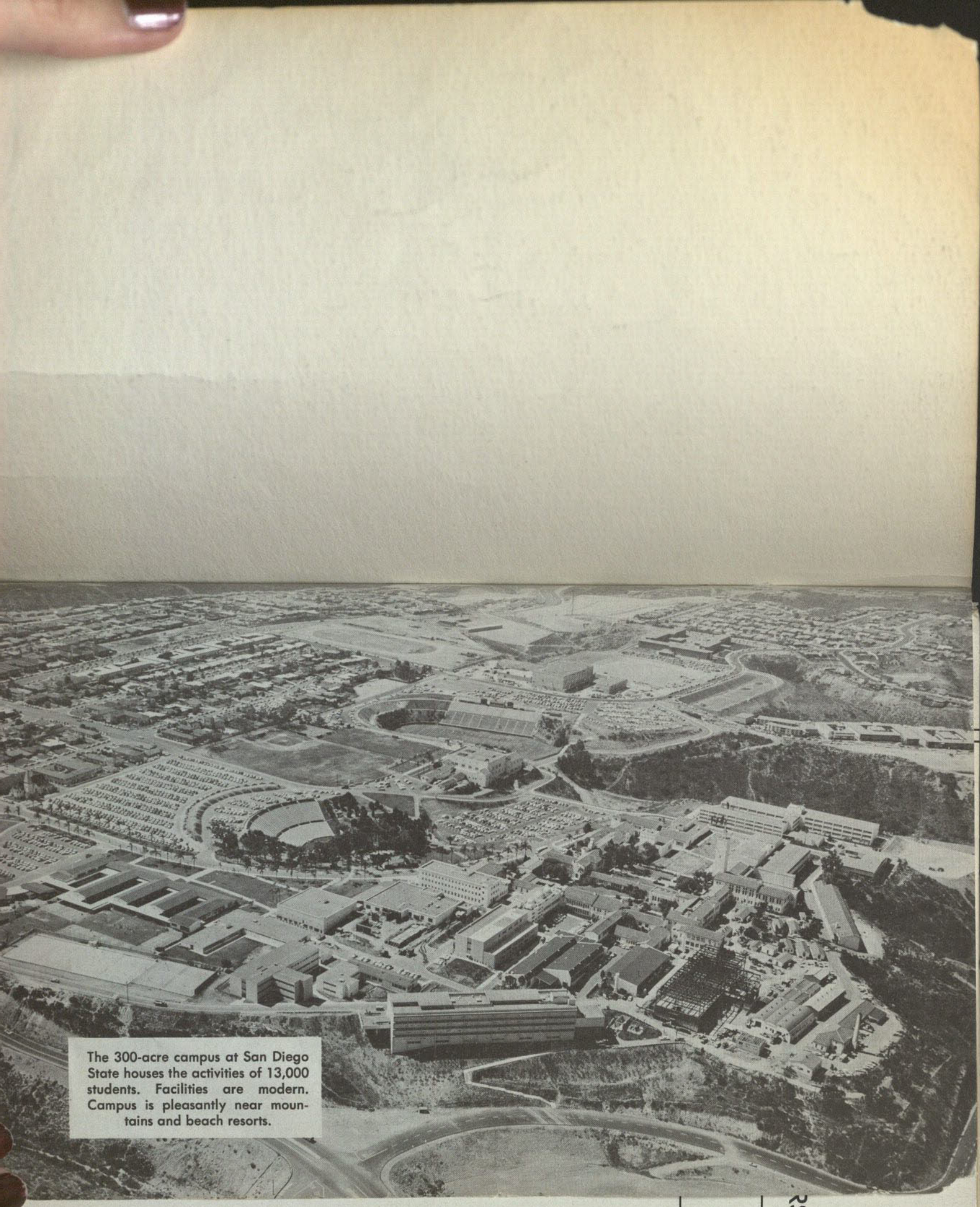
san diego state college

GENERAL CATALOG & ANNOUNCEMENT OF COURSES / 1962 - 1963



The 300-acre campus at San Diego State houses the activities of 13,000 students. Facilities are modern. Campus is pleasantly near mountains and beach resorts.

RSES



▲ Traditional Main Arch where bells sound at commencement time.

A portion of the Main Quad, focal point of between-class activities. ▼



General Catalog

and

ANNOUNCEMENT OF COURSES

VOLUME 49

APRIL 1962

SAN DIEGO STATE COLLEGE

SAN DIEGO, CALIFORNIA



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ORGANIZATION AND ADMINISTRATION

MAP OF THE CAMPUS

TRUSTEES

ADVISORY BOARD

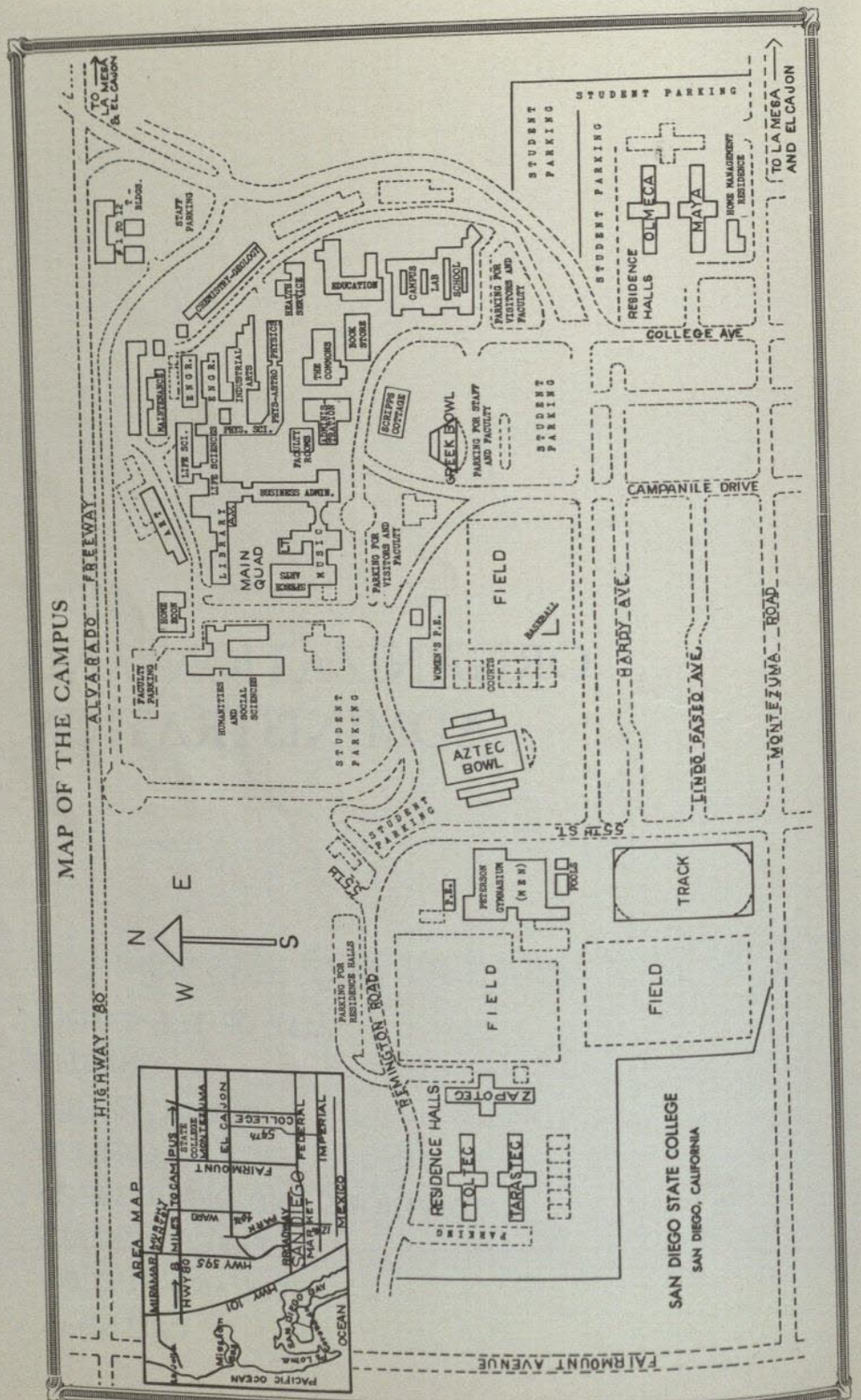
OFFICERS

DIVISIONS AND DEPARTMENTS

RESEARCH BUREAUS

FEES AND TUITION

CALENDAR



STATE COLLEGES
OF CALIFORNIA

Alameda County State College 22300 Foothill Boulevard	Hayward
California Polytechnic College	San Luis Obispo
Kellogg Campus	Pomona
Voorhis Campus	San Dimas
Chico State College First and Normal Streets	Chico
Fresno State College 5421 N. Maple Avenue	Fresno
Bakersfield Residence Center Bakersfield College Campus	Bakersfield
Humboldt State College	Arcata
Long Beach State College 6101 E. Seventh Street	Long Beach
Los Angeles State College of Applied Arts and Sciences 5151 State College Drive	Los Angeles
Orange County State College 800 N. Cypress Avenue	Fullerton
Sacramento State College 6000 J Street	Sacramento
San Diego State College 5402 College Avenue	San Diego
Imperial Valley Campus Highway 111 and Ira Aten Road (P. O. Box 1049, El Centro)	Imperial
San Fernando Valley State College 18111 Nordhoff Street	Northridge
San Francisco State College 1600 Holloway Avenue	San Francisco
San Jose State College 250 S. Fourth Street	San Jose
Sonoma State College 265 College View Drive (temporary location)	Cotati
Stanislaus State College District Fair Grounds (temporary location) (P. O. Box 1000, Turlock)	Turlock

2—58952

TRUSTEES
OF THE CALIFORNIA STATE COLLEGES

ADMINISTRATIVE OFFICE

2930 West Imperial Highway, Inglewood 4, California

Glenn S. Dumke	Chancellor
Don B. Leiffer	Vice Chancellor
John R. Richardson	Vice Chancellor for Business Affairs

TRUSTEES

Governor Edmund G. Brown	Sacramento
Lieutenant Governor Glenn M. Anderson	Sacramento
Roy E. Simpson, Superintendent of Public Instruction	Sacramento
Jesse M. Unruh, Speaker of the Assembly	Sacramento
Louis H. Heilbron, Chairman	San Francisco
Allen J. Sutherland, Vice Chairman	San Diego
Thomas W. Braden	Oceanside
John E. Carr	Newport Beach
William K. Coblentz	San Francisco
Mrs. Phebe Conley	Fresno
Trevor Gardner	Pasadena
Donald M. Hart	Bakersfield
Dan Kimball	Sacramento
Charles I. Luckman	Los Angeles
Theodore Meriam	Chico
Thomas L. Pitts	San Francisco
Daniel H. Ridder	Rolling Hills
Albert J. Ruffo	San Jose
Paul Spencer	San Dimas
E. Guy Warren	Hayward

SAN DIEGO STATE COLLEGE ADVISORY BOARD

Armistead B. Carter, Chairman
Burnet C. Wohlford, Vice Chairman
E. Robert Anderson
Harry E. Callaway
William D. Duflock
Carl M. Esenoff
Frank A. Frye, Jr.
Mrs. E. T. Hale
Mrs. Harley E. Knox
John W. Quimby
Robert J. Sullivan
Orien W. Todd, Jr.
Dr. Harvey J. Urban

Associate Members

Mrs. Waldo K. Lyon, President, San Diego Branch, American Association of University Women

Mrs. Ernest J. Savoy, President, Ninth District, California Congress of Parents and Teachers

Bryant Kearney — President, San Diego State Alumni Association

OFFICERS
OF THE COLLEGE

President Emeritus	Walter R. Hepner
President	Malcolm A. Love
Assistant to the President	Arvid T. Johnson
Vice President	Ernest B. O'Byrne
Publications and Public Relations Manager	Gordon F. Lee
Executive Dean	Darrell Holmes
Administrative Analyst	Marion L. Parker
Building Program Assistant	Clarence B. Cover
Dean of the College	Donald R. Watson
Assistant to the Dean of the College	Alfred E. White
Curriculum Evaluator	John L. Schmidt
Dean of Education and Extended Services	Manfred H. Schrupp
Coordinator of Audio-Visual Services	James S. Kinder
Coordinator of the Evening Program	Glenn L. Hodge
Coordinator of Extended Services	Manville R. Petteys
Coordinator of Summer Sessions	Marvin H. Platz
College Librarian	Louis A. Kenney
Secretary to the Faculty	Maurice L. Crawford
Dean of Students	Herbert C. Peiffer, Jr.
Administrative Assistant	Alan S. Mishne
Dean of Activities	Margery Ann Warmer
Activities Adviser	Jack V. Daugherty
Activities Adviser	Marjorie Wallace
Dean of Admissions and Records	Melvin A. Anderson
Admissions Counselor	June Warren
Registrar	Margaret L. Gilbert
Dean of Counseling and Testing	Donald F. Harder
Test Officer	Herman Roemmich
Coordinator of Counseling	Earl F. Peisner
Director of Health Services	Frank O. Robertson, M.D.
Director of Housing	John M. Yarborough
Placement Officer	William M. Kidwell
Assistant Placement Officer	Dorothe Bonsignore
Assistant Placement Officer	Michael D. Rogers
Graduate Manager	S. Donley Ritchey, Jr.
Business Manager	Selwyn C. Hartigan
Accounting Officer	Donald G. Parker
Administrative Assistant	Carolyn E. Kessler
Equipment and Materials Coordinator	Lois A. Boyd
Housing Manager	Willard W. Trask
Chief of Maintenance	Timothy V. Hallahan
Personnel Officer	Carey D. Folger

COLLEGES, DIVISIONS AND DEPARTMENTS

	Deans and Chairmen
GRADUATE DIVISION	Maurice M. Lemme
Coordinator of Graduate Studies	Clayton M. Gjerde
COLLEGE OF ARTS AND SCIENCES	Sidney L. Gulick
BUSINESS ADMINISTRATION	Charles W. Lamden
Accounting Department	Dale B. Ferrel
Business Education Department	Maurice L. Crawford
Business Law and Finance Department	Don C. Bridenstine
Management Department	Lynn H. Peters
Marketing Department	E. Alan Hale
EDUCATION	Manfred H. Schrupp
Administrative Chairman	George A. Koester
Coordinator of Administrative Studies	Richard A. Houseman
Coordinator of Elementary Education	Francis A. Ballantine
Coordinator of Guidance Studies	David D. Malcolm
Coordinator of Library Science	John Paul Stone
Coordinator of Secondary Education	E. Glen Fulkerson
Coordinator of Special Education	Edna B. Koehn
Coordinator of Summer Sessions	Marvin H. Platz
Principal of Campus Laboratory School	Robert R. Nardelli
ENGINEERING	Martin P. Capp
Professor in Charge of Aerospace Engineering	William H. Shutts
Professor in Charge of Civil Engineering	Sanford H. Stone
Professor in Charge of Electrical and Electronic Engineering	Chester R. Lodge
Professor in Charge of Mechanical Engineering	Charles Morgan
DIVISION OF AIR SCIENCE	Lt. Col. Roy E. Gudith
DIVISION OF THE FINE ARTS	George N. Sorenson
Art Department	Everett Gee Jackson
Home Economics Department	Helen L. Dorris
Music Department	J. Dayton Smith
Speech Arts Department	Don W. Powell
DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION	William L. Terry
Athletics Department	Albert W. Olsen
Health Education Department	Ralph M. Grawunder
Men's Physical Education Department	Paul Governali
Women's Physical Education Department	Margaret Murphy
Recreation Department	Frank L. Scott
DIVISION OF THE HUMANITIES	John R. Adams
English Department	Ernest L. Marchand
Foreign Languages Department	Clifford H. Baker
History Department	John E. Merrill
Philosophy Department	Sherwood M. Nelson

	Deans and Chairmen
DIVISION OF THE LIFE SCIENCES	Robert D. Harwood
Botany Department	Avery H. Gallup
Microbiology Department	Henry A. Walch, Jr.
Nursing Department	Neva E. Nye
Psychology Department	Merle B. Turner
Zoology Department	Ronald W. Crawford
DIVISION OF THE PHYSICAL SCIENCES	Dudley H. Robinson
Astronomy-Physical Science Department	Clifford E. Smith
Chemistry Department	Harold Walba
Geology Department	Blackmore E. Thomas
Industrial Arts Department	Frank J. Irgang
Mathematics Department	Newton B. Smith
Physics Department	John G. Teasdale
DIVISION OF THE SOCIAL SCIENCES	David S. Milne
Economics Department	Adam Gifford
Geography Department	Charles C. Yahr
Journalism Department	James L. Julian
Political Science Department	Robert F. Wilcox
Sociology-Anthropology Department	Aubrey Wendling
Director of Public Administration	W. Richard Bigger

RESEARCH BUREAUS

Bureau of Business and Economic Research	Donald F. Lawson, Director
Bureau of Educational Research	Robert T. Gray, Coordinator
Center for Survey Research	Oscar Kaplan, Director
Institute of Labor Economics	Frederick L. Ryan, Coordinator
Public Affairs Research Institute	W. Richard Bigger, Director Robert F. Wilcox, Associate Director

FEES AND TUITION

FEES PAYABLE AT TIME OF REGISTRATION

Regular students (carrying more than six units):

Materials and service	$38.00
Student activity fee	8.00
Auditors pay same fees as students carrying courses for credit.	
Total required fees	$46.00

Limited students (carrying six units or less):

Materials and service	19.50
Auditors pay same fees as students carrying courses for credit.	

Tuition (in addition to fees required of resident students):

Nonresident student enrolled for 15 units or more	180.00
Nonresident student enrolled for less than 15 units, or fraction thereof (per unit)	12.00
Foreign student (citizen and resident of a foreign country):	
Enrolled for 15 units or more	127.50
Enrolled for less than 15 units, or fraction thereof (per unit)	8.50
For fee-paying purposes, zero unit courses are counted as one unit.	

Parking fees:

Nonreserved spaces:	
Regular students	13.00
Limited students	6.00
Each alternate car in addition to first vehicle	1.00
Two wheeled, self-propelled vehicle:	
Regular student	3.25
Limited student	1.50

MISCELLANEOUS FEES

(Fees payable when service is rendered)

Late registration	5.00
Change of program	1.00
Failure to meet administratively required appointment or time limit	2.00
Transcript of record (first copy free)	1.00
R.O.T.C. deposit (unexpended portion is refundable)	10.00
Check returned for any cause	2.00
Studio lesson, per lesson per student	1.00 to 6.00
Current fee per semester (15 40-minute lessons)	75.00
Organ practice	10.00
Loss or damage of equipment and library books	Cost
State teaching credentials (each credential)	8.00

REGULAR SESSION FEE REFUNDS

Materials and service fees:

To be eligible for partial refunds of materials and service fees, a student withdrawing from college must file an application with the Business Office not later than 14 days following the day of the term when instruction begins: and provided, further, that the amount of $2 shall be retained to cover the cost of registration.

Nonresident tuition:

Tuition paid for a course scheduled to continue for an entire semester may be refunded in accordance with the following schedule if application therefor is received by the Business Office within the following time limits:

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

Parking fee:

This schedule of refunds refers to calendar days, commencing on the date of the term when instruction begins:

Nonreserved space per semester:

Period	*Amount of refund*
1-30 days	75 percent of fee
31-60 days	50 percent of fee
61-90 days	25 percent of fee
91-end of term	None

The late registration fee is not refundable.

The Business Office should be consulted for further refund details.

SUMMER SESSION FEES

Tuition, each session	(per unit)	$11.50
Activity fee (required):		
Term I		2.00
Parking fees:		
Nonreserved spaces:		
Six-week session		5.00
Other sessions of one week or more	(per week)	1.00

EXTENSION COURSE FEES

Lecture or discussion course	(per unit)	10.00
Activity course	(per unit)	13.00
Science laboratory course	(per unit)	20.00

EXEMPTIONS

Students under Public Law 16, 346, 894, California state veteran, or state rehabilitation programs will have fees paid for tuition and materials and service under provisions of these respective programs.

VETERAN ALLOWANCES

Allowances for subsistence begin on the date the Business Office clears for payment of fees, or effective date of VA authorization, whichever is later, except that veterans clearing the Business Office on the regular registration days will be certified for subsistence beginning with the first day of the registration schedule.

FEES SUBJECT TO CHANGE

Fees are subject to change by law without advance notice.

ANNUAL CALENDAR

1962

JANUARY

S	M	T	W	T	F	S
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FEBRUARY

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MARCH

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APRIL

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MAY

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AUGUST

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OCTOBER

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DECEMBER

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1963

JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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DECEMBER

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1962-1963 ACADEMIC CALENDAR

SUMMER SESSIONS, 1962

June 11-22	Intersession (2 weeks).
June 25-August 3	Term I summer session (6 weeks).
August 6-24	Term II summer session (3 weeks).

FALL SEMESTER, 1962

August 1	Last day for undergraduates to file application for admission to fall semester.
August 15	Last day for graduates to file application for admission to fall semester.
July 7, August 4 or 18 (or again on September 10 for transfer students only)	Admissions tests for fall semester for entering freshmen and transfer students: College aptitude test for all students; writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to college.
September 7	General Culture test, for transfer students entering secondary education, 8.30 a.m.-12 noon. Offered again September 29.
September 8	Fundamentals test, for transfer students entering elementary or kindergarten-primary education, 8.30 a.m.-12 noon.
September 10	Opening date of the academic year.
September 10-14	Testing, advising, residency clearance, and registration week.
September 11	Mathematics placement tests, 8 a.m.-1 p.m., for students planning to enroll in Math. 3, 4, 21, 22, 40, 50; or Economics 2.
September 12-14	Registration, payment of fees, advising, and enrollment in classes.
September 15	Evening Program registration. Consult the schedule in the Evening Program Bulletin for complete information.
September 17	First day of classes.
September 18	File applications for admission to teacher education. Assembly, 11 a.m.
September 20	Fundamentals test, 1.30-5 p.m.
September 29	General Culture test, 8-11 a.m.
October 1	Last day to apply for refunds.
October 5	Last day for withdrawal from class without penalty for unsatisfactory work.
October 5	Last day to file application for mid-year graduation.
November 3	End of seventh week of classes. Deficiency notices due.
November 12	Holiday—Veterans' Day.
November 16	Last day for withdrawal from class or change of program.
November 22-24	Thanksgiving recess.
November 30	Last day to file application for June and summer graduation.
December 8 or January 5	Admissions tests for spring semester for entering freshmen and transfer students. 8.15 a.m.-12 noon, or 1.15-5 p.m. College aptitude test for all students; writing competency test for students transferring with 45 units or more.
December 15	Last day of classes before Christmas recess.
December 17-January 1	Christmas recess.
January 2	Classes resume.
January 2	Last day for a complete withdrawal from college.
January 15	Last day of classes before final examinations.
January 16	First day of final examinations.
January 25	Last day of the fall semester.

SPRING SEMESTER, 1963

January 2	Last day for undergraduates to file application for admission to spring semester.
January 15	Last day for graduates to file application for admission to spring semester.
December 8 or January 5 (or again on January 28 for transfer students only)	Admissions tests for spring semester for entering freshmen and transfer students: College aptitude test for all students; writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to college.
January 23	Fundamentals test, for transfer students entering elementary or kindergarten-primary education, 8.30 a.m.-12 noon.
January 28-February 1	Testing, advising, residency clearance, and registration week.
January 28	Mathematics placement tests, 8 a.m.-1 p.m., for students planning to enroll in Math 3, 4, 21, 22, 40, 50; or Economics 2.
January 28	First day, second semester, academic year.
January 29	General Culture test, for transfer students entering secondary education, 8.30 a.m.-12 noon. Offered again March 9.
January 30-February 1	Registration, payment of fees, advising, and enrollment in classes.
February 2	Evening Program registration. Consult the schedule in the Evening Program Bulletin for complete information.
February 4	First day of classes.
February 5	File applications for admission to teacher education. Assembly, 11 a.m.
February 7	Fundamentals test, 1.30-5 p.m.
February 12	Holiday—Lincoln's birthday.
February 19	Last day to apply for refunds.
February 21	Last day for withdrawal from class without penalty for unsatisfactory work.
February 22	Holiday—Washington's birthday.
March 9	General Culture test, for graduates and students entering secondary education, 8-11 a.m.
March 23	End of seventh week of classes. Deficiency notices due.
April 5	Last day for withdrawal from class or change of program.
April 6	Last day of classes before spring recess.
April 8-13	Spring recess.
April 15	Classes resume.
April 27	
May 4 or 11	Admissions tests for fall semester for entering freshmen and transfer students: College aptitude test for all students; writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to college.
May 5	San Diego State College Founders' Day.
May 13	Last day for a complete withdrawal from college.
May 27	Last day of classes before final examinations.
May 28	First day of final examinations.
May 30	Holiday—Memorial Day.
June 2	Baccalaureate services.
June 7	Commencement. Last day of the spring semester.

SUMMER SESSIONS, 1963

June 10-21	Intersession (2 weeks).
June 24-August 2	Term I summer session (6 weeks).
August 5-23	Term II summer session (3 weeks).

THE COLLEGE

THE COLLEGE
PROGRAMS AND FACILITIES
STUDENT SERVICES AND ACTIVITIES

THE COLLEGE

FUNCTIONS OF THE COLLEGE

The primary function of the California state colleges is the provision of instruction for undergraduate students and graduate students, through the bachelor's and master's degrees, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession. The doctoral degree may be awarded jointly with the University of California.

San Diego State defines these functions as follows:

1. To aid the student to develop his powers of critical, independent thought and to become aware of the main streams of our Nation's cultural, social, and scientific traditions.

2. To inform the student of the political ideas and ideals that have built our Democracy and to stimulate in him an interest in participation in civic life.

3. To equip young men and women with the knowledge and skills necessary to meet the needs of California and the Nation for competence and leadership in a number of vocational and professional fields.

To achieve these purposes San Diego State College has developed and is improving offerings as follows:

1. Student personnel services to assist the individual student to plan his educational program and to make reasonable progress toward the attainment of immediate and long range goals.

2. General and liberal education for students who take work which leads toward the bachelor's degree or to the higher professions through graduate work.

3. Undergraduate and graduate curricula in teacher education for those students who plan to teach, supervise or administer at all levels in California's public schools.

4. Preprofessional curricula for fields such as medicine, dentistry, theology, and law.

5. Four-year curricula in such fields as business, industry, governmental services, homemaking, and social service.

6. Extension courses in appropriate fields.

7. Courses at the graduate level designed to lead to the M.A. and M.S. degrees in a variety of fields and to the doctor's degree soon to be issued jointly with the University of California.

THE COLLEGE

San Diego State College is one of 15 publicly supported state colleges administered by the Trustees of the State Colleges of California. A chancellor is the chief administrative officer for all the colleges, each individual college having its own president.

San Diego State was founded in 1897, opening as the two-year San Diego Normal School under a local board of trustees. It became the four-year San Diego State Teacher's College in 1921 under the State Board of Education, and in 1935 the liberal arts San Diego State College.

During the first year of its existence, the college, with a faculty of seven and a student enrollment of 91, occupied temporary quarters in downtown San Diego. The following year it moved to a new campus on University Heights in a central area of the city. By 1931, growth of the college made necessary another move, this time to its permanent campus of several hundred acres in the eastern part of San Diego.

LOCATION AND BUILDINGS

The campus is situated 12 miles from beach resorts and within a short drive of mountain and desert recreational sites. It lies one mile north of the city's principal east-west thoroughfare, El Cajon Boulevard, and just south of Highway 80, on College Avenue.

The original group of buildings to be erected on the campus is of Spanish colonial architecture, so characteristic of early California. Campus traditions reflect this culture and that of the earlier Aztecs south of the border. The students call themselves The Aztecs; their yearbook is *Del Sudoeste*; their newspaper, *The Aztec*; and they live on Montezuma Mesa, where a black marble statue of the great Aztec chief, Montezuma, stands in The Quad as their guardian of the red and black.

During its recent years of explosive growth, San Diego State has enjoyed the support of a community alert to its educational needs. To serve the rapidly expanding student population, which now numbers well over 12,000, many new buildings of modern design have been added. The institution now has classrooms, laboratories, and other facilities covering a million and a quarter square feet. Buildings include the following: Administration, Business Administration, Chemistry-Geology, Campus Laboratory School, Education, Engineering, Fine Arts, Home Economics, Home Management Residence, Humanities-Social Sciences, Industrial Arts, Library, Life Sciences, Little Theatre, Music, Peterson Gymnasium (men), Physics, Physics-Astronomy, Physical Education, Physical Sciences, Speech Arts, Women's Physical Education, The Commons (cafeteria), Aztec Shops Bookstore, and Health Service; also included are the Greek Bowl, Track Field, Aztec Bowl (stadium), Scripps Cottage (student lounge and outdoor recreational center), and a faculty lounge and cafeteria.

ENVIRONMENT

In the San Diego area are many cultural opportunities for the study of art, music, literature, and science. Many of these advantages are to be found as the heritage resulting from the expositions of 1915-1916 and 1935-1936, including the buildings themselves in Balboa Park, which portray the best types of Spanish colonial art and architecture. Housed in these buildings are the Fine Arts Gallery, the Museum of Man with its exhibits in anthropology, natural history and American archaeology, and the Old Globe Theatre, renowned not only as an architectural likeness of the Shakespearian counterpart, but also for the excellence of its productions in contemporary drama and the annual Summer Shakespearian Festival. Noteworthy are the Outdoor Organ, horticultural gardens, and Balboa Bowl, locale for the Starlight Opera and Summer Symphony. Also in Balboa Park and unsurpassed in its natural setting is the world-famous San Diego Zoo with its latest and most delightful feature, the Children's Zoo.

Scripps Institution of Oceanography at La Jolla, which is part of the University of California at San Diego, offers in the biological sciences opportunity for cooperative studies; in the physical sciences, the new graduate school of Science and Engineering of this same institution provides outstanding facilities to complement those already existing locally in the Naval Electronics Laboratory and the great aeronautical and missile industries. Other institutions located in this area include three junior colleges, San Diego City College, which from 1921 to 1947 was part of State College, Grossmont College, and Southwestern College; California Western University (Protestant) at Point Lima, with a liberal arts program and a School of Law; and the University of San Diego (Catholic) at Alcala Park, with its College for Men, College for Women, and School of Law.

FACULTY

The college faculty numbers over 650 members who have received their advanced training in over 100 colleges and universities of the United States or foreign countries. The faculty is distinguished not only in terms of formal education, but also represents a wide variety of practical experience in business, industry, and the teaching profession. Both past and recent contributions to publications and research are extensive and impressive. For listings and further details see the directory.

ACCREDITATION

San Diego State College is a member of the Western College Association and the American Association of Colleges for Teacher Education. It is fully accredited by the Western College Association, the National Council for Accreditation of Teacher Education, the California State Board of Education, and is approved by the Veterans Administration for the education and training of veterans.

DEGREES AND CERTIFICATES

Degrees

Bachelor of Arts
Bachelor of Science
Bachelor of Education
(or Vocational Education)
Master of Arts
Master of Science

Certificates (nondegree)

Certificate in Public Administration

Offered in Extension Program

Certificate in Industrial Management
Certificate in Office Management

TYPES OF CURRICULA OFFERED

San Diego State offers the following types of curricula:

UNDERGRADUATE CURRICULA. Undergraduate curricula provide the following opportunities for study:

(1) The General Programs, in which are offered curricula in the sciences and applied arts leading to the bachelor of science or bachelor of arts degree; also pre-professional and certificate (nondegree programs).

(2) The College of Arts and Sciences, which offers curricula in the academic major fields leading to the bachelor of arts degree in liberal arts and sciences.

(3) Professional Curricula, which are available in the following areas: Business Administration, leading to the bachelor of science degree in any of nine major fields; Engineering, leading to the bachelor of science degree in engineering with an option for specialization in any of four fields; and Education, leading to the bachelor of arts or bachelor of education degree and to teaching credentials at all school levels.

GRADUATE CURRICULA. The Graduate Division offers curricula leading to the master of arts or master of science degree. The doctoral degree may soon be awarded jointly with the University of California.

ACADEMIC YEAR

San Diego State operates on the semester plan. The academic year, which consists of two semesters of 18 weeks each, begins in September and ends in June. The academic year is defined in the State Administrative Code, Chapter 5, Section 42800, as follows: "The beginning date of the academic year of the college shall be Monday of the week preceding the week that class instruction is scheduled to begin in the regular fall session, and the ending date shall be the second calendar day following the last day that final examinations are regularly scheduled for the following spring semester." Dates for the current academic year are carried in the calendar in this catalog.

PUBLICATIONS

The *General Catalog*, which is published annually in March, may be obtained free of charge by writing to the Registrar. The catalog carries information on

admissions, fees and tuition, programs and degrees, courses, scholarships, residence halls, student services and activities, and a faculty directory.

The *Graduate Bulletin*, issued in April of each year, is available without cost to the applicant upon request made to the Graduate Office. The bulletin gives complete information on all graduate programs.

The *Summer Sessions Bulletin*, issued each March, carries information on the ensuing summer terms. The bulletin includes an application form, information on admission and registration, fees, living accommodations in residence halls, courses, institutes, workshops, study tours, and recreational opportunities during the summer in San Diego. Write to the Summer Sessions Office for a free bulletin.

The *Campus Evening Program Bulletin* and the *Extension Courses Bulletin* are issued prior to each semester by the Office of Extended Services. These bulletins give information on courses and programs to be offered in the next semester. They will be mailed upon request without charge by the Office of Extended Services.

For a *Bulletin of the Imperial Valley Campus*, write to the Director, Imperial Valley Campus, P.O. Box 1049, El Centro, California. This bulletin carries information on admissions, courses, and programs. It is available prior to the opening of each semester and will be mailed free of charge upon request.

The *Class Schedule and Instructions for Registration* is published prior to the opening of each semester and may be purchased at the Aztec Shops Bookstore on the campus. The current price is 25¢, subject to change. An additional charge of ten cents is made for mailing. Address requests to the Bookstore.

The *Aztec*, a student newspaper, is issued four times a week in regular semesters and once a week in Term I Summer Session. The cost of the paper is included in the student activity fee. *Del Sudoeste*, the campus yearbook, is published at the close of the spring semester. It is sold at the Bookstore or may be obtained at a reduced price when ordered in advance. A *Student Handbook* is published at the beginning of the academic year and is distributed free of charge to new students at time of registration or may be obtained from the Office of the Dean of Activities. It contains information on scholastic and social life, services offered, customs of the college, and other material designed to encourage the student to participate fully in the life of the college. The *Alumni Quarterly* is published by the Alumni Association and distributed to its members.

Special bulletins and brochures are issued at irregular intervals by the various divisions and offices of the college. Information on these special publications which may be currently available may be obtained by writing to the Office of Publications and Public Relations.

SPECIAL PROGRAMS
AND FACILITIES

SPECIAL PROGRAMS

In addition to the undergraduate and graduate programs available on the campus during the regular sessions, the following special programs, designed to meet the needs of special groups of students, are also offered: The Imperial Valley Campus program, Campus Evening Program, Summer Sessions, Extension Courses Program, Teacher Education, and Veterans' Education.

IMPERIAL VALLEY CAMPUS

LOCATION AND FUNCTIONS

The Imperial Valley Campus of San Diego State is located at the corner of State Highway 111 and Ira Aten Road, approximately six miles east of El Centro, California. The campus was established in September, 1959, as one of several off-campus centers authorized for the state colleges of California. The program at this campus is an integral part of San Diego State and is under the direction of the Dean of Education and Extended Services. The program includes the recommended program of courses leading to the A.B. or B.E. degree with a major in elementary education and the general elementary and/or kindergarten-primary credential. The Imperial Valley Campus also assists in the administration of extension courses for the Southeastern California area when courses are offered in subjects other than elementary education. Counseling, testing, and admission of students are provided by the Director and a full-time and part-time instructional staff. The campus operates only from September until June, covering the time when climatic living conditions of the desert are at their best.

PROGRAM

The program is restricted to upper division courses applicable to the degrees and credentials offered and is designed to serve the needs of the following: (1) persons not now teaching, but who would like to complete requirements for a bachelor's degree and a general elementary credential, (2) junior college graduates, (3) transfer students who have completed two or more years of college work, (4) inservice teachers holding provisional credentials who desire to become fully credentialed, and (5) college graduates who wish to complete the requirements for a regular general elementary credential. Effective July 1, 1963, the campus will modify their offerings to conform with the new requirements for teaching credentials in California.

Available to students needing certain lower division college work in connection with their work at this campus is the Imperial Valley College, a public junior college offering the first two years of college work.

In addition to the regular student teaching program, the Imperial Valley Campus, through the cooperation of the Imperial County Superintendent of Schools and participating school districts, offers an Intern Teacher Program leading to the degree and credential. Under this program qualified students are selected to participate in a combination teaching-college situation for which they receive college credit and three-fourths salary. Information on admission, registration, programs, and classes may be obtained by writing the Director, Imperial Valley Campus, P.O. Box 1049, El Centro, California. Telephone Elgin 2-5872 or Flanders 5-2322.

OFFICES AND CLASSROOMS

The Imperial Valley Campus is located on the new campus of the Imperial Valley College, a public junior college. All buildings, including offices and classrooms, are equipped with refrigeration air conditioning.

FACULTY

The full-time faculty members and many of the part-time faculty are regular members of the San Diego State instructional staff. This group is augmented by part-time faculty selected from qualified and competent Imperial Valley educators.

LIBRARY

The Imperial Valley Campus library is housed separately on the new campus site. It contains over 6000 books, 1500 pamphlets, and 65 periodicals. Books and reference materials are also available to students and faculty from the Imperial Valley College library which is also located on the campus. Additional loan privileges are available to students through the State College library in San Diego, the Imperial County public libraries, school libraries, and the Imperial County Schools Curriculum Library.

AUDIO-VISUAL EQUIPMENT

A basic collection of audio-visual equipment is available for classroom use. Films and other instructional materials are available to the staff and students through the Audio-Visual Department of the Imperial County Education Center. Additional materials and films are also obtained from the San Diego State Audio-Visual Services. Films may also be rented from outside sources as needed.

STUDENT CENTER AND BOOKSTORE

Food services are available at the new student center building on the campus. Books and other materials may be purchased at the Imperial Valley College Bookstore.

PLACEMENT AND EMPLOYMENT

The college provides a centralized placement service in cooperation with the Division of Education. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Staff members maintain contact with schools for teacher placement.

FINANCIAL ASSISTANCE

Loans and scholarships available at San Diego State and the Imperial Valley Loan Fund are described in the back of this catalog. Consideration is usually given to students on the basis of scholastic attainment, financial need, character, and promise. National Defense Education Act Loans are also available, as well as the usual various veteran benefits.

SAN DIEGO CAMPUS EVENING PROGRAM

In order to meet the needs of adults in the community for work on the college level, the Campus Evening Program offers some courses in the late afternoon and evening. These include both undergraduate and graduate courses and carry full college residence credit. Classes offered under this program are part of the regular college offerings and are taught by faculty of the college, but moved to a late afternoon or evening hour to permit in-service teachers, public service personnel, businessmen, and others to attend.

Students enrolling under this program must be fully matriculated students who have met all admission requirements of the college, including the filing of an official application for admission, the filing of complete official transcripts from other schools and colleges, and in the case of undergraduates, the completion of required tests for admission. A special *Campus Evening Program Bulletin* describing the current offerings, eligibility for admission, and procedures for registration is issued each semester and may be obtained upon request from the Extended Services Office. Applications of new undergraduate students for admission to the college must be filed with the Office of Admissions at least six weeks prior to the beginning of a semester.

