequisite: Journalism 120 or consent of instructor. News coverage of police, courts and city, county, state and Federal government. Study and practice in methods of investigative reporting. (Lecture 2 hours, assigned field work 2 hours.)

322A,B. Advanced Newspaper Production (2,2) F,S Cunningham, Gayer
Prerequisite: Any previous journalism writing course or consent of instructor. Advanced practice in editing, reporting, feature writing, copyreading, news photography and other journalistic activities through participation in the publication of the College newspaper. (Laboratory and assigned field work 6 hours.) Maximum credit 4 units.

342A,B. Advanced Yearbook Production (2,2) F, $S$ Bliss, Jackson
Participation in publication of the College yearbook-The Prospector. Advanced practice in writing, editing, photography, layout and other activities related to yearbook production. (Laboratory 6 hours.) Maximum credit 4 units.
350. Contemporary Magazines (3) F McKnight

Development of the magazine and its significance in American life. Periodical types, editorial policies and literary stature. Special study of magazines in a field of the student's particular interest.

## 352. Editorial and Feature Writing (3) Ftaff

Prerequisite: Journalism 120 or equivalent. Organization, language and content of editorials, columns, feature articles and departments in the American press. Practice in writing these specialized forms.

## 355. Magazine Article Writing (3) S Staff

Techniques of writing non-fiction articles with a view toward potential sales to magazines, newspaper syndicates and Sunday supplements.

## 362A,B. Advanced Magazine Production (2,2) F, S Davis

Advanced magazine editing, writing, photography, art and production. Participation in publishing the college magazine, The Lantern. (Publications laboratory 6 hours.)

## 370. Public Relations I (3) F, S Gayer

Public relations fundamentals: research, action, communication and evaluation. Study of special publics, the use of public relations tools, planning a public relations program.

## 371. Public Relations II (3) 5 Gayer

Prerequisite: Journalism 370. Advanced study in the principles and procedures of public relations, with emphasis on case studies and preparation of a client program for public relations.

## 410. Teaching Journalism and Supervising School Publications (3) F Steffes

A course for prospective teachers of journalism and advisers of school publications. Journalism teaching techniques and aids, staff organization, the school news bureau, printing methods, school publications financing and costs. Includes planned observation in public school classrooms.
420. Radio and Television News (3) F, S Kreiling

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. School Publications Production (1,1) F, 5 Jackson

Prerequisite: Consent of instructor. Practice in school newspaper or school yearbook techniques-writing, editing, photography and layout. (Laboratory 3 hours.) Maximum credit 2 units.
430. Law of Mass Communications (3) $S$ Davis

Principles and case studies of the law of the press, radio and television with emphasis on constitutional guarantees, libel, contempt, privacy, copyright, privilege and other laws affecting the news media.
460. Newspaper Advertising (3) $\mathbf{S}$ Steffes

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.

## 475. Publicity Techniques and Procedures (3) F Jackson

Recognizing publicity potentials and writing press releases; how to work with the press and other mass communications media for publicity purposes.
476. Publications for Publicity (3) 5 Jackson

Techniques of writing, editing and publishing newsletters, business newspapers and magazines as communication tools for public relations. Advanced publicity writing.
490. Special Topics in Mass Communications (1-3) F, S Cunningham

Topics of special interest in mass communications selected for intensive study. Topics will be announced in the Schedule of Classes. May be repeated for a total of six units.

## 499. Special Projects (1-3) F, S Steffes

Prerequisite: Advance approval of project by the department. Research in the field of journalism or internship in newspaper, magazine, public relations, advertising or other related fields. Open to journalism majors only.

## MATHEMATICS DEPARTMENT

## (School of Letters and Science)

Professors: Albrecht, Butter, Cohen, F., James, Kulik, Mardellis, Norman, Sexauer, Smith, A., Verdina, Wenjen.
Associate Professors: Albert, Austin, Baugh, Cooke, Fatt, Froyd, Gittleman, Lyche, McCullough, McLeod, Mosher, Seewerker, Smoke, Warner.
Assistant Professors: Afflack, Ali, Bachar, Beckwith, Black, S., Conroy, Councilman, Dorn, Eylar, Harvey, Lu, Maltz, Margulies, Martinez, Schwartz, Smith, S., Turner, Wilson.
Lecturer: Sroka.
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 (unless exempted by placement test), 122, 123, 224, and any one of the following: 10 units of chemistry, 8 units of one foreign language, 6 units of philosophy or 6 units of physics. If physics is taken, it shall 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 selected in consultation with major adviser to include Mathematics 344 and $460 \mathrm{~A}-\mathrm{B}$ but not 370 A or B.

## Teaching Credentials: <br> See Credential Section.

## LOWER DIVISION

## 100. Intermediate Algebra (3) F, S Staff

Prerequisite: One year of high school algebra. Study of linear and quadratic equations, factoring, fractions, exponents, radicals, variation and logarithms. Not open to students with credit in Mathematics 122.

## 101. Trigonometry (2) F,S Staff

Prerequisite: Mathematics 100 or equivalent determined by examination in algebra. Trigonometric functions and applications. Complex numbers. Not open to students with credit in Mathematics 122.

## 102. Unified Introductory Mathematics (4) F, S Staff

Content course covering algebra and trigonometry. Not open to students with credit in Mathematics 100, 101, 122.

## 110. Fundamentals of Mathematics I (3) F, S Staff

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.

[^17]
## 111. Fundamentals of Mathematics II (3) F,S Affack

Prerequisite: Mathematics 110. Elements of logic and the basic concepts of informal geometry; introduction to trigonometry. Not open for credit to mathematics majors.

## 114. Finite Mathematics (4) F, S Staff

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. College Algebra and Elementary Functions (4) F, 5 Staff

Prerequisites: At least $31 / 2$ years of high school mathematics including at least 2 years of algebra and $1 / 2$ 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. Not open to students with credit in Mathematics 122. (Lecture 3 hours, problem session 2 hours.)
120. Survey of Analytic Geometry and Calculus (4) F, S Staff

Prerequisites: At least $31 / 2$ years of high school mathematics including at least 2 years of algebra and $1 / 2$ 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. Analytic Geometry and Calculus $I$ (4) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisite: A grade of C or better in 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. Analytic Geometry and Calculus II (4) $\mathbf{F}, \mathbf{S}$ Staff

Prerequisite: A grade of C or better in Mathematics 122. Extension of work in analytic geometry. Differentiation and integration of transcendental functions. (Lecture 3 hours, problem session 2 hours.)
224. Analytic Geometry and Calculus III (4) 8,5 Staff

Prerequisite: A grade of C or better in 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. Introduction to Computing (3) F,S Cohen, Conroy, LU, Seewerker, Wilson

Prerequisite: Mathematics 117 or consent of instructor. Computers and algorithms. Programming in machine, assembly and higher level languages. Computer solution of numerical and nonnumerical problems using these languages.

## UPPER DIVISION

310. History of Mathematics (3) 5 Baugh, Black, Gittleman

Prerequisites: Mathematics 123 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.

## Mathematics

## 312. Survey of Modern Mathematics (3) F Affack, Fatt

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.

## 317. Introduction to Abstract Mathematics (3) F, S Staff

Prerequisite: Mathematics 123. Introduction to topics in modern mathematics that are independent of calculus and which form a background for further study in abstract mathematics. Selections from elementary number theory, rings, fields and other algebraic systems.
320. Introduction to the Theory of Computation (3) $F$ Seewerker

Prerequisite: Mathematics 317 or 330 . Introduction to the theory of finite and infinite machines. Recursive function theory. No computer will be used in this course and no knowledge of any particular computer or programming language is assumed.

## 323. Numerical Programming (4) F Cohen

Prerequisites: Mathematics 123, 270. Development of application of computer programming techniques to the solution of numerical problems. (Lecture 3 hours, laboratory 2 hours.)

## 325. Compuier Systems and Programming (4) $S$ Seewerker

Prerequisites: Mathematics 270, 317. Machine language, machine organization, computer systems, information structures and programming languages. Emphasis will be on machine-oriented languages. (Lecture 3 hours, problem session 2 hours.)

## 330. Introduction to Mathematical Logic (3) F, S Conroy, Mardellis, Seewerker, Turner, Wilson

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.

## 340. Theory of Algebraic Equations (3) F,S Staff

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. Introduction to Higher Algebra (3) F, S Staff

Prerequisite: Mathematics 224. Recommended: Mathematics 317. Groups, rings, fields, algebra of classes, transfinite arithmetic.

## 346. Linear Algebra (3) F,S Staff

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. Projective Geometry (3) S Verdina

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) $\mathbf{F}, \mathbf{S}$ Staff

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. College Geometry (3) F Verdina

Prerequisite: Mathematics 123. Transformations, motions, similarities, geometric objects, congruent figures, the axioms of geometry, and selected topics in advanced Euclidean geometry.
360. Fundamental Concepts of Analysis (3) F,S Staff

Prerequisite: Mathematics 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. Not open to students with credit in Mathematics 460A.
364A. Ordinary Differential Equations I (3) F, S Staff
Prerequisite: Mathematics 224. 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.
364B. Ordinary Differential Equations II (3) S Butter, Cohen, Fatt
Prerequisite: Mathematics 364 A . Fundamental existence theorems, systems of equations, general theory of first order equations, special functions defined by differential equations, nonlinear equations.
370A. Applied Mathematics I (3) F, $\mathbf{S}$ Staff
Prerequisite: Mathematics 224. Ordinary differential equations, functions of several variables, algebra and geometry of vectors, vector field theory. Not open for credit to mathematics majors.

## 370B. Applied Mathematics II (3) F, S Staff

Prerequisite: Mathematics 370A. Applications of partial differentiation, Taylor's formula, infinite series, complex variables. Not open for credit to mathematics majors.

## 375. Vector Analysis (3) F, 5 Staff

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 Black, Cohen, Maltz, Martinez, <br> Smoke

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, 5 Albert, Black, James, Smith, $\mathbf{s}$.
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.

## Mathematics

430. Mathematical Logic (3) F Turner, Wilson

Prerequisite: Mathematics 330. Introduction to formal logical systems. Formal proofs in propositional and first order predicate calculi. Completeness theorems and problems related to consistency and decidability.

## 431. Set Theory (3) $F, S$ Staff

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.

## 440A. Number Theory I (3) F Butter, Cooke, Gittleman

Prerequisite: Mathematics 224. The sequence 440A-B covers divisibility, congruences, primitive roots, continued fractions, algebraic numbers, partitions.

## 440B. Number Theory II (3) S Butter, Cooke, Gittleman

Prerequisite: Mathematics 440A. Continuation of Mathematics 440A.
450. Differential Geometry (3) S Baugh, Fatt, Margulies, Mosher

Prerequisite: Mathematics 364A. 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. Advanced Calculus I (3) F, S Staff

Prerequisite: Mathematics 224. Recommended: Mathematics 360. Rigorous analysis of calculus and its foundations, functions of one variable and of several variables.

460B. Advanced Calculus II (3) F,S Staff
Prerequisite: Mathematics 460A. Continuation of Mathematics 460A.
461. Complex Variables (3) F, S Staff

Prerequisite: Mathematics 460A. Theory and applications of complex variables. Analytic functions, integrals, power series and applications.

## 462. Theory of Integration (3) $F$ Harvey, Warner

Prerequisite: Mathematics 460A. Advanced topics in Riemann Integration. Lebesgue measure and integration on the real line.
470. Introduction to Partial Differential Equations (3) $S$ Lu, McLeod, Margulies
Prerequisite: Mathematics 370 A , or 364 A 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.

## 472. Fourier Series (3) F Kulik, Lu

Prerequisite: Mathematics 364A or 370A. Theory of Fourier series and its application to boundary value problems.

## 473. Laplace Transform (3) $S$ James, McCullough

Prerequisite: Mathematics 364 A or 370A. Theory of the Laplace transform and its application to linear problems in electrical, mechanical and thermal systems.

## 476A-B. Numerical Analysis (3,3) F, S Cohen

Prerequisite: Mathematics 364A. Mathematics 270 and 346 are recommended. Methods of computation suitable for desk or electronic digital computers. Polynomial interpolation. Numerican differentiation and integration. Numerican solution of differential equations. Least Squares. Solution of non-linear and simultane-
ous linear equations. Eigenvalues and eigenvectors of matrices. Mathematics 476A not open to students with credit in 476.