SUMMER SESSIONS PROGRAM

San Diego State conducts an intersession and two summer sessions which offer credit applicable to graduation and residence requirements. During the Intersession of one or two weeks, from one to two units of credit may be earned; during the six-week Term I Summer Session, six units of academic credit may be earned; and during the three-week Term II Summer Session, three units may be earned. The tuition fee for summer session work is based upon cost per semester unit. (Refer to the section of this catalog on Fees and Tuition for information on fees.) Information concerning course offerings, special workshops, and requirements for admission may be obtained by communicating with the Summer Sessions Office. A *Summer Sessions Bulletin* is available during the month of March and will be mailed free of charge upon request.

EXTENSION COURSES PROGRAM

In order to serve more adequately the needs of the community, the college cooperates with off-campus organizations and groups in arranging extension classes in response to expressed needs when the group is sufficiently large to finance the instruction. Offerings are made each semester in a number of departments including education, business administration, and the arts and sciences. Classes may be organized at various points within San Diego and Imperial Counties. A minimum of 15 to 20 students is usually required in order to establish a class. The usual class carries three units of credit and meets once a week, either in the late afternoon or evening. These courses are listed in a special *Extension Courses Bulletin* published each semester. Refer to the section of this catalog on Fees and Tuition for information on fees.

For limitations on extension credit, see the section of this catalog on Credit for Extension Courses. Refer to the index for page number. For information on organization of classes, current offerings, and eligibility for registration, communicate with the Extended Services Office.

TEACHER EDUCATION PROGRAM

The college maintains a modern elementary school on the campus where it has developed an extensive program for the education of elementary school teachers. The classroom-laboratory plan which calls for the use of workrooms, the library, and shops, affords unusual opportunities for the induction of students into teaching. By arrangement with the San Diego city and county schools, observation, participation, and directed teaching are provided in the elementary and secondary schools and in the junior college.

VETERANS' EDUCATION

The college has been approved by various accrediting agencies to offer courses for veterans leading to the baccalaureate in numerous fields and to the master's degree and various teaching credentials. In connection with the Personnel Services Center, a veterans' office is maintained on the campus to facilitate registration, aid in the establishment of benefits, afford special counseling services, and serve as an information center.

FACILITIES

LIBRARY FACILITIES

The library facilities of the college are noteworthy, consisting of over 226,000 volumes and 2,200 different periodical subscriptions selected to meet the requirements of a modern educational institution. These are housed in library buildings with 12,000 square feet of floor space capable of seating 2,500 readers. Professionally trained librarians render assistance to students and faculty in their reading and reference work.

The Campus Laboratory School library, a collection of 20,000 volumes, with its equipment and building facilities, makes a valuable contribution to the teacher education program.

SPEECH CORRECTION CLINIC

A speech and hearing clinic in which college students are trained in the application of speech correction techniques, audiometry, and language development for the hard of hearing and deaf is held throughout the school year. The clinic admits those with speech and hearing problems, ages three to adult. Because of limitations in staff, not all who apply can be admitted. Cost of materials not to exceed $1 must be met by parent or individual concerned. Parents who enroll a child in the clinic must also themselves enroll in the extension course, Speech Arts X-175, The Role of Parents in Problems of Speech Correction (2 units).

RESIDENCE HALLS

Available to single men and women students are five fireproof, brick, three-story residence halls. These buildings are constructed of heavy masonry inner walls, solid doors, acoustical tile ceilings; all factors that keep noise to a minimum. Air conditioning throughout the entire building and individual thermostats in student rooms, coupled with pleasant colors and comfortable furniture, provide a harmonious area conducive to a most efficient type of studying. Requests for roommates, if desired in double rooms, will be honored. To insure a reservation in the residence halls, applications should be sent to the office of the Director of Housing, San Diego State.

Meals for all residence hall students are provided and required in the college cafeteria with the exception of those students twenty-one years of age or over who may wish to have room only. Meals are not served, however, during the Christmas recess, the Easter recess, or the recess between semesters. Only two meals are served on Saturday and Sunday.

For 1962-1963 the total charge per student per semester for campus board and room will be approximately $378, payable a semester in advance or on an installment plan that entails a $6 service charge. Parking and health service benefits, including hospitalization, are included in this total. An additional $20 security deposit is refundable at the close of the college year.

A waiting list for students seeking residence hall assignments is maintained in the office of the Director of Housing. A deposit of $65 is required at the time of official application and is refundable to a period not later than 30 days before the first day of college registration for the ensuing term.

The college reserves the right to require that unmarried men and women students under the age of 21 who are not living with a parent or guardian occupy campus residence halls or other college approved dwellings. All unmarried minor freshman students not living with a parent or guardian may be required to reside in the college residence halls or other approved off-campus housing facilities.

HOUSING, TRANSPORTATION, AND PARKING FACILITIES

Housing. San Diego State is situated in a residential district of small homes and apartment houses. The campus is about 10 miles east of the downtown central business section of San Diego and from four to seven miles west of the cities of La Mesa and El Cajon. Information on housing facilities may be obtained from the Director of Housing, San Diego State.

Transportation. Bus line transportation to the college, connecting with all areas of the metropolitan area, is available daily, except Sundays and holidays. Route S operates north-south on College Avenue, between the campus and the College Grove Shopping Center at Ryan Road. Transfer points for connecting east-west bus lines are at El Cajon Boulevard with Route E, at University Avenue with Route 7, and at Streamview Drive with Route 5.

Parking. Parking areas are provided on the campus for visitors, students, faculty and staff. Refer to the map of the college campus for location of parking areas and to the section of the catalog on Fees and Tuition for information on parking fees. An information booth is located in the Administration Building.

STUDENT SERVICES
AND ACTIVITIES

PERSONNEL SERVICES CENTER

The Personnel Services Center is made up of the Student Counseling Office, Test Office, and Veterans Office. The function of the Center is to help students gain the greatest benefit from their college experience through counseling, testing, and related personnel services. A staff of counselors is available to students who wish help in the solution of problems of a personal, social, academic, or occupational nature.

The program of student advising is coordinated through the Center. Students wishing to set up general majors or to change from one major to another do so in the Personnel Services Center.

HEALTH SERVICE

As a part of the program of student personnel services, the college provides health services for the protection and maintenance of student health. These health services are administered under the direction of a physician who is assisted by several part-time physician specialists and a full-time staff, and are available to the students when school is in regular session for consultation, treatment of minor physical difficulties, emergencies, and counsel as to additional proper procedures. Full-time nurses are also on duty when school is in regular session. During the weeks the college is in session, students may arrange appointments with specialists during the hours these specialists are available at the Student Health Service. A student must be currently enrolled for seven or more units of credit to be eligible for other than emergency treatment.

As part of the regular admission procedure, a health statement is required of each student. A form is furnished prior to registration for the purpose of recording the results of a physical examination done by the student's private physician. The physical examination is important as it serves as an aid in compiling a complete health record. Careful attention is given to students undergoing private remedial treatment and those for whom a modification of study load or limited participation in physical activities seems advisable. A follow-up procedure is in effect for the student who has been urged to consult his family physician for correction of defects discovered during the examination.

Current physical examinations are required and provided for all teacher education students at the time of admission to and graduation from the various educational credential programs. Physical examinations are conducted by the Health Service for only those credential candidates who are applying for a credential through the college, screened by the college. Physical examinations are also required before students are authorized to participate in the organized programs of intramural recreation or intercollegiate athletics.

A student health insurance program, available to those who carry seven or more units, is currently in effect. This insurance, which gives coverage for hospitalization and specified medical services for a six-month period, may be purchased at the time of registration. The insurance policy for the second six-month period covers the summer months for those students who continue in the succeeding fall program. Refunds on a prorated basis may be made to those students who are graduating seniors, or to those individuals who drop out of school during the period covered by the insurance policy.

PLACEMENT CENTER

The college provides a centralized placement service in cooperation with the various departments of the college. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Liaison is maintained with the Personnel Services Center on matters relating to senior vocational counseling. Staff members maintain constant contact with schools, businesses, and industries. Seniors and graduate students should contact the Placement Center early in the year in which they expect to receive degrees or credentials.

Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week. Students are strongly advised to take this into consideration before accepting any part-time job.

STATE VOCATIONAL REHABILITATION

Assistance to certain students having physical handicaps or limitations may be available through the Bureau of Vocational Rehabilitation, California State Department of Education. Services available include diagnosis, counseling and guidance, psychological testing, provision of fees, books, and supplies, subsistence and transportation allowances. Restoration services to reduce or remove disabilities may also be provided and can include medical and psychiatric treatment, artificial appliances, hospitalization and allied therapies. Applicants must be residents of California for one year and have a significant disability which interferes with employment. Information is obtainable through the Dean of Counseling and Testing or at the agency offices, 520 E Street, San Diego.

IMPROVEMENT OF WRITING COMPETENCY

Standard English, free from flagrant errors in grammar and spelling, is required on written assignments throughout the college. To help students attain a reasonable proficiency, the English Department offers several courses in composition, beginning with the freshman year. Additional assistance is provided by the Reading-Writing Improvement Center. Passing of the Writing Competency test or satisfactory completion of designated courses or remedial programs is a requirement for graduation. This program is under the supervision of the College Committee on English.

READING AND WRITING LABORATORIES

A Reading Laboratory and a Writing Laboratory are maintained by the English Department. These laboratories offer a semitutorial service to those wishing to improve reading or writing ability, or secure individual help with study problems or writing projects, either remedial or advanced. The service is open to all students at any level of college work. To obtain this service the student enrolls in the laboratory in the same manner as he does in any course. The laboratory course carries no college credit.

STUDENT ACTIVITIES PROGRAM

A rich field of extracurricular activities is made possible through the Associated Students. The *Student Handbook*, available at the time of registration, gives information concerning the nature and scope of these opportunities. During the past college year, six service organizations, 13 national honorary societies, five national professional fraternities, one local organization, 40 departmental organizations, 14 national social fraternities, 11 national sororities, eight national recognition societies, seven recreational organizations, 15 religious organizations, and 14 special interest

organizations were officially recognized on the campus. Full programs of intercollegiate athletics, music, newspaper and magazine production, radio, TV and theater production are maintained. Inquiries regarding fraternity or sorority rushing should be addressed to the Inter-fraternity Council or to Panhellenic, San Diego State College. Students are urged to select extracurricular activities carefully in order to receive optimum benefit from group experiences and to maintain continuous records of good scholarship.

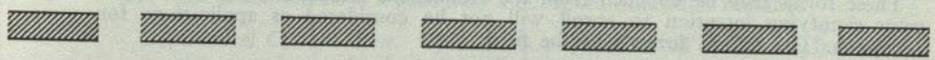
ALUMNI ASSOCIATION

The Alumni Association of San Diego State has as its major purpose the continuation of interests by students, faculty, and the community in the college. Working cooperatively with appointed committees, the association participates in Homecoming and Founders Week as well as other campus events. The official publication of the association is the *Alumni Quarterly* which distributes to its members important news relating to the expanding college scene. Information regarding alumni affairs may be secured from the office of the Dean of Students. Membership in the Alumni Association is open to former students of the college who were in regular attendance for one or more semesters. Membership is also open to past or present members of the faculty.

LOANS AND SCHOLARSHIPS

Loans and scholarships available at San Diego State are described in the section of this catalog on Addenda.

ADMISSION AND REGISTRATION



ADMISSION
REGISTRATION

ADMISSION

ADMISSION REQUIREMENTS

Admission requirements for the California State Colleges are stated in the California Administrative Code, Chapter 5, California State Colleges. These regulations are presented below.

APPLICATION FOR ADMISSION

FILING OF APPLICATIONS

Deadline for Filing Application. An application for admission to the college may be filed during the semester preceding the one in which the applicant expects to enroll. The last dates for filing applications are as follows:

For fall semester:

August 1 for undergraduate students.
August 15 for graduate students.

For spring semester:

January 2 for undergraduate students.
January 15 for graduate students.

Required Official Forms. The following official forms must be submitted to the Admissions Office:

(1) Application for admission (or readmission)

(2) Health history record

These forms may be obtained from the Admissions Office. Letters from applicants signifying intention to enroll will not be considered as applications for admission. The official forms must be filed.

FILING OF RECORDS

File Official Transcripts. The applicant must file the following official transcripts with the Admissions Office:

(1) Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution).

(2) Transcripts from EACH college attended (including extension, correspondence, summer session, or evening courses). Graduate students must file transcripts IN DUPLICATE, if they plan to enter the master's degree program.

(3) Photostat or true copy of the military separation form DD-214 (or equivalent) if applicant has had active military service. (Not required of graduate students.)

An official transcript is one sent directly between schools. The applicant must request the school or college to send the transcript to the Admissions Office, San Diego State College. All records or transcripts received by the college become the property of the college and *will not be released nor will copies be made.*

COMPLETION OF REQUIRED TESTS

Admissions Tests.

(1) *College Aptitude Test.* This test is required before registration of all entering freshmen and transfer students. Freshmen must complete the test before a notice of admission will be sent. Applicants who have previously taken this test for admission to this college need not take the test again. Applicant may obtain a test reservation card at the Admissions Office and must file the card at least one week before the date of the test. Refer to the calendar in this catalog for test dates.

(2) *Writing Competency Test.* This test must be taken before registration by all undergraduate students transferring to this college with 45 units or more of advanced standing. Passing this test or satisfactory completion of designated courses or remedial programs is a graduation requirement for all students. Since this test is scheduled to be given at the same time as the college aptitude test, a separate reservation for the test need not be made.

(3) *English Test for Foreign Students.* For admission purposes, all entering foreign students whose native language is not English must take this test. The test will be scheduled by the counselor for foreign students. This test does not take the place of the writing competency test required for graduation.

Teacher Education Tests. These tests are required of all candidates for teaching credentials. Refer to Admission to Teacher Education in the section of this catalog on Education, Professional Curricula, and to the calendar for additional information.

(1) *Fundamentals Test.* This test is required of all candidates for the general elementary and kindergarten-primary credentials before admission to teacher education. May be taken before registration by students transferring to this college with 15 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Office of Elementary Education, Education Building.

(2) *General Culture Test.* This test is required of all candidates for any of the secondary school credentials before admission to teacher education. May be taken before registration by students transferring to this college with 45 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Office of Secondary Education, Education Building.

(3) *English Proficiency Test.* This test is required of all candidates for any of the secondary school credentials before admission to teacher education. The test is not given before registration. May be taken during the regular semester by students with 45 units or more of advanced standing. Obtain information and make test reservation at the Office of Secondary Education, Education Building.

(4) *Mathematics Competency Test.* A mathematics competency test is required of all candidates for any of the secondary school credentials before admission to teacher education. The test is the same test as the one given to clear the graduation requirement for competency in mathematics. Graduate students must make a reservation for this test at the Evaluations Office in the Administration Building.

Mathematics Placement Tests. Required of students before enrollment in any of the following courses: Mathematics 3, 4, 21, 22, 40, 50; or Economics 2. May be taken by entering students before registration. Reservation for the tests is not required. Refer to the calendar in this catalog for date of the tests.

Graduate Aptitude Test. This test is required of all graduate students who intend to enroll in a master's degree program. May be taken before registration. Also given during the regular semester. Reservation for this test must be made at the Test Office, Administration Building. Refer to the Graduate Bulletin for full information.

LIMITATION OF ENROLLMENT

ADMINISTRATIVE CODE

40600. Limitation of Enrollment. Admission to a state college shall be limited to the number of students for whom facilities and competent instructors are available to provide opportunity for an adequate college education. The Board of Trustees shall determine the number of students for whom there are available facilities and competent instructors at the college.

MATRICULATION

ADMINISTRATIVE CODE

40700. Matriculation. Any student enrolling in any semester or quarter other than summer session or extension or as an auditor without credit shall meet the standards for admission outlined in this subchapter.

NOTE: At this college, only fully matriculated students are accepted for enrollment in any regular semester. This includes auditors.

ADMISSION WITH FRESHMAN STANDING

REQUIREMENTS

An applicant for admission as a freshman must qualify under one of the following provisions:

(a) Be a high school graduate and have earned in the last three years of high school at least seven Carnegie units (14 semester credits) of A or B grade on a five-point scale (exclusive of physical education and military science); or

(b) Be a high school graduate and have earned in the last three years of high school at least five Carnegie units (10 semester credits) of A or B grade on a five-point scale (exclusive of physical education and military science) and attain a score at the 20th percentile or higher on the national norm of a college aptitude test given by the college.

ADMINISTRATIVE CODE

40800. High School Graduates. For admission to a state college, a high school graduate, or other applicant who is judged by the appropriate college authorities to possess equivalent preparation, must, as a minimum, meet one of the following:

(a) Have completed the equivalent of seventy semester periods (7 Carnegie units) of course work, in subjects other than physical education and military science, with grades of A or B on a five-point scale during the last three years in high school.

(b) Have completed the equivalent of fifty semester periods (5 Carnegie units) of course work, in subjects other than physical education and military science, with grades of A or B on a five-point scale during the last three years in high school and attained the twentieth percentile on the national norm of a standard college aptitude test.

An applicant who fails to meet these standards may be admitted, if in the judgment of the appropriate college authorities, he gives promise of being able to succeed in college.

NOTE: A Carnegie unit represents course work covering a school-year (or two semesters).

HIGH SCHOOL PREPARATION

Students planning to enter college are urged to consult with their high school counselors in arranging a program that will adequately prepare for more advanced work at the college level in the field of major interest. The following general outline is suggested as a guide to students in selecting courses in preparation for college.

RECOMMENDED HIGH SCHOOL PROGRAM

Subjects	Freshman Year	Sophomore Year	Junior Year	Senior Year
ENGLISH (Four years recommended)	English	English		English
SOCIAL STUDIES (Three years recommended)			U. S. History	Civics
MATHEMATICS	Algebra	Geometry	Advanced Algebra for science majors; recommended for others	Advanced Mathematics for science majors
SCIENCE		Life science (Botany, Biology, or Physiology)	Chemistry (with laboratory)	Physics (with laboratory)
FOREIGN LANGUAGE (Three or four years in one language recommended)	Foreign language	Continue the same language	(a) Continue the same language or (b) Begin another language	(a) Recommend continuing same language or (b) Continue the second language
PHYSICAL EDUCATION	P. E.	P. E.	P. E.	P. E.
ELECTIVES	Recommended for all precollege students: typing, art, music, additional social studies. English; for science majors: slide rule, mechanical drawing. Students should enrich the high school program by selecting freely from courses in the fine arts, practical arts, and the humanities. Many students are availing themselves of the opportunity afforded in high school summer sessions to take courses which otherwise could not be included within the regular semesters.			

ADVANCED PLACEMENT EXAMINATIONS

San Diego State will grant advanced placement and advanced credit to high school students who have satisfactorily completed the Advanced Placement Tests prior to their enrollment at the college. A maximum of 15 semester units, with no more than three units in any one field, will be awarded for these examinations upon completion of one semester at this institution.

High school students who intend to participate in this program should indicate at the time they take the Advanced Placement Examinations that their test scores be sent to the college. To obtain credit or advanced placement, the student should obtain and file an application form in the office of the Dean of the College during the student's first registration at the college.

ADMISSION OF NON-HIGH SCHOOL GRADUATES

ADMINISTRATIVE CODE

40801. Adult Special Students. An applicant who has attained the age of 21 years and is not a high school graduate may be admitted to the state college as an adult special student provided that he demonstrates to the proper college authorities, ability to profit from college work.

ADMISSION WITH ADVANCED UNDERGRADUATE STANDING

An applicant must report all college work attempted (including extension and correspondence courses) no portion of which may be disregarded in transferring. An applicant disregarding this regulation will be subject to dismissal from the college.

ADMINISTRATIVE CODE

40901. Applicants Who Were Eligible for Admission With Freshman Standing. An applicant is eligible for admission to a state college with advanced undergraduate standing if he meets all of the following standards:

(a) At the time of his graduation from high school, he was eligible for admission with freshman standing in accordance with subsection (a) or (b) of Section 40800 (above).

(b) He has earned college credit in one or more accredited degree-granting colleges or universities and attained a grade point average of 2.0 (grade of C on a five-point scale) or better in the total program attempted at such colleges or universities.

(c) He was in good standing at the last accredited college or university attended.

40902. General Applicants Who Were Not Eligible for Admission With Freshman Standing. An applicant who was ineligible for freshman admission under subsection (a) or (b) of Section 40800 (above) is eligible for admission with advanced undergraduate standing if he was in good standing at the last accredited college or university attended and meets all of the requirements set forth in either of the following subsections:

(a) He has earned in one or more accredited colleges or universities 60 semester units of college credit with a grade point average of 2.0 (grade of C on a five-point scale) or better in the total program attempted at such colleges or universities.

(b) He has earned in one or more accredited colleges or universities 24 semester units of credit with a grade point average of 3.0 (grade of B on a five-point scale) or better in the total program attempted at such colleges or universities.

40903. Applicants With Particular Majors. An applicant who was ineligible for freshman admission under subsection (a) or (b) of Section 40800 (above) may be admitted if his major is such that 60 units of work appropriate to state college degree requirements in the particular major are not offered by the accredited degree-granted institution from which he seeks to transfer, and if he meets all of the following standards:

(a) He has earned college credit in one or more accredited degree-granting colleges or universities and attained a grade point average of 2.0 (grade of C on a five-point scale) or better in the total program attempted at such colleges or universities.

(b) He was in good standing at the last accredited college or university attended.

40904. Other Applicants. An applicant who does not meet the requirements set forth in Sections 40901, 40902, or 40903 is eligible for admission with advanced undergraduate standing on probation if in the opinion of the proper college authorities he can succeed in college.

40409. Junior College Credit. A maximum of 70 semester units earned in a junior college may be applied toward the degree, with the following limitations: (a) No upper division credit may be allowed for courses taken in a junior college; (b) no credit may be allowed for professional courses in education taken in a junior college.

ADMISSION OF GRADUATE STUDENTS

ADMINISTRATIVE CODE

41000. Admission With Graduate Standing: Unclassified.

(a) For admission with graduate standing as an unclassified graduate student, a student shall have completed a four-year college course and hold an acceptable baccalaureate degree from an accredited institution; or shall have completed equivalent academic preparation as determined by the appropriate college authorities.

(b) Admission to a state college with graduate standing does not constitute admission to graduate degree curricula.

41001. Admission to Graduate Degree Curricula: Classified. A student who has been admitted to a state college under Section 41000 may, upon application, be admitted to an authorized graduate degree curriculum of the college as a classified graduate student if he satisfactorily meets the professional, personal, scholastic, and other standards for graduate study, including qualifying examinations, as the appropriate college authorities may prescribe. Only those applicants who show promise of success and fitness will be admitted to graduate degree curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence and fitness, as determined by the appropriate college authorities, shall be eligible to continue in such curricula. Students whose performance in a graduate degree curriculum is judged to be unsatisfactory by the authorities of the college may be required to withdraw from all graduate degree curricula offered by the college.

FILING OF APPLICATIONS

All graduate students anticipating enrollment at this college must follow the procedures outlined above for admission to the college. Those students planning to take a program leading to a master's degree must, in addition, file an application for admission to the Graduate Division. These application forms may be obtained at the Graduate Office.

FILING OF RECORDS

The student must file official transcripts from EACH college or university attended (including extension, correspondence, summer session, or evening courses). If a student plans to enter a master's degree program or a graduate credential program, he must file all transcripts IN DUPLICATE. An official transcript is one sent directly between registrars of schools. The student should request the college or university attended to send the transcript to the Admissions Office, San Diego State College. All records or transcripts received at the Admissions Office become the property of the college and **will not be released nor will copies be made.**

A student who has obtained his degree from San Diego State need not file transcripts, except those transcripts covering work he may have taken at other institutions since graduation. He must, however, file an application for readmission to the college and, if he plans to enter a master's degree program, an application for admission to the Graduate Division and must comply with all other admission procedures outlined above.

GRADUATE BULLETIN

The Graduate Bulletin is available at the office of the Graduate Division.

ADMISSION OF FOREIGN STUDENTS

Applicants for admission whose education has been in a foreign country should file an application for admission, official certificates and detailed transcripts of record from each secondary school and collegiate institution attended several months in advance of the opening of the semester in which the applicant expects to attend. If certificates and transcrips are not in English, they should be accompanied by certified English translations. Credentials will be evaluated in accordance with the general regulations governing admission to the college.

An applicant whose education has been in a language other than English must be able to give evidence of a command of both written and spoken English sufficient to permit him to profit by instruction in this college. A form for this purpose is included with the application form for admission and must be completed by a responsible official of the school or college last attended, or by a U.S. Consular Official. In addition, after the student's arrival on the San Diego State College campus, he must take the English Test for Foreign Students which will be used by his adviser to assist the student in planning an appropriate course of study.

Arrangements for housing should be completed before the student's arrival on the campus. Detailed information regarding housing may be obtained from the Director of Housing, San Diego State College. Scholarship aid for entering students is limited; no scholarships are specifically reserved for students from another country. Further information regarding scholarships will be found elsewhere in this catalog.

Upon arrival at San Diego State College the student should obtain an appointment as early as possible with the Adviser for Foreign Students. Make an appointment at the Personnel Services Center office.

ADMISSION TO SPECIAL PROGRAMS

For information on admission to special programs, such as the Campus Evening Program, Summer Sessions Program, Extension Courses Program, and Imperial Valley Campus, refer to the section of this catalog on Programs and Facilities.

REGISTRATION

Students who receive notice that they are eligible for admission to the college must complete additional requirements for registration, such as clearance of residency status, payment of fees, and the keeping of other designated appointments as outlined in the *Class Schedule and Instructions for Registration*, a publication issued prior to the beginning of each semester and sold at the campus Bookstore.

RESIDENCY STATUS CLEARANCE

The laws of the State of California require this college to determine the residency status of each student enrolling prior to the payment of fees. A student who has not been a **legal resident** of this State for a period of one year just prior to registration is assessed nonresident tuition **in addition** to the other fees. The residency office will issue insructions to the applicant on the procedure to follow in obtaining residency classification. Specific instructions will be found in the *Class Schedule and Instructions for Registration*, which is issued prior to the beginning of each semester. Applicants for the Evening Program only will find instructions on procedure to follow in obtaining residency classification in the *Campus Evening Program Bulletin*, which is also issued prior to the beginning of each semester.

The residency classification received by any student is subject to review and change. Each student is held responsible for notifying the Residency Office of any change in his legal status as a resident of California.

REGISTRATION PRIORITY FOR PAYMENT OF FEES

Each student is assigned a priority number which determines the order in which he registers and pays fees. The schedule for registration and payment of fees is published in the *Class Schedule and Instructions for Registration*, which is available at the student Bookstore prior to the beginning of each semester. Priority numbers appear on the Notice of Admission for entering students, and on the Library-Registration Card of the preceding semester for students continuing their uninterrupted enrollment in the regular semesters.

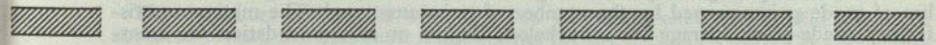
ADVISING

Provision is made at the time of registration for each student to obtain assistance from a faculty adviser in arranging a program. The faculty adviser is assigned at the time of registration. Each student should thereafter schedule a conference with his adviser at least once during each semester.

CHANGES OF PROGRAM

A student is responsible for any change in his program after registration. Forms for changes in program are available at the Registrar's Office. A fee of $1 is charged for each change of program. Check the calendar for deadline dates for changes of program.

REGULATIONS



GENERAL REGULATIONS
SCHOLASTIC STANDARDS
GRADUATION REQUIREMENTS

3—58952

GENERAL REGULATIONS

STUDENT RESPONSIBILITY FOR CATALOG INFORMATION

Students are held individually responsible for the information contained in the catalog. Failure to read and comply with college regulations will not exempt a student from whatever penalties he may incur.

MARKING SYSTEM

GRADES AND GRADE POINTS

The following grades and grade points are used in reporting the standing of students at the end of each semester:

Grade		Grade Points
A	Outstanding achievement	4
B	Commendable	3
C	Satisfactory	2
D	Passing	1
F	Failure	0
I	Incomplete	0
Cr	Credit	– (Not counted in grade average, but units allowed)
Aud	Audit	– (No credit and not counted in grade average)
W	Withdrawal passing	– (Not counted in grade average)
WF	Withdrawal failing	0 (0 grade points for units attempted)

GRADE POINT AVERAGE

The scholarship or grade point average is determined by dividing the total number of grade points earned by the number of units attempted. The minimum satisfactory grade-point average for a bachelor's degree or recommendation for transfer to another collegiate institution is 2.0 (grade of C). The student must have earned at least twice as many grade points as units attempted.

INCOMPLETE GRADE

An incomplete grade is counted as units attempted with no grade points and remains on the student's record unless made up. One calendar year beyond the end of the term when an incomplete is assigned will be allowed for makeup of the incomplete. The student must arrange with the instructor who gave the incomplete for removal of the course deficiencies, upon completion of which a final grade will be assigned. **An incomplete cannot be removed by repeating the course.**

If the student does not make up the incomplete, but instead re-enrolls in the course for credit, he has repeated the course for which he will receive the credit and grade points earned, subject to the regulations for repeating courses. The incomplete will remain on the student's permanent record as units attempted with no grade points earned and cannot thereafter be made up through removal of course deficiencies.

This regulation does not apply to the theses courses numbered 299, which are not counted as units attempted until the final grade has been assigned, provided that the course be completed within the time permitted by the Graduate Office.

Incomplete at Time of Graduation

A candidate for graduation whose record carries an incomplete which was received within the last calendar year will be graduated without the opportunity of making up the incomplete if he is otherwise eligible for graduation; however, the incomplete will be counted as units attempted in determining grade point averages and the incomplete cannot be made up after the degree has been granted. If the student does not wish to be graduated with the incomplete on his record, he must officially withdraw as a candidate for graduation.

GRADE REPORTS TO STUDENTS

Following the close of the seventh week of instruction (eighth week of the semester), reports are sent to students who are doing unsatisfactory work. These deficiency reports, known as D notices, are optional with an instructor. Students should be aware of their progress in a course and not depend upon receipt of formal notice if work is unsatisfactory.

At the end of each semester or summer session in which the student is enrolled, a grade report is sent to the student.

CREDIT

UNIT OR CREDIT HOUR

A unit or credit hour represents 50 minutes of lecture or recitation combined with two hours of preparation per week through one semester of 18 weeks. Two hours of "activity" or three hours of "laboratory" are considered equivalent to one hour of lecture.

CREDIT FOR UPPER DIVISION COURSES

A student with lower division standing (fewer than 60 units) is not eligible to take upper division courses (numbered 100-199), with the following exceptions:

(a) A student in the last semester of his sophomore year who is approaching upper division standing and is carrying sufficient lower division units to complete the required minimum of 60 units may carry upper division units for the remainder of his study load.

(b) A student with sophomore standing may carry upper division courses for upper division credit provided that he has the written approval of the chairman of the department and the Dean of the College or his authorized representative. This written approval must be filed at the Evaluations Office, Administration Building, on the Adjustment of Academic Record form, which may be obtained at the Evaluations Office.

CREDIT FOR EXTENSION COURSES

The maximum amount of extension and correspondence credit which may be accepted toward the minimum requirements for the bachelor's degree is 24 semester units, not more than 12 of which may be transferred from another college or university, except that courses taken through the United States Armed Forces Institute, or other official military correspondence schools, shall not be included within these limits. Extension and correspondence credit do not count in satisfaction of the minimum residence requirement. A maximum of six units in extension courses at San Diego State College may be accepted as part of the requirements for the master's degree, subject to limitations described in the section of the catalog on the Graduate Division and in the Graduate Bulletin.

Students desiring to enroll concurrently in extension courses and in the regular college program are subject to the regulations on excess study load. Such students should obtain approval from the Dean of Admissions in advance of registration. Units earned in extension courses will not be counted toward Selective Service requirements.

CREDIT BY EXAMINATION

Approval to receive credit-by-examination is granted at the discretion of the appropriate college authorities and under the following conditions:

(1) The student must be matriculated, in good standing (not on probation), be registered in at least one regular course (not Extension) at the time credit-by-examination is authorized, and pay for additional units if cost exceeds fees already paid. In summer sessions the total units earned for courses and examinations cannot exceed the limit authorized by the Education Code.

(2) Concurrent approval of the chariman of the department concerned and the Dean of the College is required prior to taking the examination. Forms for approval may be obtained from the Registrar.

(3) Credit-by-examination is restricted to regular undergraduate courses listed in the general catalog; does not include 200-numbered, 300-numbered, or Extension courses; cannot exceed 30 units as applicable to graduation; and does not count as residence credit.

(4) Credit-by-examination is not treated as part of the student's study load and, therefore, does not require a petition for excess study load; is not considered for Selective Service purposes or by the Veterans Administration in the application of their respective regulations; and is usually not accepted as transfer credit between collegiate institutions.

CREDIT FOR MILITARY SERVICE

The college is guided by the recommendations of the American Council on Education in granting undergraduate credit toward the bachelor's degree for military service. Postgraduate credit is not granted.

To obtain credit for military service, the student must be fully matriculated and enrolled in the college. The military form DD-214 must be filed with the Admissions Office if military credits are to be counted toward the bachelor's degree or used to shorten the time needed for the degree. This form, or equivalent records verifying active military service in the United States armed forces, should be submitted at the time of applying for admission to the college.

COURSES

NUMBERING OF COURSES

Courses numbered 1 through 99 or by letters (A, B, C, etc.) are in the lower division (freshman and sophomore years); those numbered 100 through 199 are in the upper division (junior and senior years); and those numbered 200 through 299 are strictly graduate courses. Courses numbered 300 or over are professional education courses in the postgraduate program.

AUDITED COURSE

A student who does not wish to take a course for credit may enroll as an auditor, class size permitting. An auditor must meet all admission requirements and pay the same fees required of students taking the course for credit. An auditor is not held for examinations and does not receive credit or a final grade in the course. A student may change his program from "audit" to "credit" or vice versa within the time limits authorized for changes of program and subject to the regulations for withdrawal from class.

REPEATED COURSE

A student may repeat a course in which he has received a grade of D or F, but may not receive credit for the course more than once. A repeated course is counted as units attempted and is credited with the grade points earned, the effect being an averaging of the grades. If a student repeats a course in which he has received a grade higher than D, the repeated course will not be counted as units attempted nor will grade points be counted in the student's record. **An incomplete cannot be removed by repeating the course.**

STUDENT CLASSIFICATION

MATRICULATED STUDENT

A matriculated student is one who has complied with all requirements for admission to the college and has received his official Notice of Admission. All students taking courses in any regular semester of the college must be matriculated students. Only in summer sessions or in extension courses may a student who has not matriculated be accepted for enrollment in a college course.

REGULAR STUDENT

A regular student is one who is enrolled for more than six units in any regular semester.

LIMITED STUDENT

A limited student is one who is enrolled for six units or less in any regular semester.

SUMMER SESSION OR EXTENSION-CLASS STUDENT

Each student who enrolls in one or more summer session classes shall be classified as a summer session student. Each student who enrolls in one or more extension classes shall for his extension class work be classified as an extension class student. Such students need not be matriculated students as a prerequisite for enrollment in classes.

RESIDENT OR NONRESIDENT STUDENT

Each student, as a condition for enrollment in a regular semester, must be classified as a resident or a nonresident student. Residency status is defined in the California Administrative Code, Sections 23759, 23760, 41901, and 41902. Refer to the section of this catalog on Registration for instructions on clearing residency status before registration.

LOWER DIVISION STUDENT

Freshman. A student who has earned a total of fewer than 30 semester units.

Sophomore. A student who has earned a total of 30 to 59 semester units, inclusive.

UPPER DIVISION STUDENT

Junior. A student who has earned a total of 60 to 89 semester units, inclusive.

Senior. A student who has earned a total of 90 semester units or more.

GRADUATE STUDENT

Graduate. A student who has completed a four-year college course with an acceptable baccalaureate degree from an accredited institution. For information on classification of graduate students, refer to the section of this catalog on the Graduate Division.

STUDENT PROGRAM AND RECORDS

TRANSCRIPTS OF RECORD

A student may obtain an official transcript of his record by filing an application at the Registrar's Office. A fee of $1 is charged (first copy free). One week should be allowed for the processing and mailing of the transcript. Transcripts sent from one college to another are considered as official. Transcripts presented by a student to a college are considered to be unofficial and are usually not accepted.

Once a student has matriculated in this college or has had an official evaluation made, transcripts from other schools or colleges become the property of this college and *will not be released nor will copies be made.*

EVALUATION

An evaluation is a summary of college work completed and of requirements to be completed for a bachelor's degree or credential. To be eligible for an evaluation, a student must have completed at least 45 units of acceptable college work and be qualified for full matriculation. Transfer students with 45 units or more who enroll in the college will automatically receive an evaluation, which is available at the time of registration and advising. Authorization for more than one evaluation during any one semester or one evaluation in nine weeks of summer session requires special permission of the Board of Admissions and Evaluations.

Application for an Evaluation

A student who has earned 45 semester units or more, who has not received an evaluation, should apply at the Evaluations Office for an official evaluation. The evaluation is made on the regulations in effect at the time the student entered this college, except as otherwise provided in the California Administrative Code, Chapter 5, Section 40401, Election of Regulations. (Further information is given in the section below on Graduation.)

After an interval of five years from the time an evaluation is made, courses in education to be applied toward a teaching credential are subject to re-evaluation.

STUDY LIST LIMITS

Students who enroll for more units than authorized, including courses taken concurrently outside this college, will not receive credit for the excess number of units.

Undergraduate Program

For the undergraduate student, a normal semester's program is 16 units, with 12 units considered the minimum full-time load. A student may carry up to 17½ units with the permission of his adviser. Greater variations are subject to approval of the Dean of the College, or his authorized representative. Students under Selective Service who may wish to seek deferment must carry 15 units per semester and pass 30 units in new courses per academic year.

Students accepting extensive part-time employment are strongly advised to limit their study loads in college. Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week.

Graduate Program

For information on study list limits for the graduate program, refer to the Graduate Bulletin.

CHANGE OF MAJOR OR CURRICULUM

At the time of admission to the college, each undergraduate student is assigned to a major field or curriculum, or is designated as an undeclared major. After registration, any student wishing to change his major or curriculum, must make application at the Personnel Services Center.

Veterans using veteran benefits must obtain appropriate approval from the Veterans Administration for necessary changes in letters of eligibility.

CHANGE OF PROGRAM AFTER REGISTRATION

A change of program after registration includes the following: withdrawal from a class; adding a class; adding or reducing units to a class for which the student is already registered; changing from audit to credit or from credit to audit; changing a section of the same course.

A change of program may be made on or before the published dates. Forms for the change of program may be obtained at the Registrar's Office. A fee of $1 is charged for each change of program made after registration. The effective date of withdrawal or change of program is the date on which the completed and acceptable forms are filed by the student at the Registrar's Office.

WITHDRAWAL AND READMISSION

OFFICIAL WITHDRAWAL

The student is held for every course appearing on his official study list. Any withdrawal from college or withdrawal from a class must be officially filed at the Registrar's Office; otherwise the student will receive a grade of "F" in the course. Application for withdrawal is made at the Registrar's Office.

Withdrawal Deadline Dates and Penalties. If a student withdraws officially from college or from a class by the end of the third week of classes, the course will not be recorded on the permanent record. If he withdraws after the third week and not later than the end of the ninth week of classes, either a W (withdrawal passing) or WF (withdrawal failing) will be recorded, depending upon whether he is passing or failing the course on the date of filing the request for withdrawal. (WF is equivalent to a failing grade.) After the ninth week of classes, withdrawal from a class is not permitted. A final grade will be recorded for each class for which the student is enrolled. Withdrawal from college (that is, from all courses) will be permitted up to 10 days preceding the final examination schedule; however, the student will receive a W or WF grade in each class, depending upon whether he is passing or failing in the class on the date of filing his request for withdrawal from college.