## 485. Mathematical Programming (3) $\mathbf{S}$ Cohen, Gittleman

Prerequisite: Mathematics 346 and senior standing. Linear and nonlinear programming: simplex methods, duality theory, theory of graphs, Kuhn-Tucker theory, gradient methods and dynamic programming.
495. Topics in Modern Mathematics (3) F,S Staff

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, (f) probability and statistics, (g) applied mathematics. May be repeated once for credit.
497. Directed Studies (1-3) On demand Staff

Prerequisites: Senior standing and consent of instructor. Readings in areas of mutual interest to student and instructor which are not a part of any regular course. A written report or project may be required. May be taken for a maximum of three units of credit.

## GRADUATE DIVISION

530A-B. Foundations of Mathematics $(3,3)$
540A-B. Higher Algebra $(3,3)$
$550 A-B$. Topology $(3,3)$
554. Modern Differential Geometry (3)

561A-B. Real Analysis (3, 3)
562A-B. Theory of Functions $(3,3)$
570. Advanced Applied Mathematics (3)
575. Calculus of Variations (3)

580A-B. Advanced Mathematical Statistics $(3,3)$
584. Multivariate Analysis (3)
590. Theory of Approximation (3)
695. Seminar in Mathematics (3)
697. Directed Studies (1-3)
698. Thesis (2-4)

## MICROBIOLOGY DEPARTMENT

(School of Letters and Science)
Professors: Kazan, Swatek.
Associate Professors: Anselmo, Brodetsky, Carlberg, Fung, Kim, J., Raj, Russell, R.
Assistant Professors: Butler, Logan, Moore, Petty.
The curricula in microbiology leading to a bachelor of science degree are designed to satisfy the needs of four basic groups: (1) the general microbiology degree is of a broad nature and is designed to meet the needs of those preparing for careers in medical or industrial research, industry, public or private laboratories or graduate study; (2) 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.t This type of career offers opportunities in hospitals, city, county, state and national public health and private laboratories; (3) the pre-professional option is one designed to prepare the student for medical, dental, pharmacy 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.

## 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, $441 \mathrm{~A}-\mathrm{B}$; and a minimum of 6 units in microbiology 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 $327,447,441 \mathrm{~A}$; and a minimum of 6 units in microbiology to be selected in consultation with the major adviser from upper division courses.

[^18]
## Preprofessional Microbiology Option (pre-medical, pre-dental,

 pre-pharmacy, 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.

## LOWER DIVISION

## 100. Microbiology (3) F,S Staff

Life processes and roles of micro-organisms in ecological systems; emphasis on harmful and beneficial interrelationships with man and his environment. Not open for credit to majors in microbiology. (Lecture-demonstration 3 hours.)

## 101. Man and Disease (3) F, S Kazan, Logan, Russell

Cause and prevention of the common diseases of man. Not open for credit to majors in microbiology. (Lecture 3 hours.)

## 210. General Microbiology (4) F, S Swatek

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. Microbiological Techniques (1-2) $\mathrm{F}, \mathrm{S}$ Swatek

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. Medical Bacteriology (5) F,S Anselmo

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. Public Health and Pollution (3) F,S Russell

Survey of public health and ecological problems in the community, control of communicable diseases; air, water and soil contamination. Recommended for nonmajors interested in ecology and pollution control. (Lecture 3 hours.)

## 322. Medical Parasitology (3) F,S Kazan

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. Hematology (3) F, S Staff

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. Immunology and Serology (4) F, S Fung

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.)

## Microbiology

340. Microbial Taxonomy (3) F Staff

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. Medical Mycology ( 2,2 ) F, S Swatek

Prerequisites: Microbiology 210, Chemistry 111B. Introduction to pathogenic fungi commonly responsible for mycotic infections of man. (Lecture 1 hour, laboratory 3 hours.)

## 361. Epidemiology (2) $S$ Kazan

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. Not open to students with credit in Nursing 361.

## 412. Laboratory Techniques (2) F, S Staff

Prerequisite: Consent of instructor. Experience for advanced students in organization and techniques of a microbiology laboratory. (Conference 1 hour, laboratory 3 hours.)

## 424. Advanced Hematology (3) F Staff

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 3 hours.)
425. Public Health Microbiology and Diagnostic Procedures (4) F, S Russell

Diagnostic procedures for bacterial, mycobacterial, spirochaetal, viral and rickettsial agents of public health importance. Standard methods for the examination of food, water and dairy products. (Lecture 2 hours, laboratory 6 hours.)

## 431. Principles of Immunobiology (3) 5 Fung

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 anti-gen-antibody reaction. (Lecture 1 hour, laboratory 6 hours.)

## 441. Microbiology of Soil and Sea (3) F Kim

Prerequisites: Microbiology 210, Chemistry 441A. 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. Microbial Genetics (2) F,S Carlberg

Prerequisites: Microbiology 210, Zoology 210B, Chemistry 441A, consent of instructor. Biochemical and cytological bases of microbial genetics; nature, replication, modification and transfer of genetic material. (Lecture 2 hours.)

## 451. Microbial Genetics Laboratory (2) F, S Carlberg

Prerequisites: Microbiology 450 (may be taken concurrently), consent of instructor. Laboratory study of microbial genetics. (Laboratory 6 hours.)
452. Viruses (2) F,S Brodetsky

Prerequisites: Microbiology 210, Chemistry 327. Consideration of principles in virus diseases of man and animals; virus-cell interactions. (Lecture 2 hours.)
453. Virology Laboratory (2) F,S Brodetsky

Prerequisite: Microbiology 452 (may be taken concurrently), consent of instructor. 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. Mycology (3) F, S Petty

Prerequisite: Microbiology 210 or Botany 211. Structural development and classification of the important genera and species of fungi. (Lecture 2 hours, laboratory 3 hours.)
470. Bacterial Anatomy and Cytochemistry (2) F, S Raj

Prerequisites: Microbiology 320, Chemistry 441A (may be taken concurrently). Morphogenesis, fine structure and chemical composition of bacterial cells. (Lecture 2 hours.)

## 471. Bacterial Physiology (3) F, 5 Raj

Prerequisites: Microbiology 320, Chemistry 441A, consent of instructor. Cellular physiology at the molecular level as related to bacterial growth, reproduction, nutrition, metabolism and ecology. (Lecture 3 hours.)
472. Bacterial Structure and Physiology Laboratory (2) S Raj

Prerequisites: Microbiology 471, Chemistry 441B (may be taken concurrently). Laboratory techniques used in the study of bacterial structure and physiology. (Laboratory 6 hours.)
473. Industrial Microbiology (3) S Kim

Prerequisites: Microbiology 210, Chemistry 441A, consent of instructor. Role of micro-organisms in selected industrial processes; emphasis on bacteria, yeasts and molds. (Lecture 2 hours, laboratory 3 hours.)
480. Proseminar in Microbiology (2) F,S Staff

Prerequisites: Senior in microbiology, consent of instructor. Faculty and student presentation and analysis of current topics in microbiology.
496. Investigations in Microbiology (1-3) F, S Staff

Prerequisite: Consent of instructor. Research in a specific subject in microbiological sciences to be approved and directed by a faculty member. The one unit course involves library research. The two and three units courses involve library and experimental research. Special projects may include experience with such techniques as ultracentrifugation, electron microscopy, radio tracers, tissue culture, etc.

## GRADUATE DIVISION

513. History of Microbiology ..... (2)
514. Microbiological Instrumental Methods and Analysis ..... (3)
515. Biochemical Diagnostic Procedures in Microbiology ..... (3)
516. Experimental Microbiology: Medical Parasites ..... (3)
517. Experimental Microbiology: Immunochemistry ..... (3)
518. Microbial Ecology ..... (3)
519. Experimental Microbiology: Viruses ..... (3)
520. Experimental Microbiology: Eumycetes ..... (3)
521. Experimental Microbiology: Schizomycetes ..... (3)
522. Microbial Metabolism ..... (3)
694A, B. Seminar in Principles and Theories of Microbiology ..... $(1,1)$
523. Seminar in Immunogenetics ..... (2)
524. Directed Research ..... (1-3)
525. Thesis (2-6)

## PHILOSOPHY DEPARTMENT

## (School of Letters and Science)

Professors: Maue, Strickler.
Associate Professors: Bonis, Fels, McGowan, Massey, Peccorini, Ringer. Assistant Professors: Andre, Clark, Guerrieri, Johnson, W., Kim, H., Mannison, Noren, Quest, Sease, Thomas, J.
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: A minimum of 12 units in philosophy, including Philosophy 100 or 160,170 or 270,203 and 204.
Upper Division: A minimum of 24 units in philosophy, including Philosophy $442,463,482$; and at least 6 units chosen from $413,414,421,422$, 423,424 ; and at least 3 units chosen from 304, 313, 403, 407, 418, 419, 420,426 . The required 6 units remaining are to be selected from philosophy courses with the advice and consent of the student's departmental adviser.

## LOWER DIVISION

## 100. Introduction to Philosophy (3) F, S Staff

Scope, basic principles and a brief analysis of the major problems of philosophy.

## 160. Introductory Ethics (3) $F, S$ Staff

Concepts of right and wrong, good and bad, and the application of moral principles to problems of everyday life.

## 170. Traditional Logic (3) F, S Staff

Elements of clear, straight, orderly thought, including deductive and inductive reasoning; and the accurate use of language.

## 203. History of Early Philosophy (3) F,S Staff

From Thales to the Renaissance including the systems of Socrates, Plato and Aristotle, and their influence on European philosophy through the medieval period. Not open to students with credit in Philosophy 301.
204. History of Modern Philosophy (3) F,S Staff

From the Renaissance to the 20th Century, including the development of modern scientific processes, and the philosophical systems of empiricism, rationalism, idealism, etc. Not open to students with credit in Philosophy 302.
270. Symbolic Logic $I$ (3) $\mathbf{F}, \mathbf{S}$ Staff

Introduction to the formal techniques of evaluating arguments.

## UPPER DIVISION

304. Philosophies in America (3) $S$ Ringer

Prerequisite: One lower division philosophy course. Background and development of philosophical ideas, including puritanism, pragmatism, logical empiricism, naturalism, humanism.
305. Philosophy in Literature (3) F Staff

Discovery and exploration of philosophical ideas in selected literature.
306. Philosophies of China and Japan (3) S Kim

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 Kim

Prerequisites: Six units of philosophy or consent of instructor. Historical and critical survey with emphasis on basic ideas and traditions.
312. Phenomenology (3) s Guerrieri

Prerequisites: Six units of philosophy. Development and impact of phenomenology, as exemplified in the philosophy of Husserl and others.
313. Development of Existentialism (3) $\mathbf{F}$ Bonis

Prerequisites: Six units of philosophy. From Kierkegaard to Sartre.
316. Pragmatism (3) $S$ Fels

Prerequisites: Six units of philosophy or consent of instructor. Development of pragmatism as exemplified in the philosophies of Peirce, James, Dewey and Mead.
330. Philosophy of Religion (3) F, S Bonis, Kim, Peccorini, Quest, Strickler

Prerequisite: Three units of philosophy. Nature and function of religion and of fundamental religious concepts and ideals.
351. Philosophy of the State (3) F Ringer

Democracy, individualism, socialism, cooperativism, communism and authoritarianism in terms of their underlying philosophical principles and beliefs.
352. Philosophy of Law (3) $\mathbf{5} \mathbf{K i m}$

Prerequisites: Six units of philosophy or consent of instructor. Study of the historical development of the philosophy of law and examination of the problems in the field ranging from general theories to analysis of fundamental legal concepts and normative issues.
353. Philosophy of History (3) F Ringer Prerequisites: Six units of philosophy or cois concepts and categories. tory, and examination of presuppositions, basic concepts and categories.
361. Aesthetics (3) F Massey

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.

## Pbilosophy

## 381. Philosophy of Science (3) F Maue

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 Peccorini

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. Trends in Contemporary Philosophy (3) F Staff

Prerequisite: Six units of philosophy or consent of instructor. Patterns of philosophical thought in our age.
413. Continental Rationalism (3) F Clark

Prerequisites: Six units of philosophy. Descartes, Spinoza and Leibnitz, and some significant contributions of their successors.