UNOFFICIAL WITHDRAWAL

Unofficial Withdrawal. A student withdrawing unofficially from class or from college will receive failing grades in all courses in which he stops attending. An unofficial withdrawal is one in which a student stops attending classes without filing official withdrawal forms within the deadlines established for withdrawing.

Veterans unofficially withdrawing will have veterans' allowances immediately suspended and will be subject to full repayment of allowances received after date of unofficial withdrawal.

WITHDRAWAL TO ENTER MILITARY SERVICE

A student withdrawing from college to enter military service is entitled to apply for refund of materials and service fees or for partial credit (but not both). One-third credit is allowed for completion of the first six weeks of the semester, or two-thirds credit for completion of the first 12 weeks of the semester, in undergraduate courses for which the student is enrolled and in which he is passing at the time of withdrawal. Entrance upon extended active military duty must be without unreasonable and unnecessary delay (normally 30 days) after the date of withdrawal from college to qualify the student for refund or partial credit. A student electing to receive a refund of materials and service fees or electing partial credit must file official verification of the date of entry upon *extended active duty*.

READMISSION

A student who withdraws from college must file application for readmission if a full semester lapses between the time of his withdrawal and return to college. Check calendar for deadline dates on readmission applications.

FINAL EXAMINATIONS

No final examination shall be given to individual students before the regular time. Any student who finds it impossible to take a final examination on the date scheduled must make arrangements with the instructor to have an incomplete grade reported and must take the deferred final examination within the time allowed for making up incomplete grades.

GRADUATION

ELECTION OF REGULATIONS FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

40401. Election of Regulations. A student remaining in continuous attendance in regular sessions and continuing on the same curriculum in a state college may, for purposes of meeting graduation requirements, elect to meet the graduation requirements in effect either at the time of his entering the curriculum or at the time of his graduation therefrom, except that substitutions for discontinued courses may be authorized or required by the proper college authorities.

APPLICATION FOR GRADUATION

A candidate for graduation at mid-year must file an application for graduation with the Evaluations Office, Administration Building, not later than the end of the third week of classes of the fall semester. A candidate for graduation in June or summer session must file an application for graduation not later than the end of the eleventh week of classes of the fall semester of the academic year in which he expects to graduate. Refer to the calendar in this catalog for deadline date for filing. A $2 fee is charged for filing applications for graduation after deadline date.

AUTHORIZATION FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

40,400. Procedure for Granting Diplomas, Certificates, and Degrees. The Board of Trustees, upon recommendation of the faculty of the college, shall issue the appropriate diploma, certificate or degree to a student who has completed the prescribed course of study.

COMMENCEMENT EXERCISES

Commencement exercises are held once a year at the end of the spring semester for students who were graduated at midyear, those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session.

GRADUATE DIVISION REGULATIONS

The general regulations described in this section of the catalog apply to both undergraduate and graduate students. For information on additional regulations for graduate students, refer to the section of this catalog on the Graduate Division and to the Graduate Bulletin.

TRANSFER TO GRADUATE SCHOOLS

Attention of students who plan to transfer to graduate schools is called to the fact that admission to graduate programs, at this or any other college or university, may be determined by the student's undergraduate preparation. A bachelor's degree from an accredited collegiate institution does not necessarily insure admission to a graduate school. The student's undergraduate scholastic standing and selection of courses appropriate to graduate study in the institution to which the student expects to transfer are factors in determining his eligibility for admission. The University of California, for example, reserves the right to evaluate and possibly reduce the credit in certain work which has been used for the student's bachelor's degree. Examples of such work would be credit for nurses' training, credit transferred from certain foreign schools, credit for military service, and courses of a non-academic nature.

The student should determine as early as possible in his undergraduate program what the requirements are of the graduate school to which he expects to transfer. His undergraduate program, in consultation with his adviser, should be planned accordingly.

SECOND BACHELOR'S DEGREE

A second bachelor's degree may be earned if the student has an excess of 24 units beyond the minimum requirements for the first bachelor's degree, makes a complete change in major or degree, fulfills all requirements for the degree as required by this college, and has approval of the Dean of the College.

SCHOLASTIC STANDARDS AND STUDENT DISCIPLINE

HONORS PROGRAM

The Honors Program at San Diego State provides opoprtunities for superior students to use and develop their talents in a variety of ways, both all-college and departmental.

Those who have taken the Advanced Placement Examinations should refer to the section of the catalog so titled.

Prior to entrance, freshmen who have superior high school records may, on the basis of their college aptitude test scores, be invited to participate in a special advising program. Here attention is given to individual needs and interests. Later, as sophomores, such students are eligible for the Honors Colloquium.

Some departments offer Honors sections of selected courses. Normally, admission is by invitation, but any student interested should consult the *Class Schedule* for the name of the faculty member in charge and consult with him to establish eligibility.

Upon completion of the sophomore year a student who has maintained a superior scholastic record may be eligible for admission to the upper division Honors Program of his major department. Specific requirements and details of these programs vary with the different departments. To apply, a student should consult his major adviser or the chairman of his major department.

The purpose of the San Diego State Honors Program is, within practicable limits, to meet the individual needs of the most capable students. Credit by examination, release from regular attendance, modification of curriculum requirements in the major and minor, and individual study are other opportunities available with the consent of the major adviser or other authorities.

GRADUATION WITH HONORS

With the approval of the faculty, graduation with honors is granted to those students in each graduating class who have achieved high grade point averages by the beginning of the fall semester for mid-year graduates and by the end of the fall semester for June and summer session graduates.

The grade point average is computed on work done at this institution, except that if the grade point average for work at other collegiate institutions is lower, that work is included in the computation of the grade point average on which honors will be granted.

GRADUATION WITH DISTINCTION IN THE MAJOR

Upon recommendation of his major department and with the approval of the faculty, a student doing superior work in his major field may be graduated with distinction in that field.

SCHOLASTIC PROBATION

Any student, undergraduate or graduate, whose scholarship record falls below a C average (2.0) for all college work attempted or all college work attempted at San Diego State College will be placed on probation.

Probation may be continued provided that the student obtains a C average or better each semester while on probation. The student will be removed from probation when he has attained a C average or better on all college work attempted and on all college work attempted at San Diego State College.

SCHOLASTIC DISQUALIFICATION

DISQUALIFICATION

Any student on probation whose scholarship falls below a C average (2.0) in any single semester or summer session will be subject to disqualification and dismissal from the college.

Veterans' Eligibility

Veterans who are disqualified from further attendance at this college forfeit their rights to veteran benefits. Specific information should be obtained from the Veterans Administration regarding continuance of education.

PETITION FOR REINSTATEMENT

A disqualified student may be reinstated for reasons satisfactory to the Board of Admissions. Applications for reinstatement must be made on forms which may be obtained at the Admissions Office. Students petitioning for reinstatement are required to have personal interviews with at least three members of the Board of Admissions.

STUDENT DISCIPLINE

Any student may be placed on probation, suspended, or expelled for one or more of the following causes:

(a) Disorderly, unethical, vicious, or immoral conduct.

(b) Misuse, abuse, theft, or destruction of state property.

The period for which the student may be placed on probation or suspended by the president shall not exceed 12 months. Fees or tuition paid by or for the student for the semester or summer session in which he is suspended will not be refunded. If the student is a minor, the president shall immediately notify the parent or guardian of the action taken. (Reference: California Administrative Code, Chapter 5, Sections 41301, 41302, 41303.)

GRADUATION REQUIREMENTS
FOR THE BACHELOR'S DEGREE

SUMMARY OF REQUIREMENTS

To qualify for graduation the student must complete the following requirements: (1) minimum number of units, (2) residence requirement, (3) minimum scholarship average, (4) upper division course requirement, (5) a major, and a minor if required, (6) competency tests, (7) all college regulations, (8) requirement in American institutions, and (9) 45 units of general education in addition to the major.

REQUIREMENTS

1. UNITS

Graduation with a bachelor's degree represents a four-year college course of study with a minimum of 124 to 132 semester units required as follows:

BACHELOR OF ARTS DEGREE. A minimum of 124 semester units.

BACHELOR OF SCIENCE DEGREE. A minimum of 128 semester units (except for students with a major in engineering which requires 132 semester units).

BACHELOR OF EDUCATION (OR B.V.E.) DEGREE. A minimum of 124 semester units.

2. RESIDENCE

For all degrees, except the bachelor of education, a minimum of 24 semester units must be earned in residence credit, at least half of which must be completed among the last 20 semester units counted toward the degree. Credit in summer sessions may be counted as residence credit on a unit-for-unit basis. Credit for "extension courses" or "credit-by-examination" cannot be counted as residence credit.

For residence requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree.

3. SCHOLARSHIP

Each student shall complete with a grade-point average of 2.0 (grade C on a five-point scale) or better: (a) all units attempted; (b) all units in the major; and (c) all units attempted at this college.

4. UPPER DIVISION COURSE REQUIREMENTS

Graduation with a bachelor's degree requires a minimum of 36 to 45 semseter units in courses carrying upper division credit (may include the major, minor, general education, and electives), distributed as follows:

BACHELOR OF ARTS DEGREE. A minimum of 40 upper division semester units (except in the College of Arts and Sciences which requires 45 upper division units).

BACHELOR OF SCIENCE DEGREE. A minimum of 36 upper division semester units.

BACHELOR OF EDUCATION (OR B.V.E.) DEGREE. For a description of requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree. Requirements for the B.V.E. degree are 40 upper division units.

5. MAJOR AND MINOR

Each student shall complete as a requirement for graduation one major and, if required by the major department, one minor. Some majors also include a foreign language requirement. Students graduating with a degree and credential taken concurrently must complete both the degree and the credential requirements.

Major. The major consists of a pattern of prescribed upper division courses totaling not less than 24 units for the A.B. degree and not less than 36 units for the B.S. degree. The maximum number of units for a major is determined by the college.

Majors for the B.E. and B.V.E. degrees and majors for the junior high school credential and degree are defined in the respective sections of this catalog on those degrees and the credential.

Courses in the major are exclusive of those courses used to meet the requirement of 45 units in general education. Lower division prerequisite and related courses required by the department in preparation for the major may also not be used in general education unless otherwise provided in the description of the major.

Minor. The minor normally consists of from 15 to 22 units, at least six units of which must be in upper division courses. Specific requirements and maximum number of units are determined by the college.

6. COMPETENCY TESTS

To qualify for graduation with any bachelor's degree, except the B.E. degree, each student must demonstrate competence in mathematics, speech, and the writing of English by satisfactorily passing the college tests in these areas or by passing courses or programs of study specifically designated in lieu of these competency tests. For special regulations governing the B.E. degree, refer to that degree. Descriptions of the competency tests follow:

MATHEMATICS COMPETENCY TEST

The Mathematics Competency Test is the mathematics part of the College Aptitude Test, which is required of all new students before registration. Students failing to make a satisfactory score on this Mathematics Competency Test (except those students taking the B.E. degree) are required to enroll in Mathematics A. The graduation requirement in mathematics competency may be satisfied by passing the test or one of the following courses: Mathematics A, 3, 4, 18, 21, 22, 40, 50, 51, 52, or 60.

SPEECH COMPETENCY TEST

The Speech Competency Test is given to students who are enrolled in Speech Arts 3, Oral Communication, a required course in general education for all bachelor's degrees except the B.E. degree. Students failing the test are required to enroll concurrently in Speech Arts 2, Oral Communication Laboratory, and complete the course for an additional one unit of credit (not applicable to general education) as part of the graduation requirement in speech competency.

WRITING COMPETENCY TEST

The Writing Competency Test must be taken by all students except candidates for the B.E. degree at the first scheduled date for the test following the student's completion of 45 units of college work. All students transferring to this college with 45 units or more of advanced standing credit must take this test before registration regardless of the degree for which they are working. Passing of this test or satisfactory completion of designated courses or remedial programs prescribed for the student by the College Committee on English is a graduation requirement, except for B.E. degree students.

7. ALL-COLLEGE REGULATIONS

Compliance with all regulations prescribed by the college is a requirement for graduation with any bachelor's degree.

8. AMERICAN INSTITUTIONS

Each student to qualify for graduation with a bachelor's degree shall demonstrate competence in the following areas of American institutions:

1. The Constitution of the United States.
2. American history, including the study of American institutions and ideals.
3. The principles of state and local government established under the Constitution of the State of California.

The student shall meet these requirements by passing a comprehensive examination on these fields prepared and administered by the college or by completing appropriate courses.

Students transferring from other accredited institutions of collegiate grade who have already met these requirements shall not be required to take further courses or examinations therein.

The graduation requirement in American institutions may be fulfilled by any one of the following alternatives:

COMPLETION OF AMERICAN INSTITUTIONS THROUGH COURSES

The graduation requirement in American institutions may be met by satisfactory completion of one of the following groups of courses:

(a) History 17A and 17B
(b) History 172A and 172B
(c) Political Science 71A and 71B
(d) Political Science 115 and 142 or 143 or 148.

COMPLETION OF AMERICAN INSTITUTIONS THROUGH EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a comprehensive examination in each of the following areas:

1. American history, institutions and ideals
2. United States Constitution
3. California state and local government

Students electing to remove requirements through examination may obtain a bibliography of suggested reading at the Evaluations Office in the Administration Building. Examinations for removal of these requirements are given once each semester and in Term I summer session.

COMPLETION OF AMERICAN INSTITUTIONS THROUGH COMBINATION OF COURSES AND EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a combination of courses or a combination of courses and examinations in the required areas.

Students electing to remove requirements in this manner should select courses from those listed below:

Courses meeting requirements in American History	Courses meeting requirements in U.S. Government	Courses meeting requirements in California Government
History 8A and 8B	Political Science 71A	Political Science 71B
History 176A and 176B	Political Science 115	Political Science 107B
History 179A and 179B	Political Science 107A and 107B	Political Science 115
History 181A and 181B	Political Science 139A and 139B	Political Science 142
	History 17A	Political Science 143
	History 172A	Political Science 148
		History 8B
		History 17B
		History 172B
		History 189

9. GENERAL EDUCATION REQUIREMENTS

Forty-five units of general education, exclusive of courses in the major, are required for a bachelor's degree. Pattern requirements in general education, in some courses, may be met by examination with permission of the Dean of the College.

Courses in general education shall be distributed within the minimum and maximum limits according to the outline that follows. General education courses can be identified in the catalog and in the *Class Schedule* by an asterisk (*) preceding the course number. In the College of Arts and Sciences, a specific pattern of courses to meet general education is required.

DISTRIBUTION OF GENERAL EDUCATION

	Minimum	*Maximum*
(a) Social Sciences (At least 3 units in each of two fields)	9	12
(b) Natural sciences (At least 3 units in a life science; 3 units in a physical science; equivalent of 1 unit of laboratory to be included)	9	12
(c) Literature, philosophy, and the arts (At least 3 units in literature or philosophy; not more than 3 units in the practical arts)	6	12
(d) Communication:		
Oral Communication	2	2
Written Communication	3	6
(e) Psychology	3	6
(f) Physical and Health Education:		
Physical Education	2	2
Health Education	2	2
(g) Mathematics	0	6
(h) Foreign Languages	0	6
(i) Family Life Education	0	6
(j) Air Science	0	6
Total number of units required	45	

For specific explanation of the requirements within each field of general education, refer to the explanation of requirements below.

SOCIAL SCIENCES

(a) **Social Sciences.** A minimum of nine or maximum of 12 units must be selected from the general education social science courses listed below, with at least three units in each of two or more fields. Included in the selection should be courses which meet the graduation requirement in American history, institutions and ideals; U. S. Constitution; and California state and local government. The student should also refer to the requirements in his major field before selecting general education social science courses from the following lists:

Anthropology 1, 2, 3, 152, 154

Economics 1A-1B, 110, 111, 170

Geography 2, 12A-12B, 153

Sociology 1, 10, 125, 140

History 4A-4B, 8A-8B, 17A-17B, 121A-121B, 172A-172B, 179A-179B

Political Science 71A-71B, 90, 91, 105, 107A-107B, 111A-111B, 112, 115, 138, 139A-139B, 168-S, 170A-170B

NATURAL SCIENCES

(b) **Natural Sciences.** A minimum of nine or maximum of 12 units must be selected from general education courses in the natural sciences. At least one general education course of not less than three units must be selected in the life sciences (biology) and at least one course of not less than three units in the physical sciences (astronomy, chemistry, Geography 1 or 3, geology, physical science, and

physics). At least one unit of either physical or life science or the three-hour equivalent must represent laboratory work. Before selecting a course, the student should read the course description to determine whether there are exclusions or limitations in applications of the credit. He should also refer to the requirements in his major field before selecting general education natural science courses from the following lists:

Life Sciences

Nonlaboratory courses:
Biology 1, 161
Microbiology 110
Oceanography 100
Zoology 165

Laboratory courses:
Biology 3, 4

Physical Sciences

Nonlaboratory courses:
Astronomy 1, 2, 105
Geography 1 or 3 (but not both)
Geology 2
Oceanography 100
Physical Science 1, 2, 5, 130, 150
Physics 2A, 2B

Laboratory courses:
Astronomy 9
Chemistry 2A, 2B
Geology 3
Physical Science 4
Physics 3A, 3B, 5

LITERATURE, PHILOSOPHY, AND THE ARTS

(c) **Literature, Philosophy, and the Arts.** A minimum of six or maximum of 12 units must be selected from general education courses in the area of literature, philosophy, and the arts.

At least one course of not less than three units must be selected in literature or philosophy from courses in English, comparative literature, or philosophy. Twelve units may be concentrated in these fields but not in the arts.

Up to nine units may be selected from courses listed below under the fine arts and practical arts; but not more than three units may be counted in the practical arts toward general education.

Courses should be selected from the following lists:

Literature and Philosophy

Comparative Literature 52A-52B, 101A-101B, 104A-104B, 115, 138, 140A-140B, 142, 152A-152B

English 2, 10, 50A-50B, 52A-52B, 56A-56B, 60A-60B, 101A-101B, 110, 115, 117A-117B, 118A-118B, 119A-119B, 126B, 129A-129B, 131, 132, 133, 134, 149, 152A-152B.

Philosophy 1A-1B, 20, 100A, 100B, 101, 111A-111B, 129, 135, 136

Fine Arts

Art A, B, 5, 6A, 8, 13, 16A, 50, 51, 52A, 52B, 150

Music 7A, 10A, 10B, 51, 70, 75 through 88, 151, 170, 175 through 188

Practical Arts

Home Economics 3, 4A, 15

Industrial Arts 5, 6, 85

Library Science 1

ORAL AND WRITTEN COMMUNICATION

(d) **Oral and Written Communication.** Two units must be completed in oral communication by passing Speech Arts 3 or equivalent. A speech test is given to all students who enroll in Speech Arts 3. Students failing this test are required to register concurrently in Speech Arts 2, Oral Communication Laboratory, for one unit of credit which may not be counted toward general education requirements.

A minimum of three units, with a maximum of six units, must be selected from courses in written communication. All students must complete three units in English 1A or 1X as a prerequisite for all English courses except English 2.

Selection should be made from the following general education courses:

Oral Communication

Speech Arts 3, or two units of 1-X for foreign students

Written Communication

English 1A, or 1-X for foreign students, 1B, 61, 62, 106

PSYCHOLOGY

(e) **Psychology.** Three units must be completed in Psychology 1 and three additional units may be selected from other general education courses in psychology. Selection should be made from the following courses:

Required

Psychology 1

Electives

Psychology 11, 12, 14, 106, 107, 145

PHYSICAL EDUCATION AND HEALTH EDUCATION

(f) **Physical Education and Health Education.** Two units must be completed in Health Education 21 and two units must be selected from general education courses in physical education, except that veterans who have served a minimum of one continuous year in the United States armed forces and are granted military credit for basic training are not required to enroll for Health Education 21 or for courses in physical education. Enrollment in physical education activity courses is required of freshmen and sophomores each semester.

The physical education requirement must be satisfied by completion of four semesters of activity courses for a minimum of two units. A physical education activity course taken in the summer session may be counted in lieu of a semester. Not more than one activity course within any one semester may be counted toward general education. An activity course may not be repeated for credit.

Health Education

Health Education 21

Physical Education

Men

P.E. 1 through 5

Women

P.E. 1 through 24

MATHEMATICS

(g) **Mathematics.** Six units may be selected from general education courses in mathematics. Students failing the mathematics competency test must complete Mathematics A. This course may not be counted toward the general education requirements. Selection should be made from the following general education courses: Mathematics 3, 4, 10, 18, 21, 22, 40, 50, 104.

FOREIGN LANGUAGES

(h) **Foreign Languages.** Six units may be selected from general education courses in foreign languages. Foreign language courses taken in high school may not be repeated in college with the following exception: The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

Selection of general education courses in foreign language should be made from the following courses:

French	German	Italian	Latin	Spanish	Russian
French 1, 2, 3, 4, 40, 41, 140, 141	German 1, 2, 3, 4, 40, 41, 140, 141	Italian 1, 2, 3, 4	Latin 1, 2, 3, 4	Spanish 1, 2, 3, 4, 40, 41, 140, 141	Russian 1, 2, 3, 4

FAMILY LIFE EDUCATION

(i) **Family Life Education.** Six units may be selected from general education courses in family life education. Selection should be made from the following courses:

Business Administration 182
Health Education 90
Psychology 106
Home Economics 1, 3, 4A, 15, 35, 70, 150
Sociology 35, 135

AIR SCIENCE

(j) **Air Science.** Two units will be granted for completion of Air Science 2 and two units for 21. Two additional units will be granted for completion of Air Science 131A. These six units correspond to the parts of the AFROTC program which lie in the area of social science, natural science, communication, and other areas of the general education pattern; however, these units will not be included within the unit minima or maxima specified in any such area.

CURRICULA

MAJORS, MINORS, DEGREES, CREDENTIALS
GENERAL PROGRAMS
COLLEGE OF ARTS AND SCIENCES
BUSINESS ADMINISTRATION
EDUCATION
ENGINEERING
GRADUATE DIVISION

MAJORS, MINORS, DEGREES, CREDENTIALS

Majors	The General Programs AB	The General Programs BS	College of Arts and Sciences AB	Business Administration BS	Engineering BS	Education AB	Education BE	Graduate Division MA	Graduate Division MS	Credentials GE–Gen. Elem. KP–Kdr.-Prmy. SS–Spec. Sec. JHS–Jr. Hi. Sch. GE–Gen. Sec.
Accounting				X						
Anthropology	*X		X							
Art	X		X							
Astronomy	X		X			X		X		SS—GS
Banking and finance										
Biology	*X	X	X	X						
Botany	*X	X	X					X	X	GS
‡Business administration										
Business education										
Chemistry	X	X	X	X		X			X	
Economics	*X		X					X	X	SS—GS
‡Education								X		
Elementary education								X		
Engineering										
English	*X		X		X	X	X			GE—KP
French	*X		X			X		X		
General major	X		X			X		X		JHS—GS
General science										JHS—GS
Geography	*X		X			X				
Geology	X	X	X					X		JHS
German	*X		X						X	
Health education		X				X				
History	*X		X					X		JHS—GS
Home economics	X							X		GS
Homemaking education								X		
Industrial arts	X					X				
Insurance						X				SS—GS
Journalism	X			X				X		SS—GS
Language arts	X									
Latin-American studies	*X									GS
Management			X							
Marketing				X						
Mathematics	X			X						
‡Mechanical engineering			X			X				
Microbiology	*X	X	X					X	X	JHS—GS
Music	X								X	
Nursing		X				X		X		
Office management										SS—GS
Philosophy	*X			X						
Physical education	X		X							
Physical science	†X									
Physics	X	X	X			X		X		SS—GS
Political science	*X							X		GS
Psychology	†X		X					X	X	
Public administration	X							X		
Public personnel management	X							X	X	GS
Radio and TV broadcasting									X	
Real estate		X								
Recreation	X			X						
Secretarial management										
Social science	†X		X	X						
Social welfare	*X		X		X		X			JHS—GS

MAJORS, MINORS, DEGREES, CREDENTIALS—Continued

Majors	The General Programs AB	The General Programs BS	College of Arts and Sciences AB	Business Administration BS	Engineering BS	Education AB	Education BE	Graduate Division MA	Graduate Division MS	Credentials GE–Gen. Elem. KP–Kdr.-Prmy. SS–Spec. Sec. JHS–Jr. Hi. Sch. GE–Gen. Sec.
Sociology	*X		X					X		
Spanish	*X		X			X		X		JHS—GS
Speech arts	X					X		X		SS—GS
Vocational arts							BVE			
Zoology	*X	X	X							
Total undergraduate majors: 54	37	10	26	9	1	15	2	24	9	GE–1 JHS–7 KP–1 GS–18 SS–7

† Limited to students admitted to the General Secondary Credential program.
‡ For the master's degree only (not an undergraduate major).
* Not available in the General Programs after the following dates:
September 1962—Not available to students with fewer than 30 units.
September 1963—Not available to students with fewer than 60 units.
September 1964—Not available to students with fewer than 90 units.
September 1965—Major available only in the College of Arts and Sciences.

SPECIAL CURRICULA AND CERTIFICATES

Preprofessional Curricula

Predental
Prelegal
Premedical

Curricula in Broad Field Areas

Humanities
Africa and the Near East
American studies
European studies
Medical technology

Military Curriculum

Air science (A.F.R.O.T.C.)

Certificate (nondegree) Programs

Certificate in public administration

Extension Program

Certificate in industrial management
Certificate in office management

TEACHING CREDENTIALS

Credentials listed below are currently available. Effective July 1, 1963, these credentials will be replaced by new types of credentials for school service. For information on these changes, refer to the section of this catalog on Education Professional Curricula.

General elementary
Kindergarten-primary
Junior high school
Special secondary in
Art
Business education
Homemaking education
Industrial arts
Music
Physical education
Speech arts
Health and development
Teaching exceptional children
General secondary
General pupil personnel services
Junior college
Administration in elementary education
Administration in secondary education
Supervision

MINORS FOR THE BACHELOR'S DEGREE

Accounting
Air science
Anthropology
Art
Astronomy
Banking and finance
Biology
Botany
Business education
Business management
Chemistry
Comparative literature
Economics
Engineering
English
French
General science (with general elementary or kindergarten-primary credential only)
Geography
Geology
German
Health education
History
Home economics (offered as homemaking education with the general secondary credential)
Industrial arts
Insurance
Journalism
Library science
Marketing
Mathematics
Microbiology
Music
Personnel management
Philosophy
Physical education
Physical science
Physics
Political science
Production management
Psychology
Public administration
Radio and TV broadcasting
Real estate
Recreation
Russian
Secretarial management
Social science (with general elementary or kindergarten-primary credential only)
Sociology
Spanish
Speech arts
Zoology

GENERAL PROGRAMS
IN THE SCIENCES AND APPLIED ARTS

DEGREE PROGRAMS

REQUIREMENTS FOR THE A.B. OR B.S. DEGREE

Students taking majors offered under the General Programs must complete the graduation requirements listed below for the A.B. or B.S. degree. (Refer to the section of this catalog on Graduation Requirements for specific information.)

Graduation Requirements

1. A minimum of 124 semester units for the A.B. degree or 128 units for the B.S. degree under the General Programs.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 40 upper division units for the A.B. degree or 36 upper division units for the B.S. degree.
5. One major, and one minor if required by the department offering the major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education courses in addition to the major, distributed as prescribed in the section of this catalog on Graduation Requirements.

MAJOR FOR THE A.B. OR B.S. DEGREE

The major consists of a pattern of prescribed upper division courses totaling not less than 24 units for the A.B. degree or 36 units for the B.S. degree. The number of units beyond the minimum may be specified in the description of the major.

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the major department. Unless otherwise provided in the description of the major, these lower division courses may not be counted in the 45 units of general education.

MAJORS FOR THE A.B. DEGREE

Majors are described in the section of this catalog on Programs and Courses.

- * Art
- * Astronomy
- * Chemistry
- * General major (see description below)
- * Geology
- Home economics
- Industrial arts
- Journalism
- Language arts
- * Mathematics
- Music
- Physical education
- † Physical science
- * Physics
- *† Psychology
- Public administration
- Public personnel management
- Recreation
- *† Social science
- Speech arts

* This major is also available in the College of Arts and Sciences.
† This major is limited to students who have been admitted to teacher education.

The General Major

Purpose. The general major, as part of the instructional program of the college, is under supervision of the Dean of the College. This major offers an opportunity for students to obtain a general type of education leading to objectives not otherwise provided in the regular curricular programs.

Requirements for the Major. The general major, consisting of 36 upper division units, must be chosen from three fields with not more than 15 nor fewer than nine units from any one field. A minimum of a year course in each field must be completed in the lower division as foundation for upper division work in the general major. A minor is not required; however, four upper division elective units must be completed to meet the minimum requirement of 40 upper division units for graduation. The program must be planned in consultation with a counselor in the Personnel Services Center, approved by each departmental adviser indicated in the plan, cleared by the Evaluations Office, and finally approved by the Dean of Counseling and Testing. The counselor named in the general major plan serves as the student's academic adviser.

General Major in Liberal Arts and Sciences. If two of the three fields selected as part of the general major are from the list of majors offered exclusively in liberal arts and sciences, the general major will be governed by the regulations of that program. (Refer to the section of this catalog on the College of Arts and Sciences for further information.)

Majors and Curricula Available in the General Programs for a Limited Time Only

Majors and curricula listed below, which are normally offered only in the College of Arts and Sciences, may be taken under regulations for the General Programs within the time limits stated in the schedule below.

- Anthropology
- Biology
- Botany
- Economics
- English
- French
- Geography
- German
- History
- Latin-American studies
- Microbiology
- Philosophy
- Political science
- Social welfare
- Sociology
- Spanish
- Zoology

Curricula

- Africa and the Near East
- American studies
- European studies
- Humanities

Schedule

Majors and curricula listed above not available in the General Programs to entering or re-entering students after the following dates: September 1962, not available to students with fewer than 30 units; September 1963, not available to students with fewer than 60 units; September 1964, not available to students with fewer than 90 units; September 1965, available only in the College of Arts and Sciences.

MAJORS FOR THE B.S. DEGREE

Majors are described in the section of this catalog on Programs and Courses.

- Biology
- Botany
- Chemistry
- Geology
- Health education
- Microbiology (and curriculum in Medical technology)
- Nursing
- Physics
- Radio and television broadcasting
- Zoology

For a list of majors available in business administration or engineering, refer to the sections of this catalog on Business Administration Professional Curricula and to Engineering Professional Curricula.

MINORS FOR THE A.B. OR B.S. DEGREE

The minor consists of from 15 to 22 units, at least six of which must be in upper division courses. A few minors vary from this pattern. Minors are described in the section of this catalog on Programs and Courses.

Minors listed below are available to students taking a program leading to any bachelor's degree in the college, except in teacher education. For a list of teaching minors in credential programs, refer to the section of this catalog on Education Professional Curricula.

LIST OF MINORS

- Accounting
- Air science
- Anthropology
- Art
- Astronomy
- Banking and finance
- Biology
- Botany
- Business education
- Business management
- Chemistry
- Comparative literature
- Economics
- Engineering
- English
- French
- Geography
- Geology
- German
- Health education
- History
- Home economics
- Industrial arts
- Insurance
- Journalism
- Library science
- Marketing
- Mathematics
- Microbiology
- Music
- Personnel management
- Philosophy
- Physical education
- Physical science
- Physics
- Political science
- Production management
- Psychology
- Public administration
- Radio and television broadcasting
- Real estate
- Recreation
- Russian
- Secretarial management
- Sociology
- Spanish
- Speech arts
- Zoology

PREPROFESSIONAL CURRICULA

PROGRAMS AVAILABLE

Preprofessional curricula, which usually require three or four years of collegiate work, are offered. Curricular outlines of preprofessional study, which are presented on the following pages, meet the typical requirements for admission to professional schools. Students expecting to complete their professional training at other institutions should modify the suggested outlines of study to meet the requirements of the professional schools of their choice. Curricular outlines are presented for predental, prelegal, and premedical programs. Students planning to enter other professional fields, such as agriculture, forestry, optometry, pharmacy, veterinary science, may obtain assistance from faculty advisers in arranging appropriate preprofessional courses of study.

PREDENTAL CURRICULUM

Candidates for a degree in dentistry should ascertain the entrance requirements of the dental college to which they expect to transfer and should make whatever changes in the following typical requirements that may seem desirable in satisfying the requirements of the specific dental college.

The curriculum for dental hygiene is essentially the same as for predentistry. Students ordinarily elect to concentrate in chemistry and zoology with a major in one and a minor in the other. Requirements for these majors and minors are described under these departments.

High school students planning to enter dentistry should include in the high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, mechanical drawing, and three years in one foreign language if required by the college to which a student expects to transfer.

RECOMMENDED COURSE OF STUDY FOR PREDENTAL CURRICULUM

Course of Study for Predental Curriculum. Freshman year, physical education activities, Health Education 21, Speech Arts 3, English 1A, English 2 or other literature course, Mathematics 3 and 4, or equivalents, Chemistry 1A-1B, Biology 5 or Biology 3 and 4; sophomore year, physical education activities, Psychology 1, Chemistry 4 or 5, Physics 2A-2B and 3A-3B, Zoology 51, Biology 15, social science including courses in American history, institutions and ideals; U. S. Constitution; and California state and local government.

The following courses for a third year in preparation for dentistry are suggested for students who fail to receive acceptance from a dental college after completing the prescribed 60 units: Chemistry 12, 112, Zoology 100, Art 119A, Psychology 11, additional courses in general education.

PRELEGAL CURRICULUM

The following curriculum is designed to meet the requirements of standard American schools of law for a broad and liberal education, while at the same time providing desirable flexibility in the individual programs. There are two patterns of concentration which will usually be indicated for the prelegal student, either of which may be selected, in consultation with the adviser, to fit best the interests of the student. These are the major-minor pattern and the general major pattern. Subject to individual variation, the fields of economics, history, and political science should receive first consideration when choosing the pattern of concentration as being the most effective background for later professional study in law and for possible activities in the field of business.

RECOMMENDED COURSE OF STUDY FOR PRELEGAL CURRICULUM

Lower division. Business Administration 1A-1B, Economics 1A-1B, Political Science 90 and 91 or 71A-71B, and a year course in history. *Upper division:* In the junior and senior years the student will plan his course with the counsel of his adviser in terms of the field of law in which he plans to work, but keeping in mind the entrance requirements and examinations for admission to schools of law. The recommended list below should receive prime consideration by all prelegal students in the selection of courses, though it is to be thought of as flexible in accordance with student needs.

Up to 12 units of lower division courses in social science may be counted toward the general education requirements in social science, depending upon the major selected.

Recommended. Economics 131, 133, 150, 170; History 151A-151B, 175A-175B; Political Science 111A-111B, 139A-139B.

Beyond the courses taken in the fields of concentration, upper division electives in English, philosophy, psychology, sociology, and speech arts are recommended. A mastery of English expression is essential. The approval of a prelegal adviser is required for all master plans. If the general major pattern of concentration is chosen, a copy of the master plan is to be filed with the Evaluations Office.

PREMEDICAL CURRICULUM

The completion of entrance requirements for admission to medical colleges requires three years of undergraduate study. However, four years of undergraduate study is usually completed before admission. The premedical student is strongly advised to select a major in a department leading toward an A.B. degree in liberal arts and sciences. This is most readily accomplished by majoring in biology, chemistry, or zoology, although other departmental majors are acceptable. Specific requirements for these majors are described for each department.

High school students planning to enter medicine should include in the high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, and two or three years of German or French.

RECOMMENDED COURSE OF STUDY FOR PREMEDICAL CURRICULUM

The following is a list of courses which will satisfy the entrance requirements of most medical colleges. These courses should be included in the program of the premedical student regardless of his selected major. The entrance requirements for medical colleges differ somewhat and specific requirements of the medical school to which the student wishes to apply should be obtained directly from that medical college.

Courses to be included in the program during the first two undergraduate years: Biology 5; Chemistry 1A and 1B, Chemistry 4 or 5; six semester units of English, to include English 1A; two years of a modern foreign language (German or French); Physics 2A, 2B, 3A, 3B; Zoology 51.

Courses to be included in the undergraduate program during the third and fourth years: Chemistry 12 and 112; Zoology 100.

The following courses are strongly recommended for inclusion in the undergraduate program: Biology 15, Biology 155 or Zoology 164; Mathematics 21 and 22 or equivalent.

PREPARATION FOR OTHER PROFESSIONS

Programs leading to professional study in agriculture, architecture, forestry, optometry, pharmacy, theology, veterinary science, and other areas, may be planned for a student who may wish to take some undergraduate work in liberal arts at this college. Since these professional areas frequently require a complete four-year course of study at the institution granting the degree, preprofessional programs are not provided at San Diego State. If the student wishes to take work at this college, he is advised to consult the catalog of the college to which he expects to transfer to determine requirements before arranging his program. Faculty advisers will assist the student in planning his course of study.

CERTIFICATES

CERTIFICATE (NONDEGREE) PROGRAMS

The Certificate in Public Administration is offered in the regular program of the college. Courses required for this Certificate are normally available in the Campus Evening Program.

Offered in the Extension Courses Program are the Certificate in Industrial Management and the Certificate in Office Management.

CERTIFICATE IN PUBLIC ADMINISTRATION

The Certificate in Public Administration is offered by the Department of Political Science in the Division of the Social Sciences.

Admission to candidacy for the certificate is open to all public service employees who are also qualified for and gain admission to the college. Previous academic experience is not a prerequisite for beginning work on the certificate program. Candidacy will be established, however, by approval of the Director of Public Administration. To receive the Certificate in Public Administration, the candidate must complete an approved pattern of eight courses, with a grade point average of 2.5.

Candidates for this certificate program may obtain further information on requirements by writing to the Director of Public Administration, San Diego State College.

CERTIFICATE IN INDUSTRIAL MANAGEMENT
(In the Extension Courses Program)

The Certificate in Industrial Management is offered by the Division of Business Administration through the Extension Courses Program. This certificate program is open to all industrial employees. Previous academic experience is not required. Candidacy will be established by the Coordinator of the Industrial Management Certificate Program after the applicant has satisfactorily completed a minimum of six semester units with a grade average of C or better in San Diego State College Extension courses.

To receive the certificate, the candidate must complete a total of 30 units of approved courses with a 2.0 (C) grade average or better. No grade below a C may be counted toward the certificate.

All of the following Extension courses must be completed: Business Administration X-190 A,B,C,D,E,F,G,H,I,J.

See the Coordinator of the Industrial Management Certificate Program for information regarding degree programs.

Certificate in Data Processing

In addition to the Certificate in Industrial Management, the Division of Business Administration cooperates with the National Machine Accountants Association in offering the Certificate in Data Processing.

CERTIFICATE IN OFFICE MANAGEMENT
(In the Extension Courses Program)

The Certificate in Office Management is offered by the Division of Business Administration through the Extension Courses Program. This certificate program is open to all office supervisory and management personnel. Previous academic experience is not required. Candidacy will be established by the Coordinator of the

Office Management Certificate Program after the applicant has satisfactorily completed a minimum of six semester units with a grade average of C or better in San Diego State College Extension courses.

To receive the certificate, the candidate must complete a total of 30 units of approved courses with a grade average of 2.0 (C) or better. No grade below a C may be counted toward the certificate.

All of the following Extension courses must be completed: Business Administration X-190 A,B,E,F,G,H; and X-191 A,B,C,D.

See the Coordinator of the Office Management Certificate Program for information regarding degree programs.

Certified Professional Secretary Certificate

In addition to the Certificate in Office Management, the Division of Business Administration cooperates with the National Secretaries Association in offering the Certified Professional Secretary Certificate.

COLLEGE OF ARTS AND SCIENCES

A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The program in liberal arts and sciences is open to all students; however, beginning with the fall semester, 1962, the program will be required of entering, transfer, or re-entering students who elect majors available only in this program, effective according to the following schedule:

September 1962—Required of students entering with fewer than 30 units.
September 1963—Required of students entering with fewer than 60 units.
September 1964—Required of students entering with fewer than 90 units.
September 1965—Required of all entering undergraduate students.

PURPOSE OF THE PROGRAM

The purpose of a four-year collegiate program in liberal arts and sciences is to develop the student's intellectual interests and mental and physical fitness, and to increase his fund of information, his ability to think accurately, and his judgment, and thus to make him adaptable to various and changing life situations. A liberal education provides a foundation useful for many occupations and especially for graduate work leading into the professions; it is even more valuable as a preparation for assuming civic leadership and for attaining a balanced intellectual and emotional life. Hence the program in liberal arts and sciences aims to introduce college students to the major domains of human knowledge:

1. The natural sciences, physical and biological, for an understanding of the world and the complicated forces of life.
2. The social studies, for developing a knowledge and appreciation of the institutions and complex influences in society and of the privileges and obligations of citizenship.
3. The tools of critical understanding and the integration of knowledge—language, logic, mathematics, psychology, philosophy.
4. The sources of aesthetic enjoyment—literature, the fine arts, music—for understanding, enjoyment, and, if possible, creation of the beautiful.

REQUIREMENTS FOR THE DEGREE

The student must complete the following requirements for the A.B. degree in liberal arts and sciences. Refer to the section in this catalog on Graduation Requirements for more complete information.

1. A minimum of 124 semester units. No more than 48 units in one department may be counted in meeting the 124 units.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 45 upper division units.
5. One major, and one minor if required by the department offering the major.

6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U. S. Constitution; and California state and local government.
9. Distribution of course work to fulfill the pattern below; this pattern fulfills the general education requirements for the degree.

THE MAJOR

The liberal arts and sciences major consists of a pattern of prescribed upper division courses totaling not less than 24 units. Also required as preparation for the major are lower division prerequisite and related courses. (Refer to the department offering the major for a description of the major.) Majors and curricula are offered in the following fields:

MAJORS AND CURRICULA

Majors

Anthropology
Art
Astronomy
Biology
Botany
Chemistry
Economics
English
French
General major
(See below)
Geography
Geology
German
History
Latin-American studies
Mathematics
Microbiology
Philosophy
Physics
Political science
Psychology
Social science
Social welfare
Sociology
Spanish
Zoology

Curricula

Africa and the Near East
American studies
European studies
Humanities

General Major. This major offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. The major consists of 36 upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. At least two of the fields listed above must be included in this major; the third field may be selected from the above list or from other major or minor fields in the college. A minimum of a year course in each of the three fields must be completed in the lower division as foundation for upper division courses. Also required as preparation for the major are 12 units in one foreign language, or equivalent knowledge demonstrated by examination. Official approval and assistance in arranging a general major may be obtained at the Personnel Services Center.

THE MINOR

A minor may be required by the department offering the major. In departments not requiring a minor, the minor is optional with the student. A minor generally consists of from 15 to 22 units, at least six of which must be in upper division courses. Specific requirements are determined by the department. (Refer to the department offering the minor for a description.) For a list of available minors, refer to the section of this catalog on Majors, Minors, Degrees, Credentials, or to the section on the General Programs.

GENERAL EDUCATION AND DISTRIBUTION OF COURSES

The degree in liberal arts and sciences requires, in addition to a major field, a distribution of course work to be selected according to the following pattern. Courses in the major and minor (if any) may be used to fulfill the requirements in general education as provided in the Administrative Code, Chapter 5, Section 40405. No single course may be used to meet more than one requirement in the following pattern of distribution. For prerequisites to certain courses, refer to the description of courses in the section of this catalog on Programs and Courses.

DISTRIBUTION OF COURSES

	Minimum units
A. Natural Science	
1. A combination of two or more courses to complete a minimum of nine units fulfilling:	9
(a) Not less than three units of Biology 3, 4, or 5;	
(b) Not less than three units from Astronomy 1 and 9; Chemistry 1A or 2A; Geology 1A or 2 and 3; Physical Science 1 and 4, or 5 and 4; Physics 4A, or 2A and 3A, or 5.	
(c) If, in meeting the above requirements, the student has not completed at least nine units, the remaining units of the total requirement of nine may be satisfied by choosing a course, with or without laboratory, from the following: Geography 1 or 3; or any course in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, or zoology.	
2. Mathematics This requirement may be satisfied by Mathematics 18 or a higher numbered course.	3
B. Social Science	
1. American Institutions Political Science 71A and 71B or Political Science 115 and 142 or 143 or 148; or History 17A and 17B or History 172A and 172B. (May be met in whole or in part by examination or by various options. Refer to the section of this catalog on Graduation Requirements, American Institutions, for an outline of options. If the entire requirement is met by examination, add three units to the requirement in Social Science, below.)	6
2. Social Science Two 3-unit courses, choosing from Anthropology 1 or 2 (but not both), Economics 1A, Geography 2, Sociology 1. If the entire requirement in American Institutions is met by examination, add a second semester to one of the above (but not Geography 1 or 3), or add a 3-unit course in political science.	6
C. The Humanities and Fine Arts	
1. A one-year course in western civilization Choose either History 4A-4B or English 52A-52B or Philosophy 100A-100B.	6
2. Six units in literature, philosophy, or the history or appreciation of art or music To be taken in a department or departments other than that in which the requirement in western civilization was met. Applicable courses: Art 5, 50, 51, 150; Music 51, 52, 151; any course in the Department of Philosophy; any course in literature in the departments of English and Foreign Languages and in comparative literature.	6
3. At least three units under the Humanities and Fine Arts or elsewhere must be in literature or philosophy.	

	Minimum Units
D. Other	
1. Foreign language as required by the major department The foreign language requirement of a knowledge of a language other than one's native tongue may be met by the satisfactory completion of courses through 12 units at the college level or by written examination.	0–12
2. Communication	
Oral—Speech Arts 3	2
Written—English 1A-1B (If excused from all or part of the requirement in written communication, an equal number of units in literature.)	6
3. Psychology 1	3
4. Health Education 21	2
5. Physical education activity courses (Four semesters required.)	2
TOTAL:	51–63
Courses to complete the major, the minor (if any), and electives	73–61
UNITS REQUIRED FOR GRADUATION:	124

BUSINESS ADMINISTRATION
PROFESSIONAL CURRICULA

DEPARTMENTAL ORGANIZATION

Five departments comprise the Division of Business Administration: Accounting, Business Law and Finance, Management, Marketing, and Business Education. Each department offers its separate majors and minors.

ACCREDITATION

The Division of Business Administration is a member of the American Association of Collegiate Schools of Business.

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an organized research activity serving the needs of the Division of Business Administration and the Department of Economics. Operationally, it is a part of the Division of Business Administration, with a director and an editor. Fiscal matters are coordinated through the San Diego State College Foundation. The principal objectives of the bureau are to (1) conduct research in the areas of economics and business, with special reference to local and regional problems; (2) facilitate research in these areas by the faculty and students; (3) seek cooperative arrangements with outside individuals and organizations for conducting specific research projects; (4) compile local and regional data; (5) publish the results of bureau research investigations and aid the faculty in publication of their research. Graduate students are encouraged to make use of bureau facilities.

COURSES IN BUSINESS ADMINISTRATION

Courses in business administration are listed and described in the section of this catalog on Programs and Courses.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in business education and the master of science degree in business administration with concentrations in six areas are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

DEPARTMENTAL MAJORS AND MINORS

The following listed majors and minors are offered by each of the five departments in the Division of Business Administration:

Department of Accounting

Major in Accounting with the B.S. degree
Minor in Accounting

Department of Marketing

Major in Marketing with the B.S. degree
Minor in Marketing

Department of Business Law and Finance

Majors with the B.S. degree in the following:
- Banking and finance
- Insurance
- Real estate

Minors in the following:
- Banking and finance
- Insurance
- Real estate

Department of Management

Major in Management with the B.S. degree
Minors in the following:
- Business management
- Personnel management
- Production management

Certificate in Industrial management (nondegree), offered in Extension Program

Department of Business Education

Majors with the B.S. degree in the following:
- Business education
- Office management
- Secretarial management

Minors in the following:
- Business education
- Secretarial management

Teaching major in Business education with the A.B. degree and special secondary credential
Teaching major in Business education for the general secondary credential
Teaching minor in Business education for the general secondary credential
Certificate in Office management (nondegree), offered in Extension Program

GRADUATION REQUIREMENTS

The student must complete the requirements listed below for the bachelor's degree. (Refer to the section of this catalog on Graduation Requirements for specific information.)

1. A minimum of 128 semester units for the B.S. degree (or 124 units for the A.B. degree with credential).
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 36 upper division units for the B.S. degree (or 40 for the A.B. degree with credential).
5. One major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education exclusive of courses in the major including lower division prerequisite and related courses.

THE MAJOR

Each major in business administration consists of a pattern of prescribed upper division courses, exclusive of general education, totaling not less than 36 units for the B.S. degree or 24 for the A.B. degree with a credential.

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the department. Unless otherwise provided in the description of the major, these lower division courses may not be counted in general education.

Business administration majors are not required to complete a minor for the degree.

For information on general education and other degree requirements, refer to the section of this catalog on Graduation Requirements.

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DEPARTMENT OF ACCOUNTING

Faculty

Professors: Brown, E., Lamden, Odmark
Associate Professors: Brodschatzer, Ferrel (Chairman)
Assistant Professors: Dodds, Loschen, Snudden
Lecturers: Harmeyer, Kronemyer, Martinelli

MAJOR IN ACCOUNTING WITH THE B.S. DEGREE

Lower Division Requirements. Business Administration 1A, 1B, 2, 30A, 30B, 80, Economics 1A, 1B, and 2 or Mathematics 12. (Total 27 units.)

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 100, 101, 102, 106, 127 or Economics 135, Business Administration 132, 150; and 15 units selected from Business Administration 107, 108, 112, 114, 115, 116, 118, 119, 127 or Economics 135, and Economics 170. In addition to courses in the major and in general education, three upper division elective units outside of business administration and economics are required.

MINOR IN ACCOUNTING

The minor in accounting is offered to students who are not business administration majors. The minor consists of 15 to 22 units in accounting, of which Business Administration 1A-1B and 100 must be included. A total of nine units must be in upper division courses.

DEPARTMENT OF BUSINESS LAW AND FINANCE

Faculty

Associate Professor: Bridenstine (Chairman), Hippaka, Reznikoff
Assistant Professors: Hungate, Sinsheimer
Lecturers: Coffey, Tanner

MAJOR IN BANKING AND FINANCE WITH THE B.S. DEGREE

All students majoring in banking and finance must meet the requirements listed below in (1) the major, and (2) pattern requirements outside the Department of Economics and the Division of Business Administration:

(1) Requirements in the major:

Lower Division Requirements. Business Administration 1A, 1B, 2, 30A, 30B, 80, Economics 1A, 1B, and 2 or Mathematics 12. Students with credit in Mathematics 21 are not required to take Business Administration 2.

Upper Division Requirements. 36 units to include Business Administration 100, 127, 128, 129, 130, 132, and 150; Economics 100A, 100B, and 135. The remaining six units to be selected with consent of adviser.

(2) Pattern Requirements Outside the Department of Economics and Division of Business Administration:

Eight to nine units in one of the departments of the Divisions of the Life, Physical, or Social Sciences (except Economics) as listed below in (a); and eight to nine units in one of the departments of the Divisions of the Humanities or Fine Arts as listed in (b) below. A minimum of 17 units is required.

Students in the AFROTC program may substitute the four-year program of lower and upper division Air Science courses for the above requirement.

No courses taken to satisfy the requirements in (1) may be used to satisfy any other requirement of (2) or of general education.

(a) Divisions of the Life, Physical, and Social Sciences. Courses to be selected with consent of the adviser from all upper division courses (except in economics) and Chemistry 1A-1B, 4 or 5, and Physics 4A-4B-4C.

(b) Divisions of the Humanities and Fine Arts. Courses to be selected with consent of the adviser from all upper division courses and Art 5, 50, 51, 52A, 52B, Music 52, and Speech Arts 4, 60A, 60B, 61, and 64, or from all courses in foreign languages, but not less than eight units in one language.

MAJOR IN INSURANCE WITH THE B.S. DEGREE

Lower Division Requirements. Business Administration 1A-1B, 2, 30A-30B, 80, Economics 1A, 1B, and 2 or Mathematics 12.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 120, 121, 124, 125, 127 or Economics 135, Business Administration 132 and 150; and 15 units selected from Business Administration 106, 107, 118, 127, 128, 131, 140, 170, 171, 173, 174; Economics 111, 131, 135, 138, 142, 170, 171, and 185. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

MAJOR IN REAL ESTATE WITH THE B.S. DEGREE

The major in real estate is offered primarily for the student desiring to acquire a core of essential knowledge of the principles of real estate and urban land economics which will prepare him to engage in professional real estate activities or general business. The student in the Division of Business Administration seeking a career in real estate development, land management, real estate finance, insurance, and related fields will have the opportunity to select courses in economics, political science, sociology, and other areas so as to develop a broad educational background in this field of study.

Lower Division Requirements. Business Administration 1A, 1B, 2, 30A, 30B, 80, Economics 1A, 1B, and 2 or Mathematics 12.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 140, 150, 170, 171, 173, 174, Economics 138; and nine units selected from Business Administration 100, 106, 107, 121, 153, 172, Economics 127, 142, 187, and Political Science 160 (this latter course being recommended as a part of the nine units for most majors). In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

MINORS

Banking and Finance. A minor in banking and finance is offered to students who are not business administration majors. The minor consists of 15 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and Economics 135.

Insurance. A minor in insurance is offered to students who are not business administration majors. Students desiring this minor will include Business Administration 1A-1B, 30A-30B, and nine upper division units which must include Business Administration 120 and either Business Administration 121 or 124.

Real Estate. A minor in real estate is offered to students who are not business administration majors. To minor in real estate a student is required to complete a minimum of 21 units, including Business Administration 1A-1B, 30A-30B, and nine upper division units which must include Business Administration 170 and six units to be selected with the approval of the adviser in real estate.

DEPARTMENT OF MANAGEMENT

Faculty

Professors: Belcher, Hodge, Torbert
Assistant Professors: Galbraith, Peters (Chairman), Pierson, Srbich
Lecturers: McGuire, Myrick

MAJOR IN MANAGEMENT WITH THE B.S. DEGREE

Students majoring in management must complete all three of the following requirements: (1) Requirements in the professional curriculum of the major, (2) requirements in one of the areas of concentration of the major, and (3) in addition to the major, pattern requirements outside the Department of Economics and the Division of Business Administration.

(1) The Major: Professional Curriculum

Lower Division Requirements. Business Administration 1A, 1B, 30A, 80, Economics 1A, 1B, Mathematics 12, and Mathematics 21 and 22 (the latter two courses may be counted in general education).

Upper Division Requirements. Business Administration 127, 131, 132, 134, 138, 140, 145, 149, 150, Economics 100A, and Mathematics 130A (32 units).

(2) The Major: Areas of Concentration

(a) Business Management. 12 units to include one upper division course selected from any four of the following fields: accounting, business law, economics, finance, insurance, marketing, personnel management, production management, purchasing, and real estate.

(b) Personnel Management. (1) at least six units from Business Administration 141, 142, and 143; and (2) six units from Economics 150, 151, 152, Psychology 105, 121, 124, 133, and Sociology 120. (Total 12 units.)

(c) Production Management. (1) Business Administration 136 and either 137 or 138; and (2) six units from Business Administration 162, Economics 107, Philosophy 121, 122, Psychology 121, 124. (Total 12 units.)

(3) Pattern Requirements Outside the Department of Economics and the Division of Business Administration

At least nine units in one of the departments of the Divisions of Life Sciences, Physical Sciences, or Social Sciences (except Economics) as listed in (a) below; and at least nine units in one of the departments of the Divisions of the Humanities or Fine Arts as listed in (b) below.

Students in the AFROTC program may substitute the four-year program of lower and upper division Air Science courses for this 18-unit requirement.

No courses taken to satisfy these requirements in (1) may be used to satisfy any other requirement of (2) and (3) or of general education.

(a) Divisions of Life, Physical, and Social Sciences. Courses to be selected, with consent of adviser, from all upper division courses (except in economics) and Chemistry 1A-1B, 4 or 5, and Physics 4A-4B-4C.

(b) Divisions of the Humanities and Fine Arts. Courses to be selected, with consent of adviser, from all upper division courses and Art 5, 50, 51, 52A-52B, Music 52, and Speech Arts 4, 60A-60B, 61, and 64. In foreign languages, all courses, except that at least nine units must be taken in one language.

MINORS IN MANAGEMENT

Business Management. A minor in business management is offered to students who are not business administration majors. The minor consists of 15 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132 and six additional units of upper division courses approved by the chairman of the Management Department.

Personnel Management. A minor in personnel management is offered to students who are not business administration majors. To minor in personnel management, a student is required to complete 21 units, including Business Administration 1A-1B, Economics 1A-1B, and nine upper division units which must include Business Administration 140 and six units to be selected with approval of the chairman of the Management Department.

Production Management. A minor in production management is offered students who are not business administration majors. To minor in production management, a student is required to complete the following 21 units: Economics 1A-1B and 15 units of upper division courses in economics and business administration as approved by the chairman of the Management Department.

CERTIFICATE IN INDUSTRIAL MANAGEMENT
(Offered in the Extension Courses Program)

For a description of this certificate program, refer to the section of this catalog on Certificates, under the General Programs.

DEPARTMENT OF MARKETING

Faculty

Associate Professors: Hale (Chairman), Sharkey, Lawson
Assistant Professors: Barber, Darley, Saigh
Lecturer: Bergeson

MAJOR IN MARKETING WITH THE B.S. DEGREE

The major is planned so that the student will attain a comprehensive, rigorous knowledge of marketing. It is important to the student that he integrate this professional knowledge with the mainstream of culture and education. Sixty-two units of professional courses are required for the major in marketing. The student is urged to plan the additional 66 units to include not only the general education requirements but also exploration of as many subject fields in other departments of the college as possible, preferably concentrating his work in a limited number of fields and in upper division courses. Consultation with the adviser is recommended.

MAJOR

Lower Division Requirements. Business Administration 1A, 1B, 30A, 30B, 50, 80, Economics 1A, 1B, and either Economics 2 or Mathematics 12.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 140, 150, 151, and 157; 12 units selected from Business Administration 102, 152, 153, 154, 161, 162, 163, 164, 165; and six units selected from business administration and/or economics courses with the approval of the marketing adviser. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

MINOR IN MARKETING

A minor in marketing is offered to students who are not business administration majors. This minor consists of 17 to 22 units to include Business Administration 50 and Economics 1A-1B in the lower division and nine units of upper division courses, including Business Administration 150 and six units selected with approval of the adviser in marketing.

DEPARTMENT OF BUSINESS EDUCATION

Faculty

Professor: Gibson

Associate Professors: Archer, Crawford, M. (Chairman), Le Barron, Straub

Assistant Professors: Langenbach, Pemberton

Lecturers: Stubbs, Tidwell, F.

MAJOR IN BUSINESS EDUCATION WITH THE B.S. DEGREE

This major in business education with the B.S. degree is primarily for the student who is planning to take the general secondary credential in the postgraduate year with business education as the teaching major.

The student must complete (1) the basic lower division requirements, (2) the basic upper division requirements, and (3) the requirements in **two subfields** listed below of which **accounting** or **secretarial** must be one, for a minimum of 36 upper division units.

(1) Basic Lower Division Requirements. Business Administration 1A, 1B, 30A, 30B, 72 or equivalent, 73, 80, Economics 1A, 1B, and 2 or Mathematics 12.

(2) Basic Upper Division Requirements. Business Administration 127 or Economics 135, Business Administration 132, 150, 182, 185, 186, 188, 189, and three units of electives in business administration selected with approval of the adviser.

(3) Subfield Requirements. Complete the courses in two of the following subfields, of which accounting or secretarial must be one:

Accounting. Business Administration 2 and six units selected from Business Administration 100, 102, or 106.

Secretarial. Business Administration 75B or equivalent, and Business Administration 183A-183B.

Business Management. Business Administration 2 and six upper division units selected in consultation with the adviser in business education.

Merchandising. Business Administration 50, 160, and 181. (Students who plan to meet the requirement of the State Department of Education for a special secondary limited credential in vocational business education must have, in addition to the above requirements, one year of practical experience in a distributive occupation and four semester units to be selected from Business Administration 152, 153, and 159.)

MAJOR IN OFFICE MANAGEMENT WITH THE B.S. DEGREE

Lower Division Requirements. Business Administration 1A, 1B, 30A, 30B, 71 or equivalent, 73, 80, Economics 1A, 1B, and 2 or Mathematics 12.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 150, 184, 185, 186, 188; and 18 units selected from Business Administration 100, 102, 140, 142, 196, Economics 170, and Psychology 121.

MAJOR IN SECRETARIAL MANAGEMENT WITH THE B.S. DEGREE

Lower Division Requirements. Business Administration 1A, 1B, 30A, 30B, 72 or equivalent, 73, 80, Economics 1A, 1B, and 2 or Mathematics 12.

Upper Division Requirements. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 150, 183A, 183B, 184, 185, 186, 188; and 12 units selected from Business Administration 100, 102, 140, 142, 196, Economics 170, and Psychology 121.

MINORS

Business Education. A minor in business education is offered to students who are not business administration majors. This minor consists of 15 to 22 units to include Business Administration 1A-1B, 71 and 72, or equivalents, and nine units of upper division courses selected with approval of the adviser in business education.

Secretarial Management. A minor in secretarial management is offered to students who are not business administration majors. This minor consists of 15 to 22 units. The student must demonstrate competency equal to that required in Business Administration 72 before he can be admitted to the minor program. The minor must include Business Administration 75A-75B, or their equivalent, in the lower division and 12 units in the upper division to include Business Administration 183A-183B, 185, 186, and 188.

TEACHING MAJOR IN BUSINESS EDUCATION WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) the teaching major in business education, (2) the additional professional courses in teacher education, and (3) present evidence of work experience in the field named in the credential. A minor is not required for the bachelor's degree.

Teaching Major

The major consists of the prescribed basic upper division courses, totaling 24 units, plus the prescribed upper division courses in two of the subfields, of which accounting or secretarial must be one. Courses in the major may not be counted in general education.

As preparation for the major are the required prerequisite and related lower division courses. These courses may not be used in general education unless otherwise provided in the description of requirements.

The student must complete the following:

(1) Basic Lower Division Requirements. Business Administration 1A, 1B, 30A, 30B, 72 or equivalent, 73, 80; and Economics 1A and 1B which may be counted in general education.

(2) Basic Upper Division Requirements. 24 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 150, 182, 185, 186, 188, 189, and Psychology 104A.

(3) Subfield Requirements. Complete the courses in two of the following subfields, of which accounting or secretarial must be one:

Accounting. Business Administration 2 and six units selected from Business Administration 100, 102, and 106.

Secretarial. Business Administration 75B or equivalent, and Business Administration 183A-183B.

Business Management. Business Administration 2.

Merchandising. Business Administration 50, 160, and 181. (Students who plan to meet the requirement of the State Department of Education for a special secondary limited credential in vocational business education must have, in addition to the above requirements, one year of practical experience in a distributive occupation and four semester units to be selected from Business Administration 152, 153, and 159.)

Professional Courses in Teacher Education

In addition to the teaching major in business education, the student must complete 24 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121U, 180; one of the following: Education 121Q, 121R, or 121S; and Health Education 151.

Work Experience

Satisfactory evidence must be presented of one-half year, or 1,000 hours, of approved experience in the field named in the credential.

TEACHING MAJOR IN BUSINESS EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in business education may be completed in one of the following ways:

(1) By completing the special secondary credential in business education with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing the business education major for the B.S. degree (without the special secondary credential), and the additional courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include five graduate units in Business Administration 270 and 271.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN BUSINESS EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in business education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units, exclusive of course equivalents, and must include Business Administration 71, 72, 1A, 1B; and nine upper division units in business administration courses selected with approval of the adviser in business education.

CERTIFICATE IN OFFICE MANAGEMENT
(Offered in the Extension Courses Program)

For a description of this certificate program, refer to the section of this catalog on Certificates, under the General Programs.

EDUCATION
PROFESSIONAL CURRICULA

Faculty

Professors: Alcorn, Apple, Ballantine, Brydegaard, Friedrich, Fulkerson, Gjerde, Gray, Grisier, Houseman, Hunter, Kinder, Koester (Chairman), Linley, Malcolm, Prouty, Schrupp (Dean), Schunert, Stone, J. P., Stough, White, A.

Associate Professors: Anderson, E., Anderson, P. S., Bacon, Baker, D., Campbell, Crum, Fishburn, Fisher, Gates, Gega, Groff, Hill, Klemer, Lienert, Nardelli, Person, Platz, Schmidt, Strand, Trimmer, Wetherill

Assistant Professors: Birch, Brendt, Briggs, Bruce, Carey, Charles, Creech, DuBois, Falk, Holt, Huls, Ikeda, Inskeep, Johnson, D., Kendall, Klann, Koehn, LaPray, McVay, Petteys, Plazak, Rixman, Rodney, Ross, Rowland, Servey, Singer, Smith, H., Strom, Tossas, Walsh, Wilding

Instructors: Bradley, Epler

ACCREDITATION

San Diego State and the Division of Education are fully accredited by the California State Board of Education and the National Council for Accreditation of Teacher Education.

BUREAU OF EDUCATIONAL RESEARCH

The Bureau of Educational Research, within the Division of Education, is administered by a Coordinator and his assistant. The objective of the bureau is to improve the quality of education through research by (1) fostering research on the part of individual faculty members who wish to make use of its services, (2) cooperating in community and service studies, (3) serving faculty graduate advisers as a resource in research design and techniques, and (4) engaging in the dissemination of information about education.

COURSES IN EDUCATION

Courses in education are described in the section of this catalog on Programs and Courses.

CREDENTIALS

CHANGES EFFECTIVE JULY 1, 1963

Legislation, enacted in 1961, changes the types of credentials for school service and the requirements for them. Specific requirements will be established by the State Board of Education by July 1, 1963.

Students, who on July 1, 1963, have completed two years of college and are enrolled in a teacher education program in any institution of higher learning approved by the California State Board of Education, may complete the credential program in which they are then enrolled. All other students must meet requirements for the new credentials. The elementary teaching specialization requires five years of preparation, but has a provision for beginning teaching after four years. The secondary specialization requires five years of preparation. These credentials and their authorization are listed as follows:

CREDENTIALS AVAILABLE JULY 1, 1963

Credential	School Service Authorized
(1) A standard teaching credential with specialization in:	
(a) Elementary teaching	Teach kindergarten and grades one through nine
(b) Secondary teaching	Teach major and minor in grades seven through twelve
(c) Junior College teaching	Teach major in junior college
(2) A standard designated subjects credential	Teach trade or technical courses at grade levels specified on the credential
(3) A standard designated services credential	Perform pupil personnel services or health services as specified on the credential
(4) A standard supervision credential	Serve as supervisor, consultant, or other intermediate administrative position including school principal.
(5) A standard administration credential	Serve as a district superintendent or in intermediate level administrative positions, including those services authorized by the standard supervision credential

CREDENTIAL PROGRAMS CURRENTLY AVAILABLE

Programs leading to the credentials listed below are currently available. Students entering teacher education after July 1, 1963, must meet new requirements to become effective at that time. (Refer to the list of new credentials outlined above.)

Anyone wishing to teach or provide other types of professional service in the public schools of California must hold a credential issued by the State Department of Education. Several kinds of credentials are available, each authorizing certain specific kinds of service. A student who completes the prescribed program at San Diego State College for any of the credentials listed below will be recommended by the college to the State Department of Education for the credential.

This section of the catalog describes (1) the general nature of all credentials and combinations of certain credentials, (2) admission to teacher education, and (3) basic program of study for all credentials. The program of studies for each of the majors within the special secondary, general secondary, and junior high school credentials can be found in the section of this catalog on Programs and Courses, under the heading of the department offering the major.

CREDENTIALS CURRENTLY AVAILABLE

Credential	School Service Authorized
General Elementary	Kindergarten through grade 8.
Kindergarten-Primary	Kindergarten through grade 3.
Junior High School A special program is offered in combination with the General Elementary Credential	All subjects in grades 7, 8, and 9 in all elementary or secondary schools.
Special Secondary in Art	Art in all grades of the public schools.
Special Secondary in Business Education	Business education subjects in all grades of the public schools.

Credential	School Service Authorized
Special Secondary in Homemaking Education	Homemaking education subjects in all grades of the public schools.
Special Secondary in Industrial Arts	Industrial arts in all grades of the public schools.
Special Secondary in Music	Music in all grades of the public schools.
Special Secondary in Physical Education	Physical education in all grades of the public schools.
Special Secondary in Speech Arts	Speech in all grades of the public schools.
Health and Development	Serve as supervisor of health.
Teaching Exceptional Children	To teach mentally retarded or speech correction and lipreading in remedial classes in all grades of the public schools.
General Secondary	All subjects in the public schools in grades 7 through 14.
General Pupil Personnel Services	To serve in the areas of psychology, psychometry, counseling, or child welfare and attendance in all grades of the public schools.
Junior College	Serve as a teacher in junior college.
Administration in Elementary Education	To serve as superintendent, deputy superintendent, assistant superintendent, principal, vice-principal, and supervisor of instruction in elementary schools.
Administration in Secondary Education	To serve as superintendent, deputy superintendent, assistant superintendent, principal, vice-principal, and supervisor of instruction in secondary schools.
Supervision	To supervise instruction in the field or on the grade level for which a regular valid basic credential is held.

COMBINATION OF CREDENTIALS

(Not available to students entering teacher education after July 1, 1963.)

Students who seek more than one teaching credential must complete in full the curriculum for each, with only such exceptions as are indicated in the statement of requirements.

GENERAL ELEMENTARY AND JUNIOR HIGH SCHOOL CREDENTIALS

A combined program leading to the junior high school and general elementary credentials is available. Entering students interested in such a program should request an adviser for the junior high school credential.

A combination of the general elementary credential and the junior high school credential may be secured by completing the requirements for the elementary school credential and the following additional requirements:

(a) A junior high school teaching major plus a teaching minor to be approved by the Coordinator of Secondary Education.

(b) Education 121 in the major field or equivalent elementary education course.

(c) Three units of directed teaching, or equivalent, in a junior high school.

(d) Education 100 or 102.

JUNIOR HIGH SCHOOL AND SPECIAL SECONDARY CREDENTIALS

A combination of the junior high school credential and a special secondary credential may be secured by completing the requirements for the special secondary credential and the following additional requirements:

(a) A junior high school teaching minor approved by the Coordinator of Secondary Education.
(b) Education 121 in the junior high school teaching minor.
(c) Three units of student teaching in the junior high school teaching minor.

CREDENTIALS FOR GENERAL ELEMENTARY AND TEACHING EXCEPTIONAL CHILDREN

The general elementary credential and the credential for teaching exceptional children in either area of specialization, speech correction and lipreading in remedial classes, or teaching of the mentally retarded, may be combined by careful scheduling of all requirements for both credentials. It will probably be necessary to attend one or more summer school sessions in order to complete the requirements for the combined credentials within a four-year period.

DEGREES

MASTER'S DEGREE

The master of arts degree with a major in education with concentrations in nine areas is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

BACHELOR'S DEGREE

Graduation Requirements. Requirements for graduation with a bachelor's degree are outlined in the section of this catalog on Graduation Requirements. Students taking a degree and credential concurrently must complete requirements for both the degree and the credential.

Bachelor of Arts Degree. The bachelor of arts degree is offered with one of the following credentials: general elementary, kindergarten-primary, junior high school, or special secondary.

For a statement of changes in credential programs which become effective after July 1, 1963, refer to the section above on Credentials.

Bachelor of Education Degree. The bachelor of education degree is currently offered with the general elementary or kindergarten-primary credential to teachers holding a provisional credential in either of these areas.

Bachelor of Vocational Education Degree. The bachelor of vocational education degree is currently offered to vocational teachers of California who are recommended by the Board of Examiners for Vocational Education.

ADMISSION TO TEACHER EDUCATION

APPLICATION FOR ADMISSION

Students who plan to earn credentials for teaching or other school service should apply for admission to teacher education during either the second semester of the freshman year or the first semester of the sophomore year. Students entering the college at the end of the sophomore year will apply at the beginning of the junior year. Application may be made at a special meeting held each semester. (For date and place of this meeting, refer to the calendar in this catalog.) No courses in education may be taken until admission is granted; any exception to this rule must have the approval of the appropriate admissions committee.

STANDARDS FOR ADMISSION

The standards for admission to teacher education are different from those for admission to the college; therefore, admission to the college does not guarantee that the student will be admitted to teacher education. The committees on admission to teacher education will base their decision upon the following factors:

1. A satisfactory score on the college aptitude test taken at the college.
2. Competence in the use of English and satisfactory ability in arithmetic, handwriting, reading and spelling as indicated by scores on fundamentals tests for those applying for elementary education. (See the college calendar for dates of these tests which should be taken in the second semester of the freshman year.)
3. Satisfactory scores on a general culture test, English proficiency test, and mathematics competency test, for junior high school, special secondary, health and development, general secondary or junior college credentials. (See the college calendar for dates of these tests, which should be taken in the second semester of the freshmen year.)
4. Satisfactory quality of speech and voice control.
5. Results of the college health examination given for teaching credential candidates.
6. Interviews with representatives of the Admissions Committee and, for secondary education only, with a representative of the department in which the student is a major. The Admissions Committee will base its evaluation upon the following factors established by the State Board of Education: intelligence, scholarship, professional aptitude, personality and character, speech and language usage, and many-sided interests.
7. Satisfactory grade point averages on the first two years or more of a given curriculum or its equivalent and on all subsequent work taken for the credential. Minimum grade point averages are indicated below:
   a. Elementary, kindergarten-primary, special secondary credentials, 2.20.
   b. Junior high school credential, 2.50.
   c. Health and development credential, 2.20.
   d. General secondary credential: all subjects, 2.50, and major field, 2.75.
   e. Junior college credential, 2.50.
8. For administration, supervision, and general pupil personnel services credential candidates, a satisfactory grade point average (minimum 2.75) on all work applicable to that credential, exclusive of the work applied to the basic credential.
9. For general secondary credential candidates, an official evaluation and program approved by the authorized departmental representative in the student's major field and by a representative in secondary education.

TRANSFER STUDENTS

Students who have completed two or more semesters of work in another college, upon tranferring to San Diego State College, should make application for admission to teacher education as soon as they enroll in the college. Transfer students admitted to the college with either upper division or graduate standing should take the necessary tests for admission to teacher education given during the testing and advising program before the beginning of their first semester at the college. (See academic calendar for dates.)

TRANSFER STUDENTS WITH PROVISIONAL CREDENTIALS

Teachers with a provisional credential who are teaching and working concurrently toward a regular credential may have a program designed to fit their background. According to present law, teachers on provisional credentials are required

to embark upon a program with an accredited institution leading to a degree and/or a credential before the provisional credential can be renewed. Before the renewal can be certified by San Diego State College, the student must be fully matriculated in the college and must complete admission to teacher education. (Refer to the requirements stated above for admission to teacher education.) Also, at the time of renewal, successful teaching experience must be verified. For an evaluation of college credit completed to date, make formal application at the Evaluations Office, Administration Building, San Diego State College. For additional details, see the Coordinator of Elementary Education or the Coordinator of Secondary Education.

ADVANCED STANDING IN TEACHER EDUCATION

A student transferring into San Diego State College with advanced standing must complete a minimum of six units of professional education work in residence at San Diego State College before recommendation for a credential, regardless of extent of education work already completed elsewhere. Whenever a transfer student has had teaching experience, the college requires that a statement from the employer(s) be filed with the Evaluations Office.

EVALUATION OF CREDITS

After an interval of five years, courses in education are re-evaluated and subject to reduction in credit, in light of such new requirements as may have been put into effect and changes in educational procedures. Students formerly in attendance will not be considered to be working in the curriculum until an evaluation and statement of credit has been secured from the Evaluations Office. All courses taken either at this college or elsewhere must be approved by an official adviser in order to be credited toward meeting credential requirements or pattern requirements for a degree.

BACHELOR OF ARTS DEGREE WITH A CREDENTIAL

CHANGE IN DEGREE REQUIREMENTS, JULY 1, 1963

Students entering elementary education after July 1, 1963, must complete a major and a minor in subjects commonly taught in the public schools; a major in education will not be available.

GRADUATION REQUIREMENTS

The student must complete requirements for the credential which will be earned with the degree and the additional graduation requirements listed below. (For more complete information, refer to the section of this catalog on Graduation Requirements.)

1. A minimum of 124 semester units.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units attempted at this college, and (c) all units in the major. (Refer to the section above on Admission to Teacher Education, Standards for Admission, for higher grade point averages required for a credential.)
4. At least 40 upper division units, to include all courses.
5. One major, and a minor if required by the major field (plus the credential requirements in professional education).

6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education exclusive of courses in the major including lower division prerequisites, unless otherwise provided in the description of the major.

A.B. DEGREE WITH THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

This program will not be available to students entering teacher education after July 1, 1963.

Currently available are the general elementary and kindergarten-primary credentials to be earned concurrently with the A.B. degree in teacher education. All students in elementary education must complete requirements for the general elementary credential. Those who wish to specialize further in kindergarten-primary education may elect courses leading to the additional credential.

REQUIREMENTS

The student must complete 45 units of general education and the following: (1) the lower division prerequisites for the credential and degree, (2) a major in elementary education, and (3) one teaching minor selected from those listed below. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

Prerequisites

Prerequisites for Both Credentials. Art 9 and 10, or equivalents; Music 7A, which may be counted in general education, Music 7B; Physical Education 53; and Geography 1 and 2, both of which may be counted in general education (21 units). Additional prerequisites for the kindergarten-primary credential: Music 10A-10B, or qualifying by examination (2 units).

Major in Elementary Education

Major for Both Credentials. 39-43 upper division units to include the following courses: Education 112, 151 (6 units); Education 130 (13 units); Education 131 (7 units); Education 111 (2 units); Education 101 (2 units); Education 181 (7 units); Health Education 150 (2 units). Additional requirement for the kindergarten-primary credential: Education 132 (4 units).

Minors for the Credentials

Minor for Both Credentials. The minor is described in the section of this catalog on Programs and Courses, under the heading of the department offering the minor. The minor must be selected from the following:

English	Industrial arts	Russian
French	Library science	Social science
General science	Mathematics	Spanish
German	Physical education	Speech arts

Students taking the general elementary credential in combination with a special secondary credential may use the major in the special secondary field for the minor in the elementary field.

ACCELERATED CREDENTIAL PROGRAM FOR STUDENTS WITH FOUR-YEAR DEGREES

Students with A.B. or B.S. degrees are eligible for an accelerated program leading to a general elementary and/or kindergarten-primary credential. The normal three-semester sequence in professional education is condensed into two semesters. Requirements for admission to teacher education are the same as for undergraduates. For additional information see the Coordinator of Elementary Education.

A.B. DEGREE WITH THE JUNIOR HIGH SCHOOL CREDENTIAL

This program is not available to students entering teacher education after July 1, 1963.