## 414. British Empiricism (3) $S$ MeGowan

Prerequisites: Six units of philosophy. Locke, Berkeley, Hume, and some significant contributions of their successors.

## 418. Philosophies of Process (3) $S$ Fels

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 Andre, Mannison

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 Guerrieri

Prerequisites: Six units of philosophy including Philosophy 203. Main philosophical thinkers from Hesiod to the Socratic schools.

## 421. Plato (3) $F$ Staff

Prerequisites: Six units of philosophy. Thought of Plato based primarily on readings from his dialogues.

## 422. Aristotle (3) S Guerrieri

Prerequisites: Six units of philosophy. Thought of Aristotle based primarily on readings from his works.
423. Kant (3) $F$ Bonis, Johnson

Prerequisites: Six units of philosophy (three in logic or history of philosophy) or consent of instructor. Study of Kant's Critique of Pure Reason.
424. Hegel (3) $S$ Staff

Prerequisites: Six units of philosophy (three in logic or history of philosophy) or consent of instructor. Study of Hegel's logic and the phenomenology of spirit.
425. Individual Philosophers (3) $\mathbf{F}$ Staff

Prerequisite: Consent of instructor. An influential philosopher not generally examined in depth in other established courses. May be repeated for a maximum of 6 units.
426. Post-Aristotelian Philosophy (3) $\mathbf{S}$ Staff

Prerequisites: Six units of philosophy, including Philosophy 203 or 301. Period after Plato and Aristotle to the close of the Academy in 529 A.D., concentrating on the teaching of the Epicureans, Stoics, Sceptics and Neoplatonists.

## 442. Metaphysics (3) 5 Peccorini

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. Ethics (3) F Andre, McGowan, Quest

Prerequisite: Philosophy 100 or 160 . Selected ethical systems using primary source materials.

## 464. Theories of Value (3) 5 Bonis, Massey

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.
470. Symbolic Logic II (3) F,S Clark, Quest

Prerequisite: Philosophy 270 or Mathematics 330 or consent of instructor. Philosophical consideration of deductive systems.

## 481. Philosophy of Perception (3) F Noren

Prerequisites: Six units of philosophy or consent of instructor. Relation of perception to knowledge.
482. Epistemology (3) S Andre, Johnson, Mannison

Prerequisite: Philosophy 100 or 170 . Examination of the phenomena of knowing, and of concepts involved in knowledge.
483. Philosophy of Mind (3) F Mannison

Prerequisites: Six units of philosophy or consent of instructor. Nature of the mind. Psychological concepts such as intention, consciousness action, motive, imagination, belief and purpose.
484. Philosophy of Language (3) Sohnson, Mannison

Prerequisites: Six units of philosophy or consent of instructor. Philosophical thought about language and meaning.
490. Special Problems (3) 5 Staff

Prerequisites: Six units of upper division philosophy courses. Exploration of special and significant philosophical problems. May be repeated for a maximum of six units.
499. Directed Studies (1-4) F, S Staff

Prerequisite: Consent of instructor. Independent study of special topics under supervision of a faculty member.

## GRADUATE DIVISION

571. Problems in Logic (3)
572. Problems in Theory of Value (3)
573. Seminar in Philosophy of Religion (3)
574. Seminar in Metaphysics (3)
575. Seminar in Epistemology (3)
576. Seminar in the Philosophy of Science (3)
577. Seminar: Selected Topics of Current Philosophical Interest (3)
578. Directed Research (1-3)
579. Thesis (2-4)

## PHYSICS DEPARTMENT

## (School of Letters and Science)

Professors: Anfinson, Appleton, Chow, Fredrickson, George, Roberts, C., Salem, Scalettar, Schultz, C., Scott.

Associate Professors: Buchner, Chen, Hutcherson, Hu-Wen, Lerner, Luke, Shen, Woollett, Yano.
Assistant Professors: Alexandrov, Anwar, Ayers, R., Eliason, Kupelian, Munsee, Schechter, Trubatch.
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 200. Upper Division: Mathematics $370 \mathrm{~A}-\mathrm{B}$; Physics $310 \mathrm{~A}, \mathrm{~B}, 320,330,340$, $380,440,450 \mathrm{~A}-\mathrm{B}, 451 \mathrm{~A}-\mathrm{B}, 470$, and six units chosen from among any of the upper division courses (except those few courses whose catalog statement indicates they are not acceptable) and/or the following mathematics courses: Mathematics 323, 346, 360, 382A,B, 431, 450, 460A,B, 461, 470, 472, 473, 476A,B.
The major in physics for the bachelor of arts degree is offered in the spirit of providing a curriculum devoted to "interpretation of physics and its reintegration with other parts of our culture." A primary purpose is to prepare teachers for secondary school teaching in physics and physical science.

## MAJOR IN PHYSICS FOR THE bachelor of arts degrek

Lower Division: English 101 (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); Physics 110, 120, 230, 240; Chemistry 111A-B; Mathematics 117, 122, 123, 224; and one course among the following: Biology 200, Zoology 210A, Botany 210, 212 and Microbiology 210.
Upper Division: A minimum of 24 units of courses selected in consultation with a major adviser. Work must be completed in each of the following fields: physics, chemistry and geology. At least 18 units of this work must be in physics.

[^19]
## LOWER DIVISION

## 100A-B. General Physics $(4,4)$ F, 5 Staff

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. Survey of General Physics (4) F Hutcherson

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. General Physics: Mechanics of Solids (3) F,S Staff

Prerequisite: Mathematics 122 which may be taken concurrently. (Lecture-problems 2 hours, laboratory-problems 3 hours.)
120. General Physics: Mechanics of Fluids and Heat (3) F, S Staff

Prerequisites: Physics 110, Mathematics 123 which may be taken concurrently. (Lecture-problems 2 hours, laboratory-problems 3 hours.)
230. General Physics: Light and Modern Physics (3) F, S Alexandrov, Chow

Prerequisites: Physics 110, Mathematics 224 which may be taken concurrently. (Lecture-problems 2 hours, laboratory-problems 3 hours.)
240. General Physics: Electricity and Magnetism (3) F, S Ayers, Fredrickson

Prerequisites: Physics 110, Mathematics 224 which may be taken concurrently. (Lecture-problems 2 hours, laboratory-problems 3 hours.)
300. Survey of Modern Physics (3) S Staff

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. Analytic Mechanics I, II $(3,3)$ F, 5 Schultz

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. Thermodynamics and Kinetic Theory (3) F Scott

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. Experimental Optics (3) F, S George

Prerequisite: Physics 230. Interference, diffraction, polarization and elementary spectroscopy. (Lecture 2 hours, laboratory 3 hours.)

## 340. Electricity and Magnetism I (3) F, S Eliason, Luke

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. Fundamentals of Electronics (3) S Hutcherson

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. Statistical Physics (3) S Lerner

Prerequisite: Physics 450A. Fundamental hypotheses of statistical mechanics. Applications include classical and quantum gases, electric and magnetic systems, fluctuations and condensation.

## 434. Introduction to Astrophysics (3) On demand Shen

Prerequisite: Senior standing in physics or consent of instructor. Review of observational data of astronomy, elementary theory of stellar structure, model stellar calculation and simple stellar systems. (Lecture 3 hours.)
435. Theoretical Astrophysics (3) On demand Shen

Prerequisites: Senior standing in physics and Physics 434 or consent of instructor.

## 440. Electricity and Magnetism II (3) F, S Eliason, Luke

Prerequisite: Physics 340 . Application of Maxwell's equations to radiation problems and the interaction of electromagnetic waves and matter. (Lecture 3 hours.)

## 444. Plasma Physics (3) S Buchner, Woollett

Prerequisites: Physics 320, 340. Characteristic behavior of high temperature plasma. Particle trajectories, two-fluid and hydromagnetic models, waves, instabilities and transport processes. Applications to astrophysical, geophysical and laboratory plasmas.

## 446. Solar System Astrophysics (3) On demand Staff

Prerequisites: Physics 320, 340. Stellar fusion processes and evolution, radiative transfer, hydromagnetic theory of stellar atmospheres, magnetic storms, aurorae. Observational astronomy techniques.

## 450A-B. Quantum Physics I, II ( 3,3 ) F, 5 Hu-Wen, Munsee

Prerequisites: Physics 310A, B, 320, 340. Structure of atoms and nuclei and the nature of electromagnetic radiation. Development of fundamental Quantum Mechanical theory to analyze these structures.

## 451A-B. Quantum Physics Laboratory I, II (1,1) F, S Ayers, Chen, Chow

Prerequisite: Physics $450 \mathrm{~A}, \mathrm{~B}$ which may be taken concurrently. Selected experiments in atomic, nuclear and solid state physics.
453. Nuclear Reactor Theory (3) F Chow, Scalettar

Prerequisites: Physics 230, Mathematics $370 \mathrm{~A}, \mathrm{~B}$ or consent of instructor. Binding, decay and fusion of the nucleus. Interaction, moderation and diffusion of neutrons. Chain reactions and reactor constants. Steady-state solution of the diffusion equation for simple reactor systems. (Lecture 3 hours.)

## 457. Biophysics (3) $F, 1971$ and alternate years Alexandrov, Trubatch

Prerequisites: Upper division standing and consent of instructor. Selected topics in the physics of biological systems. Conduction of neuro-impulses. Interaction of radiation with living matter. Application of information theory to macromolecular organization and neural coding. (Lecture 3 hours.)
460. Introduction to Mathematical Physics (3) F Roberts

Prerequisites: Physics $310 \mathrm{~A}, \mathrm{~B}, 340$. Partial differential equations of physics. Calculus of variations. (Lecture 3 hours.)
470. Introduction to Solid State Physics (3) S Fredrickson, Lerner

Prerequisite: Physics 450A. Study of the properties of solids from a quantumtheoretical viewpoint. Topics include lattice vibrations, elastic constants, and thermal, electric and magnetic properties. (Lecture 3 hours.)

## 472. Surface Physics (3) 5 Luke

Prerequisites: Physics 320 and 470 or equivalents; ( 470 may be taken concurrently). Ideal and real surfaces. Liberation of electrons, ions and neutrals from metal surfaces. Clean surfaces. Adsorption phenomena. Surface reactivity. Experimental techniques for studying clean surfaces and adsorption phenomena. Semiconductor surfaces. (Lecture 3 hours.)
480. Circuit Electronics (4) On demand Hutcherson

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. Physical Electronics (4) On demand Hutcherson

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. Special Topics in Physics (3) F,S Staff

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. Special Problems in Physics (1-3) F, 5 Staff

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. Graduate Mechanics (4)

540A,B. Graduate Electricity and Magnetism and Electrodynamics $(4,3)$
542. Atomic Theory of Ionized Gases (4)
544. Advanced Plasma Physics (3)

550A,B. Quantum Mechanics (4,3)
551A,B. Quantum Electronics and Laser Physics $(3,3)$
554A,B. Nuclear Physics $(3,3)$
560A,B. Methods of Mathematical Physics $(4,3)$
570. Solid State Physics (3)
574. Semiconductor Physics (3)
694. Seminar in Special Topics (1)
695. Colloquium (1)
697. Directed Research (1-3)
698. Thesis (2-6)

## ASTRONOMY

## LOWER DIVISION

100. Astronomy (3) F,S Luke, Schultz

Introductory course in astronomy. The earth moon system and the planets, the stars and their constitution. Survey of the methods of astronomical observation.
101. Astronomy II (3) F, S Buchner

Prerequisite: Astronomy 100. Continuation of Astronomy 100 with particular emphasis on the scientific principles used to understand and describe the universe. Light, telescopes, gravity and radioactivity. (Lecture 2 hours, laboratory 3 hours.)

200A,B. Introduction to Astronomy and Astrophysics (3,3) F, S Luke, Schultz Prerequisite: Mathematics 101 (may be taken concurrently). Newton's Laws and gravitation, the earth and the solar system, atomic radiation, spectra of stars, stellar population, stellar clusters, the galaxy and cosmology. (Lecture-discussion 3 hours.)

## 304. Observational Astronomy (1) On demand Staff

Prerequisite: Astronomy 200A (may be taken concurrently). Techniques and instruments of visual observation and photography of celestial objects. (Laboratory 3 hours.) Course may be repeated for a maximum of two units.

## PHYSICAL SCIENCE

## LOWER DIVISION

## 112. Introduction to the Physical Sciences (3) F, S Anfinson

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.)

## 113. Physical Science (3) F, S Anfinson

Introductory course in the physical sciences. Energy, time and materials involved in the processes of everyday happenings on the earth and in the universe. (Lecturediscussion 3 hours.) Not open to students with credit in Physical Science 112 or to majors in any of the physical sciences.

## GRADUATE DIVISION

## 512A-B. Modern Physical Science (3,3)

696. Research Methods (3)
697. Thesis or Project (2-4)

## POLITICAL SCIENCE DEPARTMENT

## (School of Letters and Science)

Professors: Amendt, Chawla, Hardy, L., Lien, Urquhart.
Associate Professors: Cohen, I., Erb, Hayes, Leiter, Marsot, Ridder, Trombetas.
Assistant Professors: Damon, Delorme, Kacewicz, Mandelman, Miewald, Newman, Ormond, Schmidt, Sherain, Soe, Steiner, Stevens, Weaver.
The political science major is designed to provide the student with a systematic knowledge of the nature and scope of political science. A 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 degre
Lower Division: Political Science 100 is required. In addition, students are required to select one of the following options: Political Science 109 and 110 or Political Science 200A and 200B.
Upper Division: A minimum of 24 units distributed as follows: 6 units from each of the following areas and 6 units of electives chosen in consultation with an adviser. (1) Political theory and public law: Political Science 370, 375, 380, 385, 390, 395, 400, 405, 411, 414, 493; (2) international relations and comparative government: Political Science $300,305,307,311,312,313,321,330,333,335,337,341,345,347$, 351, 352, 355, 360, 365; (3) American government, political parties and public administration: Political Science 421, 423, 425, 426, 427, $430,432,440,441,460,462,465,471,475,481,485,491,492$.

MAJOR IN POLITICAL SCIENCE FOR THE BACHELOR OF ARTS DEGREE WITH A CONCENTRATION IN PUBLIC ADMINISTRATION
Lower Division: Political Science 100 is required. In addition, students are required to select one of the following options: Political Science 109 and 110 or Political Science 200A and 200B.

## Political Science

Upper Division: A minimum of 33 units distributed as follows: 6 units from each of the following areas and 15 units of electives in public administration or closely related areas of which no more than 9 units may be taken outside the Political Science Department. (1) Political theory and public law: Political Science 370, 375, 380, 385, 390, 395, 400, 405, 411, 414, 493; (2) international relations and comparative government: Political Science 300, 305, 307, 311, 312, 313, 321, 330, $333,335,337,341,345,347,351,352,355,360,365$; (3) American government, political parties and public administration: Political Science $421,423,425,426,427,430,432,440,441,460,462,465,471$, 475, 481, 485, 491, 492.

## LOWER DIVISION

## 100. American Political Institutions (3) F, S Staff

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.
109. Principles of Political Science (3) F, S Staff

Major terms, concepts and functions relating to a political system. Not open to students with credit in Political Science 200A.

## 110. Issues of American Government (3) F, 5 Staff

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. Introduction to Political Science (3,3) F,S Hardy
Introduction to the principles of political science. Select foreign governments systematically treated in a comparative survey: their constitutional principles, political institutions and governmental problems. Not open to students with credit in Political Science 109.

## UPPER DIVISION

## POLITICAL THEORY AND PUBLIC LAW

370. Introduction to Political Thought (3) F Mandelman, Ormond, Urquhart

Critical examination of Western political philosophy from Plato to the 16th Century. Emphasis upon major political philosophers.

## 375. American Political Thought (3) $S$ Mandelman, Ormond

American political ideas from the colonial period to the present.

## 380. Modern Political Thought (3) F, S Mandelman, Urquhart

Critical examination of Western political philosophy from the 16th Century to the present. Emphasis upon major political philosophers.
385. Contemporary Political Ideologies (3) F Amendt

Development and change in the major political ideologies of the 20th Century, including communism, corporatism, fascism, liberalism and socialism,

## 390. Asian Political Theory (3) S Chawla, Marsot

Traditional and modern political thought with major emphasis on the developments of modern ideologies.
395. Elements of Roman Jurisprudence (3) F Trombetas

Growth and development of Roman law and its principles from the historical, legal and philosophical points of view.
400. Constitutional Development: Rights (3) F, S Hayes, Lien, Sherain

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 with leading cases.
405. Constitutional Development: Power (3) F, S Hayes, Lien, Sherain

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 with reference to leading cases.

## 411. Modern Legal Systems (3) F Hayes

Nature of law, public and private, with emphasis upon cases and materials illustrating the development of Anglo-American legal institutions and processes. Background for the professional study of law.

## 414. Jurisprudence (3) S Sherain

Fundamental legal philosophies, sources and classifications of law. Relationship of law to other disciplines and societal institutions.

## 493. Great Political Thinkers (3) 5 Mandelman, Ormond

Prerequisites: Six units of political theory recommended. Individual political thinker such as Plato, Aristotle, Machiavelli or Nietzsche will be chosen each semester for intensive study.

## UPPER DIVISION

## INTERNATIONAL RELATIONS AND COMPARATIVE GOVERNMENT <br> 300. Introduction to International Politics

## Steiner

Interaction of "great powers"; the influence of balance of power, imperialism, prestige, and the preservation of the status quo in the international sphere.
305. Introduction to International Law (3) F Ridder

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. International Organization and Administration (3) $\mathbf{S}$ Ridder

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. American Foreign Policy (3) $\mathbf{S}$ Cohen, Steiner

Prerequisite: Political Science 300. Systematic study of the foreign policy of the United States. Contemporary problems will receive special emphasis.
312. Foreign Policies of the Major Powers (3) F Cohen

Systematic examination of the national interests and foreign policies of the major world powers in terms of global political problems. Recommended: Political Science 300.

## Political Science

313. Soviet Foreign Policy (3) F Erb, Kacewicz

Soviet foreign policy since 1917-its origins, evolution, dynamics and objectives in selected areas of the world.

## 321. National Security Policies (3) F, S Erb, Steiner

Analysis of strategic posture with emphasis on military, political and economic interrelationships as they influence national security and international politics.

## 330. Governments of Western Europe (3) F,S Soe, Trombetas

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 Soe
Scandinavian political systems, including parties, programs and policies.
335. Government and Politics of the USSR (3) F, S Erb, Kacewicz

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.
337. Governments of Eastern Europe (3) S Kacewicz

Recent political, economic, constitutional, governmental and intergovernmental developments in the states of Eastern Europe.
341. Governments and Politics of the Far East (3) F Staff

Developments in government, parties, process of elections and political ideology of China, Japan and Korea.

## 345. Governments and Politics of South Asia (3) F Chawla, Marsot

Developments in government, parties, process of elections and political ideology of India, Pakistan, Nepal and Ceylon.
347. Government and Politics of Southeast Asia (3) S Marsot

Emergence and development of the contemporary political systems of Southeast Asia.

## 351. Governments of Latin America (3) F Delorme

Governments of leading and representative Latin American states. Emphasis on the background and evolution of current leadership, political institutions and philosophies.

## 352. Inter-American Affairs (3) $F$ Delorme

The Pan American Movement, development of the mutual security system, regional and hemispheric economic integration.

## 355. Governments and Politics in the Near and Middle East (3) F, S Newman, Trombetas

Comparative study of political systems in the Near and Middle East with special emphasis on their political forms, governmental and social structure.

## 360. Governments and Politics of Sub-Sahara Africa (3) F, S Newman

Government and politics of leading and representative Sub-Sahara African states with emphasis on development of temporary leadership, political institutions and ideologies.
365. The Politics of Development (3) F,S Chawla, Marsot, Newman

Problems of political development in the emergent nations of Asia, Africa and Latin America.

## AMERICAN GOVERNMENT, POLITICAL PARTIES AND PUBLIC ADMINISTRATION

## 421. American Government (3) F, S Staff

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.

## 423. The American Presidency (3) $S$ Damon, Leiter

Roles and powers of the American presidency.

## 425. State Government (3) F, S Leiter, Schmidt

Political structure and its operation, state-federal relations, state-local relations; particular emphasis on California.

## 426. Urban and Regional Political Systems (3) F Schmidt

Multijurisdictional governmental activities with emphasis on experience in the United States. Federal regional policies for rural and urban areas. Cooperative federalism.
427. American Local Government: Organization and Problems (3) S Leiter, Miewald
Functions and problems of counties, cities, towns and special districts. Emphasis will be placed on the approach by local governments to such problems as poverty, conservation, minority tensions, housing, transportation and crime.
430. Political Parties (3) F, 5 Amendt, Hardy

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. Public Opinion (3) $\mathbf{F}, \mathbf{S}$ Stevens

Formation and development of public opinion; methods of measuring public opinion in the political system.
440. The Legislative Process (3) 5 Damon, Hardy

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. Political Behavior (3) F Stevens

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. Introduction to Public Administration (3) F Miewald, Schmidt, Weaver

Principles and practices of federal, state and local administration.
462. Public Organization and Management (3) F Miewald

Theories of organization and management with emphasis on their relation to administrative problems in civilian and military spheres of American government.
465. Administrative Justice and Law Making (3) 5 Miewald

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 with reference to leading judicial decisions.

## Political Science

## 471. Public Personnel Administration (3) 5 Miewald

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. Public Financial Administration (3) $F$ Schmidt

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. Planning and the Public Interest (3) F Schmidt, Weaver

Public planning as a decisional and allocative activity. Local, State and Federal programs and policies, with special reference to planning in urban regions, role of the planner in society, social consequences of planning.
485. Comparative Public Administration (3) F Weaver

Theories, models, structure and function of public administration in selected countries.

## 491. Public Administration Trainee Program I (3) F Schmidt

Prerequisite: Consent of instructor. Internships in one of the various federal, state or local governmental units in the immediate area.

## 492. Public Administration Trainee Program II (3) Schmidt <br> Prerequisite: Consent of instructor. Internships in one of the various federal, state or local governmental units in the immediate area.

## GENERAL

495. Research Methods in Political Science (3) 5 Stevens

Prerequisite: Consent of instructor. Problems of data collection and analysis. Impact of research methods on findings.

## 497. Special Problems (3) F,S Staff

Prerequisite: Consent of instructor. Significant conceptual and theoretical problems of political science.

> 499. Readings and Conference in Political Science $(\mathbf{1}-\mathbf{3})$ F, $\mathbf{S}$ Staff
> 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. Seminar in International Politics (3)
601. Seminar in Comparative Governmen
602. Seminar in Comparative Government (3)
603. Seminar in Political Theory (3)
604. Seminar in Public Law (3)
605. Seminar in American Government (3)
606. Seminar in Metropolitan Politics (3)
607. Seminar in Politics (3)
608. Seminar in Legislation (3)
609. Seminar in Public Administration (3)
610. Seminar in Bureaucracy (3)
611. Directed Research (1-3)
612. Thesis (2-4)

## PSYCHOLOGY DEPARTMENT

(School of Letters and Science)

Professors: Bradley, Carlson, DeHardt, Heintz, Hommel, Jung, McClelland, Macfarlane, Mason, Newman, Nygaard, Raine, Towner. Associate Professors: Creamer, Danson, Davis, Fiebert, Hanson, Haralson, Jarrett, Petersen, Resch, Rhodes, Thayer.
Assistant Professors: Binder, Breglio, Colman, Fiebiger, Fong, Green, Hupka, Kapche, Linden, Lindner, Lowenthal, Padilla, Singer, Smith.
Instructor: Scott.
The psychology curriculum is designed to provide undergraduate students with: (1) a broad background in the principles of modern psychology, (2) a knowledge of applications of psychology in special fields and (3) skills and techniques of psychological measurement and investigation.

The curriculum is flexible in order to be relevant to various kinds of educational needs. Students are permitted a large number of elective courses and are encouraged to choose those electives appropriate to their particular interests and goals.
Some goals might be: Liberal Arts: a general program for students who wish a well rounded background in psychology; Quantitative Methods: a specialized program for students whose interests focus on mathematical models, statistical applications, testing and measurement; Industrial: a specialized program for students who desire application to industrial psychology; Graduate Study: a program for students who plan towards an advanced degree in psychology.