Under current regulations, the junior high school credential may be earned with the A.B. degree in teacher education. The student must complete 45 units of general education and the following: (1) a teaching major, (2) a minor approved by the Coordinator of Secondary Education, and (3) a pattern of 24 units of professional courses in teacher education. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

TEACHING MAJORS AND MINORS

The major consists of a pattern of prescribed courses totaling not less than 24 units, 18 units of which must be in upper division courses, with the exception of the major in general science. Courses in the major may not be used to meet the 45 units of general education requirements unless otherwise provided in the description of the major.

Majors and minors are described in the section of this catalog on Programs and Courses, under the heading of the department offering the major or minor.

Teaching Major. Teaching majors are offered in the following:

English	General science	Mathematics
French	German	Social science
		Spanish

Minors. Minors must be selected with approval of the Coordinator of Secondary Education.

PROFESSIONAL COURSES IN TEACHER EDUCATION

Professional courses in teacher education include 24 units in the following: Education 100, 110, 120, 121 (methods in the major and minor fields), 180, plus Health Education 151.

A.B. DEGREE WITH THE SPECIAL SECONDARY CREDENTIAL

This program is not available to students entering teacher education after July 1, 1963.

Under current regulations, the special secondary credential may be earned with the A.B. degree in teacher education in one of the fields named in the credential. In addition to 45 units of general education courses, the student must complete one teaching major and the pattern of 22 units of professional courses in teacher education. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

TEACHING MAJORS

The major consists of a prescribed pattern of courses totaling not less than 24 upper division units, exclusive of courses used to meet general education require-

ment. Lower division prerequisite and related courses required in preparation for the major may not be used in general education unless otherwise provided in the description of the major.

Teaching majors are offered in the following fields:

Art	Industrial arts	Speech arts
Business education	Music	
Homemaking education	Physical education	

Descriptions of the majors may be found in the section of this catalog on Programs and Courses, under the heading of the department offering the major.

PROFESSIONAL COURSES IN TEACHER EDUCATION

Professional courses in teacher education consist of 22 upper division units to include the following: Education 100, 110, 120, 121 (methods in the major), 180, and Health Education 151. Certain of the majors require additional professional education courses. These are listed in each case along with the requirements for the major.

BACHELOR OF EDUCATION DEGREE

B.E. DEGREE WITH THE GENERAL ELEMENTARY OR KINDERGARTEN-PRIMARY CREDENTIAL

Provisions for the granting of the bachelor of education degree are made in the California Administrative Code, Chapter 5, Section 40502. In addition to the outline below, the student must complete the graduation requirements listed in the section of this catalog on Graduation Requirements.

PURPOSE OF THE DEGREE

The purpose of this degree is to increase the professional competence of the individual as an elementary teacher in the California public schools. Through the curriculum provided, the applicant is guided into those learning experiences which best meets his cultural and professional needs on the basis of his previous preparation and of the services he is to render.

ELIGIBILITY FOR CANDIDACY

To be eligible to enter the program for this degree at San Diego State College the applicant must obtain full admission to the college, be admitted to the teacher education program of the college, must have completed a minimum of 60 semester units of standard college work acceptable toward the degree, and must hold a California provisional kindergarten-primary or provisional general elementary credential.

RESIDENCE REQUIREMENTS

A minimum of 24 semester units shall be earned in course work at San Diego State College (exclusive of credit-by-examination). Twelve of the 24 units must be in residence courses and must be secured after the candidate has earned at least 90 semester units.

REQUIREMENTS FOR THE DEGREE

The candidate must complete a four-year college course of 124 semseter units as defined by the college, must meet the grade requirements established by the college for a bachelor's degree and credential, and must include in his program the following requirements:

(1) General education ..... 45 units

Courses in general education must be distributed as follows:

(a) Social sciences 9
Shall include required instruction in American history, institutions and ideals; U. S. Constitution; and California state and local governments; and courses selected from the fields of anthropology, economics, geography, history, political science, sociology, and similar fields. Courses must be selected from two or more of these fields.

(b) Natural sciences 9
Shall include the fields of astronomy, biology, botany, chemistry, geology, physics, physiology, zoology, and similar fields. At least one course must be selected from a physical science and one from a life science.

(c) Literature, philosophy or the arts 6
Courses in fine and practical arts shall not exceed 3 of these 6 units.

(d) Health and physical education 2

(e) Oral and written expression 3

(f) Psychology 2

(g) Additional units in general education 14
May be selected in whole or in part from the foregoing six general areas or may include courses in family life education or mathematics or not more than 6 units in foreign language. At least one course in general education must include instruction in fire prevention.

(2) Teaching background, minimum ..... 15 units

In addition to the 45 semester units required in general education, the teaching background in subject fields shall be selected according to the needs of the applicant, as prescribed by the teacher education department, with not less than 2 semester units in each of at least four of the following fields:

(a) Art. Includes subject matter, laboratory or activity in the graphic or industrial arts.

(b) English and speech. Includes oral and written expression, American or world literature, children's literature, dramatics, or use of books and libraries.

(c) Physical education, health, and hygiene. Includes personal hygiene, first aid, health education, games, rhythms, or physical activities.

(d) Mathematics.

(e) Music.

(f) Social science, including geography.

(g) Natural science.

(3) Major in elementary education ..... 24 units

Shall include courses from each of the following areas:

(a) General elementary school methods or methods of teaching basic elementary school subjects.

(b) Principles of elementary education or elementary school curriculum.

(c) Child psychology or child growth and development.

(d) Other appropriate professional courses in education including instruction in the use and educational value of audio and visual aids.

(4) Credit for teaching experience ..... 8 units

A maximum of 8 semester units may be allowed for directed teaching and/or teaching experience on the elementary school level. Credit for teaching experience may be allowed at the rate of four units for one year of verified successful teaching experience.

(5) Additional units required ..... 32 units

Courses to complete the 124 units required for the degree shall be selected from those offerings of the college that best serve the cultural and professional needs of the candidate.

Total ..... 124 units

CREDIT-BY-EXAMINATION

A maximum of 30 units may be secured by examination in subjects included in the fields of study mentioned above. Students requesting credit-by-examination must comply with the provisions of the college established for this purpose. Refer to the section of this catalog on General Regulations, Credit-by-Examination.

BACHELOR OF VOCATIONAL EDUCATION DEGREE

ELIGIBILITY

The purpose of this degree is to promote the professional advancement of the vocational teachers in California. Eligible candidates for this degree shall be limited to those vocational teachers who meet the requirements established in the California Administrative Code, Chapter 5, Section 40503, and who are recommended by the Board of Examiners for Vocational Teachers.

MAJOR

The major in vocational arts consists of at least 24 upper division units to include the credits recommended by the Board of Examiners for Vocational Teachers for the applicant's occupational, managerial, and supervisory experience, and additional courses, if needed, to complete the minimum of 24 upper division units, to be selected with approval of the administrative chairman of the Division of Education.

The professional courses in teacher education completed by the applicant may be used toward electives.

GRADUATION REQUIREMENTS

Graduation requirements for this degree are the same as those for the A.B. degree in the General Programs. Refer to the section of this catalog on Graduation Requirements for more complete information. Further information on this degree may be obtained from the administrative chairman of the Division of Education.

CREDENTIAL PROGRAMS FOR TEACHING AND SCHOOL SERVICE

HEALTH AND DEVELOPMENT CREDENTIAL

This program will be included under Designated Services Credential after July 1, 1963.

Under current regulations, requirements for this credential are outlined as follows:

Courses and field experiences are available which lead to the credential required for employment as a school nurse.

In addition to the general requirements of the State of California for all credentials, applicants for admission to the health and development credential program shall:

1. Verify possession of a current California registered nurse license issued by the State of California.
2. Verify preparation and/or experience under ONE of the following:
   a. Possession of a bachelor's degree granted by an institution accepted for credentialing purposes by the California State Board of Education.
   b. Completion of a program of college or university study in public health nursing accredited by the National League for Nursing.
   c. Satisfactory full-time service as a school nurse in the schools of California for three years within the five years immediately prior to September 15, 1957.
3. Verify personal qualifications suitable for employment as a school nurse through personal interviews or communications from professional associates.
4. File a Program Planning Sheet and application forms with the Education Division Office.

CURRICULA LEADING TO HEALTH AND DEVELOPMENT CREDENTIAL

The candidate shall complete 36 semester units of acceptable preparation. This may be included as part of the preparation presented for the bachelor's degree.

Following are listed the areas of preparation outlined by the California State Department of Education and the program of courses which will provide the acceptable preparation:

	Units
A. Prevention and control of disease.	
Health Education 210B, Seminar: Communicable and Non-communicable Disease	3
B. Growth and development of children and youth and the learning process.	
Education 110, Development and Learning	4
or Education 111, Educational Psychology, plus	
Education 112 or 113, Development	or 5
C. Principles and practices of public health nursing.	
Nursing 125, Public Health Nursing	4
D. Organization, administration, and legal aspects of the school health program.	
Health Education 153, Administration of the School Health Program	3
E. The nurse in the school health program.	
Nursing 160, Nursing in School Health Services	3

F. Materials and methods of instruction in health education.	
Education 121P, Methods in Health Education	2
G. Scope, function, and role of public education.	
Education 102, Secondary Education	3
H. Counseling and guidance.	
Education 115, Guidance in Elementary Education, or Education 230, Guidance Problems in Secondary Education	3
Education 233, Guidance Counseling Techniques	3
Education 133, Principles of Interviewing	3
I. Mental health.	
(This area is fulfilled within the above courses.)	
J. Supervised field observation.	
Education 182, Directed Internship	8

CREDENTIAL TO TEACH EXCEPTIONAL CHILDREN

Provision will be made for this program after the credential changes to be effective July 1, 1963.

Under current regulations, the credential is available in the following areas of specialization:

A. Speech Correction and Lipreading in Remedial Classes

B. Teaching of the Mentally Retarded

CREDENTIAL REQUIREMENTS

In addition to the general requirements of the State of California for all credentials, the following are requirements for the credential to teach exceptional children:

(1) Possession of, or concurrent application for, a valid kindergarten-primary, general elementary, junior high school, or general secondary credential.

(2) Satisfactory completion of interviews for admission to the program for exceptional children.

(3) Completion of the work for the general area and the area of specialization as indicated below.

a. The general areas:	*Units*
Education 170, Exceptional Children	3
Education 115 or 230 or Psychology 152, Counseling and Guidance	3
Speech Arts 170, Speech Development	3
Education 182 or 371, Directed Internship	4
Total	13

b. Area of specialization:

1. *Speech Correction and Lipreading in Remedial Classes:*	
Speech Arts 100, Phonetics	3
Speech Arts 174, or Education 174, Principles and Methods of Speech Correction	3
Speech Arts 176, Stuttering and Neourological Disorders	3
Speech Arts 171, or Education 177, Aural Rehabilitation	3
Speech Arts 178, or Education 178, The Teaching of Lipreading	2
Speech Arts 179, Clinical Methods in Speech Correction	2–4
Speech Arts 180, Field Work in Clinical Practice in Speech Correction	4–6
Total	20–24
Grand total	33–37

It is strongly recommended that students in the area of speech and hearing therapy obtain as much background in psychology as possible.
Suggested coures are:
Psychology 131, Psychology of Personalty (3)
Psychology 150, Abnormal Psychology (3)
Psychology 151, Introduction to Clinical Appraisal (3)

2. *Teaching the mentally retarded:*

Education 171, Curriculum and Methods for Mentally Retarded Children	3
Art 10 or 110, Crafts in the Elementary School	3
(Education 172, Workshop for Teaching the Mentally Retarded, meets the requirements for Education 171 and Art 10 or 110 when taken for 6 units)	
Psychology 109, Mental Deficiency	3
Electives (a minimum of 3 units to be selected in consultation with adviser)	3
Total	12

By careful scheduling it is possible to earn this credential in either area of specialization concurrently with the basic credential. The student should plan carefully his schedule of studies with the education adviser for the credential if he wishes to finish the credential within the four-year undergraduate period. It may be necessary to attend summer school to achieve this.

GENERAL SECONDARY CREDENTIAL

This program will be included under the Standard Teaching Credential with specialization in secondary teaching after July 1, 1963. Under current regulations, the program for this credential is described below.

GENERAL INFORMATION

A candidate for the general secondary school credential must complete the requirements for an A.B. or B.S. degree with prescribed work in one of the teaching majors and one of the teaching minors listed below.

CREDENTIAL REQUIREMENTS IN GENERAL EDUCATION

The general education requirements, or those in the liberal arts and sciences program, at this college will satisfy those required for the credential. Students who have received the bachelor's degree from another college must have earned at least 40 units of general education to include a minimum of six units in each of the following areas: (1) science and mathematics, (2) practical and fine arts, (3) social studies, (4) communicative arts. In addition, all candidates for the credential must complete from 24 to 30 units in a graduate year.

MAJORS COMMON TO BOTH GENERAL AND SPECIAL SECONDARY CREDENTIALS

Students desiring a major in art, business education, homemaking education, industrial arts, music, physical education, or speech arts may complete the requirements for the special secondary credential simultaneously with the bachelor's degree; then continue with the graduate program. For further details regarding these majors, refer to the section of the catalog on Programs and Courses, under the heading of the department offering the major.

MAJORS AND MINORS FOR THE GENERAL SECONDARY CREDENTIAL

Teaching Majors	Teaching Minors
Art	Art
Biology and general science	Biology and general science
Business education	Business education
English	Economics
French	English
German	French
Health education	German
Homemaking education	Health education
Industrial arts	History
Language arts	Homemaking education
Mathematics	Industrial arts
Music	Mathematics
Physical education (Men)	Music
Physical education (Women)	Physical education (Men)
Physical science and general science	Physical education (Women)
Psychology	Physical science and general science
Social science	Russian
Spanish	Social science
Speech arts	Spanish
	Speech arts

Persons with majors in broad fields (language arts, life science and general science, physical science and general science, or social science) cannot take a minor within the area of their major.

Requirements in the teaching majors and minors are described under the heading of the department offering the major or minor. Refer to the section of the catalog on Programs and Courses.

PROGRAM APPROVAL REQUIRED

Every candidate for the general secondary credential must have a program approved in writing by the departmental representative in the major teaching field and in education as part of admission to the teacher education program.

Any person desiring the general secondary credential should consult with the Coordinator of Secondary Education during his first semester of attendance at San Diego State College.

RECOMMENDED PROGRAM FOR THE GENERAL SECONDARY CREDENTIAL

1. The following courses should be completed before receiving the bachelor's degree: Health Education 151 (may be taken any semester); Education 100 and 110 (should be taken consecutively). Those persons changing from another vocational objective to education during the senior year may take Education 100 and 110 concurrently by special permission of the Coordinator of Secondary Education, following admission to teacher education and a check of the student's qualifications.

	Units
Health Education 151, Health Education for Secondary Teachers	2
Education 100, The Secondary School	4
Education 110, Development and Learning	4

2. After completion of requirements in (1) above, the following courses may be taken either before or after receiving the bachelor's degree; however, they should be taken concurrently with the first directed teaching assignment unless the student has equivalent teaching experience.

	Units
Education 120, The Teaching Process	4
Education 180 or 316, Directed Teaching-Secondary (or equivalent)	3
Education 121 (methods in field of student teaching assignment)	2–4

3. The graduate work must consist of San Diego State College's standard year of work, 24 to 30 semester units of upper division or graduate work, including the following specific requirements:

(a) At least 12-15 semester units completed at San Diego State College.
(b) At least six upper division or graduate semester units in subject fields commonly taught in junior and senior high schools. Graduate work in the major is recommended when this is a teaching subject area field.
(c) Enough units to complete at least a 21 semester unit minor, with a minimum of six semester units of upper division credit in the minor subject area.

For a statement of requirements in the teaching major and minor fields, refer to the department offering the major or minor, in the section of the catalog on Programs and Courses.

4. Professional Education during the graduate year: Completion of the courses listed in (1) and (2) above and the following:

Education 121 (in the field of the second directed teaching assignment if not taken under (2) above	2
Education 230, Guidance Problems in Secondary Education	3
Education 250, Curricular Problems in Secondary Education	3
Education 316, Directed Teaching, or equivalent teaching experience	3–6

GENERAL PUPIL PERSONNEL SERVICES CREDENTIAL

This program will be included in Designated Services Credential after July 1, 1963. Current regulations provide as follows:

In addition to the general requirements of the State of California for all credentials, the following are requirements for admission to the general pupil personnel services credential program:

1. Verification of a bachelor's degree granted by an institution accepted for credentialing purposes by the State Board of Education.
2. Verification of two years of successful teaching experience, or equivalent as stated in Title 5 of the California Administrative Code.
3. Satisfactory completion of at least two interviews with members of the Guidance Studies Committee of the Division of Education.
4. Presentation of a brief professional autobiography including a self-evaluation of potential as a pupil personnel worker.

The program of studies for the credential consists of a minimum of 30 semester hours of postgraduate work consisting of course work and field experiences in a general area and in at least one specialized area. It is possible for students to obtain the credential at San Diego State College in one or more of the following areas of specialization:

1. Pupil counseling
2. Child welfare and attendance
3. School psychometry
4. School psychology

Students desiring to meet the requirements as a school psychologist will be required (1) to meet the requirements of the general pupil personnel services credential in school psychometry and (2) obtain an additional year of graduate work in school psychology.

Further details on this credential are available in the Education Division Office of the college.

JUNIOR COLLEGE CREDENTIAL

This program will be included under the Standard Teaching Credential with specialization in junior college teaching after July 1, 1963. Under current regulations, the program for this credential is described as follows:

GENERAL INFORMATION

This credential entitles the holder to teach only in a junior college. Most of the professional course work will be offered in the evening program. Most major departments have worked out a combined M.A. degree and junior college credential program that would make it possible to obtain both in a calendar year of graduate work. The admission requirements are the same as those for the general secondary credential.

MAJORS AND MINORS

Recommendation of the candidate for the junior college credential will require a subject matter major equivalent to that required for the appropriate master's degree. Candidates who earn the master's degree from this institution with a subject matter major will regularly qualify in this respect. Those with a master's or doctor's degree in subjects from another institution will have their work evaluated to determine equivalency.

San Diego State will recommend for the credential only those candidates who have majored in subject matter fields for which the college is authorized to grant the master's degree. A list of these majors can be found in the Graduate Bulletin and in the section of this catalog on the Graduate Division.

Minors for the credential will be authorized only in those subject matter fields for which minors are available for the bachelor's degree. The minor must be equivalent to that for the general secondary credential. See the list of minors for the general secondary credential above.

PROFESSIONAL COURSES IN TEACHER EDUCATION

Ten semester hours of professional education as follows:

Education 201, The Junior College
Education 223, Educational Psychology: Junior College
Education 251, Instructional Methods and Materials: Junior College
Education 316, Directed Teaching

Directed teaching can be accomplished only in a junior college assignment.

CURRICULA LEADING TO CREDENTIALS IN ADMINISTRATION AND SUPERVISION

These programs will be replaced after July 1, 1963, by programs for the Standard Supervision Credential and the Standard Administration Credential. Requirements under current regulations are described below.

GENERAL REQUIREMENTS FOR ADMINISTRATION AND SUPERVISION CREDENTIALS

In addition to the general requirements of the State of California for all credentials the following requirements are common for admission to and completion of all supervision and administration credentials:

1. Maintain a grade point average of 3.00 on all work applied toward the credential, exclusive of courses required for the basic credential.

2. Admission to the program of administrative studies, which includes:
   a. Completion of information on a personal data sheet and the filing of official transcripts of all college work. (Forms and information available in Division of Education Offices.)
   b. Completion of two counseling interviews with resident staff members teaching courses on the level, elementary or secondary, at which the candidate is working. The sequence of courses for the credential will be planned with the candidate at this time.
3. Admission to the program must be completed at any time previous to enrolling in Education 262, 263, 264, 265, 266, 267, and 360.
4. Candidate should not enroll for more than three semester units of 200 numbered courses applied toward the credential during any single semester when he has a full-time teaching position.
5. Candidate must have completed a minimum of two full years of successful teaching experience before he may be admitted to courses in the core subjects, Education 262, 263, 264, 265, 266, 267, and 360.

CREDENTIAL IN ELEMENTARY SCHOOL ADMINISTRATION

CURRICULA LEADING TO CREDENTIAL IN ELEMENTARY SCHOOL ADMINISTRATION

In addition to the requirements listed above, the candidate shall:

1. Possess a valid general elementary credential.
2. Present written evidence of two years of successful teaching experience on the elementary level.
3. Complete 30 semester units of upper division or graduate work in addition to the holding of the general elementary credential. These units shall include specific courses designated by the California State Board of Education and San Diego State College.
4. Complete a minimum of 15 units of postgraduate work in residence at San Diego State College.
5. Make formal application for an evaluation for the credential at San Diego State College and at the completion of all requirements, make application for the credential.

Course Requirements for the Elementary Administration Credential as Designated by the State Board of Education

A. Courses in undergraduate or graduate training (letters and numbers correspond with State Department Bulletin Credential Regulations):
   1. The scope, functions, and place of the system of public education of elementary and secondary schools; rural and urban schools; vocational education; education for adults; special school programs; auxiliary agencies:
      Education 101 ..... 2 units
   2. Principles and practices of curriculum construction and evaluation:
      Education 240 or 245 ..... 3 units
   3. Measurement and appraisal of educational achievements and aptitudes:
      Education 151 ..... 3 units
   4. Pupil personnel, counseling and guidance, including techniques and practices of child study and parent education:
      Education 115 or 230 ..... 3 units

B. Concurrently with or subsequently to teaching experience, graduate or undergraduate training shall include work in the following subject groups, including directed fieldwork of such a nature as to give the applicant first-hand knowledge of problems and issues as they exist in the public schools:
   1. Federal, state, county and city school organization, administration, and supervision:
      Education 260 ..... 3 units
   2. School finance, business administration, and law:
      Education 270 ..... 3 units
   3. The organization and administration of elementary schools:
      Education 262 ..... 3 units
   4. Elementary school supervision:
      Education 264 ..... 3 units
   5. Fieldwork or internship in school administration and supervision:
      Education 266 or 360 ..... 3–6 units

C. Elective courses in general or professional education to complete 30 units *after receiving the General Elementary Credential or the A.B. degree.*

CREDENTIAL IN SECONDARY SCHOOL ADMINISTRATION

CURRICULA LEADING TO CREDENTIAL IN SECONDARY SCHOOL ADMINISTRATION

In addition to the common requirements listed above, the candidate shall:

1. Possess a valid general secondary credential.
2. Present written evidence of two years of successful teaching experience on the secondary level.
3. Complete 18 semester units of upper division or graduate work in addition to requirements for the general secondary credential. These units shall include specific courses designated by the California State Board of Education and San Diego State College.
4. Complete a minimum of 12 units of postgraduate work in residence at San Diego State College.
5. Make formal application for an evaluation for the credential at San Diego State College and at the completion of all requirements make application for the credential.

Course Requirements for the Secondary Administration Credential as Designated by the State Board of Education

A. Courses in undergraduate or graduate training (letters and numbers correspond with State Department Bulletin Credential Regulations):
   1. The scope, functions, and place in the system of public education of elementary and secondary schools; vocational education; education for adults; special school programs; auxiliary agencies:
      Education 100, or 101 and 102 ..... 4–5 units
   2. Principles and practices of curriculum construction and evaluation:
      Education 250 ..... 3 units
   3. Measurement and appraisal of educational achievement and aptitudes:
      Education 120 or 152 ..... 2–4 units
   4. Pupil personnel, counseling and guidance, including techniques and practices of child study and parent education:
      Education 230 ..... 3 units

B. Concurrently with or subsequently to teaching experience, graduate or undergraduate training shall include work in the following subject groups, including directed fieldwork of such a nature as to give the applicant first-hand knowledge or problems and issues as they exist in the public schools:

1. Federal, state, county and city school organization, administration, and supervision:
   Education 260 ____ 3 units
2. Finance, law, business administration:
   Education 270 ____ 3 units
3. The organization and administration of secondary schools:
   Education 263 ____ 3 units
4. Supervision of instruction and curriculum in the secondary schools:
   Education 265 ____ 3 units
5. Directed fieldwork or internship in administration and supervision:
   Education 267 or 360 ____ 3–6 units

C. Elective courses in general or professional education to complete 18 units in addition to completing requirements for the general secondary credential.

CREDENTIAL IN SCHOOL SUPERVISION

CURRICULA LEADING TO CREDENTIAL IN SUPERVISION

In addition to the general requirements previously listed for administration and supervision credentials, the candidate shall:

1. Possess a bachelor's degree granted by an institution accepted for credentialing purposes by the California State Board of Education and a valid regular California credential.
2. Present verification of desirable personal characteristics for supervision by two persons who have been associated with the applicant in a school administrative or supervisory relationship within the past five years.
3. Present verification by an accredited institution or the chief school administrator of a minimum of five years of successful public school service which the institution or school administrator certifies as constituting an adequate basis for supervision. Criteria shall include such items as superior teaching, curriculum development, community work, individual counseling, and breadth of experience in various grade levels or subject areas.
4. Complete 24 semester hours of postgraduate work of upper division or graduate level concurrent with or subsequent to public school service. Preparation shall include work in each of the following areas:
   a. Philosophy, methods and materials of the applicant's basic credential field with emphasis on how to help teachers in that field: Education 240 or 254 (3 units).
   b. Techniques of supervision: Education 264 or 265 (3 units).
   c. Dynamics of human behavior, group processes and skills of communication: Education 278 (3 units).
   d. Curriculum development: Education 240 or 250 (3 units).
   e. Community activities, including field practice in agencies especially interested in children and youth: Education 266, 267, or 360 (3 units).
   f. The instructional aspects of school plants and equipment, including planning and utilization: Education 262 or 263 (3 units).
   g. School finance and law: Education 270 (3 units).
   h. The responsibility and relationships of teachers, administrators, supervisors, and members of governing boards in the organization of the school system and in the profession: Education 207 or 260 (3 units).

ENGINEERING
PROFESSIONAL CURRICULA

FACULTY

Professors: Capp (Chairman), Morgan, Shutts, Stone, S., Walling
Associate Professors: Bauer, Lodge, Quiett, Rao, Stone, H.
Assistant Professors: Bedore, Burns, Dahlke, Dharmarajan, Fitz, Johnson, P., Lyon, Mastin, Skaar
Instructor: Bilterman

COURSES IN ENGINEERING

The Division of Engineering offers courses at the undergraduate and graduate level. These individual courses are described in the section of this catalog on Programs and Courses. At the undergraduate level, the Division prescribes certain patterns of its courses, combined with those of other academic divisions of the college, as a program of 132 semester units leading to the degree, bachelor of science in engineering. This program is described in detail below. At the graduate level, the Division offers the master of science degree in specific major fields of engineering.

GRADUATE PROGRAM

The master of science degree with a major in mechanical engineering is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

UNDERGRADUATE PROGRAM

The objective of the engineering program at San Diego State College is to provide the intellectual and physical environment best calculated to encourage students to develop their capacities toward a successful career in the profession of engineering. The graduate of this program is able to assume personal responsibility for the development and application of engineering knowledge with wisdom and judgment for the benefit of mankind. He is qualified to take the Engineer-in-Training examination as a first step to professional registration, to enter industry at the junior engineer level, or to continue his formal education at the graduate level. Because the engineer's work is predominantly intellectual and varied, and not of a routine mental or physical character, this program places emphasis upon the mastery of a strong core of subject matter in the physical sciences, mathematics, and the engineering sciences of broad applicability. Woven throughout the pattern is a continuing study of the socio-humanistic facets of our civilization, because the engineering graduate must expect to find his best expression as a leader of men, conscious of the social and economic implications of his decisions.

Although the profession of engineering presents a bewildering array of specialties, the undergraduate student confines his attention during the first two years of the four-year program to a common pattern of course work in fundamentals. During his junior and senior years he may give outlet to his interest in a broad field of engineering by electing a total of 27 units of course work in aerospace, civil, electrical and electronic, or mechanical engineering. Even here, during this upper division work, the student is involved with his fellows in the study of a common core of the engineering sciences; these courses, together with those elected in a specialty field, are taught with an emphasis upon universal application and cross-fertilization of thought.

High School Preparation

The program of 132 semester units prescribed by the Division of Engineering for its bachelor of science degree presumes that the entering student brings a high school preparation which includes physics, chemistry, geometry, trigonometry, two years of algebra, and mechanical drawing. Some remedial courses in these areas may be selected in the college, although delay in graduation usually results. Students with deficiencies are urged to consider enrolling in the Summer Sessions. Placement examinations are specifically required in mathematics and in drawing, in addition to the qualifying examinations taken by all applicants for admission as freshmen to the college.

REQUIREMENTS FOR THE B.S. DEGREE IN ENGINEERING

Graduation Requirements

1. A minimum of 132 semester units for the B.S. degree in engineering.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 36 upper division units, to include all courses.
5. A major in engineering as prescribed by the Division.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education courses in addition to the major, distributed as prescribed in the section of this catalog on Graduation Requirements.

MAJOR IN ENGINEERING

The major in engineering consists of a pattern of prescribed upper division courses totaling 51 units, to include the requirements for all students and the requirements in the student's selected field of specialization. Courses in the major are in addition to 45 units of general education. A minor is not required. (For additional information on general education and requirements for the degree, refer to the section of this catalog on Graduation Requirements.)

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the Division. These courses may not be counted in general education, except for nine units in chemistry and physics and six units in mathematics.

MINOR IN ENGINEERING

A minor in engineering is available to students in other academic divisions of the college. The minor consists of from 15 to 22 units in engineering, nine units of which must be in upper division courses. The courses should follow a logical sequence and must be approved by the chairman of the Division of Engineering.

OUTLINE OF REQUIREMENTS

The program of study for the first two years is the same for all students in the Division of Engineering. The recommended pattern is shown below. Course descriptions and prerequisites are given in the section of this catalog on Programs and Courses.

LOWER DIVISION REQUIREMENTS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Chem. 1A, General	5	Chem. 1B, General	5
Math. 50, Anal. Geom. and Calc.	5	Math. 51, Diff. and Integ. Calc.	4
Engr. 20A, Graphics I	2	Phys. 4A, Principles	4
*Engl. 1A, Composition	3	Engr. 20B, Graphics II	2
*Health Educ. 21, Prin. Healthful Living	2	*Sp. Arts 3, Oral Commun.	2
*Phys. Educ. activity	½	*Phys. Educ. activity	½
	17½		17½

† Sophomore Year

Math. 52, Diff. and Integ. Calc.	4	Phys. 4C, Principles	4
Phys. 4B, Principles	4	Engr. 25, Engr. Materials	3
Engr. 24, Engr. Measurements	3	Engr. 51, Dynamics	3
Engr. 50, Statics	3	*Hist. 17B (or Pol. Sci. 71B)	3
*Hist. 17A (or Pol. Sci. 71A)	3	*Biol. 1, Ideas of Biology	3
*Phys. Educ. activity	½	*Phys. Educ. activity	½
	17½		16½

* General education courses.
† Certain qualified students may, with consent of the adviser, elect one upper division course during the second semester of the sophomore year.

ENGINEERING APTITUDE AND ACHIEVEMENT TESTS

To provide faculty advisers with additional information for aiding students in planning their programs, two types of standardized examinations are given. The Engineering-Physical Science Aptitude Test is given for all entering freshmen students. This test is available three times during the fall semester of each year. Students should refer to the calendar in the current Class Schedule and register with the Test Office. Students admitted to the college with advanced standing may file a transcript of previous college work with the chairman of the Division of Engineering in lieu of taking the aptitude test.

The Engineering Achievement Test is given once each semester for those students who have completed lower division requirements either at this college or at another institution. Dates for the test are announced by the Division of Engineering; students may register with the Division office to take the examination.

UPPER DIVISION REQUIREMENTS

The program of study for the last two years embraces the fundamental engineering sciences and their application to specific problems in selected fields of engineering practice, together with an opportunity for the student to approach an intellectual maturity in social, economic, ethic, and aesthetic thought.

The student must complete (1) the upper division requirements for all students; (2) the requirements of the selected field of specialization in accordance with an approved master plan filed during the first semester of the junior year; and (3) the remaining units of general education.

Recommended patterns in the four fields of specialization are shown below. Course descriptions and prerequisites are given in the section of this catalog on Programs and Courses.

AEROSPACE ENGINEERING

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 100A, Elect. Circuits	3	Engr. 100B, Elect. Machines	3
Engr. 108, Thermodynamics	4	Engr. 115, Fluid Mech.	4
Engr. 116, Resist. of Mtls.	4	Engr. 118, Rate Processes	3
Math. 118A, Adv. Math. for Engrs.	3	Engr. 150A, Aerodyn. I	3
‡Econ. 1A, Principles	3	Engr. 151A, Aero. Stress Anal.	3
	17		16

Senior Year

Engr. 150B, Aerodyn. II	3	Engr. 152, Propulsion Systems	3
Engr. 151B, Aero. Stress Anal.	3	Engr. 181, Hydrodynamics	3
Engr. 153, Flight Mech.	3	†Electives within the major	6
*Psych. 1, General	3	*Fine arts elective	3
*Lit. or philosophy	3		
	15		15

CIVIL ENGINEERING

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 100A, Elect. Circuits	3	Engr. 100B, Elect. Machines	3
Engr. 108, Thermodynamics	4	Engr. 115, Fluid Mech.	4
Engr. 116, Resist. of Mtls.	4	Engr. 120A, Struct. Anal. I	3
Math. 118A, Adv. Math. for Engrs.	3	Engr. 128, Surveying	3
‡Econ. 1A, Principles	3	Geol. 53, Gen. Geol. for Engrs.	1
		*Lit. or philosophy	3
	17		17

Senior Year

Engr. 121, Reinf. Concrete	3	Engr. 118, Rate Processes	3
Engr. 122, Soil Mech.	3	†Electives within the major	8
Engr. 123, Appl. Hydraul.	3	*Fine arts elective	3
†Elective within the major	3		
*Psych. 1, General	3		
	15		14

ELECTRICAL AND ELECTRONIC ENGINEERING

Junior Year

Spring Semester	*Units*	*Fall Semester*	*Units*
Engr. 100A, Elect. Circuits	3	Engr. 100B, Elect. Machines	3
Engr. 108, Thermodynamics	4	Engr. 101, Appl. Elect.	2
Engr. 116, Resist. of Mtls.	4	Engr. 130, Network Anal.	4
Math. 118A, Adv. Math for Engrs.	3	†Elective within the major	4
†Elective within the major	3	‡Econ. 1A, Principles	3
	17		16

‡ Recommended general education course.
† Approved as part of student's master plan by the Professor-in-Charge.
* General education courses.

Senior Year

Engr. 115, Fluid Mech.	4	Engr. 118, Rate Processes	3
Engr. 134A, Electronics	4	†Electives within the major	7
†Elective within the major	3	*Lit. or philosophy	3
*Psych. 1, General	3	*Fine arts elective	3
	14		16

MECHANICAL ENGINEERING

Junior Year
(Design Emphasis)

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 108, Thermodynamics	4	Engr. 100A, Elect. Circuits	3
Engr. 116, Resist. of Mtls.	4	Engr. 115, Fluid Mech.	4
Engr. 109, Metallurgy	3	Engr. 145, Mech. of Mach.	3
Math. 118A, Adv. Math. for Engrs.	3	Engr. 148, Engr. Thermo.	4
‡Econ. 1A, Principles	3	*Lit. or philosophy	3
	17		17

Senior Year
(Design Emphasis)

Engr. 100B, Elect. Mach.	3	Engr. 118, Rate Processes	3
Engr. 146, Mach. Design	3	Engr. 190F, Engr. Appl.	4
†Electives within the major	6	†Electives within the major	4
*Psych. 1, General	3	*Fine arts elective	3
	15		14

Junior Year
(Heat-Power Emphasis)

Engr. 100A, Elect. Circuits	3	Engr. 100B, Elect. Mach.	3
Engr. 108, Thermodynamics	4	Engr. 115, Fluid Mech.	4
Engr. 116, Resist. of Mtls.	4	Engr. 118, Rate Processes	3
Math. 118A, Adv. Math. for Engrs.	3	Engr. 148, Engr. Thermo.	4
‡Econ. 1A, Principles	3	*Lit. or philosophy	3
	17		17

Senior Year
(Heat-Power Emphasis)

Engr. 140, Heat Trans.	3	Engr. 143, Gas Dynamics	3
Engr. 146, Mach. Design	3	Engr. 190E, Engr. Appl.	4
†Electives within the major	6	†Electives within the major	4
*Psych. 1, General	3	*Fine arts elective	3
	15		14

‡ Recommended general education course.
† Approved as part of student's master plan by Professor-in-Charge.
* General education courses.

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GRADUATE DIVISION

ORGANIZATION AND ADMINISTRATION

All graduate work leading to advanced degrees is under the jurisdiction of the Graduate Division and responsibility for all graduate curricula is delegated to a Graduate Council under the chairmanship of the Dean of Graduate and Professional Studies who also serves as the administrative officer of the Graduate Division.

Under the provisions of Section 41001 of the Administrative Code (see the section of this catalog on Admissions), the Graduate Council, through the Graduate Office, admits all students to authorized graduate degree curricula, determines their eligibility to continue in such curricula, and, in the cases of unsatisfactory performance, requires students to withdraw from all graduate curricula.

The Graduate Council is the appropriate college authority for the administration of all matters related to graduate degree curricula, requirements for which are specified in Section 40504 of the Administrative Code quoted below.

DEGREES OFFERED

The master of arts and the master of science degrees are conferred by San Diego State College upon recommendation of the Graduate Council and the faculty. These degrees are designed to provide instruction for graduate students in the liberal arts and sciences, in applied fields and in the professions including the teaching profession. A doctoral degree to be awarded jointly with the University of California is under consideration.

For a statement of the fields in which San Diego State College is authorized to offer the master's degree, see the section of this catalog on Curricula, under Majors, Minors, Degrees, Credentials.

ADMISSION PROCEDURES

MATRICULATION

A student who holds the baccalaureate degree from any institution, including San Diego State College, who desires to register for classes must apply for admission to the college and comply with all regulations of the Admissions Office. (See the section of this catalog on Admissions.)

UNCLASSIFIED GRADUATE STANDING

Acceptable graduate students are admitted to the college by the Admissions Office with unclassified graduate standing. Admisison to the college with unclassified graduate standing does not constitute admisison to graduate degree curricula in the Graduate Division.

CLASSIFIED STANDING IN THE GRADUATE DIVISION

A student who has been admitted to the college by the Admissions Office with unclassified graduate standing who desires to earn an advanced degree must file an application for admission to an authorized master's degree curriculum and the Graduate Division. If the applicant meets the requirements of Section 41001 of the Administrative Code, he will be admitted to the graduate curriculum of his choice and to the Graduate Division with *classified graduate standing*. The Graduate Office notifies the Registrar to change the status of the student from unclassified to classified standing.

FAILURE TO MEET ADMISSION REQUIREMENTS

If the applicant fails to meet the requirements for classified graduate standing, he may remain in the college with unclassified graduate standing and enroll in any undergraduate course for which he has the necessary prerequisites.

Unclassified graduate students are not eligible to enroll in 200-numbered courses except with permission of the instructor and the Dean of Graduate and Professional Studies. All credit earned by an unclassified graduate student is subject to evaluation as to its acceptance in satisfaction of master's degree requirements.

WITHDRAWAL AND REINSTATEMENT

A graduate student who has begun work on a graduate degree and has taken no courses within the last calendar year is considered to have withdrawn from the degree curriculum. If he wishes to resume his work, he must file an application for readmission to the Graduate Division. He will then be required to comply with regulations and requirements in effect at the time his application for readmission is accepted.

Any student who was not in attendance during the semester preceding the semester in which he wishes to enroll must apply for readmission to the college.

Any graduate student whose performance is judged to be unsatisfactory by the Graduate Council may be required to withdraw from all graduate degree curricula offered by San Diego State College.