A curriculum brochure listing suggested programs may be obtained at the department office. Additional counseling is also available.
Enrollment in a course for which the prerequisite(s) has not been completed requires permission from the instructor.

MAJOR IN PSYCHOLOGY FOR THE BACHELOR OF ARTS DEGREE
Lower Division: Psychology 100, 221A-B.
Upper Division: A minimum of 24 units in psychology including either of the following: Psychology 321 or 322.
For students not working for a teaching credential, with prior departmental approval a maximum of six units from related academic disciplines may be substituted for six of the upper division units.

## LOWER DIVISION

## 100. General Psychology (3) F, S Staff

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.
221A. Introduction to the Study of Behavior I (4) F, S Staff
Prerequisite: Psychology 100. Study of basic behavioral processes using the major techniques of observation and investigation: laboratory, naturalistic and statistical. Independent investigative projects developed, performed and reported, with group participation in planning and discussion of projects. Not open to students with credit in Psychology 210 or 220. (Lecture 2 hours, laboratory and field 4 hours.)

## 221B. Introduction to the Study of Behavior II (4) $F, S$ Staff

Prerequisite: Psychology 221A. See description of Psychology 221A. (Lecture 2 hours, laboratory and field 4 hours.)

## 256. Psychology of Personality (3) F, S Staff

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

## 315. Principles of Psychological Testing (3) F,S Jarrett, Rhodes

Prerequisite: Psychology 221A or one statistics course. 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.

## 321. Laboratory Methods of Psychology (6) F, S Staff

Prerequisites: Psychology 221A-B or one elementary statistics and one laboratory psychology course. Study of behavior by controlled environment techniques. Content will include topics from biological, historical and ecological determinants of behavior. Not open to students with credit in Psychology 311. (Lecture 5 hours, laboratory 3 hours.)

## 322. Naturalistic Methods of Psychology (6) F, S Staff

Prerequisites: Psychology 221A-B or one elementary statistics and one laboratory psychology course. Study of behavior by naturalistic techniques. Content will include topics from biological, historical and ecological determinants of behavior. Not open to students with credit in Psychology 312. (Lecture 5 hours, laboratory 3 hours.)

## 331. Sensation and Perception (3) F, S DeHardt, Colman, Padilla

Prerequisite: Psychology 221A or one laboratory course in psychology. Basic phenomena of the senses, their physiological correlates and integration in complex perceptual judgments. (Lecture 3 hours.)

## 333. Psychology of Learning (3) F, S Bradley, Danson, Singer

Prerequisite: Psychology 221A or one laboratory course in psychology. Human and animal learning with special emphasis on experimental evidence and techniques. (Lecture 3 hours.)

## 337. Motivation and Emotion (3) F, S Hommel, Jung, Thayer

Prerequisite: Psychology 221A or one laboratory course in psychology. 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 3 hours.)

## 341. Physiological Psychology (3) F, S Davis, Green, Haralson

Prerequisite: Psychology 221A or one psychology laboratory course. 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. Comparative Psychology (3) F Haralson

Prerequisite: Psychology 221A or one laboratory course in psychology. Phylogenetic differences in animal behavior leading to the development of psychological principles. (Lecture 3 hours.)

## 351. Social Psychology (3) F,S Staff

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. Personality Structure and Development (3) F, S Fong, Kapche

Prerequisite: Psychology 221A or 370 . Modern views of personality structure and functioning.
361. Developmental Psychology (3) F, S Jung, Petersen

Prerequisite: Psychology 100. Psychological problems of human development considered with reference to data from studies of children and lower animals.

## 370. Abnormal Psychology (3) F, S Staff

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.

## 374. Psychology of Disability (3) F, S Staff

Prerequisite: Psychology 100. Analysis of situations confronting physically disabled persons. Consideration of reaction to acute and chronic disability, role of the physical therapist and the psychologist in promoting positive adjustments and factors during hospitalization promoting and impeding adjustment. (Lecture 3 hours.)

## 381. Industrial Psychology (3) F, S Staff

Prerequisite: Psychology 100. Problems and procedures in industrial psychology. Consideration of job analysis, personnel selection and appraisal, organizational and social context of human work, physical environment and consumer behavior. Not open to psychology majors.

## 401. History and Systems of Psychology (3) F,S Fiebiger, Nygaard

Contributions to the development of psychology by prominent historical figures and systems from the early Greek philosophers through the early twentieth century schools of structuralism, functionalism, behaviorism, gestaltism and psychoanalysis. (Lecture-discussion 3 hours.)
402. Contemporary Systematic Psychology (3) F,S Nygaard

Prerequisites: Six upper division units in psychology or consent of instructor. Examination of twentieth century systematic formulations and general theoretical approaches. (Lecture-discussion 3 hours.)
403. Mathematical Models of Behavior (3) 5 Hanson

Prerequisites: Psychology 321 or 322 or 210 . 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.)
411. Statistical Design and Analysis of Experiments (3) F, 5 DeHardt, Resch

Prerequisites: Psychology 321 or 412 . Simple and complex designs. Statistical inference in economical experimentation and in scientific inference and prediction. (Lecture-discussion 3 hours.)

## 412. Multivariate Statistical Analysis (3) F, S Hanson, Newman

Prerequisites: Psychology 322 or 411. Accuracy and cost of inference from multiple predictors. Discovering structural relationships among multiple variables. Theoretical implications of inferred structures. Applications. (Lecture-discussion 3 hours.)

## Psychology

## 415. Vocational Testing (3) S McClelland

Prerequisite: Psychology 221A or one statistics course or Ed. Psych. 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.
418. Computer Applications in Psychology (3) S Jarrett

Prerequisites: Psychology 321 or 322 or 311 or 312 and one upper division psychology laboratory course. Foundations of computer technology and its application to psychology. Emphasis on real-time control by digital computers in psychological research and applications. (Lecture 2 hours, laboratory 2 hours.)

## 427. Engineering Psychology (3) F Creamer

Prerequisites: Psychology 321 or 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.)

## 434. Complex Mental Processes (3) F Hanson, Jung, Resch

Prerequisites: Psychology 321 or 322, or 210 and 331 or 333 . Problem solving, decision making, concepts, symbols, meaning, language and patterned behavior, controlled and free association, imagination, dreams. Human behavior emphasized.

## 451. Experimental Social Psychology (3) F Carlson, Lindner

Prerequisites: Psychology 221A or 210 and 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. Principles of Group Dynamics (3) S Heintz

Prerequisite: Psychology 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. Psychology of Persuasion (3) $S$ Carlson

Prerequisite: Psychology 351 or consent of instructor. Psychological bases of attitude change and social influence. Consideration of the source and communication factors influencing thinking, attitudes and personality, persuasibility and resistance to persuasion.

## 473. Introduction to Clinical Psychology (3) F, S Binder

Prerequisites: Psychology 315, 356, 370; or consent of instructor. 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.

## 475. Interviewing and Case Study Methods (3) F, S Linden, Macfarlane

Prerequisite: Psychology 356 or 370 or consent of instructor. 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.

## 481. Psychology in Industry: Research and Applications (3) F,S Staff

Prerequisites: Psychology 210 and 220, or 221A-B. Selection and training, supervisory practices, performance rating and measurement of employee attitudes, work environment, analysis of organizations, engineering psychology and consumer behavior. Emphasis on techniques for psychological research in the industrial setting.

## 486. Personnel Psychology (3) F Jarrett

Prerequisite: Psychology 381 or 481. Survey of existing knowledge and description of research techniques in personnel psychology.
490. Special Topics in Psychology (3) F, S Staff

Prerequisite: Consent of instructor. Topics of current interest in psychology selected for intensive development. May be repeated for a maximum of six units. (Lecture 3 hours.)
499. Independent Study (1-3) F, S Staff

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. Test Construction Theory and Practice ..... (3)
516. Advanced Experimental Psychology ..... (3)
517. Techniques of Physiological Psychology ..... (3)
518. Attitude and Opinion ..... (3)
519. Psychopathology ..... (4)
520. Clinical Psychology ..... (3)
521. Individual Intelligence Testing ..... (4)
575A. Projective Techniques ..... (3)
575B. Interpretation of Projective Techniques ..... (3)
522. Psychology of Industrial Relations ..... (3)
523. Seminar in Psychometric Methods ..... (3)
524. Seminar in Human Factors ..... (3)
525. Seminar in Sensation, Perception and Physiological Psychology ..... (3)
526. Seminar in Learning and Motivation ..... (3)
527. Seminar in Human Learning and Cognitive Processes ..... (3)
528. Seminar in Social Psychology ..... (3)
529. Seminar in Personality ..... (3)
530. Seminar in Behavior Disorders of Children ..... (3)
672A-B. Seminar in Community Psychology ..... $(4,4)$
673A,B. Practicum in Community Psychology (1-8)
531. Clinical Practicum ..... (3)
532. Seminar in Applications of Psychology to Industry ..... (3)
533. Practicum in Industrial Psychology ..... (3)
534. Directed Research ..... (1-3)
535. Thesis (2-4)

## RADIO-TELEVISION DEPARTMENT

## (School of Letters and Science)

Professor: Morehead.
Associate Professors: Baker, D. F., Martin, H.
Assistant Professors: Hill, Langston.
Lecturer: Weisgerber.
The curriculum and extra-curriculum in radio and television are designed to prepare students for careers in commercial and non-commercial educational broadcasting, as well as for allied careers in film, broadcast journalism and other aspects of the graphic and performing arts in mass communications. A strong emphasis on general education in the liberal arts and sciences provides the student major in radio and television with appropriate collegiate experiences that develop enlightened expertness in a profession in the mass media.

## Radio-Television Professional Advisory Council

The responsibilities of the Professional Advisory Council to the Radio-Television Department are to evaluate the curriculum of the department and to suggest changes in policies, course content and curricula structure to make the students' education more relevant to the profession as a whole. Membership of the Advisory Council is as follows:

Edward Arnold, Radio Station KOCM-FM
Kathi Fearn Banks, NBC-TV
Christopher Beard, Barnaby Productions
Elizabeth Corday, Corday Productions, Inc.
Joseph Dyer, Station KNXT-TV
Douglas Finley, Station KTLA-TV
William Hines, National Association of Broadcast Engineers Television, Local Union 531
Irving Lazar, Literary Agent
Edward Moreno, KCET-TV
Donna Matson, Western Video Industries, Inc.
Robert Mulholland, NBC-TV News
George Nicholaw, KNX Radio
Gordon Parks, Life Magazine
William Starkey, Batten, Barton, Durstine \& Osborn, Inc.
Barret Wetherby, Directors Guild of America
Kaslon Zoller, KABC-TV

## MAJOR IN RADIO-TELEVISION FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Radio-TV 206, 208, 209, 210.
Upper Division: Radio-TV 301, 312, 405, 406, 410, 499, Journalism 420 and two of the following: Radio-TV 306, 308, 310.
The student is advised to elect at least 18 units in one of the following: business administration, creative writing, instructional media, journalism, social-behavioral sciences, speech, and theatre arts, fine arts.

## LOWER DIVISION

100. The Popular Arts in America-Film and Broadcasting (3) F,S Morehead

Audience approach to appreciation and understanding of motion pictures and broadcasting for the non radio-TV film major. Films, video and audio-tapes, lectures, discussions with staff and visiting specialists will be used.
206. Survey of Broadcasting (3) F, S Weisgerber

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.

## 207. Beginning Radio Production (2) F, S Weisgerber

Basic principles and techniques of studio operation, performing, writing and producing for radio. Not open to students with credit in Radio-TV 209. (Lecture, laboratory.)

## 208. Beginning Television Production (2) F,S Weisgerber

Prerequisite: Radio-TV 207 or consent of instructor. Basic principles of planning, writing and producing television programs. Not open to students with credit in Radio-TV 209. (Lecture, laboratory.)

## 210. Fundamentals of Motion Picture Production (3) F Hill

Beginning techniques in motion picture production including use of the camera, picture composition, planning sequences, splicing and cutting film. (Students will furnish their own raw film stock and pay for its pıocessing.) Final projects will be given a public performance.