MASTER'S DEGREE CURRICULA

REQUIREMENTS FOR MASTER'S DEGREE

Section 40504 of the Administrative Code specifies the requirements for all master's degrees offered by San Diego State College as follows:

"To be eligible for the master's degree, the candidate shall have completed the following requirements:

a. Advancement to Candidacy. For advancement to candidacy for the master's degree, the applicant shall have met the following minimum requirements:

(1) The completion of requirements for admisison to graduate standing, as specified in Section 41001.

(2) Such scholastic, professional, and personal standards, the passing of examinations, and other qualifications as the college may prescribe.

b. Requirements for the Degree.

(1) Thirty semester units of graduate work completed within seven years of the date when all the requirements for the degree are completed, except that the college, at its option, may extend the time for students who pass a comprehensive examination in the relevant course or subject field. Of the 30 semester units:

(A) Not less than 24 shall be completed in residence.

(B) Not less than 12 shall be in courses organized primarily for graduate students.

(C) Not more than six shall be in student teaching, extension course classes, and/or transfer credit.*

(D) Not more than six shall be allowed for a thesis,† but the requirement of a thesis is optional with the college.

(2) A grade-point average of 3.0 (grade of B on a five-point scale) or better in all courses taken to satisfy the requirements for the degree.

(3) The completion of a satisfactory pattern of study in an approved field of concentration."

GRADUATE BULLETIN

Complete details on the operation and administration of these requirements, together with other administrative regulations on graduate study as determined by the Graduate Council, will be found in the Graduate Bulletin, which is available at the Graduate Office.

* Only units in extension and/or transfer are accepted in this category at San Diego State College.
† Three units are allowed at San Diego State College.

PROGRAMS AND COURSES

REGULATIONS

COURSES

PROGRAMS AND COURSES

COURSE NUMBERING

Courses numbered from 1 to 99 are lower division (freshman or sophomore) courses; those numbered 100 to 199 are upper division (junior or senior) courses; those numbered 200 to 299 are graduate courses (see section on Admission and Registration for information concerning eligibility to enroll in these courses); those numbered 300 to 399 are professional education courses to be taken at the graduate level.

THE UNIT OR CREDIT HOUR

In the listing of courses that follows, figures in parentheses indicate the unit value of the course. One unit or credit hour represents 50 minutes of recitation or lecture, together with the required preparation, or three hours of laboratory work or two hours of activities, each week for a semester of 18 weeks.

GENERAL EDUCATION COURSES

In the listing of courses that follows, course numbers preceded by an asterisk (*) are general education courses which may be applied toward the general education requirements for a bachelor's degree. For complete information on the general education requirement for the various degrees, refer to the section of this catalog on General Requirements for the Bachelor's Degree.

PREREQUISITES FOR UNDERGRADUATE COURSES

Prerequisites for each course are stated in the course description. A student must not enroll in a course for which he is not eligible.

PREREQUISITES FOR GRADUATE COURSES

Graduate level (200-numbered) courses require, as a general prerequisite, competence in the specified field as indicated by a substantial amount of upper division study in the field or in a closely related field. Unless otherwise specified in the course description, graduate level courses are open to regular graduate students with the permission of the instructor. Unclassified graduate students must obtain the permission of the instructor and the Dean of Graduate Studies before they may enroll in a graduate level course.

UPPER DIVISION COURSE CREDIT

A student with lower division standing is not eligible to take upper division courses, with the following exceptions: A student in the last semester of his sophomore year who is approaching upper division standing and is carrying sufficient lower division units to complete the required minimum of 60 units may carry upper division units for the remainder of his study load. A student with sophomore standing may carry upper division courses for upper division credit provided that he has the written approval of the chairman of the department and the Dean of the College, or his authorized representative. This written approval must be filed in the Evaluations Office, Administration Building, on the Adjustment of Academic Record form, which may be obtained by the student at the Evaluations Office.

SEMESTER IN WHICH COURSES ARE OFFERED

In the listing of courses that follows, Roman numeral I indicates a course offered in the fall semester. Roman numeral II indicates a course offered in the spring semester.

Following the course title are designations of credit and the semester in which course is offered. Examples:

(3) I.....Three units. Offered in fall semester.
(3) II.....Three units. Offered in spring semester.
(3-3).....Three units each semester. Year course normally beginning in the fall semester.
(3-3) I, II.....Three units each semester. Year course beginning either semester.
X—.....An "X" preceding a course number indicates a course offered in extension only.

Although the college fully expects to carry out the arrangements planned in the list of courses, it reserves the right to make changes. Classes in which the enrollment does not come up to the minimum number set by the State Department of Education may not be offered or may be postponed.

AIR SCIENCE

IN THE DIVISION OF AIR SCIENCE

Faculty

Professor: Lt. Col. Roy E. Gudith (Chairman)
Assistant Professors: Major C. E. Brown, Capt. Grady F. Fisher, Capt. Jackson B. Williams, Jr.

Offered by the Division of Air Science

ROTC curriculum.
Minor in air science.
Summer Camp.
Flight instruction.

AIR FORCE RESERVE OFFICERS' TRAINING CORPS

The Department and Division of Air Science at San Diego State College offers the curriculum prescribed by the Air Force Reserve Officers' Training Corps. This curriculum consists of a four-year course, including a two-year lower division course and a two-year upper division course.

The objectives of the Air Force ROTC program are the development of qualities of leadership and character essential to civil and military responsibility, and the training of officers for the Air Force. Completion of the four-year course and a bachelor's degree satisfy the prerequisites for a commission in the Air Force Reserve. Students who have demonstrated outstanding qualities of scholarship and leadership are considered for regular commissions in the Air Force. Air Force ROTC graduates who are physically qualified may make application for the Air Force flying training program.

Flight instruction is offered as a part of the Air Force ROTC program to students in the senior year who are candidates for pilot training. The training includes 36½ hours of instruction at a Federal Aviation Agency approved civilian flying school leading to an FAA private pilot's license. The cost of this program is paid by the U. S. Air Force.

Eligibility for Admission to the Program

Eligibility: A regularly enrolled male student is eligible for admission to the air science program if he is a citizen of the United States, not less than 14 years of age, and physically qualified for military service. If programmed for flying training a student must complete all requirements for a commission upon graduation prior to reaching age 26 years, 6 months or 28 years if programmed for other than flying training. Sucessful completion of the lower division courses, or the equivalent thereof, are prequisite for enrollment in the upper division course. The lower division course, or portions thereof, may be waived on the basis of two years prior honorable active U. S. military service. Portions of the lower division courses may also be waived on a year-to-year basis as deemed equivalent to previous training received at one of the service academies or in the Senior Division of the Army or Naval ROTC.

Registration in the Program. Students will normally register for the Air Science program as first semester freshmen to qualify for the full four-year program. Under certain circumstances, students may enter as first semester sophomores and qualify for commissions in the Air Force in three years. This applies to transfer students and to outstanding students who have only three years of college remaining. All applicants must pass required screening tests and be selected by the Professor of Air Science and the President of the College.

Summer Camp

Attendance at one summer camp is required of each student to qualify for the commission. The summer camp is four weeks in length and is held at an active Air Force base. The student receives $78 per month during this training period. Uniforms, equipment, subsistence, and transportation are furnished by the Air Force.

Allowances

Students in the lower and upper division courses are furnished uniforms, equipment, and textbooks for air science. Students in the upper division course under formal contract are given an allowance of approximately $27 per month. Upon acceptance into the upper division program, the student executes a written agreement with the United States Government and with the President of the College to complete the upper division course, completion of such course becoming a prerequisite to graduation.

Lower and Upper Division Courses

The lower division course requires one hour of leadership laboratory per week each semester and two hours of classroom instruction during the second freshman semester and the first sophomore semester. The upper division course requires four hours of classroom instruction and one hour of leadership laboratory per week each semester. In addition, each student in the upper division course must attend one summer camp of four weeks. The lower division course is primarily an education for citizenship in the air age. The upper division course prepares the student to assume the duties and responsibilities of junior officers in the U. S. Air Force.

Students enrolled in the AFROTC program pursue their regular courses of study in fields of their choice. Major work is not offered in air science, but a minor is offered, or it may be used as one of the fields for a general major.

MINOR IN AIR SCIENCE

The minor in air science consists of 15 to 22 units in air science, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

1. Leadership Laboratory (1) I

One hour of Leadership Laboratory.

A specialized course designed to provide the student with the ability to perform the basic fundamentals of military drill and to acquaint the student with Air Force customs and procedures.

*** 2. Foundations of Aerospace Power I (2) II**

Two lectures and one hour of Leadership Laboratory.

A general survey of aerospace power designed to provide the student with an understanding of the military instruments of national security, elements of aerospace power, the foundations of aerial warfare, air vehicles and the principles of flight. A general education course in air science.

*** 21. Foundations of Aerospace Power II (2) I**

Two lectures and one hour of Leadership Laboratory.

A more advanced consideration of aerospace power designed to provide the student with an understanding of the evolution of aerial warfare, elements of aerial warfare, the employment of air forces and space operations. A general education course in air science.

22. Leadership Laboratory (1) II

One hour of Leadership Laboratory.

A more advanced course designed to prepare the student for the assumption of leadership positions in the AFROTC Cadet Group.

Delayed Initial Enrollment

Transfer students and students who have established an outstanding record during their freshman year at San Diego State may enroll in Air Science 21 and Air Science 2 during the sophomore year. Concurrence of the Professor of Air Science is required.

UPPER DIVISION COURSES

131A-131B. Leadership Principles and Practices (3-3)

Four hours lecture and one hour of leadership laboratory.

Prerequisites: Air Science 2 and 21.

Introduces principles of leadership and employment of communication theory relevant to leadership; concentrates on important behavior skills basic to leader performance with provision for practice and development in a realistic problem situation. Two units of general education credit will be allowed for 131A.

X-133. Summer Training Camp (3)

A four-week camp required of all advanced students; normally completed between junior and senior year. Credit granted through the Extension Division on basis of individual student application with approval of the Professor of Air Science.

141A-141B. Global Relations (2-2)

One lecture and two hours of leadership laboratory.

Prerequisite: Air Science 131A or consent of PAS.

A study of meteorology, aerial navigation, and global concepts. Leadership training in planning and directing the operation of the cadet corps.

NOTE: In addition to Air Science 141A-141B, all fourth year ROTC contract students will enroll in an upper division three-unit course in international relations and an upper division three-unit course in geography; one course to be taken during the first semester and the other course during the second semester. Selection of these courses must be made with the advisement of the Professor of Air Science.

151. Flight Instruction (2) I

Available only to fourth year AFROTC pilot trainee students.

Flight instruction is provided in civilian aircraft to qualify students in basic principles of contact flying and ground instruction to insure safe flight. Each student will complete requirements necessary to qualify for Federal Aviation Agency private pilot certificate.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

ANTHROPOLOGY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professor: Rogers, S.
Associate Professor: Ezell
Assistant Professors: Anderson, A., Goldkind

Offered by the Department of Sociology-Anthropology

Major in anthropology with the A.B. degree in liberal arts and sciences
Minor in anthropology.

MAJOR IN ANTHROPOLOGY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in anthropology must complete all requirements prescribed in the liberal arts and sciences program. A minor approved by the major adviser is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a pattern of prescribed upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are the prerequisite lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. Anthropology 1, 2, and 3.

Upper Division Requirements. A minimum of 24 upper division units in anthropology to include Anthropology 102, 103, 152, 154, and 167.

Supporting courses in a field of emphasis should be chosen from the following groups:

Archaeology: Art, geography, geology, history.
Physical anthropology: Psychology, statistics, zoology.
Museum work: Art, education, psychology.
Ethnology and social anthropology: History, languages, psychology, political science, social science.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Department of Sociology-Anthropology.

Major in the General Programs

For a limited time, transfer students may elect the major in anthropology under regulations for the general programs. (Refer to the section of this catalog on the General Programs for information on availability of the major.) Requirements for this major are the same as those for the major in liberal arts and sciences described above, except that foreign language is not required. In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program. A minor approved by the major adviser is required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MINOR IN ANTHROPOLOGY

The minor in anthropology consists of 15 to 22 units in anthropology, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

*** 1. Human Origins (3) I, II**
Man's place in nature; fossil evidences of early man; theories of human development; racial variability. A general education course in the social sciences.

*** 2. Culture Origins (3) I, II**
Prehistoric cultures of Europe and the Middle East; archaeological techniques; basic inventions and cultural innovations; language and culture. A general education course in the social sciences. May be taken before Anthropology 1.

*** 3. Primitive Societies (3) I**
Man's relationship to his environment; types of preliterate society; systems of family organization, government and religion. A general education course in the social sciences. May be taken before Anthropology 1 or 2.

UPPER DIVISION COURSES

102. Physical Anthropology (3) I
Prerequisite: Anthropology 1.
A review of primate comparative anatomy and human palaeontology. Racial anatomy and population genetics. Physical measurement of the living subject and skeletal specimens. The statistical treatment of data in physical anthropology. Applications of physical anthropology in industry and medico-legal problems.

103. Principles of Archaeology (3) II
Prerequisite: Anthropology 2.
The historic background and basic techniques of archeological excavation. Methods of site excavation with particular emphasis on California and the Southwest. Principles of culture dynamics utilized in archaeological interpretation.

151A. The North American Indian (3) I
Prerequisite: Anthropology 2 or consent of instructor.
Pre-Columbian cultures of the North American Indian. The origin and migration of New World peoples. Industries, arts, crafts, social organization, religion and other phases of American Indian civilization.

151B. Indian Civilization of Middle America (3) II
The development of civilzation in Pre-Columbian Mexico and Central America: Aztec, Mayan, and related cultures.

*** 152. World Ethnography (3) I**
Prerequisite: Anthropology 2 or 3, or Sociology 1.
The cultural patterns of representative aboriginal peoples. Industries, arts, social organization and supernaturalism considered with a view to environmental adjustment, historical development and functional interrelation. Ethnological theories reviewed and applied in interpreting illustrative aboriginal societies. A general education course in the social sciences.

153. Primitive Religion (3) II
Beliefs and ritual of primitive man. Magic and religion. Forms of animism and polytheism. Primitive mentality and the supernatural.

*** 154. Social Anthropology (3) I**
Prerequisite: Anthopology 2 or 3, or Sociology 1.
A study of the methods and findings in some of the major problem areas of anthropology. Cross cultural comparisons, the integration of culture, relation to personality, acculturation and analysis of cultural changes. A general education course in the social sciences.

155. Peasant Society and Culture (3) I
Prerequisite: Anthropology 2 or 3, or Sociology 1.
Analysis of the social organization and culture of present-day small agricultural communities with special emphasis on changes brought about by modernization.

156. Cultural Change and Processes (3) I
Prerequisite: Anthropology 1 or 2.
The individual and the culture pattern: the acquisition of culture, innovation and invention, direction of cultural development, diffusion and interpenetration of cultures. Illustrations from contemporary and historic peoples: Indians of the Southwest, Eskimos, aboriginal groups of Australia, Africa and Oceania.

161. The California Indian (3)
A survey of native California Indian culture with stress on the Indian groups of Southern California. The industries, arts, social organization, folklore and religion will be considered as revealed through the study of living peoples and archaeological evidences.

162. Cultures of South America (3) II
Prerequisite: Anthropology 2 or 3.
Survey of Indian cultures in terms of origins, migration, relation to habitat, cultural variation and relevance to contemporary trends. Development of Inca civilization, the effects of the Spanish conquest and its aftermath.

165. Physical and Cultural Backgrounds of Personality (3) I
Prerequisite: Anthropology 1 or Sociology 1.
Race and culture; variation in human structure and function; variation and patterning of culture; relation to personality; physical and cultural factors in personality formation; history and current problems of this area. (Formerly offered under the title: Ethnology and Race Psychology.)

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

167. History of Anthropological Theory (3) I
Prerequisite: Anthropology 1, 2, or 3.
A review of the development of theories which lie behind the modern sciences of ethnology and archaeology. Applications of the theory of culture to field methods and interpretation of findings.

169-S. Backgrounds of Mexican Civilization (3) Summer
Mexico's archaelogical past and its bearing on historic and recent peoples and cultures. Conflicts between Aztec and Mayan cultures and western civilization. The relationship of Mexican civilization to other Latin American cultures.

172. Indian Cultures of the Southwest (3) II
Prerequisite: Anthropology 2 or 3, or consent of instructor.
Indian cultures of the past and present in the Southwestern states. Arts, crafts, architecture and religion as revealed through archaeology and ethnology.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (3)
An intensive study of one phase of anthropology, such as: archaeology, ethnography, ethnohistory, primate behavior, social anthropology, or research methods in these areas. May be repeated with new subject matter for additional credit.

298. Special Study (1-6)
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study directed toward the preparation of a paper upon a specific problem. Six units maximum credit.

ART

IN THE DIVISION OF THE FINE ARTS

Faculty

Professors: Jackson (Chairman), Ruocco, Sorenson, Swiggett
Associate Professors: Dirks, Longenecker
Assistant Professors: Bigelow, Bowne, Fisch, Hopkins, Lingren, Tanzer, Wallace

Offered by the Department

Master of arts degree with a major in art.
Master of arts degree for teaching service with a concentration in art.
Major in art with the A.B. degree in liberal arts and sciences.
Major in art with the A.B. degree in the general programs.
Minor in art.
Teaching major in art with the A.B. degree and special secondary credential.
Teaching major in art leading to the general secondary credential in the post-graduate year.
Teaching minor in art for the general secondary credential.

THE MASTER'S DEGREE

The master of arts degree with a major in art and the master of arts degree for teaching service with a concentration in art are offered. For further information, refer to the Graduate Bulletin or to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are prerequisite lower division courses which may not be used to meet general education requirements. The major in liberal arts and sciences has an additional requirement in foreign language and a specific pattern of courses for general education.

MAJOR IN ART WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in art must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. A minimum of 20 lower division units in art to include Art A, B, 5, 6A, 6B, 50, 52A, 52B, and two units of art electives.

Upper Division Requirements. A minimum of 27 upper division units to include Art 100A, 100B, 115, 116A, 150, 156, 190; nine units to be chosen in consultation with the adviser from the following: Art 106A, 106B, 112A, 112B, 117, 120A, 120B, 153, 154, 155, 199; and Philosophy 136.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Art Department.

MAJOR IN ART WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Students majoring in art with the A.B. degree in the general programs must complete 45 units of general education courses in addition to the major. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Major

The major in art may be planned with an emphasis on crafts or on graphic arts. The program with emphasis on crafts leads in the direction of industrial design, interior design, cabinet making, sculpture, weaving, textile design, ceramics, etc. The program with emphasis on graphic arts leads in the direction of illustration, portraiture, landscape painting, mural design, poster design, production illustration, advertising design, fashion design, etc. The student must complete the basic requirements plus the requirements in the selected field of emphasis.

Basic Requirements for All Students

All art majors must complete the following courses: Art A, B, 6A, 6B, 14A, 50, and 5 or 51. In addition to these courses, the student must complete the requirements in one of the fields of emphasis listed below.

Emphasis on Crafts

In addition to the basic requirements, the student emphasizing crafts must complete the following courses:

Lower Division Requirements. Art 7, 13, 61, and one unit of art electives.

Upper Division Requirements. A minimum of 24 upper division units to include Art 106A, 111A, 113, 150; and four units selected from Art 117ABCD, 119A, 119B; and 12 units of upper division art electives.

Emphasis on Graphic Arts

In addition to the basic requirements, the student emphasizing graphic arts must complete the following courses:

Lower Division Requirements. Art 15A, 16A, and four units of art electives.

Upper Division Requirements. A minimum of 24 upper division units to include Art 106A, 112A, 112B, 116A, 116B, 150, four units of 115; and eight units of upper division art electives.

MINOR IN ART

The minor in art consists of 15 to 22 units in art, six units of which must be in upper division courses.

TEACHING MAJOR IN ART WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in art and (2) the additional professional courses in teacher education. A minor is not required for the degree.

For additional information on the credential, refer to the section of this catalog on Education Professional Curricula. For a description of general education requirements, refer to the section on Graduation Requirements.

Teaching Major in Art

Lower Division Requirements. Art A, B, 6A, 6B, 14A, 50, 5 or 51, 61, and eight units of art electives (25 units).

Upper Division Requirements. 24 units to include Art 106A, 112A, two units of 115, Art 116A, 119A, 150, 194A, 195A, Speech Arts 140A, and five units of upper division art electives.

Professional Courses in Teacher Education

In addition to the teaching major in art, the student must complete 24 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121A, 130B, 180, and Health Education 151.

TEACHING MAJOR IN ART FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in art may be completed in one of the following ways:

(1) By completing the special secondary credential in art with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing an art major (without the credential) and including in the major the art courses required in the teaching major for the special secondary credential described above; and, in addition, completing the required courses in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include six units of 200-numbered courses in art to be approved by the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN ART FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in art for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units, exclusive of course equivalents, to include, in the lower division, Art A, B, 6A, 6B, 50, 5 or 51, and three units of art electives (Art 14A is recommended); and in the upper division, Art 150 and four upper division units of art electives.

ART APPRECIATION, HISTORY AND ORIENTATION

Many students, regardless of the field in which they may be majoring, recognize the need for an intelligent approach to the subject of art and art appreciation. However, due to the erroneous popular feeling that art is a subject requiring "talent," these students may refrain from enrolling in art courses. For students who desire a better understanding of art, but who do not hope to acquire any of the art skills, the following courses are recommended:

	Units
Art 5, Art Orientation	2
Art 50, History and Appreciation of Art	2
Art 51, Survey of Art of the Middle Americas	2
Art 52A-52B, Survey of Oriental Art	6
Art 8, Home Furnishings	2

Other courses which require certain skills but which are not beyond the ability of the average college student are:

Art 61, Design in Crafts	3
Art 6A, Design	2
Art 94, Costume design	2

LOWER DIVISION COURSES

*** A. Drawing and Composition (2) I, II**

Six hours. No prerequisite.

Problems involving perspective to develop ability to draw still life, furniture, exteriors, interiors, and the like. A general education course in literature, philosophy, and the arts.

*** B. Drawing and Composition (2) I, II**
Six hours. No prerequisite.
Drawing of mechanical and natural forms by the use of line and value. Emphasis on proportion and structure. Some quick sketching, gesture and contour drawing. A general education course in literature, philosophy, and the arts.

*** 5. Art Orientation (2) I**
Two lectures. No prerequisite.
An illustrated lecture course dealing with aesthetic meaning and its relation to the structure of art products. Designed to increase both understanding and appreciation of the visual world in general and of the fine arts in particular. A general education course in literature, philosophy, and the arts.

*** 6A. Design (2) I, II**
Five hours. No prerequisite.
Fundamentals of design and composition and theory of color. Basic course used as a prerequisite for all advanced work. A general education course in literature, philosophy, and the arts. Not open to students with credit for Art 9.

6B. Design (2) I, II
Five hours.
Prerequisite: Art 6A.
Original work in creative design and representation with special stress on modern tendencies.

7. Line, Color and Display (2) I, II
Six hours. No prerequisite.
The principles of line, color and arrangement applied to store and window display. Study and observation of windows, color and materials used in display. Building models and practical problems in arranging colors, textures, and forms in windows to fit different kinds of merchandise. (Students who may later wish to apply for upper division credit for this course as applied to a major will be required to do additional work.)

*** 8. Home Furnishings (2) I, II**
Two lectures. No prerequisites.
An appreciative study of the contemporary home, its interior and surroundings. A general education course in literature, philosophy, and the arts.

9. Design for Teachers (3) I, II
Six hours. No prerequisite.
A fundamental course in design introducing students to the aesthetic use of color and spacing and including those special skills and the handling of those materials required for teaching in the elementary schools. Not open to students with credit for Art 6A or 6B.

10. Crafts in the Elementary Schools (3) I, II
Six hours.
Prerequisite: Art 9.
A basic craft course approached from the creative viewpoint and employing the techniques, materials and tools appropriate for the elementary grades. Not open to students with credit for Art 61A, 110, or 161A.

*** 13. Furniture Design (2) I, II**
Six hours.
Prerequisite: Art 6A.
Study of the principles of design through the making of furniture. A general education course in literature, philosophy, and the arts.

14A. Lettering (2) I
Six hours.
Prerequisite: Art 6A.
Fundamental art principles applied to lettering. Practice for quick, accurate lettering; original problems using letters as design.

14B. Posters and Commercial Art (2) II
Six hours.
Prerequisite: Art 14A.
The application of lettering to posters, newspaper and magazine advertising, and other forms of commercial art. The study of composition combined with lettering and special study of modern tendencies in publicity.

15A. Life Drawing (2) I, II
Six hours.
Prerequisite: Art B.
Drawing from the nude model.

15B. Life Drawing (2) I, II
Six hours.
Prerequisite: Art 15A.
Continuation of Art 15A.

*** 16A. Oil Painting (2) I, II**
Six hours.
Prerequisite: Art B.
Composition of still life and landscape in color. A general education course in literature, philosophy, and the arts.

16B. Oil Painting (2) I, II
Six hours.
Prerequisite: Art 16A.
Landscape and more advanced composition in color.

17A. Sculpture (2) I, II
Six hours.
Prerequisite: Art 6B or consent of instructor.
Creative design in such materials as clay, wood, stone, concrete, etc.

17B. Sculpture (2) I, II
Six hours.
Prerequisite: Art 6B or consent of instructor.
Continuation of Art 17A.

18A. Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art B or consent of instructor.
Composition of still life and landscape in watercolor.

18B. Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18A.
Continuation of Art 18A.

*** 50. Appreciation and History of Art (2) I**
Two lectures. No prerequisite.
A survey of art development in painting, sculpture, architecture, and handicrafts from the dawn of art to the Renaissance. Illustrated. A general education course in literature, philosophy, and the arts.

*** 51. Survey of the Art of Middle America (2) II**
Two lectures. No prerequisite.
A study of Middle American art from earliest time to the present. A general education course in literature, philosophy, and the arts.

*** 52A-52B. Survey of Oriental Art (3-3)**
Three lectures.
Prerequisite: Art 52A is prerequisite to 52B.
A study of the art of the great cultures of the Orient. A general education course in literature, philosophy, and the arts.

61. Design in Crafts (3) I, II
Six hours.
Prerequisite: Art 6A.
Study of visual and structural form in crafts.

70. Jewelry (2) I, II
Six hours.
Prerequisites: Art A and 61, or consent of instructor.
Design and fashioning of jewelry and tableware.

94A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 6A.
Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

94B. Costume Design (2) I, II
Six hours.
Prerequisite: Art 94A.
Continuation of Art 94A.

95A. Interior Design (2) I, II
Six hours.
Prerequisites: Art A and 6A.
The consideration of the house as a unit; the arrangement of garden, house, floor plan and furniture as functional and decorative problems.

95B. Interior Design (2) I, II
Six hours.
Prerequisite: Art 95A.
Continuation of Art 95A.

UPPER DIVISION COURSES

100A. Advanced Drawing (2) I, II
Six hours.
Prerequisite: Art B.
A course in drawing with color wherein an objective attitude is taken toward the qualitative aspect of visual subject matter. Objects are studied and represented as visual stimuli rather than as stereotypes.

100B. Advanced Drawing (2) I, II
Six hours.
Prerequisite: Art 100A.
A course in drawing with color wherein objects are represented in such a manner as to include kinaesthetic responses. Aesthetic organization of materials is stressed.

105-S. Classroom Display for Teachers (3) Summer
A lecture and workshop course for elementary and secondary teachers in principles and techniques of modern display to meet various subject, classroom, and school requirements. Special attention to individual problems and needs.

106A. Printmaking (2) I, II
Six hours.
Prerequisites: Art B and 6A.
Introduction to printmaking media: woodcut, wood-engraving, serigraphy, lithography, and intaglio (copper and zinc engraving, drypoint, etching, aquatint, and mixed media). Special emphasis on technical processes.

106B. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106A.
Concentration upon the creation of fine prints in media selected from those studied in Art 106A.

106C. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106B.
Continuation of Art 106B with advanced creative studies in printmaking.

107. Color and Design in Merchandise (2) I, II
(Same course as Bus. Adm. 159)
Six hours. No prerequisite.
Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems.

110. Advanced Crafts in the Elementary Schools (2) I, II
Five hours.
Prerequisite: Art 6A.
An advanced design-craft course in which the activities, materials and tools employed are appropriate for the elementary grades. Not open to students with credit for Art 10 or 61.

111A. Industrial Design (2) I, II
Six hours.
Prerequisite: Art 6B or consent of instructor.
Design of objects for manufacture with reference to their use, materials, and in accordance with factory practices and machine techniques. Practice in the techniques of presentation, working drawings, rendering in perspective and scale models.

111B. Industrial Design (2) I, II
Six hours.
Prerequisite: Art 111A.
Continuation of Art 111A.

112A. Design and Composition (2) I
Six hours.
Prerequisites: Art B and 6B.
Structure in picture making. The controlled use of line, value, color, and texture to organize the effect of depth, movement, volume, etc., in the recognizable image. Oil technique.

112B. Design and Composition (2) II
Six hours.
Prerequisite: Art 112A or consent of instructor.
Continuation of Art 112A.

113A. Advanced Furniture Design (2) I, II
Six hours.
Prerequisite: Art 13 or consent of instructor.
Principles of design through the making of furniture.

113B. Advanced Furniture Design (2) I, II
Prerequisite: Art 113A.
Continuation of Art 113A.

114A. Design for Advertising (2) I
Six hours.
Prerequisite: Art 14B or consent of instructor.
Advanced course for advertising design students. Aims to develop professional concepts and techniques through student projects.

114B. Advanced Advertising Design (2) II
Six hours.
Prerequisite: Art 114A.
Advanced study with emphasis on the development of a portfolio of advertising design samples by the individual student.

114C. Advanced Advertising Design (2) I, II
Six hours.
Prerequisite: Art 114B.
Continuation of Art 114B.

115. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art B.
Drawing and painting from nude and costume models. May be repeated to a maximum of eight units.

116A. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 16A or 16B.
Painting in oil from still life, landscape, or models, stressing composition.

116B. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116A.
Continuation of Art 116A.

116C. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116B.
The influence of art media and picture plane on aesthetic organization in representational painting.

116D. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116C.
Continuation of Art 116C.

117A. Advanced Sculpture (2) I, II
Six hours.
Prerequisites: Art 6B and 17A or 17B; or consent of instructor.
Creative design in such materials as clay, wood, stone, concrete, etc.

117B. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117A.

117C. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117B.
The influence of art media and tools on aesthetic organization in sculpture in relief and in the round.

117D. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117C.
Continuation of Art 117C.

118A. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18B or consent of instructor.
Composition of still life and landscape in watercolor.

118B. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 118A.
Continuation of Art 118A.

119A. Ceramics (2) I, II
Six hours.
Prerequisite: Art 6A or 9.
An introduction to ceramic design. Basic methods of forming, decorating, glazing and firing pottery forms with emphasis on the use of the potter's wheel.

119B. Ceramics (2) I, II
Six hours.
Prerequisite: Art 119A.
Continuation of Art 119A. Further development of knowledge, skills and philosophy of ceramics through individual creative projects.

119C. Ceramics (2) I, II
Six hours.
Prerequisite: Art 119B.
Continuation of Art 119B with advanced creative projects.

120A. Advanced Design (2) I, II
Six hours.
Prerequisites: Art B and 6B.
Advanced work in pure design, two and three dimensional. Re-examination of color theory and design principles.

120B. Advanced Design (2) I, II
Six hours.
Prerequisite: Art 120A.
Continuation of Art 120A.

*** 150. Appreciation and History of Art (2) II**
Two lectures. No prerequisite.
The period from the Rennaissance through the modern school treated in the same manner as in Art 50. A general education course in literature, philosophy, and the arts.

153. Ancient Art (3) Irregular
Three lectures.
Prerequisites: Art 50 and 150, or equivalents.
Development of painting, sculpture, architecture and crafts from prehistoric times to the fall of Rome.

154. Medieval Art (3) Irregular
Three lectures.
Prerequisites: Art 50 and 150, or equivalents; or consent of instructor.
Development of painting, sculpture and architecture from the time of Constantine through the Gothic period.

155. Renaissance Baroque and Rococo Art (3) Irregular
Three lectures.
Prerequisites: Art 50 and 150, or equivalents.
Development of painting, sculpture and architecture from the Renaissance through the rococo period.

156. History of Modern Art (3) II
Three lectures.
Prerequisites: Art 50 and 150, or equivalents; or consent of instructor.
Development of painting, sculpture and architecture from the French Revolution to the present.

166. Honors Course (Credit to be arranged) **I, II**
Refer to the Honors Program.

170. Jewelry (2) I, II
Six hours.
Prerequisite: Art 70 or consent of instructor.
Advanced problems in design and fashioning of jewelry and tableware.

175. Problems in Art for Teachers (1-3) I, II, Summer
Prerequisite: Consent of instructor.
Special problems in design adapted to the needs of teachers in service. May not be used to satisfy any pattern requirement for a credential. May be repeated once for credit.

190. Principles and Elements of Visual Aesthetic Organization (2)
Three hours.
Prerequisites: Senior standing and Art 5 or 51.
An intensive investigation of visual aesthetic materials and the psychological principles involved in aesthetic organization.

194A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 6A.
Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

194B. Costume Design (2) I, II
Six hours.
Prerequisite: Art 194A.
Continuation of Art 194A.

195A. Advanced Interior Design (2) I, II
Six hours.
Prerequisite: Art 95B or consent of instructor.
Theory and practical use of color, space and furniture arrangement.

195B. Advanced Interior Design (2) I, II
Six hours.
Prerequisite: Art 195A.
Continuation of Art 195A.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor.

GRADUATE COURSES

206. Seminar in Creative Printmaking (3)
Prerequisites: Art 106A and 106B.
Advanced creative work in selected printmaking media based upon the analysis of the history and philosophies of printmaking from its inception through contemporary concepts. May be repeated once with new content.

216. Seminar in Creative Painting (3)
Prerequisites: Art 112A, 112B, 116A, and 116B.
Aesthetic organization of selected visual subject matter in the medium of colors in oils. May be repeated to a maximum of six units.

217. Seminar in Creative Sculpture (3)
Prerequisites: Art 117A, B, C, and D.
Aesthetic organization of selected subject matter in the media of sculpture. May be repeated to a maximum of six units.

219. Seminar in Creative Crafts (3)
Prerequisites: Six units completed in upper division courses in sculpture or ceramics or printmaking or a combination of these courses.
Advanced creative work in selected craft media. May be repeated to a maximum of six units.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

292A-292B Seminar in Art History (3-3)
Prerequisites: Art 50 and 150, or equivalents.
An intensive study of the development of art styles in selected historical periods.

294A-294B. Seminar in the Principles of Design in the Space Arts (3-3)
Prerequisite: A semester course in art appreciation.
An intensive study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the staff; to be arranged with department chairman and the instructor.

299. Thesis or Project (3) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ASTRONOMY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Huffer, Smith, C. E. (Chairman, Astronomy-Physical Science)
Assistant Professor: Silvernail
Lecturers: Krieger, Fortenberry

Offered by the Department of Astronomy-Physical Science

Major in astronomy with the A.B. degree in liberal arts and sciences.
Major in astronomy with the A.B. degree in the general programs.
Minor in astronomy.

MAJOR

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses. These lower division courses may not be used to meet general education requirements unless otherwise provided in the description of the major. A minor in mathematics is prescribed.
The major in liberal arts and sciences has an additional requirement in foreign language and a specific pattern of courses for general education.

MAJOR IN ASTRONOMY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in astronomy must complete all requirements prescribed in the liberal arts and sciences program. A minor in mathematics, as prescribed by the major department, is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Astronomy 1, 2, 9, 10; and Physics 4A-4B-4C. Recommended: Chemistry 1A-1B.

Upper Division Requirements. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and nine units of physics to include Physics 101, 103, and 105. Recommended: Physics 106, 151, 175; and Astronomy 103, 105, and 110.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Astronomy-Physical Science Department.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include the following courses: Mathematics 50, 51, 52, and 119. Three additional upper division units in mathematics are required to complete the minor. (Mathematics 175 recommended.)

MAJOR IN ASTRONOMY WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Students majoring in astromony with the A.B. degree in the general programs must complete 45 units of general education courses in addition to the major, except that nine units of lower division physics may be counted as general education. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Requirements for this major are the same as those in the major for the liberal arts and sciences program described above, including the minor in mathematics, except that foreign language is not required, but is recommended. Students will complete the general education requirements instead of those in the liberal arts and sciences program.

MINOR IN ASTRONOMY

The minor in astronomy consists of 15 to 22 units in astronomy, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

*** 1. Descriptive Astronomy (3) I, II**
A cultural course planned to develop an appreciation of astronomy with emphasis on the solar system. Attention is given to the methods by which astronomical knowledge has been gained. A six-inch refractor and other telescopes are available for observation. A physical science course in general education in the area of the natural sciences.

*** 2. Modern Astronomy (3) II**
Prerequisite: Astronomy 1 or consent of instructor.
A study of the stellar system in the light of modern research, especially photographic and spectrographic. A physical science course in general education in the area of the natural sciences.

*** 9. Practice in Observing (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Astronomy 1.
A course designed to supplement Astronomy 1. The course will include constellation study, use of astronomical co-ordinates, and descriptive observations of celestial objects with telescope. This is a physical science course in general education in the area of the natural sciences. Meets the laboratory requirement in general education.

10. Advanced Observational Astronomy (1) II
Three hours of laboratory.
Prerequisite: Astronomy 9.
A continuation of Astronomy 9. More advanced problems in observing will be taken up such as the determination of latitude by observations of Polaris, transit observations, astronomical photography, etc.

12. Elementary Navigation (3) I
Three hours of laboratory.
Recommended prerequisites: Astronomy 1 and 9.
A study of compass corrections, time, line of position, use of celestial co-ordinates, etc. A few class hours devoted to the use of tables such as H.O. 214 for the solution of astronomical triangles.

UPPER DIVISION COURSES

103. Astronomical Optics (3) II
Two lectures and three hours of laboratory.
Prerequisites: Astronomy 1, or Physics 4C, or Physics 2B and 3B.
Theory and applications of optical instruments used in astronomy. In the laboratory the students are required to complete an approved project in optical instrumentation.

104A-104B. Practical Astronomy (3-3)
Two lectures and three hours of laboratory.
Prerequisites: Astronomy 1 and 9 and credit or concurrent registration in Mathematics 51. Astronomy 104A is prerequisite to 104B.
Determination of latitude, longitude, time. Study of methods of reduction of photographic plates. Study of precession, mutation, proper motion, refraction, and adjustment of equatorial telescope.

*** 105. Historic Development of Astronomy (3) I**
A study of the more important problems and astronomical concepts in the light of their historical development. Particular attention is given to the biography and contributions of the more important astronomers, such as Galileo, Kepler, Newton, Herschel, Bessel, etc. A physical science course in general education in the area of the natural sciences.

107. Method of Least Squares and Computing Practices (3) I
Prerequisite: Mathematics 52.
Fundamental principles with applications in the fields of astronomy, physics, and engineering.

110. Introduction to the Study of Variable Stars (3) II
Two lectures and three hours of laboratory.
Prerequisite: Astronomy 2. Astronomy 9 is desirable.
A study will be made of the various types of variable stars, their spectra, periods, methods of observing, etc. In the laboratory the light curve of several typical variables will be observed.

112A-112B. Astrophysics (3-3)
Prerequisites: Physics 4C and Astronomy 2. Astronomy 112A is prerequisite to 112B.
An application of modern physics to a study of the sun and the stellar system. A large part of this course will deal with the application of spectroscopy to the study of celestial objects.

113. Surveyor's Course in Practical Astronomy (3) II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 2 or consent of instructor. Astronomy 1 and 9 desirable.
The principles of spherical astronomy adapted to the needs of engineering students. Computation and observation.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

196. Advanced Topics in Astronomy (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in theoretical astronomy or astrophysics. May be repeated with new material for a total of six units, upon approval of instructor.

198A. Senior Project (1) I
One lecture-discussion period.
Prerequisite: An acceptable master plan for graduation within one year.
Consists of the selection and design of individual projects; oral and written progress reports.

198B. Senior Project (2) II
Six hours of laboratory.
Prerequisite: Astronomy 198A.
Laboratory work, progress reports, oral and written reports.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: Three units in astronomy and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced astronomy. May be repeated with new subject matter for additional credit.

BIOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Faculty assigned to teach courses in biology are drawn from the departments of Botany, Microbiology, and Zoology.

Offered by the Division of Life Sciences

Master of arts degree with a major in biology.
Master of arts degree for teaching service with a concentration in biology.
Master of science degree in biology.
Major in biology with the A.B. degree in liberal arts and sciences.
Major in biology with the B.S. degree.
Minor in biology.
Teaching major in biology and general science leading to the general secondary credential in the postgraduate year.
Teaching minor in biology and general science for the general secondary credential.
Curricula in the biological sciences which prepare for the fields of entomology, fish and game, plant quarantine, and wildlife.

THE MASTER'S DEGREE

The master of arts degree with a major in biology, the master of arts degree for teaching service with a concentration in biology, and the master of science degree in biology are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of the prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are the prerequisite and related lower division courses. The major in liberal arts and sciences also requires a foreign language. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN BIOLOGY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in biology must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Biology 5 and 15; Botany 50 and 51; Zoology 50 and 51; Chemistry 1A-1B; Physics 2A-2B; and Mathematics 21 or 40. Recommended: Mathematics 22 or 50.

Upper Division Requirments. Twenty-seven upper division units in biology, botany, microbiology, and zoology, to include the following: Biology 101, 110, 155, 161; Microbiology 101; and eight units of upper division electives to be selected with approval of the adviser.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Division of Life Sciences.

Major in the General Programs

For a limited time, transfer students may elect the major in biology under regulations for the general programs. (Refer to the section of this catalog on the General Programs for information on availability of the major.) In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program.

Requirements for this major are the same as those for the major in liberal arts and sciences described above with the following exceptions: In the lower division, mathematics is not a requirement and Chemistry 2A-2B may be substituted for 1A-1B. Foreign language is not required. Twelve units of lower division courses in the natural sciences may be counted in general education. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN BIOLOGY WITH THE B.S. DEGREE

Students majoring in biology with the B.S. degree must complete 45 units of general education courses in addition to the major, except that 12 units of lower division courses in the natural sciences may be counted as general education. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Biology 5 and 15; Botany 50 and 51; Zoology 50 and 51; Chemistry 1A-1B or 2A-2B; Physics 2A-2B.

Upper Division Requirements. A minimum of 36 upper division units in biology, botany, microbiology, and zoology to include the following: Biology 101, 110, 155, 161; Microbiology 101; the remaining units to be selected with approval of the adviser.

MINOR IN BIOLOGY

The minor in biology consists of 15 to 22 units to include Biology 3 and 4, or the equivalent, and a minimum of nine upper division units in biology selected with approval of the Chairman of the Division of the Life Sciences.

TEACHING MAJOR IN BIOLOGY AND GENERAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in biology and general science may be used as a biology major for the bachelor's degree by students who have been admitted to the general secondary credential program in teacher education. The major is in addition to 45 units of general education courses, except that 12 units of lower division courses in the natural sciences may be counted as general education. A minor is not required for the degree, but a teaching minor is required for the credential. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.) The biology major in liberal arts and sciences will also meet the undergraduate requirements of the teaching major.

Requirements

Lower Division Requirements. Biology 5 and 15; Botany 50 and 51; Zoology 50 and 51; Chemistry 2A-2B; Physics 2A-2B (or with the approval of the departmental adviser, high school physics and college courses in Geology 2 and Physical Science 1).

Upper Division Requirements. Twenty-seven upper division units to include Biology 101, 110, 155, 161; Microbiology 101; and eight units to be selected with approval of the adviser.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include at least four units of 200-numbered courses which may be met by two biology seminars or by one biology seminar and two units of Botany 298 or Zoology 298. All courses must be selected with approval of the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential, other than a minor in the biological sciences. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN BIOLOGY AND GENERAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in biology and general science for the general secondary credential may also be used as a minor in biology for the bachelor's degree. The minor consists of 22-23 units to include Biology 3 and 4, or Biology 5, Physical Science 1 and 2, or their equivalents, and a minimum of 11 upper division units in the biological sciences selected with approval of the adviser.

OTHER CURRICULA IN THE BIOLOGICAL SCIENCES

Within the majors offered in the biological sciences, curricula may be arranged for students interested in preparing for the fields of entomology, fish and game, plant quarantine, and wildlife. Students planning to specialize within the area of the biological sciences should consult with the departmental adviser in selection and arrangement of courses.

HIGH SCHOOL PREPARATION

Students in high school planning to enter any of the biological sciences should include in the high school program the following subjects: Elementary algebra, plane geometry, intermediate algebra, trigonometry, chemistry, and physics. Three years of French or German are recommended.

LOWER DIVISION COURSES

*** 1. The Ideas of Biology (3) I, II**
General concepts of biology with emphasis on the biology of man in relation to modern life. A life science general education course in the area of natural sciences. This course does not meet the laboratory requirement in natural science for general education. Not open to students with credit for Biology 3, 4 or 5.

*** 3. Principles of Biology (3) I, II**
Two lectures and three hours of laboratory. No prerequisite.
A consideration of basic biological phenomena. A life science general education course meeting the laboratory requirement in natural science for general education. Not open to students with credit for Biology 1 or 5.

*** 4. Natural History of Plants and Animals (3) I, II**
Two lectures and three hours of laboratory. No prerequisite.
An introduction to plants and animals in relation to their environments and to one another, with emphasis on local forms and their habitats. A life science general education course meeting the laboratory requirement in natural science for general education. Not open to students with credit for Biology 5.

5. Fundamentals of Biology (5) I, II
Three lectures and six hours of laboratory.
Prerequisite: High school chemistry or credit or concurrent registration in a college chemistry course.
Major biological concepts common to the areas of botany, microbiology, and zoology. Students with credit for Biology 3 or 4 may enroll, but will receive only two additional units of credit.

15. Introduction to Quantitative Biology (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Biology 5 and Mathematics 3.
Methods and experience in defining and solving quantitative problems in biology.

UPPER DIVISION COURSES

101. General Physiology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and 15; Chemistry 1A and 1B or 2A and 2B; and Physics 2A, 2B, 3A, and 3B.
The physiological processes at the cellular, tissue and organ levels.

102. Principles of Taxonomy (2) I
Prerequisite: Biology 15.
The classification of living organisms. Rules of botanical and zoological nomenclature, type catagories, principles, and procedures.

103. General Cytology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and 15; and Chemistry 1A and 1B or 2A and 2B.
The structure and function of cells and cell inclusions of plants and animals, including the chemical and physical properties of protoplasm and cytological methods.

110. Ecology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and 15; and Chemistry 1A and 1B or 2A and 2B.
Relationships between organisms and the environment; field study in local marine, fresh water, mountain, chaparral, and desert habitats.

111. Aquatic Biology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and 15; and Chemistry 1A and 1B or 2A and 2B.
Biological, chemical and physical considerations of inland waters.

112. Fishery Biology (2) II
Prerequisite: Biology 15.
Theory and practices of fishery management. Life histories and biology of important game and food fishes.

113. Biological Oceanography (4)
Two lectures and six hours of laboratory.
Prerequisites: Biology 15, Zoology 50, Chemistry 1A, 1B, Physics 2A, and 2B.
A study of benthic and pelagic marine organisms and their environmental parameters.

135. Scientific Illustration (3) I
Two lectures and three hours of laboratory; field trips.
Preparation of illustrative materials, inked drawings, charts, lettering, models, still and movie photography, and photomicrography.

150A-150B. Radiation Biology (2-2)
Prerequisites: Physics 120B or 121 or equivalent; and a college course in biology. Biology 150A is prerequisite to 150B. Recommended: Biology 101.
The effects of ionizing radiation on biological systems at the cellular, multicellular, and population levels with a discussion of other electromagnetic phenomena where revelant, followed by the theory and application of tracer technique to biology.

151. Radioisotope Techniques in Biology (3)
One lecture and six hours of laboratory.
Prerequisites: Completion or concurrent registration in Biology 150A, and consent of instructor.
The principles and application of radioisotopes in biology. Radionuclide measurement, safe handling, tracer and radioautography techniques.

155. Genetics (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and 15.
Principles of plant and animal genetics, with experiments and demonstrations illustrating the mechanisms of heredity.

157. Cytogenetics (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 155.
The physical basis of heredity. Study of the chromosomes and chromosome behavior in relation to problems in heredity and evolution.

158. Conservation of Wildlife (3) I, II
Prerequisite: A college course in biology or consent of instructor.
A survey of plant and animal resources with emphasis on their conservation and intelligent use.

160. Experimental Evolution (3) II
Two lectures and three hours of laboratory.
Prerequisite: Biology 15.
The theories of evolution and speciation with emphasis on the methods of study of modern problems.

*** 161. History of Biology (3) I, II**
Prerequisite: A college course in biology.
Lectures and reports tracing biological scientific development, with emphasis on the influence of personalities and trends of the times. Not more than three units in the history of biology may be counted for graduate credit.

162. Source Material in the History of Biology (3)
Prerequisite: Biology 161.
A study of original papers of significance to the history of biology. Not more than three units in the history of biology may be counted for graduate credit.

165. Biology of Natural Populations (3)
Prerequisite: A college course in biology.
A consideration of the relation of modern concepts of genetics, ecology and physiology to natural populations with emphasis on the problems of human populations.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167. Biology for Elementary School Teachers (3)
Two lectures and three hours of laboratory.
Prerequisites: A college course in biology and admission to elementary education.
A comprehensive approach to the study of living things, including the identification, adaptations, life histories, distribution and value of the more common animals and plants.

170-S. Contemporary Problems in Biology (1) Summer
A series of six weekly lectures on varied aspects of biology by scientists engaged in research. Reading and reports required of students enrolled for credit. These lectures are open to the public. May be repeated for a total of 3 units.

175. Statistical Methods in Biology (3) I
Two lectures and three hours of laboratory.
Prerequisites: Biology 15 and Mathematics 22, or equivalents.
Application of statistical techniques to biological data. Not open to students with credit for another upper division course in statistics except with written approval of the chairman of the department offering the student's major, to be filed with the Evaluations Office.

198. Methods of Investigation (2) I, II
One hour of discussion and three hours of laboratory.
Prerequisites: Junior standing and a major in the Division of the Life Sciences.
Individual and original investigations in biology; class reports. Four unts maximum credit.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in biological science with grades of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced biology. May be repeated with new content for additional credit.

210. Seminar in Cellular Biology (2)
Prerequisite: Biology 101 or 103, or consent of instructor.
May be repeated with new content to a maximum of four units.

220. Seminar in Growth and Development (2)
Prerequisite: Zoology 100 or consent of instructor.
May be repeated with new content to a maximum of four units.

230. Speciation (3)
Prerequisites: Biology 110 and 155; or Biology 160.
Concepts and principles of the origin of species.

231. Seminar in Ethology and Comparative Psychology (2)
(Same course as Psychology 231)
Prerequisite: Biology 110 or Psychology 114, or consent of instructor.
A seminar in the types of species specific behavior patterns and their function in the living systems of animals. May be repeated with new content to a maximum of four units.

240. Seminar in Ecology (2)
Prerequisite: Biology 110 or 112, or consent of instructor.
May be repeated with new content to a maximum of four units.

250. Biogeography (3)
Prerequisite: Biology 110 or 160.
Concepts and principles of the distributional history of plant and animal groups, and the origins and dispersal of modern faunas and floras.

260. Seminar in General Physiology (2)
Prerequisite: Biology 101 or Botany 107, or consent of instructor.
May be repeated with new content to a maximum of four units.

270. Seminar in Genetics (2)
Prerequisite: Biology 155 or consent of instructor.
May be repeated with new content to a maximum of four units.

290. Bibliography (2) II
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

BOTANY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professor: Gallup (Chairman)
Associate Professor: Preston
Assistant Professor: Wedberg

Offered by the Department

Master of arts degree with a major in biology and an emphasis in botany.
Master of arts degree for teaching service with a concentration in biology.
Master of science degree in biology.
Major in botany with the A.B. degree in liberal arts and sciences.
Major in botany with the B.S. degree.
Minor in botany.

THE MASTER'S DEGREE

The master of arts degree with a major in biology and an emphasis in botany, the master of arts degree for teaching service with a concentration in biology, and the master of science degree in biology are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of the prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are the prerequisite and related lower division courses. The major in liberal arts and sciences also requires a foreign language. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN BOTANY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in botany must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Biology 5 and 15; Botany 50 and 51; Chemistry 1A-1B; Physics 2A-2B; and Mathematics 21 or 40.

Upper Division Requirements. A minimum of 24 upper division units in botany, microbiology, and biology, to include Biology 101, 110, 155; Microbiology 101; Botany 107 and 114.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Botany Department.

Major in the General Programs

For a limited time, transfer students may elect the major in botany under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program.

Requirements for this major are the same as those for the major in liberal arts and sciences described above with the following exceptions: In the lower division, mathematics is not a requirement and Chemistry 2A-2B may be substituted for 1A-1B. Foreign language is not required. Twelve units of lower division courses in the natural sciences may be counted in general education. Botany 107 and 114 are required in the upper division, the remaining courses to be selected with approval of the adviser. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN BOTANY WITH THE B.S. DEGREE

Students majoring in botany with the B.S. degree must complete 45 units of general education courses in addition to the major, except that 12 units of lower division courses in the natural sciences may be counted as general education. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Biology 5 and 15; Botany 50 and 51; and Chemistry 1A-1B. Recommended: German, French, Russian, or Spanish; Geology 1A-1B or 2 and 3.

Upper Division Requirements. A minimum of 36 upper division units in botany and related fields, selected with the approval of the adviser, to include Biology 101, 110, 155; Microbiology 101; Botany 107 and 114. Recommended: Biology 161.

MINOR IN BOTANY

The minor in botany consists of 15 to 22 units in botany, six units of which must be in upper division courses.

LOWER DIVISION COURSES

50. Nonvascular Plants (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The development and phylogenetic relationships of the algae and fungi.

51. Vascular Plants (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The structure, development and phylogenetic relationships of the Bryophytes and vascular plants.

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UPPER DIVISION COURSES

102. Mycology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Botany 50 or consent of instructor.
The structure, food relations, and classification of fungi.

104. Plant Anatomy (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The arrangement of structural elements within plant organs, with emphasis on cell and tissue types.

107. Plant Physiology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5, 15, 101; and Chemistry 1A and 1B.
The activities of plants, including food manufacture, absorption, conduction, transpiration, respiration, growth and movement.

112. Cultivated Trees and Shrubs (3) I
One lecture and six hours of laboratory and field work.
Prerequisite: Biology 5. Botany 114 is recommended.
Identification of the common cultivated trees and shrubs of the San Diego region. Trips to local parks and private gardens.

114. Systematic Botany (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and Botany 51.
Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification.

119-S. Field Botany (4) Summer
Two units of lecture and two units of laboratory.
Prerequisite: A course in college biological science or consent of instructor.
Local native vegetation with emphasis on ecological units within floristic areas. Primarily for students not majoring in the Life Sciences Division.

126. Plant Pathology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Botany 50, 51 and 102.
A practical course dealing with the principles of disease in plants, control measures, and quarantine procedures. Emphasis is placed on the determination and control measures of those pathogenic organisms which affect crops, trees and shrubs and nursery stock.

162. Agricultural Botany (2) II
Field trips to be arranged.
Prerequisites: Biology 5 and Botany 51 or Zoology 121.
A study of California crop plants, their general identification, cultural methods, and regional distribution.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in botany with grades of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced botany. May be repeated with new content for additional credit.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

BUSINESS ADMINISTRATION

IN THE DIVISION OF BUSINESS ADMINISTRATION

(A member of the American Association of Collegiate Schools of Business)

Offered by the Division

For a description of the following programs, refer to the section of this catalog on Business Administration Professional Curricula.

Master of science degree in business administration with concentrations available in six areas.

Master of arts degree for teaching service with a concentration in business education.

Majors and minors for the bachelor's degree.

Teaching majors and a teaching minor for credentials.

Certificate (nondegree) in industrial management, offered in the Extension program.

Certificate (nondegree) in office management, offered in the Extension program.

COURSES IN BUSINESS ADMINISTRATION

LOWER DIVISION COURSES

1A-1B. Principles of Accounting (3-3) I, II
Four hours of lecture and laboratory.
Prerequisite: Business Administration 1A is prerequisite to 1B.
Introduction to the theory, practice, and principles of accounting as they relate to single proprietorship, partnership, and corporate types of business enterprises.

2. Mathematics of Finance (3) I, II
Prerequisite: Two years of algebra in high school or equivalent.
Interest and annuities, amortization; sinking funds; valuation of bonds; depreciation; mathematics of building and loan associations.

30A-30B. Business Law (3-3) I, II
Prerequisite: Business Administration 30A is prerequisite to 30B.
Principles of business law and their application to actual cases involving business transactions. Subjects included in 30A are contracts, sales and agency. Business Administration 30B includes partnerships, corporations, negotiable instruments, property and creditor's rights.

50. Salesmanship (2) I, II
Theoretical and psychological backgrounds of salesmanship; newer concepts of selling; the selling of ideas and services; steps in a sale: Attention, interest, desire, closing; the development of clienteles and of good will; the personal factor in salesmanship.

71. Beginning and Personal-use Typewriting (3) I, II
Five hours of lecture and activity.
Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

72. Typewriting (3) I, II
Five hours of lecture and activity.
Advanced typewriting. Production work and problem typing.

73. Business Machine Systems (1 to 3) I, II
Two hours for each unit of credit.
Theories of figuring, calculating, and integrated-data-processing machine systems. Instruction periods emphasize case studies of systems-machine interrelationships and and are correlated with machine operations.

75A-75B. Shorthand (3-3) I, II
Five hours of lecture and activity.
Prerequisite: Business Administration 75A is prerequisite to 75B.
Gregg shorthand theory; dictation and transcription.

76. Advanced Shorthand (3) I, II
Prerequisites: Business Administration 75A and 75B.
Development of speed in writing and transcription.

80. Business Writing (3) I, II
Prerequisite: English 1A.
Written communications in typical business situations.

UPPER DIVISION COURSES

100. Intermediate Accounting (3) I, II
Prerequisites: Business Administration 1A and 1B.
Theories and principles underlying balance sheets of partnerships and corporations.

101. Advanced Accounting (3) I, II
Prerequisite: Business Administration 100.
Problems involved in ventures, consignments, installment sales, estate accounting, consolidations, insurance and foreign exchange.

102. Cost Accounting (3) I, II
Prerequisites: Business Administration 1A and 1B.
Basic theories and practices of materials costing, labor costing, and overhead absorption as applied to process and job order cost systems.

104. Managerial Accounting (3) I, II
Prerequisites: Business Administration 1A and 1B, or consent of instructor.
Basic accounting concepts and alternative accounting treatments available to management; interpretation and analysis of financial statements; use of accounting for internal conrtol and decision-making. For nonaccounting majors only.

106. Income Tax Accounting (3) I, II
Prerequisites: Business Administration 1A and 1B.
Theory and procedures in the preparation of federal and California income tax returns for individuals.

107. Advanced Income Tax Accounting (3) I, II
Prerequisite: Business Administration 106.
Theory and procedures in the preparation of federal and California income tax returns for partnerships, corporations, and fiduciaries; brief survey of social security and estate and gift taxes.

108. Governmental Accounting (3) I
Prerequisites: Business Administration 100 and 101, or consent of instructor.
A comparative study of accounting systems used by municipalities, counties, and the State of California; detailed comparisons with commercial practice; procedures in handling budget accounts, appropriations, and encumbrances; subsidiary records; cost records; internal checks; auditing.

112. Auditing (3) I
Prerequisites: Business Administration 100 and 101.
General principles of auditing; duties, ethics, and responsibilities of the auditor; procedures for verification of financial records used by public accountants and internal auditors; auditor's opinion and report.

114. Accounting Systems (3) II
Prerequisites: Business Administration 100 and 102.
General principles underlying the design and installation of accounting systems; methods and procedures used in various types of businesses; familiarization with various types of accounting machines presently available.

115. Financial Statements (3) II
Prerequisite: Business Administration 100.
The construction, composition, analysis and interpretation of accounting reports with particular emphasis on the form, content and phraseology of reports.

116. Internal Auditing and Controllership (3) II
Prerequisite: Business Administration 100 or 112, or consent of instructor.
The place and functions of the controller and internal auditor in business enterprises; accounting systems and methods related to functions of internal check and audit control of routine transactions.

118. Advanced Business Law (3) I, II
Prerequisites: Business Administration 30A and 30B.
Principles and problems, including contractual relationships, obligations, trade regulations, and formation and operation of business entities. (Replaces Business Administration 130A-130B.)

119. C. P. A. Review (3) I, II
Prerequisites: Business Administration 100, 101, 102, 106, 107, 108 and 112.
An intensive review of the accounting principles and procedures covered in the accounting theory and accounting practice sections of the uniform C. P. A. examination prepared by the American Institute of Certified Public Accountants.

120. General Insurance (3) I, II
History of insurance; economic and social implications; principles of insurance contracts; theory of risk; law of large numbers. Survey of all major insurance fields and policies including life, fire, marine, inland marine, casualty and surety bonding.

121. Property and Casualty Insurance (3) I, II
Prerequisites: Business Administration 30A, 30B, and 120.
All standard forms of insurance except life; includes automobile, liability, workmen's compensation and disability, fire, marine, and inland marine. Legal interpretation of contract coverages; underwriting problems, marketing of insurance, government supervision and control.

124. Life Insurance Principles and Practices (3) I, II
Economic and social aspects of life insurance; nature of life insurance and annuity contracts; basic legal principles; theory of probabilities, premiums, reserves, and nonforfeiture values; company operational activities; agency development and management.

125. Life Insurance Underwriting (3) II
Programming fundamentals with emphasis upon economic, actuarial, and legal principles, program coordination and integration with wills; guardianships; estate planning fundamentals; taxation; business life insurance. Analysis of life insurance selling as a career.

127. Fundamentals of Finance (3) I, II
(Same course as Economics 133)
Prerequisites: Economics 1A, 1B, and Business Administration 1A and 1B.
Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries and government regulation of finance. The cost of capital. (Formerly Business Administration 131, Corporation Finance.)

128. Investments (3) I, II
Investment principles and practices with emphasis upon problems of the small investor, such as tests of a good investment, sources of information, types of stocks and bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and the like. (Formerly Business Administration 133.)

129. Credit Management (3) I, II
Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.
Social, economic, and legal aspects of credit and lending policies. Analyzes the development and administration of credit and lending policies in domestic and foreign business relations, major financial institutions, and government.

130. Financial Analysis and Management (3) I, II
Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.
Evaluation of conditions and trends in the money and capital markets. Utilization of financial data as related to the problems of business enterprises. Emphasis on decision-making and research in finance.

131. Legal Factors in Business (3) I, II
Prerequisite: Business Administration 30A or consent of instructor.
The interaction of historical, sociological, and economic forces with the judicial process. Decision-making in law and its impact on business.

132. Fundamentals of Management (3) I, II
Prerequisite: Completion of lower division courses required in the major or minor.
An analysis of what a manager does, how he selects objectives, organizes essential activities, plans, directs and controls operations; fundamentals which guide a manager's decisions.

134. The Social Environment of Business (2) I, II
Prerequisite: Consent of instructor and senior standing.
An interdisciplinary study of American business enterprise in its cultural environment. The foundations of business; historical modifications; present relationship between business and society. The moral and ethical responsibilities of business and the businessman.

135. Production Management (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Business Administration 132.
Analysis of management techniques applied to modern industrial enterprises. Survey of production activities with a special emphasis upon basic quantitative decision-making techniques.

136. Production and Quality Control (3) I, II
(Same course as Engineering 176)
Prerequisites: Business Administration 135 and Mathematics 130A.
Forecasting, planning and controlling production flow; techniques for planning and controlling quality of produced and purchased items; emphasis on modern quantitative methods particularly applicable to scheduling and control.

137. Motion and Time Study (3) I, II
(Same course as Engineering 173)
Two lectures and three hours of laboratory.
Prerequisite: Business Administration 135.
Work simplification through methods improvements; operations analysis; flow charts, calculation of time standards; work and speed analysis; new developments in job timing, standard setting and motion economy study.

138. Systems and Data Analysis (3) I, II
Prerequisite: Business Administration 135 or consent of instructor.
The application of scientific management techniques to administrative systems; communication feedback and control techniques; data collection and processing; the use of high speed computing equipment within management systems.

140. Employee Relations (3) I, II
Prerequisite: Business Administration 132.
Problems of business and industry in dealing with employees, special attention to company and public policy, staffing, employee development, labor relations and employee motivation. Comparisons of current practices to underlying problems and theories.

141. Personnel Management Laboratory (1) I, II
Prerequisite: Credit or concurrent registration in Business Administration 140.
Investigation of personnel management practices and policies. Practice in interviewing, role playing, or in conducting field studies and related personnel research.

142. Wage and Salary Administration (3) I, II
(Same course as Political Science 146)
Prerequisite: Business Administration 140.
Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice.

143. Problems in Employee Relations (3) II
Prerequisite: Business Administration 140.
The employee relations function. Analysis of current practices as effective solutions to problems in this area. Guided research into the nature of employment relations.

145. Human Factors in Management (3) I, II
(Same course as Political Science 145)
Prerequisite: Business Administration 132 or Political Science 144.
Organizations as social systems; power and authority; communication, motivation and leadership; impacts of technology on management and workers, resistance to change; human needs and the imperatives of management.

149. Business Policy (3) I, II
Prerequisites: Senior standing and consent of instructor.
Formulation and administration of policy; integration of the various specialties in business; development of over-all management viewpoint.

150. Marketing Principles (3) I, II
Prerequisites: Economics 1A and 1B.
Study of marketing functions, activities of producers, wholesalers, retailers and other middlemen; channels of distribution; integration of marketing activities; price policies; government regulation.

151. Problems of Marketing Management (3) I, II
Prerequisite: Business Administration 150.
An advanced course dealing with practical aspects of marketing. Solutions of problems faced by producers, wholesalers, retailers and other middlemen in the marketing of their products.

152. Retailing Principles (3) I, II
Prerequisite: Business Administration 150.
Study of retail stores, emphasizing the problems of store managers and merchandising executives; store location, organization, personnel, sales promotion, buying and handling of merchandise, inventory, turnover, and control methods. Problems of profitable operation under changing conditions.

153. Advertising Principles (3) I, II
Prerequisite: Business Administration 150.
Advertising as a sales promotional tool in marketing activities; consumer, market and product analysis; advertising media; preparation of advertisements; measurement of advertising effectiveness; economic and legal aspects of advertising; public relations; advertising campaigns.

154. Advertising Problems (3) I, II
Prerequisites: Business Administration 150 and 153, or consent of instructor.
Practice in applying accepted principles to specific problems. A variety of cases, including large, medium and small businesses are covered. Principles and solutions are developed through class discussion. Emphasis is on coordination of advertising with other marketing activities.

155. Public Relations (3) I
(Same course as Journalism 180)
Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems.

157. Market Research (3) I, II
Two hours lecture and three hours scheduled research activity.
Prerequisites: Business Administration 150 and Economics 2 or Mathematics 12.
Formal research techniques and analysis for marketing decisions; principles of decision making; laboratory practice in research methods.

159. Color and Design in Merchandise (2) I, II
(Same course as Art 107)
Six hours. No prerequisite.
Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems.

160. Merchandise Analysis (3) I
(Same course as Home Economics 160)
Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors.

161. Traffic Management (3) I
Prerequisites: Economics 1A and 1B.
Organization and functions of a traffic department, routing policy on shipments, freight rates and classifications, receiving and shipping, loss and damage claims, warehousing, packing and loading, documentation, export and import shipments, government regulations.

162. Industrial Marketing (3) I, II
Prerequisites: Business Administration 132 and 150, or consent of instructor.
Description and importance of the industrial market channels of distribution, advertising policies, merchandising techniques, methods of selling, promotional methods, pricing techniques, applications of marketing research in industrial marketing. Planning the overall marketing programs.

163. Sales Management (3) I, II
Prerequisites: Business Administration 50 and 150.
Consideration of the structure of sales organizations; sales policies; selection, training, compensation, evaluation and control of the sales force; sales analysis; sales quotas; sales costs and budgets; markets and product research and analysis; co-ordination of personal selling with other forms of sales effort.

164. Purchasing and Buying (3) I, II
Prerequisites: Business Administration 132 and 150.
Policies for purchasing raw materials, parts, supplies and finished goods for manufacturing operations, for commercial uses, and for wholesale and retail resale. Buying procedures, inventory control, vendor relations, legal problems, quality control, financing.

165. Foreign Marketing (3) II
Prerequisite: Business Administration 150.
Bases and promotion of foreign marketing; foreign marketing organizations and methods; technical and financial features of international markets; selection of organization and trade channels. Determinants and principles of foreign marketing policies.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

170. Real Estate Principles and Practices (3) II
(Same course as Economics 139)
Prerequisites: Economics 1A and 1B.
Functions and regulation of the real estate market; transfers of property, including escrows, mortgages, deeds, title insurance; appraisal techniques; financing methods; leases; subdivision development; property management.

171. Law of Real Property (3) II
Prerequisites: Business Administration 30A, 30B, and 170 or Economics 139; or consent of instructor.
Legal theory and practice of estates in land; landlord and tenant relationships; land transactions; mortgages and trust deeds; easements; land use; ownership rights in land; public land law.

172. Property Management (3) I
Prerequisite: Business Administration 170 or Economics 139, or consent of instructor.
Study of the rental markets, property management programs, collection procedures, lease forms, tenant and owner relations, rental techniques, maintenance and rehabilitation procedures, and accounts and records.

173. Real Estate Finance (3) I, II
Prerequisites: Economics 1A, 1B, Business Administration 30A, 30B, and 170 or Economics 139; or consent of instructor.
Methods of financing real estate; sources of real estate credit; loan servicing; governmental financial agencies; acquisition and sale of mortgages and trust deeds.

174. Real Estate Appraisal Theory (3) I
Prerequisites: Business Administration 170 or Economics 139, and Economics 138, or consent of instructor.
Introduction to theories, functions, and purposes of appraisals of residential and income properties: Methods of valuation, techniques of market data analysis, rehabilitation estimates.

180. Workshop in Business Education (2) Summer
Developments in business education areas such as (A) bookkeeping, (B) distributive and basic business education, (C) secretarial, and (D) typewriting. Opportunity provided for work on individual problems. May be repeated with new subject matter to a total of eight units.

181. Administration and Supervision of Distributive Education (3) II
Objectives, duties, qualifications, and problems of supervisors and co-ordinators in organizing and administering distributive education programs.

***182. Consumer Income Management (3) I, II**
Functions and responsibilities of consumers; problems of choice-making; planning expenditures for housing, household operation, insurance and investments. Economics of installment buying, borrowing procedures, control of frauds, legislation affecting consumers. A general education course in family life education.

183A-183B. Executive Secretarial Procedures (3-3)
Analysis of and practice in the executive secretarial procedures in modern offices; includes review for the *Certified Professional Secretary* examination. Prerequisites: Business Administration 72 and 75B or their equivalents.

184. Office Management (3) I, II
Functions, facilities, techniques, organization and personnel relationship of the business office.

185. Office Systems and Automation (3) I, II
Principles and techniques used in formulating, installing, and operating modern office systems; the functions of business machines, including integrated and electronic data processing equipment, in these systems; applications to modern office situations.

186. Office Machines Methods (2) I, II
Methods and theories of voice-writing, addressing, and duplicating machine operation as applied to office procedures.

188. Records Management (1) I, II
Systems of preparing, keeping, storing and disposing of office records, including the use of equipment and supplies.

189. Objectives and Curricula in Business Education (3) I
Scope, function, and curricula of business education in the secondary schools.

196. Work Experience (2) I, II
Prerequisite: Consent of instructor.
Supervised work in cooperating business firms; relationship between theory and practice in specific business conditions.

198. Investigation and Report (1-3) I, II
Prerequisites: Senior standing and consent of instructor.
May be repeated to a maximum of six units.
A comprehensive and an original study of a problem connected with business under the direction of one or more members of the business administration staff.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

EXTENSION COURSES

X-123A—123B. C. P. C. U. Preparation (3-3) Extension
Preparation for Chartered Property and Casualty Underwriter examination. Content to be selected by instructor from: Parts I and II—Insurance Principles and Practices; Part III—General Education; Part IV—Law; Part V—Accounting, Finance and Agency Management.

X-126A—126B. C. L. U. Preparation (3-3) Extension
Preparation for Chartered Life Underwriter examination. Content to be selected by instructor from the following: Part I—Life Insurance Fundamentals; Part II—Business, Accident and Sickness, Group Insurance, and Pensions; Part III—Law, Trusts, and Taxes; Part IV—Economics and Finance; and Part V—Life Underwriting. Each part of this offering represents a two-semester course.

X-190. Certificate in Industrial Management (3)
Each of the subject areas listed below may be taken for three units of credit.

A. Communications
B. Business Organization and Management
C. Industrial Management
D. Production Planning and Control
E. Statistical Quality Control
F. Methods and Standards
G. Accounting
H. Personnel Management
I. Integrated and Electronic Data Processing
J. Policy Formulation and Analysis

X-191. Certificate in Office Management (3)
Each of the subject areas listed below may be taken for three units of credit.

A. Information Retrieval Systems
B. Office Administration
C. Automated Office Systems
D. Office Problem Analysis

GRADUATE COURSES

200. Seminar in Accounting Theory (3)
Current trends in accounting in relation to historical development of accounting principles and theory.

203. Advanced Cost Accounting (3)
Prerequisite: Business Administration 102.
Advanced study of the uses of standard costs, budget construction, distribution costs, profit analysis, profit-volume analysis, differential costs; emphasis on examination of current publications. (Formerly offered as Business Administration 103.)

213. Advanced Auditing (3)
Prerequisite: Business Administration 112.
Critical analysis of the application of auditing principles in verification of financial statements; review of AICPA and SEC bulletins and regulations; advanced professional examination of audit standards, procedures, sampling techniques, and report writing; trends and developments in the auditing profession. (Formerly offered as Business Administration 113.)

220. Seminar in Business Organization and Management (3)
Prerequisites: Business Administration 132 and consent of instructor.
Analysis of selected topics in business organization and management directed to the development of theories of organization and to an understanding of the operation of enterprises. Emphasis on planning, coordination, leadership and decision-making.

221. Seminar in Personnel Management (3)
Prerequisites: Business Administration 140, Economics 150, and consent of instructor.
Contemporary problems in personnel and industrial relations. Investigations by seminar members of aspects of human factors in management, labor relations and other personnel-related topics. Case problems involving such areas as communication, participation, status, control, and effects of technological change.

222. Seminar in Finance (3)
Prerequisites: Business Administration 127 or Economics 135 and consent of instructor.
Principles and problems involved in financing business firms from both internal and external sources. Stressing of student research and knowledge of literature in the field of finance.

223. Seminar in Insurance (3)
Prerequisites: Business Administration 120, 124, 125, and consent of instructor.
Advanced study of insurance management including underwriting, investment, and other problems related to effective business operation. Programming of personal, partnership and corporation estates.

224. Seminar in Industrial Management (3)
Prerequisites: Economics 2 or equivalent, Mathematics 22 or equivalent, and consent of instructor.
A study of quantitative analytical techniques for managerial planning and decision-making. Aspects of operations research that apply to business situations.

250. Seminar in Marketing (3)
Prerequisites: Business Administration 150 and consent of instructor.
Selected phases of marketing, such as pricing policies and practices, channels of distribution, sales promotion activities, distribution cost analysis. Written reports on special aspects of the semester's subject matter are required.

270. Seminar in Business Education (3)
An intensive study of some phase of business education, such as administration and supervision; distributive and basic business education; trends in and methods of teaching shorthand and typewriting. May be repeated with new subject matter. Maximum of six units may be applied for the master's degree program.

271. Seminar in Office Management (2)
Prerequisites: Business Administration 1A, 1B, and 184.
An intensive study of the problems of office management and their solution. The relation of records, reports, budgets and manuals to managerial control.

275. Seminar in Real Estate (3)
Prerequisites: Business Administration 170, 173, and consent of instructor.
Current problems in real property and regional economic development.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

CHEMISTRY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Isensee, Joseph, Robinson, D., Rowe, Spangler, Walba (Chairman), Wick
Associate Professors: Hellberg, Landis, Malik, Stewart, C.
Assistant Professors: Grubbs, Harrington, N., Jensen, O'Neal, Wadsworth, Woodson

Offered by the Department

Master of arts degree with a major in chemistry.
Master of arts degree for teaching service with a concentration in chemistry.
Master of science degree in chemistry.
Major in chemistry with the B.S. degree.
Major in chemistry with the A.B. degree in liberal arts and sciences.
Major in chemistry with the A.B. degree in the general programs.
Certificate of the American Chemical Society with the A.B. or B.S. degree.
Minor in chemistry.
Teaching major in physical science and general science, with a concentration in chemistry leading to the general secondary credential.
The Department of Chemistry is on the approved list of the American Chemical Society.

THE MASTER'S DEGREE

The master of arts degree with a major in chemistry, the master of arts degree for teaching service with a concentration in chemistry, and the master of science degree in applied chemistry are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education.

Required as preparation for the major are the prerequisite and related lower division courses. These courses may not be counted in general education, except for nine units of lower division chemistry and physics and a maximum of six units of mathematics taken in prerequisite to entrance in Mathematics 50.

In addition to the major, students will complete 45 units of general education. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.) Regulations on general education do not apply to the major in liberal arts and sciences which has a prescribed pattern of courses.

A minor is required with the major in chemistry for the A.B. degree, but is not required for the B.S. degree.

Certificate of the American Chemical Society

The Department of Chemistry is on the approved list of the American Chemical Society. The B.S. degree or the A.B. degree (Plan A) may be taken with or without the Certificate of the American Chemical Society.

Foreign Language

Foreign language (German) is required in all programs leading to the Certificate of the American Chemical Society. German is also required under Plan A, which leads to the A.B. degree, whether taken with or without the Certificate. Under Plan B, foreign language is not required unless the student takes the A.B. degree in the liberal arts and sciences program.

MINOR IN CHEMISTRY

The minor in chemistry consists of 15 to 22 units in chemistry to include Chemistry 1A, 1B, 4 or 5, 12, and six units of upper division chemistry.

MAJOR IN CHEMISTRY WITH THE B.S. DEGREE IN THE GENERAL PROGRAMS (With the Certificate of the American Chemical Society)

The curriculum outlined below for the B.S. degree is based upon the recommendations of the Committee for Professional Training of Chemists of the American Chemical Society. It qualifies graduates for many types of positions as chemists and provides the training required by most universities for admission to graduate work in chemistry. The degree may be obtained without the Certificate of the American Chemical Society by appropriate substitution of courses for the German requirement.

Major

Lower Division Requirements. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52 (44 units).

Upper Division Requirements. A minimum of 36 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 150, one unit of 198; and 17 units of upper division electives in chemistry.

Foreign Language Requirement. German 1, 2, and 8A-8B (12 units), required for the Certificate of the American Chemical Society.