## UPPER DIVISION

## 301. Television Production (3) F,S Langston

Prerequisite: Radio-TV 208 or consent of instructor. Experience in producing original television programs. Emphasis is on creative programming using a variety of production techniques, resulting in a public performance.

## 302. Television Activity (1) F, S Baker

Prerequisite: Radio-TV 208 or consent of instructor. Individual and group participation in closed circuit, instructional TV program produced as a function of the Instructional Television Office. Specific assignments determined in consultation with instructor. Hours other than regular class time to be arranged. Not more than one unit may be taken in any one semester. Maximum credit, 2 units.

## 304. Writing for Broadcasting and Motion Pictures (3) Langston

Nondramatic and dramatic writing for broadcasting and motion pictures. Student scripts and copy will be produced when possible.

## 306. Directing Television Drama (3) F Martin

TV director's responsibilities for casting, scenery, performance, camera choices, shot sequences and microphone technique in creating the TV dramatic production. Student video-taped productions will be shown publicly.

## 307. Radio Activity (1) F,S Martin

Prerequisite: Radio-TV 209 or consent of instructor. Participation in radio production; hours other than regular class time will be arranged. Maximum credit, two units.

## Radio-Television

## 308. Documentary Program Production (3) Staff

History, theory and practice of documentary programming. Students will plan, research, write and produce either an hour-long television program or a half-hour 16 mm . film documentary program.

## 310. Television and Radio Public Affairs (3) F Staff

History, theory and practice of public affairs broadcasting. Planning and producing for public performance the interview, forum and special events program. Students will produce an hour-long program in one of these program areas for both television and radio.

## 312. Program Analysis (3) F Martin

History of program trends in American broadcasting. Present program practices. Content analysis of programming. Non-laboratory approach to creating, developing and producing new program ideas.

## 400. Educational Television (3) F,S Baker

Development of educational television in America. Intensive study of research literature in the field. Current practices in usage of television in the classroom. Demonstrations.

## 405. Audience Analysis (3) S Martin

Commonly used audience research techniques; study of major broadcasting survey organizations, preparation and conduct of an audience research project.

## 406. Mass Media and Society (3) F, S Morehead

History and impact of the press, broadcasting and motion pictures on American society. Dimensions, social responsibilities and unresolved problems of mass media.

## 410. Techniques of Motion Picture Production (3) 5 Hill

Prerequisite: Radio-TV 210 or consent of instructor. Planning and producing original film, resulting in a public performance. (Students will furnish their own raw film stock and pay for its processing.)
416. Film History (3) $S$ Hill

Historical development of the motion picture, with special emphasis on early invention, the development of technique, the "Golden Age" of the silent film and the present evolution of the sound film. Students are required to spend three hours each week reviewing film. (Lecture 3 hours, reviewing film 3 hours.) Not open to students with credit in Radio-TV 417.

## 418. Film Criticism (3) F Hill

Examination of theoretical bases of aesthetics and applications to motion pictures. Study of various critical approaches and assessment of current trends and practices. Students are required to spend three hours each week reviewing film. (Lecture 3 hours, reviewing film 3 hours.)

## 499. Special Problems in Television, Radio and Film (3) F, S Martin, Morehead

Prerequisites: Senior standing in Radio-TV and consent of instructor. Study within an area of specialization done on a production or research basis, the area to be designated by letter at the time of registration as (a) mass media, (b) television production, (c) radio production, (d) film production, (e) writing. Not open to students with credit in Radio-TV 409.

## SOCIAL SCIENCE <br> (School of Letters and Science) <br> LOWER DIVISION

104. History and Geography of California (3) F, S Staff
(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. Thesis or Project (2-4)

## SOCIAL WELFARE DEPARTMENT

(School of Letters and Science)
Professor: Ponsar.
Associate Professors: Hutton, Pilsecker.
Assistant Professor: Cohn.
The social welfare major is designed for those who, with a bachelor's degree, expect to enter such fields as public social services, 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, professional group work, community organization and other fields requiring the master's degree in social work.

## MAJOR IN SOCIAL WELFARE FOR THE BACHELOR OF ARTS DEGREE

Lower Division: Anthropology 120, Anatomy and Physiology 200 or Biology 200; Sociology 100, 255; Social Welfare 260.
Upper Division: Psychology 361, 370; Economics 300 (or 200 and 201); Sociology 320, 455; Social Welfare 362, 365, 367, 368 or 467, 460A,B.

## LOWER DIVISION

## 260. The Field of Social Work (3 F, S Staff

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.

## UPPER DIVISION

## 362. Introduction to Social Casework (3) F, S Pilsecker, Staff

Prerequisite: Social Welfare 260. 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. Introduction to Social Group Work (3) F,S Cohn, Pilsecker

Services and functions of social group work agencies. Role of the group worker. Principles involved in group participation and leadership.

## 365. Interviewing in Social Welfare (3) F, S Ponsar

Prerequisite: Social Welfare 362. 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. Community Welfare Organization (3) F Cohn, Pilsecker

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. Social Welfare Through Legislation (3) F,S Hutton

Development of social legislation affecting family and child welfare, civil rights, social insurance, health and safety, labor-management relations.

## 368. Probation and Parole (3) F, S Staff

History, philosophy and administration of probation and parole. Principles of investigation, supervision and socialized treatment in probation and parole.

## 460A,B. Field Experience in Social Welfare (3,3) F, S Staff

Prerequisites: Sociology 100; Social Welfare 260, 362, or 364; and consent of instructor. Supervised experience in social agencies leading to orientation in public and private social welfare.

## 461. Child Welfare Services (3) F, S Staff

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. Principles of Public Welfare (3) F, S Cohn, Hutton

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.

## 499. Directed Studies (1-3) F, S Staff

Prerequisite: Consent of instructor. Independent study of special topics under supervision of a faculty member. May be repeated to a maximum of four units.

## SOCIOLOGY DEPARTMENT

(School of Letters and Science)
Emeritus: David Dressler.
Professors: Hartman, Korber, Massaro, Penalosa, Sheets, Ullman.
Associate Professors: Fradkin, Haskell, Hubbard, Walker.
Assistant Professors: Aarons, Anderson, Cereseto, Dank, DeMartini, Fuss, Halliwell, Harman, Leis, Lunceford, Parker, Richmond, Slawski, Turk.
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.

## 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 Social Welfare 260 are recommended.
Upper Division: Satisfactory completion of at least 51 semester units of college work is required before students will be accepted in upper division sociology courses. All majors are required to have a minimum of 24 units including credit for Sociology 335, 356, 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, 325, 420, 421, 422, 425, 428, 449, 480.
(3) Social Interaction: Sociology 336, 426, 430, 435.
(4) Social Disorganization: Sociology 345, 347, 441, 442, 445; Social Welfare 367, 368.

## 100. Principles of Sociology (3) F, S Staff

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. Social Trends and Problems (3) F, S Staff

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. Elementary Statistics (3) F, S Anderson, Fradkin, Halliwell, Harman, Hubbard, Walker

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.

## 275. Marriage (3) F,S Hartman

Survey of the most recent information on dating, courtship, engagement, mate selection, areas of adjustment in marriage, parenthood, financial and homemaking problems.

## UPPER DIVISION

## 320. The Family (3) F, S Hartman, Leis, UlIman

Prerequisite: Sociology 100. Family as a social institution in various cultures with stress on the American family systems. Analysis of forces producing change, organization and disorganization of family systems.

## 325. Sociology of Women (3) F Fuss

Prerequisite: Sociology 100. Socio-cultural position of women; a brief history of women's role and status; societal attitudes toward women's place in society.

## 335. Social Psychology (3) F, S Cereseto, Korber, Sheets, Slawski, Turk

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. Sociology of Small Groups (3) F, S Hartman, Lunceford, Turk, Uliman

Prerequisite: Sociology 100. 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. Juvenile Delinquency (3) F, S Aarons, Fradkin, Haskell, Stokes

Prerequisite: Sociology 100. Extent and distribution; causative factors; influence of home, school and community, programs of prevention, control and treatment.
347. Social Disorganization (3) $F$ Sheets, Stokes

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. Population and Migration (3) F Harman

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 Harman, Hubbard, Walker

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.

## 356. Development of Sociological Theory (3) F, S Fuss, Leis, Ullman

Prerequisite: Sociology 100. Social thought and historical forces leading to the emergence of sociology; and an exploration of classical sociological theories up to the early twentieth century including such thinkers as Conte, Spencer, Marx, Durkheim and Weber.
410. Human Ecology (3) S Harman

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. Rural-Urban Trends (3) $\mathbf{F}, \mathbf{S}$ Leis

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. Social Stratification (3) F,S Richmond

Prerequisite: Sociology 100. Role, status, and structure of differential rankings position, and social change.

## 421. Sociology of Education (3) $S$ DeMartini

Prerequisite: Sociology 100. Analysis of education as a social institution; application of major theoretical frameworks to an understanding of education in postmodern society; special attention given to education as it relates to socialization, stratification and social change.

## 422. Social Institutions (3) F, S Fuss, Parker, Turk

Prerequisites: Sociology 100 and one other course in sociology. Process of institutionalization, the general nature of institutions.

## 425. Industrial Sociology (3) S Hubbard

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.

## 426. Sociology of Sexual Behavior (3) S Dank, Hartman

Prerequisite: Sociology 100. The social context of human sexuality; effects of socialization, social class, occupation and religion on sexual attitudes and behavior.

## 428. Sociology of Religion (3) F,S Stokes

Prerequisite: Sociology 100. Religion in a sociological perspective; its relation to social cohesion and social change, to other institutions and groups in society; sources and varieties of religious institutions with an emphasis on American religious groups.

## 430. Social Control (3) F, S Massaro, Parker

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. Symbolic Behavior (3) F, S Anderson, Massaro

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. Criminology (3) F, S Dank, Fradkin, Haskell, Stokes

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. Penology (3) F, S Staff

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. Ethnic Group Relations (3) F,S Haskell, Korber, Lunceford, Penalosa,

## Stokes

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.

## 449. Political Sociology (3) F DeMartini, Halliwell, Parker, Richmond

Prerequisite: Sociology 422. Analysis of the relation between social structure and political processes.
455. Methods of Sociological Research (3) F, S Anderson, Fradkin, Harman, Hubbard, Parker, Slawski, Turk, Walker
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. Contemporary Sociological Theory (3) F, S Fradkin, Fuss, Korber, Leis, Penalosa, Ullman <br> Prerequisites: Sociology 100, 356 and one other upper division course in sociology.

 Critical analysis of the contributions of contemporary sociologists. Intended primarily for majors in this field.
## 473. Family Life Education (3) SS Hartman

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.
480. Sociology of Knowledge (3) F Cereseto

Prerequisites: Senior or graduate standing; consent of instructor. Investigation of the social determinants, distribution and consequences of various types of human knowledge; examines the social roots of both "everyday" knowledge and "theoretical" knowledge.
490. Special Topics in Sociology (1-3) F, 5 Staff

Topics of special interest in sociology selected for intensive study. Topics will be announced in the Schedule of Classes. May be repeated with different topics to a maximum of 6 units.
499. Directed Studies (1-3) F, 5 Staff

Prerequisite: Consent of instructor. Independent study of special topics under supervision of a faculty member. May be repeated to a maximum of 4 units.

## GRADUATE DIVISION

620. Seminar in Family (3)
621. Seminar in Social Institutions
622. Seminar in Social Classes (3)
623. Seminar in Social Change (3)
624. Seminar in Social Interaction
625. Seminar in Symbolic Behavior
626. Seminar in Socioanalysis (3)
627. Seminar in Deviant Behavior
628. Seminar in Population (3)
629. Seminar in Development of Social Thought (3)
630. Seminar in Sociological Theory (3)
631. Research Methods (3)
632. Directed Research (1-3)
633. Thesis (2-6)

## SPANISH-PORTUGUESE DEPARTMENT <br> (School of Letters and Science)

Professors: Cardenas, Marin, Noguer.
Associate Professors: DeLong-Tonelli, Donahue, Inostroza, Trinidad.
Assistant Professors: Archuleta, Cannon, Contreras.

## 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 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 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, 335, 336, 337, 338, 411, 425.
Departmental Requirement: One year of a second foreign language is required of all majors.

## Teaching Credentials:

See Credential Section.

## SPANISH

## LOWER DIVISION

## 101A-B. Fundamentals of Spanish $(4,4) \quad$ F, S Staff

Concentration on oral comprehension and speaking.
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. Intermediate Spanish (3,3) F, S Staff
Continued development of audio-lingual skills.
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. Advanced Spanish I (3) F, S Staff

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. Advanced Spanish II (3) F, S Staff

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) 5 Staff

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. Introduction to Spanish Literature I (3) F Cardenas, DeLong, Marin, Trinidad
Prerequisite: Upper division standing in Spanish. Origins and development of Spain's literature from the "Poem of Mio Cid" to 1700.

## 336. Introduction to Spanish Literaure II (3) S Cardenas, DeLong, Noguer,

 TrinidadPrerequisite: Upper division standing in Spanish. From 1700 to the present time. 337. Survey of Latin American Literature I (3) F Donahue, Inostroza

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. Survey of Latin American Literature II (3) S Donahue, Inostroza, Noguer

Prerequisite: Upper division standing in Spanish. From the ending of the wars of independence to the present time.
411. Advanced Spanish Syntax and Composition (3) F Staff

Prerequisites: Spanish 312 and 313 or equivalent. Special emphasis on the writing of short compositions and commercial letters.
415. Introduction to Romance Linguistics (3) $\mathbf{F}$ Inostroza, Trinidad

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.
425. Spanish Phonetics (3) F Cardenas, Trinidad

Prerequisites: Spanish 312 and 313 or consent of instructor. Articulatory phonetics as a means to form native Spanish pronunciation habits with emphasis upon the difficulties encountered by speakers of American English.
440. Spanish Civilization (3) F Marin, Trinidad instructor. Characteristic fea-

Prerequisites: Spanish 335 and 336 or consent of instructor. Chations, economy, tures of Spanish culture with special attention to the various inking. social organization, cultural configurations, and the ways of thinking.
445. Latin American Civilization (3) $\mathbf{S}$ Archuleta, Donahue

Prerequisites: Spanish 337 and 338 or consent of instructor. Analysis of main currents in Latin American civilization.
454. Modern Spanish Theatre (3) 5 Delong-Tonelli, Donahue, Trinidad

Prerequisite: Upper division standing in Spanish. Spanish theatre from Benavente to Buero Vallejo.
455. The Latin-American Novel (3) $S$ Archuleta, Inostroza

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. Nineteenth Century Spanish Novel (3) F Donahue, Noguer, Trinidad

Prerequisites: Spanish 335 and 336 or consent of instructor. Ranking nineteenth century Spanish novelists.
457. Spanish American Prose Writings (3) S Donahue, Inostroza

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. The Modern Spanish Essay (3) S Noguer, Trinidad

Prerequisite: Upper division standing in Spanish. Reading and discussion of the essays of writers such as Azorín, Unamuno, Ortega y Gasset and Angel Ganivet.

## 459. Contemporary Spanish Novel (3) S DeLong-Tonelli, Donahue, Trinidad

Prerequisites: Spanish 335 and 336 or consent of instructor. Representative twentieth century novelists.
474. The Drama of the Golden Century (3) SS Marin, Noguer

Prerequisite: Upper division standing in Spanish. Spanish drama from Juan del Encina to Calderón de la Barca.
476. Spanish Romanticism (3) F DeLong-Tonelli, Noguer

Prerequisite: Upper division standing in Spanish. Most representative Spanish writers of the Romantic period.

## GRADUATE DIVISION

505. History of the Spanish Language ..... (3)
506. Modernismo in Latin American Literature ..... (3)
507. Spanish Medieval Literature ..... (3)
508. Spanish American Drama ..... (3)
509. Mexican Novel ..... (3)
510. Contemporary Spanish Poetry ..... (3)
511. Seminar in Spanish Renaissance Prose (3)
512. Seminar in Spanish Literary Masters ..... (3)
513. Directed Research (1-3)
514. Thesis (2-6)

## PORTUGUESE

## 101A-B. Fundamentals of Portuguese (4,4) F, S Archuleta

Introduction to grammar, reading, pronunciation, writing and conversation. 101A is for those who are beginning the study of Portuguese or who have had one year of high school Portuguese. 101B. Prerequisite: Portuguese 101A or two years of high school Portuguese. Continuation of 101A.

## 201A-B. Intermediate Portuguese (3,3) F, S Archuleta

Continued development of audio-lingual skills. 201A. Prerequisite: Portuguese 101A-B or three years of high school Portuguese or equivalent. 201B. Prerequisite: Portuguese 201A or four years of high school Portuguese or equivalent.

## 312. Advanced Portuguese I (3) F, S Archuleta

Prerequisite: Portuguese 201B or equivalent. Extensive reading of Portuguese writings, review of grammatical principles and a general consolidation of the four language skills: reading, comprehension, composition and conversation.

## 313. Advanced Portuguese II (3) F, S Archuleta

Prerequisite: Portuguese 312 or equivalent. Sequel to Portuguese 312 with emphasis on extensive reading of Portuguese 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.

## SPEECH COMMUNICATION DEPARTMENT

## (School of Letters and Science)

Professors: Cain, Castleberry, Drum, Howe, Landes, Larr, Partridge, Shanks, Thompson, J., Wagner, Wills.
Associate Professors: Buck, Cooper, Hannah, Hauth, Hays, Healy, Jenson, Kelly, Krueger, Loganbill, Powell, Skriletz.
Assistant Professors: Applbaum, Briggs, Craven, Lopez, Mandel, Porter, Rogers, Yates.

## Instructors: Anatol, Gabbard, Hansen.

The Department of Speech Communication serves three general functions. First, it provides a program for the student planning a career in either of the two specialized areas of speech. The student may elect that sequence of study which concentrates upon specialized courses in rhetoric-public address and communication theory or that sequence which concentrates upon offerings in speech pathology-audiology. 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. Third, it provides a number of courses which service the needs of majors outside the Speech Communication Department.

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 or audiologists, (3) to become teachers of speech at the secondary or higher educational levels.

To fulfill its second function, courses are offered to satisfy both the Category V Basic Communication requirement in general education and the need for additional general education electives for cultural enrichment.
To fulfill its third function courses are offered which meet the needs of students whose major courses of study are enriched by specialized instruction in speech communication.

## SPEECH PROFICIENCY TESTING

Students who fulfill the Category V Basic Communication of the general education requirements by enrolling in Speech 130, 131, 132 or 133 at CSCLB will be tested for speech proficiency as part of the course. All others seeking a teaching credential must arrange for a test for speech proficiency through the Testing Office. Testing information is published in the Schedule of Classes.

## MAJOR IN SPEECH FOR THE BACHELOR OF ARTS DEGREE

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

## General Speech Option

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

Lower Division: Speech 130, 246 or 271.
Upper Division: Majors must complete two courses from each of the following groups: (a) Speech $433,439,441,442,443,444,445$, (b) Speech 331, 332, 333, 338, 344, (c) Speech 335, 446, 447, 449, (d) Speech 361, 431, 432, 434, 471, Radio-TV 406, 416, 418, (e) Speech 371, 440, 448.

## Speech Pathology Option

Lower Division: Speech 271, three units from Speech 130, 131, 132, 133. Upper Division: Speech 361, 371, 448, 461, 465, 466, 469 (2 units), 471, 473 , plus one course from the following: Speech $472,475,476,477$. Students desiring American Speech and Hearing Association Certification should consult with an adviser regarding additional course work necessary.

## LOWER DIVISION

## 060. Speech Improvement (0) F,S Cooper, Craven, Landes, Staff

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. Essentials of Public Speaking (3) F, S Staff

Composition and delivery of speeches to inform and persuade. Logical organization is stressed.

## 131. Essentials of Argumentation (3) F, S Staff

Theory and practice of argumentation. Includes evidence, proof, refutation in argumentative speaking and evaluative techniques.

## 132. Elements of Group Discussion (3) F, S Staff

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. Elements of Oral Interpretation (3) F,S Staff

Theory and practice in the oral interpretation of prose and poetry.

## 236. Forensic Activity (1) F,S Howe

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.

## 246. Introduction to Oral Communication (3) F, S Hays

Basic characteristics of human communication and the theoretical and practical implications of these characteristics for various forms of oral communication.

## 261A-B. Speech for Foreign Students (3,3) F, S Partridge, Staff

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. Voice and Articulation (3) F,S Healy, Larr, Loganbill

Physiological and anatomical bases of normal voice production with intensive training in articulation, pronunciation, projection and related oral skills.

## UPPER DIVISION

## 330. Advanced Public Speaking (3) F,S Shanks

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. Argumentation and Debate (3) F,S Howe, Rogers

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. Advanced Group Discussion (3) F, S Anctal, Krueger, Wills

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. Advanced Oral Interpretation (3) F, S Buck, Loganbill, Shanks

Prerequisite: Speech 130, 131, 132 or 133. Derivation of meaning in various literary forms and its oral interpretation to specific audiences.
334. Business and Professional Speech (3) F,S Healy, Kelly

Application of principles of speech in basic business, industrial and professional forms and contexts; techniques of preparation, presentation and evaluation.
335. Persuasive Speaking (3) F, S Anatal, Cain, Drum, Hauth, Rogers, Wills

Audience behavior; theories of motivation, attention, interest; an understanding and analysis of types of audiences with methods of audience adaptation.
336. Forensic Activity (1) F, S Hauth

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.
337. Parliamentary Procedures (3) F, S Castleberry, Shanks, Wagner

Application of the fundamentals of parliamentary procedure to the organization and functioning of groups. Not open to students with credit in Speech 237.
338. Ensemble Interpretive Reading (3) $\mathbf{S}$ Loganbill, Shanks

Programming and presentation of prose, poetry and drama by an ensemble of readers. Emphasis is placed on experimental presentations and on the development of analytical insight into literary forms.
344. Theory and Techniques of Interviewing (3) F, S Hays, Jenson, Mandel

Theory and techniques of oral communication in the process of interviewing. Practical application in employment, information gathering and persuasive interviews.
352. Story Telling (3) F,S Loganbill, Skriletz, Wagner, Wills

Cultural heritage in story telling; analysis of story types for oral presentation; techniques of preparation, presentation and listening.
358. Speech Arts for Children (2) F,S Thompson, Staff

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. Laboratory in Speech Arts for Children (1) F, S Staff the student to apply Prerequisite or co-requisite: Speed

## 361. Speech and Language Development in Children (3) F, S Cooper, Partridge, Yates

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.

## 371. Phonetics (3) F, S Cooper, Landes, Larr, Partridge, Thompson

Phonetic basis of speech sounds and the various factors which influence pronunciation. Consideration is given to linguistic variations, regional dialects and standards.

## 431. Administering the Forensic Program (3) 5 Howe

Principles of constructing and administering a forensic program, including recruiting, squad direction, budgeting, tournament policies, tournament operation and current literature on forensic direction.

## 432. Discussion Leadership (3) F, S Anatol, Krueger

Prerequisite: Speech 132 or consent of instructor. Theories and types of leadership on conference and small group discussion. (Lecture 3 hours, laboratory 1 hour.)

## 433. Oral Tradition in Interpretation (3) F Loganbill

Theoretical and historical development of oral interpretation from the ancient periods to the mid-twentieth century.
434. Communiçation in the Organizational Setting (3) F,S Jenson, Kelly, Mandel
Communication problems in the organizational settings. Selected topics in organizational difficulties with communication problems.

## 439. Rhetorical Criticism (3) $F$ Hauth

Principles of critical analysis of the total public address situation. Evaluation of public speakers through application of these principles.
440. Survey of Rhetorical Theory (3) F, S Buck, Cain, Castleberry

Major rhetorical contributions from the Classical to the Modern Period.
441. Ancient Public Address (3) $F$ Buck, Wills

Critical study of the speakers, speeches and speaking arenas from the preclassical and classical periods.
442. British Public Address (3) S Castleberry, Howe

Study of significant speakers with emphasis on ideas and contributions.
443. History and Criticism of American Public Address to 1860 (3) F Hauth, Wagner
Evaluation of public speaking as it pertains to the development of American institutions prior to the Civil War.
444. History and Criticism of American Public Address Since 1860 (3) S Hauth, Wagner
Evaluation of public speaking as it pertains to the development of American institutions from the Civil War to 1932.

## 445. Contemporary Public Address (3) F Powell, Wagner

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.
446. Communication Theory (3) F, S Hays, Jenson, Mandel, Porter

Conceptual frameworks in communication theory; application of learning, motivation, perception and related theories to the study of speech. Not open to students with credit in Speech 446B.
447. Measurement in Communication Theory (3) F,S Applbaum, Jenson

Application of the scientific method to the study of speech; explanation of the role statistics, experimental and descriptive methodologies play in speech research. Not open to students with credit in Speech 446A.
448. Language and Symbolic Processes (3) F,S Anatol, Jenson, Mandel,

## Porter

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) F, S Jenson, Mandel

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. Introduction to Speech Pathology (3) F, S Lopez, Partridge

Prerequisite: Speech 361, pre or co-requisite 371. Survey of speech disorders emphasizing techniques for differential diagnosis; conducting initial evaluations and preparing case studies; observation of therapy.
465. Functional Speech Disorders in Children (2) F,S Craven

Prerequisites: Speech 361, 371, 461, or consent of instructor. Functional anomalies such as articulation and delayed speech problems, emotional problems, and kindred disorders. Etiology, evaluation, therapy.
466. Stuttering (2) $\mathbf{F}$ Thompson

Prerequisites: Speech 371, 461, 465, or consent of instructor. Etiological, diagnostic and therapeutic aspects of stuttering. Not open to students with credit in Speech 462.
469. Clinical Practice in Speech Disorders (1-6) F, S Cooper, Craven, Larr, Lopez, Partridge, Yates
Prerequisites: Speech 371, 461, and consent of instructor. Student conducts individual and group speech therapy under clinical supervision. Forty-five hours required for each unit. May be repeated for credit to a maximum of six units.
471. Voice Science (3) F Landes, Larr, Partridge

Speech process as an organic and acoustic phenomenon. Anatomy, physiology, neurology and acoustics of speech and voice.
472. Neurological Language and Speech Disorders in Children (2) F Cooper,

Larr
Prerequisites: Speech 361, 461, 465, 471. Speech and language problems in mental retardation, cerebral palsy, aphasia and kindred disorders resulting from deviant neurological development or control.
473. Audiometry and Hearing Conservation (3) F,S Landes, Staff

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. Principles of Audiology (3) S Landes, Staff

Prerequisite: Speech 473. Advanced audiometry, recruitment testing, use of masking, objective audiometry and automatic audiometry; evaluation and selection of hearing aids.
475. Neurological Language and Speech Disorders in Adults (2) 5 Cooper, Landes
Prerequisites: Speech 361, 461, 465, and 471. Etiological and therapeutical factors involved in language and speech disorders associated with brain-damaged adults.
476. Disorders of Voice and the Peripheral Mechanism (2) S Cooper, Landes

Prerequisites: Speech 461, 465, 471. Etiology, diagnosis, and therapy of voice, cleft palate, and oro-facial abnormalities. Not open to students with credit in Speech 463.
477. Speech Reading and Aural Rehabilitation (3) S Larr

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.
478. Speech and Language Problems of the Culturally Different Child (3) F, S Cooper
Recognition of the special speech and language needs and the role of the speech therapist and classroom teacher; procedures for stimulation of language development and remediation of speech defects in the classroom and clinical situation.
479. Clinical Practice in Hearing Disorders (1-6) F, S Landes, Staff

Prerequisites: Speech 474, 477 and consent of instructor. Student conducts individual and group hearing therapy under clinical supervision. Forty-five clock hours required for each unit. May be repeated for credit to a maximum of six units.
490. Special Studies in Speech (1-3) F, S Staff

Open only to speech majors with senior or graduate standing and consent of department chairman. Individualized laboratory or library research selected in consultation with instructor. Written report of the research is required. Not acceptable for graduate credit toward the master's degree.

## GRADUATE DIVISION

540. Modern Rhetorical Theory ..... (3)
541. Parent Counseling in Speech Correction ..... (3)
542. Organization and Administration of Speech and Hearing Services ..... (2)
543. Theories of Hearing ..... (3)
544. Seminar in Group Discussion ..... (3)
545. Seminar in Oral Interpretation ..... (3)
546. Seminar in Public Address ..... (3)
547. Seminar in Communication Theory ..... (3)
548. Seminar in Experimental Methodologies ..... (3)
549. Seminar in Speech Education ..... (3)
550. Seminar in Language Pathology ..... (3)
551. Seminar in Speech Pathology ..... (3)
552. Advanced Clinical Practice in Speech Pathology ..... (1-6)
553. Seminar in Audiology ..... (3)
554. Advanced Clinical Practice in Audiology ..... (1-6)
555. Research Methods ..... (3)
556. Directed Research (1-3)
557. Thesis or Project (2-4)

## FACULTY

## (As of January 1, 1971)

(Number in parentheses indicates year of appointment)
EMERTII
RALPH K. ALLEN (1956) Professor, English
A.B., William Jewell College; M.A., Ph.D., University of Washington. Emeritus, 1970.

ZELPHA BATES (1953)
Professor, Home Economics
A.B., Washburn College; M.A., Teachers College, Columbia University; Ed.D., New York University. Emeritus, 1967.
BELA L. BIRO (1959) Professor, Art
Ph.D., University of Budapest. Emeritus, 1968.
J. WESLEY BRATTON (1950). $\qquad$ Professor, Education A.B., Seattle Pacific College; M.S., Ed.D., University of Southern California. Emeritus, 1969.

DAVID L. BRYANT (1949)
Executive Dean, Administration
B.S., University of Southern California; M.A., Stanford University; Ed.D., University of Southern California. Emeritus, 1969.
MAUDE C. CARLSON (1952) Head Social Science Reference Librarian A.M., M.A. in L.S., University of Michigan. Emeritus, 1967.

GEORGE R. CERVENY (1952)
Professor, English
B.S., M.A., University of Idaho; Ph.D., New York University. Emeritus, 1967.

ARNOLD M. CHRISTENSEN (1949) Professor, Education
A.B., Carleton College; M.A., University of Minnesota; Ph.D., State University of Iowa. Emeritus, 1967.

DAVID DRESSLER (1953) Professor, Sociology Ph.B., University of Chicago; M.A., Columbia University; Ph.D., New York University. Emeritus, 1970.
CARL W. McINTOSH (1959) A.B., University of Redlands; M.A., Ph.D., State University of Iowa; LL.D., University of Redlands. Emeritus, 1969.
ERNEST L. MINER (1951) $\qquad$ A.B., M.A., University of Utah; Ph.D., University of Michigan. Emeritus, 1968.

WALLACE H. MOORE (1950) Professor, Education A.B., Davidson College; M.A., Harvard University; M.Ed., Ph.D., Stanford University. Emeritus, 1969.
P. VICTOR PETERSON (1949)

President
ge; M.A., Ph.D., Stanford University. Emeritus, 1959.
A.B., lowa State Teachers College, M.A., Ph.D., Head Catalog Librarian
A.B., B.L.S., University of California; M.A., California State College, Long Beach. Emeritus, 1969.

Associate Dean-Stude
LOIS J. SWANSON (1951) ._. M.a., Mh. Morningside College; M.A., State University of Iowa. Emeritus, 1969.
ROBERT E. VIVIAN (1958) Professor, Engineering; Chairman, Division of Engineering A.B., M.A., University of Southern California; Ph.D., Columbia University; D.Sci., University of Southern California. Dean of Engineering. Emeritus, 1964.
WILLIAM J. WALLACE (1963) A.B., Ph.D., University of California. Emeritus, 1970.

DOROTHY L. WALSH (1956)
B.S., M.A., Teachers College, Columbia University. Emeritus, 1970.
HARRY S. WILDER (1953) University. Emeritus, 1968.
Assistant Professor, Art
AALL, INGRID (1969) Chicago.
AARONS, HERBERT L. (1965)
Assistant Professor, Sociology A.B., M.A., Pennsylvania State.

Test Officer
ABBOTT, WILLIAM P. (1968).
Professor, Anthropology
Professor, Nursing
Professor, English A.B., Seattle Pacific College; M.S.Ed., Ed.D., University of Southern California.

Associa
ABOU-el-HAJ, RIFAAT ALI (1964).
A.B., Washington and Lee University; M.A., Ph.D., Princeton University.
ABRAHAMSE, DOROTHY Z. (1967) Assistant Professor, History A.B., Mount Holyoke College; M.A., Ph.D., University of Michigan.

AFFLACK, RUTH H. (1966)
A.B., M.A., University of California at Santa Barbara.
Assistant Professor, Mathematics

AHLQUIST, IRVING F. (1949)
Ph.D., University of Illinois.
B.S., Wheaton College; M.A., Ph.D., University of Ilinois.

AKONI, ABDULHAMID (1969)
A.B., California State College, Los Angeles.
Assistant Professor, Black Studies

## Faculty

ALBERT, EUGENE (1967)
A.B., M.A., Brooklyn College; Ph.D., University of Virginia.

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) Associate Professor, Biology
A.B., M.A., DePauw University; Ph.D., University of Hawaii.

ALEXANDER, ROBERT L. (1964)
Professor, Civil Engineering
B. Arch., Rensselaer Polytechnic Institute; M.S., Harvard University; D. Engr., University of California.
ALEXANDROV, IGOR (1967)
Assistant Professor, Physics
A.B., M.A., Ph.D., University of California at Los Angeles.

ALFIERI, FRANK J. (1967) $\qquad$ Associate Professor, Biology
B.S., M.Ed., University of California at Davis; Ph.D., University of Wisconsin.

ALI, MOHAMMAD S. (1967) Assistant Professor, Mathematics
B.S., Agra University, India; M.S., Muslim University, India; M.A., Ph.D., University of California at Santa Barbara.
ALLEN, CHARLES A. (1957)
Professor, English
A.B., DePauw University; Ph.D., University of Iowa.

AMENDT, JOHN T. (1957)
Professor, Political Science
B.S., Loyola University, Los Angeles; Ph.D., Georgetown University.

AMES, JOHN H. (1969).
Assistant Professor, Elementary Education A.B., Iowa State Teachers College; M.A., Colorado State University.

AMES, KENNETH J. (1968)
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[^7]:    * May be waived by passing a comprehensive examination in the subject.

[^8]:    335. Quantity Food Production (3) 5 Vanderwarf

    Prerequisite: Home Economics 333. Principles of menu planning, food purchasing and preparation for large groups; cost control. Experience in large quantity food production. (Lecture 2 hours, laboratory 3 hours.)

[^9]:    480. Prevention and Care of Athletic Injuries (2) F, S Arnheim, Gambril

    Prerequisites: Physical Education 437 or equivalent. Prevention and care of athletic injuries (Lecture, laboratory)

[^10]:    * Beginning Fall 1973, Marketing 373 (Marketing Decision Making) will be a prerequisite for Marketing 401, 403, 408, 430, 470, 480.

[^11]:    * Beginning Fall 1973, Marketing 373 (Marketing Decision Making) will be a prerequisite for Marketing 401, 403, 408, 430, 470, 480.

[^12]:    ${ }^{*}$ This major is listed under biological sciences and requires 28 upper division units.
    ** 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.

[^13]:    ${ }^{1}$ 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.

    - 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.
    - 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.
    - 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.

[^14]:    * Since Comparative Literature 325 is the same course as Theatre Arts 325, student can apply only one toward minor requirements.
    ** Since Religious Studies 481 is the same course as History 481, student can apply only one toward minor requirements.

[^15]:    * The student who declares his minor in upper division status may, with consent of the Economics Department, substitute Economics 300 for Economics 200 and 201.

[^16]:    540. Plant Growth and Development
    (3)
    541. Plant Geography (2)
[^17]:    * Waived for any student who scores above the 52 percentile on the English Proficiency Test.

[^18]:    * Waived for any student who scores above 52 percentile on the English Proficiency Test or it 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.
    $\dagger$ Clinical Laboratory Technology, Public Health Microbiology.

[^19]:    * 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 .