Outline for the B.S. Degree and Certificate

	Units 1st Sem.	Units 2nd Sem.
First Year		
Chemistry 1A-1B	5	5
*Mathematics 40	5	–
Mathematics 50	–	5
Physics 4A	–	4
*Speech Arts 3	2	–
*Biology 1 or 3	–	3
*English 1A	3	–
*P.E. activity	½	½
	15½	17½

	Units 1st Sem.	Units 2nd Sem.
Second year		
Chemistry 5	4	–
Chemistry 12	–	4
Chemistry 13	–	1
Mathematics 51, 52	4	4
Physics 4B, 4C	4	4
†*German 1, 2	½	½
*P.E. activity		
	16½	17½

* General education course.
† The B.S. degree may be obtained without the Certificate of the American Chemical Society by substituting for the German courses one unit of a general education course and eleven units of electives.

Third year	Units 1st Sem.	Units 2nd Sem.
Chemistry 110A-110B	3	3
Chemistry 112	4	–
Chemistry 113	1	–
Chemistry 150	–	4
†German 8A-8B	2	2
*Social science	3	3
*Psychology 1	–	3
*Health Education 21	2	–
	15	15

Fourth year	Units 1st Sem.	Units 2nd Sem.
Chemistry 111	–	3
Chemistry 198	1	–
‡Advanced chemistry	9	8
*Lit., phil. and arts	3	3
*Social science	3	–
Electives	–	1
	16	15

* General education course.
† The B.S. degree may be obtained without the Certificate of the American Chemical Society by substituting for the German courses one unit of a general education course and eleven units of electives.
‡ Must include four units lecture and one unit laboratory in chemistry courses requiring three full year-courses in chemistry as prerequisites. Remainder may include courses in related subjects by approval of department.

MAJORS IN CHEMISTRY WITH THE A.B. DEGREE

The following programs leading to the A.B. degree are available: **Plan A**, with the Certificate of the American Chemical Society; and **Plan B**, without the certificate. Under **Plan B** the student may take the major leading to the A.B. degree in liberal arts and sciences or to the A.B. degree in the general programs.

PLAN A

MAJOR IN CHEMISTRY WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS
(With the Certificate of the American Chemical Society)

Plan A is offered for students who wish to take the A.B. degree in the general programs and at the same time meet the recommendations of the American Chemical Society and the requirements of most universities for admission to graduate work in chemistry. Students under **Plan A** who wish to graduate with the Certificate of the American Chemical Society are required to complete 12 units of German, including German 8A-8B. The degree may be taken without the certificate by omitting German 8A-8B, but completing German 1 and 2.

Students taking the chemistry major with the A.B. degree must complete a minor in another field.

Major

Lower Division Requirements. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52 (44 units).

Upper Division Requirements. A minimum of 24 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 150, one unit of 198; and five units of upper division electives in chemistry.

Foreign Language Requirement. German 1, 2, and 8A-8B (12 units), required for the degree and Certificate of the American Chemical Society.

Outline for Plan A

First year	Units 1st Sem.	Units 2nd Sem.
Chemistry 1A-1B	5	5
*Mathematics 40	5	–
Mathematics 50	–	5
Physics 4A	–	4
*Speech Arts 3	2	–
*Biology 1 or 3	–	3
*English 1A	3	–
*P.E. activity	½	½
	15½	17½

Second year	Units 1st Sem.	Units 2nd Sem.
Chemistry 5	4	–
Chemistry 12	–	4
Chemistry 13	–	1
Physics 4B, 4C	4	4
Mathematics 51, 52	4	4
*German 1, 2	4	4
*P.E. activity	½	½
	16½	17½

* General education course.

Third year	Units 1st Sem.	Units 2nd Sem.
Chemistry 101A-101B	3	3
Chemistry 112	4	–
Chemistry 113	1	–
Chemistry 150	–	4
†German 8A-8B	2	2
*Social science	3	3
*Health Education 21	2	–
*Psychology 1	–	3
	15	15

Fourth year	Units 1st Sem.	Units 2nd Sem.
Chemistry 111	–	3
Chemistry 198	1	–
‡Advanced chemistry	2	3
Minor (U.D.)	3	3
*Lit., phil., and arts	3	3
*Social science	3	–
Electives	3	–
	15	12

* General education course.
† The A.B. degree may be obtained without the Certificate of the American Chemical Society by substituting four units of electives for German 8A-8B.
‡ Must include four units lecture and one unit laboratory from courses requiring three full year-courses in chemistry as prerequisites.

PLAN B

MAJOR IN CHEMISTRY WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS
(For Related Professions)

Plan B is designed for students who do not intend to become professional chemists, but who desire the major in chemistry as part of a general education or in preparation for training in a related profession. By appropriate choice of electives, graduates can meet the requirements for admission to medical schools. The sequence of courses outlined below represents the minimum technical requirement for an A.B. degree in the general programs with a major in chemistry.

Students taking this major in chemistry with the A.B. degree must complete a minor in another field.

Major

Lower Division Requirements. Chemistry 1A-1B, 5, 12, and 13; Physics 2A-2B-3A-3B; and Mathematics 21 and 22 (33 units). French or German recommended.

Upper Division Requirements. A minimum of 24 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 150; and six units of upper division electives in chemistry.

Outline for Plan B

First year	Units 1st Sem.	Units 2nd Sem.
Chemistry 1A-1B	5	5
*Physics 2A-2B	3	3
*Physics 3A-3B	1	1
*Mathematics 21, 22	3	3
*English 1A	3	–
*Psychology 1	–	3
*P.E. activity	½	½
	15½	15½

Second year	Units 1st Sem.	Units 2nd Sem.
Chemistry 5	4	–
Chemistry 12	–	4
Chemistry 13	–	1
†*French or German	4	4
*Speech Arts 3	2	–
*Health Education 21	–	2
*Biology 1 or 3	3	–
*Lit., phil., and arts	–	3
Electives	3	3
*P.E. activity	½	½
	16½	17½

* General education course.
† One unit of a general education course and seven units of electives may be substituted for the French or German.

Third year	Units 1st Sem.	Units 2nd Sem.
Chemistry 109A-109B	3	3
Chemistry 112	4	–
Chemistry 113	1	–
Chemistry 150	–	4
*Social science	3	3
*Lit., phil., and arts	3	–
Electives	3	3
	17	13

Fourth year	Units 1st Sem.	Units 2nd Sem.
Chemistry 111	–	3
Chemistry electives	3	2
*Social science	3	–
Minor (U.D.)	3	3
Electives	6	6
	15	14

* General education course.

MAJOR IN CHEMISTRY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

This major in chemistry is the same as the major under Plan B, above, except that 12 units of foreign language are required. Students taking this major must also complete all requirements prescribed in the liberal arts and sciences program, in place of the general education requirements listed under Plan B, above. A minor is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

TEACHING MAJOR FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major in physical science and general science, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in physical science and general science may be completed in one of the following ways:

(1) By completing the physical science major with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing a major in chemistry or in physics with an A.B. or B.S. degree and the following additional courses, which may be counted as general education: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; and Geology 2 and 3 or Geology 1A. Recommended electives if not otherwise included in the major: Geography 3, Industrial Arts 5, 6, 85, Botany 119-S, Chemistry 12, Geography 153, Physics 101, 120, and Zoology 119-S. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In the postgraduate program the credential candidate must complete a minimum of six upper division or graduate units in the physical or life sciences, selected with approval of the adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

LOWER DIVISION COURSES

1A-1B. General Chemistry (5-5) I, II
Three lectures and six hours of laboratory.
Prerequisites: Elementary algebra and plane geometry. Strongly recommended: High school chemistry, physics, and additional mathematics.
General principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester.

*** 2A-2B. Fundamentals of Chemistry (3-3) I, II**
Two lectures and three hours of laboratory.
The first semester includes an introduction to inorganic chemistry and the second semester an introduction to organic chemistry. The course is designed for students not intending to take further work in chemistry other than Chemistry 3. A physical science course in general education meeting the laboratory requirement in natural science. Chemistry 2A is not open to students with credit in Chemistry 1A. Chemistry 2B may be taken after Chemistry 1A.

3. Chemistry of Nutrition (3) I, II
Three lectures with demonstrations.
Prerequisites: Chemistry 2A-2B. This course intended primarily for majors in home economics, nursing, and related fields.
Digestion, metabolism and nutrition of foodstuffs and the role of vitamins, hormones and electrolytes in life processes.

4. Elementary Quantitative Analysis (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1B or 2B.
Fundamentals of volumetric and gravimetric analysis. Not applicable to the chemistry major. Not open to students with credit in Chemistry 5 or the course formerly numbered 5A.

5. Analytical Chemistry (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 1B; and credit or concurrent registration in Mathematics 22 or 50.
Theory and practice of volumetric, gravimetric and electrical methods of analysis. Not open to students with credit in Chemistry 4 or the course formerly numbered 5A.

12. Organic Chemistry (4) I, II
Three lectures and three hours of laboratory.
Prerequisite: Chemistry 1B.
Stresses aliphatic compounds and includes an introduction to aromatic compounds. (Formerly Chemistry 101A.)

13. Organic Chemistry Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 12.
Study of the theory and practice of laboratory operations. Synthesis of typical aliphatic compounds. (Formerly Chemistry 102A.)

22. Glass Blowing (1) II
Three hours of laboratory.
Prerequisite: Chemistry 1B.
Elementary training in the manipulation of glass.

UPPER DIVISION COURSES

109A-109B. Fundamentals of Physical Chemistry (3-3)
Prerequisites for 109A: Chemistry 5, Mathematics 22, and Physics 2B and 3B. Not open to students with credit in Chemistry 110A.
Prerequisites for 109B: Chemistry 109A and credit or concurrent registration in Chemistry 150. Not open to students with credit in Chemistry 110B.
Fundamental principles of theoretical chemistry. This course cannot apply to the Plan "A" A.B. or B.S. major in chemistry.

110A-110B. Physical Chemistry (3-3) I, II
Prerequisites for 110A: Chemistry 5 and credit or concurrent registration in Physics 4C and Mathematics 52. Not open to students with credit in Chemistry 109A.
Prerequisites for Chemistry 110B: Chemistry 110A and credit or concurrent registration in 150. Not open to students with credit in Chemistry 109B.
Theoretical principles of chemistry with emphasis on mathematical relations.

111. Physical Chemistry Laboratory (3) I, II
Nine hours of laboratory.
Prerequsite: Credit in Chemistry 109B or 110B or concurrent registration with consent of instructor.
Physico-chemical apparatus and measurements, with emphasis on technical report writing.

112. Organic Chemistry (4) I, II
Three lectures and three hours of laboratory.
Prerequisite: Chemistry 12.
Stresses aromatic compounds, continues with more complex aliphatics and introduces mechanisms of organic reactions. (Formerly Chemistry 101B.)

113. Organic Chemistry Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 112.
Study of theory and practice of laboratory operations. Synthesis of typical aromatic compounds. (Formerly Chemistry 102B.)

114A-114B. Clinical Biochemistry (4-4)
(Offered 1963-64 and alternate years)
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 4 or 5 and 12.
Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry.

115A-115B. General Biochemistry (3-3)
Two lectures and three hours of laboratory.
Prerequisites: Chemistry 4 or 5 and 12.
The chemistry and metabolism of carbohydrates, fats, and proteins.

118. Colloid Chemistry (2) II
Prerequisites: Chemistry 12, 110A, and 110B.
The theoretical principles of colloid chemistry and the preparation, properties and practical applications of colloids.

127A. Advanced Inorganic Chemistry (3) I
Prerequisites: Three years of chemistry. Recommended: Credit or concurrent registration in Chemistry 109A or 110A.
The physical basis of the periodic system, complex inorganic compounds, and the nature of the chemical bond.

127B. Advanced Inorganic Chemistry (3) II
Two lectures and three hours of laboratory.
Prerequisite: Chemistry 127A.
An advanced systematic study of representative and transition elements and their compounds. Laboratory work in synthetic inorganic chemistry.

130. Chemistry for Elementary Teachers (3) Summer
Lectures, demonstrations, and field trips. No prerequisites.
Practical chemistry designed to develop an understanding of basic concepts, methods and materials of chemistry used in the elementary school. Not open to students with previous credit in chemistry.

131. Theoretical Organic Chemistry (3) II
Prerequisites: Chemistry 109A or 110A and 112.
The application of modern electronic theory to the physical and chemical properties of organic compounds.

140. Introduction to Nuclear Chemistry (4) I
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1B.
The analytical and physical chemistry of the measurement and processing of radioactive materials. Not applicable to the major in chemistry.

141. Reactor Chemistry (4) II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 140.
Chemistry of the lanthanide and actinide series and of important light elements. Fuel processing problems, selected industrial chemical methods. Separation processes. Laboratory work in the processing of fuel and fission product materials. Not applicable to the major in chemistry.

150. Analytical Chemistry (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 12 and 109A or 110A.
Advanced theory and practice of quantitative analysis and an introduction to instrumental methods of analysis. (Replaces Chemistry 5B and 105.)

154. Organic Qualitative Analysis (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 112 and credit or concurrent registration in Chemistry 109A or 110A.
A systematic study of the identification of organic compounds and mixtures.

155. Advanced Instrumental Methods (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 150 and credit or concurrent registration in Chemistry 110B.
Advanced theory and practice of chemical instrumentation.

156. Quantitative Microanalysis (3) II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 112 and 150.
Techniques of microanalysis including carbon, hydrogen, nitrogen, halogen, sulfur, oxygen and metal analyses.

160A-160B. Principles of Chemical Engineering (3-3)
(Same course as Engineering 160A-160B)
Prerequisite: Credit or concurrent registration in Chemistry 109A or 110A or in Engineering 108, or equivalent.
Industrial stoichiometry, unit processes, and unit operations. Problems, reports, and field trips.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Radiochemistry (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 109A or 110A.
Principles and techniques of radioactivity as applied to chemistry. Measurements related to radionuclides, and tracer applications.

191. Chemical Literature (1) II
Prerequisite: Upper division standing in chemistry.
An introduction to the availability, scope and use of the chemical literature.

198. Senior Project (1-6) I, II
Prerequisites: Three one-year courses in chemistry and senior standing.
An individual investigation and report on a problem. May be repeated to a maximum of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor. Open only to students who have shown ability to do A or B work in chemistry.

GRADUATE COURSES

200. Seminar (1 to 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced chemistry. May be repeated with new subject matter for additional credit.

220. Chemical Thermodynamics (3)
Prerequisites: Mathematics 52 and Chemistry 110B.
An introduction to the study of chemical thermodynamics.

221. Quantum Chemistry (3)
Prerequisite: Chemistry 220.
Selected topics in thermodynamics and quantum chemistry, including an introduction to the statistical approach to quantum mechanics.

222. Chemical Kinetics (2)
Prerequisites: Mathematics 52 and Chemistry 110B.
Theory of rate processes; applications of kinetics to the study of reaction mechanisms.

223. Physical Chemistry of Electrolytic Solutions (2)
Prerequisite: Chemistry 220.
Theory of ionic solutions; electrode potentials, determination of activity coefficients, partial molal quantities and their applications.

230. Advanced Organic Chemistry (2)
Prerequisite: Chemistry 112.
Applications and limitations of organic reactions from the viewpoint of synthesis.

231. Mechanisms in Organic Reactions (2)
Prerequisites: Chemistry 110B and 131.
Reactivity and mechanism in organic reactions.

240. Chemistry of the Less Familiar Elements (2)
Prerequisite: Chemistry 127A.
Modern inorganic theory applied to electronic configurations, periodic relationships and uses of selected less familiar elements.

250. Advanced Analytical Chemistry (2)
Prerequisites: Chemistry 110B and 150.
Selected topics and theories in advanced analytical chemistry.

260. Advanced Biochemistry (2)
Prerequisites: Chemistry 110B and 115B.
Discussion of selected topics emphasized in current research in carbohydrates, fats, and protein metabolism such as mechanisms of biological reactions, growth factors, and hormonal control.

270. Nuclear Chemistry (2)
Prerequisite: Chemistry 170.
Chemistry of the actinides. Nuclear reactions, induced radioactivity. Interaction of radiation with matter, fission systematics, interpretations arising from nuclear models.

290. Bibliography (1)
Exercise in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

COMPARATIVE LITERATURE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in comparative literature are drawn from departments in the Division of the Humanities.
All reading assigned for classes in comparative literature is in English translations, and no knowledge of any foreign language is required.
Major work is not offered in comparative literature; however, courses in this field may be used as part of the English major. For specific information, refer to English.

COMPARATIVE LITERATURE MINOR

The minor consists of 15 to 22 units in comparative literature, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

*** 52A-52B. Masterpieces of World Literature (3-3) I, II**
(Same course as English 52A-52B)
A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay. A general education course in literature, philosophy, and the arts.

UPPER DIVISION COURSES

*** 101A-101B. Modern Continental Fiction (3-3)**
(Same course as English 101A-101B)
Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century. A general education course in literature, philosophy, and the arts.

*** 104A-104B. Spanish American Literature (3-3)**
(Same course as Spanish 104A-104B)
For a description of this course, see Spanish 104A-104B, which may be taken for credit in Comparative Literature by doing the required reading in English translation. A general education course in literature, philosophy, and the arts.

*** 115. The Bible as Literature (3) I**
(Same course as English 115)
A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions. A general education course in literature, philosophy, and the arts.

*** 138. Introduction to Aesthetic Appreciation (1) I**
(Same course as Humanities 138)
Major forms of expression and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions. A general education course in literature, philosophy, and the arts.

*** 140A-140B. Masterpieces of French Literature (3)**
A cultural course designed to be given in introduction to the great French works from the Song of Roland through Cyrano de Bergerac, with emphasis on the sixteenth, seventeenth, eighteenth and nineteenth century authors. The contributions to world thinking of Rabelais, Montaigne, Moliere, Racine, Descartes, Pascal, Montesquieu, Voltaire, Rousseau, Hugo, Balzac, Flaubert, Maupassant, Zola, will be studied through lectures and outside readings. A general education course in literature, philosophy, and the arts.

*** 142. The Golden Age of German Literature (3) I, II**
(Same course as German 142)
Masterpieces of German literature from the eighteenth and early nineteenth centuries. A general education course in literature, pholosophy, and the arts.

*** 152A-152B. World Drama (3-3)**
(Same course as English 152A-152B)
Study of selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings. A general education course in literature, philosophy, and the arts.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

ECONOMICS

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Anderson, G., Cameron, McClintic, Ryan
Associate Professors: Babilot, Flagg, Gifford (Chairman), Neuner, Turner, M. S.
Assistant Professor: Chadwick

Offered by the Department

Master of arts degree with a major in economics.
Master of arts degree for teaching service with a concentration in social science (economics).
Major in economics with the A.B. degree in liberal arts and sciences.
Minor in economics.
Teaching minor in economics for the general secondary credential.
Institute of Labor Economics.
Economics Research Center.

THE MASTER'S DEGREE

The master of arts degree with a major in economics and the master of arts degree for teaching service with a concentration in social science (economics) are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

ECONOMICS RESEARCH CENTER

Calculating machines, drafting equipment, and a specialized collection of research materials are located in the Economics Research Center in the Humanities-Social Sciences Building. These research facilities are available to advanced students and faculty members in all fields. The regular faculty seminars of the Economics Department, the meetings of the local chapter of Order of Artus, and special economics conferences are held in this center.

INSTITUTE OF LABOR ECONOMICS

The Institute of Labor Economics is an activity of the Economics Department with its administration under a director. The institute, located in the Economics Research Center, provides materials and direction for research in labor problems, collective bargaining, labor legislation, and social security.

MAJOR IN ECONOMICS WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in economics must complete all requirements prescribed in the liberal arts and sciences program. A minor is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)
The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. Economics 1A, 1B, 2; and at least six units from Business Administration 1A, 1B, Mathematics 21 and higher numbered courses, or Philosophy 1A, 1B, and 20. Students planning careers in law, business, or government are advised to take at least one semester of accounting.

Upper Division Requirements. A minimum of 24 units in economics to include Economics 100A-100B. Six of the 24 units may be in related fields to be selected with the approval of the Departmental Academic Requirements Committee.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Department of Economics.

Major in the General Programs

For a limited time, transfer students may elect the major in economics under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are the same as those for the major in liberal arts and sciences described above, except that foreign language is not required. In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program. A minor is required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MINOR IN ECONOMICS

The minor in economics consists of 15 to 22 units in economics, nine units of which must be in upper division courses.

TEACHING MINOR IN ECONOMICS FOR THE GENERAL SECONDARY CREDENTIAL

A teaching minor in economics is offered for the general secondary credential. The minor is not available to students with the broad social science major. This minor, which may be used for the A.B. degree, consists of a minimum of 21 units to include, in the lower division, Economics 1A-1B and a year course in another social science area (12 units); and in the upper division, Economics 100A and six units of upper division electives in economics (9 units).

LOWER DIVISION COURSES

*** 1A. Principles of Economics (3) I, II**
An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon macro-analysis including national income analysis, money and banking, business cycles, and economic stabilization. (Prior to and during the fall semester, 1958, macro-analysis was included in Economics 1B.)

*** 1B. Principles of Economics (3) I, II**
Prerequisite: Economics 1A.
An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon the direction of production, the allocation of resources, and the distribution of income, through the price system (micro-analysis); and international economics. (Prior to the fall semester, 1958, micro-analysis was included in Economics 1A.)

2. Statistical Methods (3) I, II
Prerequisites: Mathematics 3 or 21 at this college with grade of C or better, or qualification by examination on subject matter of Mathematics 3.
Introduction to descriptive statistics, statistical inference, correlation, index numbers, and time series. Not open to students with credit for another course in statistics. (Formerly Economics 140.)

UPPER DIVISION COURSES

100A. Intermediate Economic Theory (3) I, II
Prerequisites: Economics 1A and 1B.
Economic theory with special reference to the theory of the firm and the industry; value and distribution.

100B. Intermediate Economic Theory (3) I, II
Prerequisites: Economics 1A and 1B.
Economic theory with special reference to national income analysis and the theory of investment.

101. History of Economic Thought (3) I, II
Prerequisites: Economics 1A and 1B.
A study of the development of economics. Contributions of schools of thought and individual writers are examined with regard to their influence on economic theory and policy.

102. Comparative Economic Systems (3) I, II
Prerequisites: Economics 1A and 1B.
The economic aspects of laissez-faire and regulated capitalism, co-operatives, socialism, communism, nazism, fascism. Experience in Russia, Germany, United States, Great Britain. Criteria for evaluating economic systems. The individual and government in each system. Planning in a liberal capitalistic society.

107. Econometrics (3) I
Prerequisites: Economics 1A, 1B, and 2, or equivalents.
The quantitative approach to economic problems. Emphasis on the use of mathematics in economic analysis.

*** 110. Economic History of Europe (3) I**
Prerequisites: Economics 1A and 1B, or consent of instructor.
A general survey of economic development from the Middle Ages to the present. Particular attention is given to the impact of the Industrial Revolution on national economies, especially on England's commerce and industry. A general education course in the social sciences.

*** 111. Economic History of the United States (3) II**
Prerequisites: Economics 1A and 1B, or consent of instructor.
A comprehensive survey of American economic development and of national legislation in the field of industry and commerce. A general education course in the social sciences.

118. The Economy of the Soviet Union (3) II
Prerequisites: Economics 1A and 1B.
The development, institutions, and problems of the Soviet economy.

127. Agricultural Economics (3) II
Prerequisites: Economics 1A and 1B.
The issues of economic planning and control of agriculture. The nature of such problems as surplus production, low income and population change. Evaluation of price controls, crop restrictions and other programs and proposals.

131. Public Finance (3) I, II
Prerequisites: Economics 1A and 1B.
Principles and practices of taxation and public expenditures. Economic effects of public spending, debts and taxation. Financing social security and other services. Fiscal policy and prosperity. Relation to inflation and deflation. Special emphasis on social problems involved.

133. Fundamentals of Finance (3) I, II
(Same course as Business Administration 127)
Prerequisites: Economics 1A, 1B, and Business Administration 1A and 1B.
Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries. Government regulation of finance. The cost of capital. (Formerly entitled: Corporation Finance.)

135. Money and Banking (3) I, II
Prerequisites: Economics 1A and 1B.
The elements of monetary theory. History and principles of banking with special reference to the banking system of the United States.

138. Urban Land Economics (3) I
Prerequisites: Economics 1A and 1B.
Analysis of major influences affecting city location and growth; role of private and governmental institutions in influencing residential and other uses of land; major considerations in appraising, managing, financing, marketing, developing and taxation of urban property. Discussion of San Diego problems.

139. Real Estate Principles and Practices (3) II
(Same course as Business Administration 170)
Prerequisites: Economics 1A and 1B.
Functions and regulation of the real estate market; transfers of property, including escrows, mortgages, deeds, title insurance; appraisal techniques; financing methods; leases, subdivision development; property management.

142. Business Cycles (3) I
Prerequisites: Economics 1A and 1B.
Fundamental factors in business cycles are analyzed and cycle theories are examined. Study of current business conditions; application of forecasting methods to economic data.

150. Labor Problems (3) I, II
Prerequisites: Economics 1A and 1B.
A study of labor organizations and their policies, wages, strikes, unemployment, social insurance, child labor, labor legislation, plans for industrial peace, and other labor problems.

151. Labor Legislation (3) I
Prerequisites: Economics 1A and 1B.
Labor-management relations; fair labor standards; arbitration and conciliation of industrial disputes. Federal, state and local laws dealing with these subjects.

152. Collective Bargaining (3) II
Prerequisites: Economics 1A and 1B.
Structures of labor relations; management and union problems; public policy and collective bargaining; conditions of successful collective bargaining.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

*** 170. Government and Business (3) I, II**
Prerequisites: Economics 1A and 1B, or consent of instructor.
General survey of governmental activities affecting business; the state as an entrepreneur and manager; governmental assistance to business; governmental regulation of business in its historical, legal and economic aspects, including recent developments in the United States and abroad; proposed policies. A general education course in the social sciences.

171. Transportation Economics (3) I
Prerequisites: Economics 1A and 1B.
Economic impact of the availability and cost of transportation services. Organization, rate-making practices, financing and regulation of transportation agencies: air, surface, and water. Current issues of national transportation policy.

172. Public Utilities (3) II
Prerequisites: Economics 1A and 1B.
Economics and regulation of utility enterprises. Growth, pricing, demand and cost behavior, financing, regulatory principles and techniques. Public power and other current policy issues.

173. Economic Resources and Growth (3) II
Prerequisites: Economics 1A and 1B.
Resource requirements for continued growth in the American economy: Human resources; capital formation; energy, water and material resources. Effects of population increase. Factors determining resource growth and productivity. Impact of technological change. Current resource development policies.

174. Economic Concentration and Monopoly Power (3) I
Prerequisites: Economics 1A and 1B.
The implications of economic concentration and monopoly. The evaluation of mergers, consolidations and other forms of monopoly power in terms of social and economic goals. Attempts to control monopoly power by antitrust laws, by policies regarding competitive practices and by other means.

185. Social Insurance (3) II
Prerequisites: Economics 1A and 1B.
Old age pensions, health insurance, unemployment insurance, and Social Security Act. Strength and weakness of existing systems.

190. International Economics—Principles (3) I
Prerequisites: Economics 1A and 1B.
National welfare and foreign trade. Foreign exchange and the balance of payments, financing foreign trade. Regulations over trade and obstructing factors. Doctrines of international trade.

195. International Economics—Problems (3) II
Prerequisites: Economics 1A and 1B.
International economic conflict and cooperation, regional economic integration programs, international economic conferences and organizations.

196. Economics of Underdeveloped Areas (3) II
Prerequisites: Economics 1A and 1B.
The nature and causes of economic underdevelopment. An analysis of problems of and policies for the economic development of underdeveloped areas of the world.

198. Investigation and Report (3) I, II
Open to economics majors only.
Designed to stimulate independent study and investigation; to furnish guidance in the collection, organization, and presentation of factual material; to improve the technique of term reports.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200A-200B. Seminar in the Development of Economic Thought (3-3)
Prerequisites: Twelve units in economics.
A critical study of the development of economic thought.

203A-203B. Seminar in Advanced Economic Theory (3-3)
Prerequisites: Economics 100A and 100B.
Individual research, seminar reports, group discussion of problems in economic theory.

207. Econometrics (3)
Prerequisite: Economics 107.
Measurement in economics. The construction and testing of econometric models. Emphasis on the adaptation of statistical analysis to economics. Estimating demand, supply, and the marginal propensity to consume; forecasting national income.

210. Seminar in Economic History (3)
Prerequisite: Economics 110 or 111 or consent of both the instructor and the Departmental Academic Requirements Committee.
Individual study and group discussion on selected topics in economic history.

231. Seminar in Public Finance (3)
Prerequisite: Economics 131.
Advanced study of public finance problems and literature; research.

235. Seminar in Money and Banking (3)
Prerequisite: Economics 135.
Individual research, seminar reports and group discussion of selected economic problems related to the structure and functioning of the financial system.

250. Seminar in Labor Economics (3)
Prerequisites: Economics 150 or 151 or 152.
Individual study and group discussion of selected topics in labor economics.

272. Seminar in Utilities and Water Resources (3)
Prerequisite: Economics 172.
Advanced study and group discussion of selected topics in utility economics and regulation, and the economics of water resource development.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's thesis.

295. Seminar in International Economics (3)
Prerequisites: Economics 190 or 195 or 196.
Individual and group research into selected topics; group discussion of procedures and results.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a thesis for the master's degree.

EDUCATION

IN THE DIVISION OF EDUCATION

Offered by the Division

For a description of the following programs, refer to the section of this catalog on Education Professional Curricula.

Master of arts degree in education with concentrations in nine areas.
Major in elementary education with the A.B. degree and general elementary and/or kindergarten-primary credential.
Major in elementary education with the B.E. degree and general elementary credential.
Major in vocational arts with the B.V.E. degree.
Teaching credentials in all areas.

LOWER DIVISION COURSES

A. Review of Arithmetic (0) I, II

H. Review of Handwriting (0) I, II

R. Review of Reading (0) I, II

S. Review of Spelling (0) I, II

Noncredit courses designed to increase competence in the skill subjects. For students who do not qualify on the respective sections of the Fundamentals Test required of all applicants to elementary teacher education.

UPPER DIVISION COURSES

Social Foundation

100. The Secondary School (4) I, II
Three lectures and three hours of laboratory and/or field work, including audio-visual experiences.
Orientation toward understanding teaching as a profession, and the public school as a social institution. Overview of philosophy, history, aims, scope, function, outcomes, principles, and problems of American elementary and secondary education. Not open to students with credit in Education 101 or 102.

101. History and Philosophy of Education (2) I, II, Summer
Prerequisites: Senior standing and a minimum of 12 units in education.
Historical backgrounds and underlying philosophies upon which the public school system has been established. Emphasis on the meaning of education, educational aims and values, and democracy and education. Not open to students with credit in Education 100.

102. Secondary Education (3) Irregular
An introduction to understanding the development of secondary education and its present status as a social institution. Not open to students with credit in Education 100.

Psychological Foundations

110. Development and Learning (4) I, II
Three lectures and three hours of laboratory and/or field work.
Prerequisite: Education 100.
To acquaint the student in secondary education with the nature of development and the learning process, with consideration of mental hygiene, guidance and the place of audio-visula aids. Not open to students with credit in Education 111 or 113.

111. Educational Psychology (2) I, II, Summer
(Same course as Psychology 130)
Prerequisite: Psychology 1.
To develop understanding of the applications of psychological research for effective classroom teaching. Observation and field work required. Not open to students with credit in Education 110 or Psychology 130.

112. Child Growth and Development (3) I, II, Summer
Should precede Education 151 for elementary credential candidates.
Study of the mental, emotional, social, and physical development during childhood and early adolescence. Directed observation required.

113. Growth and Development of the Adolescent (3) Irregular
Study of adolescent physiological, psychological, social, and emotional development, including principles of mental hygiene and guidance. Field work with adolescent groups in the community is required. Not open to students with credit in Education 110.

114. Interpretation of Early Childhood Behavior (3) Irregular in Summer
For kindergarten-primary teachers treating the analysis and interpretation of early childhood behavior. Emphasis on understanding and interpreting the causative factors in typical behavior of children to parents, social workers, teachers, and others concerned with the guidance of kindergarten-primary children.

115. Guidance in Elementary Education (3) I, II, Irregular
A study of the basic principles of guidance and their function in the educational process as applied in the elementary school.

116A-116B-116C. Child Study Laboratory (2-2-2) I, II
Development of background and procedures for child study and their application to field situations. Field work required. For teachers in service. Education 116A is prerequisite to 116B, and 116B is prerequisite to 116C.

118. Supervision of Child Welfare and Attendance (3) Irregular
Content includes laws relating to children, guidance principles, social casework, agency relationships, conference techniques, home visitation methods, employment supervision, attendance work, child accounting, familiarity with testing techniques.

Methods—Secondary

120. The Teaching Process (4) I, II
Three lectures and three hours of laboratory and/or field work.
Prerequisites: Education 110 and concurrent registration in Education 180 or 316.
To develop teacher competency at the secondary level in professional and community relationships, and in planning teaching, and evaluating learning activities (with emphasis on the use of audio-visual resources and the development of class morale). Not open to students with credit in Education 152.

121. Methods and Materials of Instruction and Audiovisual Aids
Major (2), Minor (2)
Lecture courses, except that Education 121K and 121N meet for one lecture and three hours of laboratory.
Professional courses in specific teaching fields taken concurrently with the first directed teaching assignment. Each course emphasizes the application of best practice with reference to each subject area named.
Subject fields for sections in 121 are as follows:

Offered in the Fall Semester
121A. Methods in Art
121B. Methods in English
121C. Methods in Homemaking Education
121E. Methods in Foreign Languages
121G. Methods in Music
121H. Methods in Phys. Ed. (Men)
121J. Methods in Phys. Ed. (Women)
121K. Methods in Physical Science
121L. Methods in Speech Arts
121M. Methods in Social Science

Offered in the Spring Semester
121B. Methods in English
121D. Methods in Industrial Arts
121F. Methods in Mathematics
121N. Methods in Life Science
121J. Methods in Phys. Ed. (Women)
121M. Methods in Social Science

Offered Irregularly
121P. Methods in Health Education
121Q. Methods in Accounting
121R. Methods in Merchandising
121S. Methods in Shorthand
121T. Methods in Secretarial Subjects
121U. Methods in Typing

122. Reading in Secondary Education (3) Irregular
The nature of the reading program, development of techniques and skills, vocabulary development, reading in the content fields, the differentiated attack, measurement, diagnosis, and remediation.

123. Driver Education (2) Summer
Prerequisite: Consent of instructor.
A workshop type course designed to prepare teachers of the course in high school.

124. Advanced Driver Education (2) Summer
Prerequisite: Education 123.
An advanced workshop dealing with special problems in driver education, including legal and sociological aspects, administration, and special training techniques.

125. Organization and Administration of Music Education (2) II
Administration of an instrumental music program: purchase, care, depreciation of instruments and equipment; developing interest; ethics, schedule-making; operation and maintenance of music library; personnel and equipment records; the achievement point system; the marching band show; rehearsal procedure.

126. Workshop in Secondary Education (3 or 6) Summer
Designed to meet the needs of individuals or groups of teachers who wish to develop or continue the study of some problem with the consultation of the college staff and the San Diego County Curriculum Staff.

Methods—Elementary

130. First Elementary Education Practicum (13)
Prerequisite: Admission to elementary education.
Curriculum, principles, methods and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through G below.

130A. Arithmetic in Elementary Education (2-3) I, II, Summer
130B. Art in Elementary Education (2-3) I, II, Summer
130C. Language Arts in Elementary Education (2-3) I, II Summer
130D. Music in Elementary Education (2-3) I, II, Summer
130E. Reading in Elementary Education (2-3) I, II, Summer
130F. Observation and Participation (2) I, II
130G. Curriculum (1) I, II

131. Second Elementary Education Practicum (7)
Prerequisite: Education 130.
Curriculum, principles, methods and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through D below.

131A. Social Studies in Elementary Education (2-3) I, II, Summer
131B. Science in Elementary Education (2-3) I, II, Summer
131C. Directed Teaching (2) I, II
131D. Curriculum (1) I, II

132. Kindergarten-Primary Practicum (4) I, II, Summer
Prerequisites: Education 130 and 131.
A continuation of Education 131 and will accompany Education 181 in the kindergarten. A study of the theory of early childhood education providing experience with children of nursery school and kindergarten ages.

133. Children's Literature in Elementary Education (3) Irregular
Criteria for the selection of children's literature, children's reading interests, the development of units of instruction in the social studies, the use of the verse, choir, dramatic readings and similar procedures, and the use of the library.

134. Laboratory in Elementary Education (3) Summer
A general course in observation and theory, including a study of arithmetic, reading, language, music, science, social studies, art, spelling. Students in this course will observe in the summer demonstration school and discuss with the staff the teaching procedures.

135. Workshop in Elementary Education (3 or 6) Irregular
To meet the needs of individual or groups of teachers who desire to study selected problems in elementary education. The observation of classroom teaching will be provided for members in attendance. Interested persons should correspond with the Coordinator of Elementary Education, San Diego State College.

136. Music Literature for Elementary Teaching (3) Summer
Prerequisites: Music 7A and teaching experience, or consent of instructor.
Music literature for singing, expressive movement, listening, playing instruments, and creative activities, stressing integration of these activities with the total classroom program.

137. Reading Difficulties (3) I, Summer
Prerequisites: Education 112 and 130E or 122, or consent of instructor.
Reading difficulties, their causes, prevention, and correction. Remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist.

138. Curriculum in Elementary Education (3) Irregular
Emphasis upon the selection and development of content, teaching methods, and materials as they relate to social needs; evaluation procedures; psychological principles, and the nature of the learner.

Audiovisual

140. Audiovisual Instruction (3) I, II, Summer
Three lectures and two hours of laboratory.
Audiovisual materials and techniques as they affect learning; operation of equipment.

141. Creating Audiovisual Materials for Classroom Use (3) Irregular
Prerequisite: Education 140.
Practice in the creation and evaluation of instructional materials, such as 35 mm. filmstrips, 16 mm. films, scripts, recordings and other audiovisual materials.

143-S. Workshop in Educational Television (6) Summer
(Same course as Speech Arts 143-S)
Open to teachers and students interested in instruction by television.
The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

Measurement

150. Psychological Testing (3) I, II
(Same course as Psychology 105)
Prerequisite: One of the following courses: Psychology 104A, Education 120, 151, or 152, or a semester of statistical methods in any other department.
The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

151. Measurement and Evaluation in Elementary Education (3) I, II, Summer
Should follow Education 112 for elementary credential candidates.
The use of intelligence and achievement tests in the diagnosis and improvement of learning; construction of objective examinations; problems of evaluation in education; the elements of statistical techniques.

152. Measurement and Evaluation in Secondary Education (2) Irregular
Prerequisite: Education 111.
Problems of evaluation in secondary education, construction of examinations, the elements of statistics, the selection and interpretation of standardized measures. Not open to students with credit in Education 120.

Honors Course

166. Honors Course (Credits to be arranged) I, II
Refer to the Honors Program.

Exceptional Children

170. Exceptional Children (3) I, II Summer
Characteristics and adjustment problems of mental, physical, and emotional deviates.

171. Curriculum and Methods for Teaching Mentally Retarded Children in the Elementary School (3) II or Summer
Selection, organization and presentation of curricular materials for mentally retarded children in the elementary grades.

172. Workshop for Teaching the Mentally Retarded (3-6) Summer
Curriculum and methods of teaching, integrated with a demonstration class. Particular emphasis on the arts and crafts program. Opportunities will be provided for teachers to develop materials of instruction. To meet California credential requirements in the areas described. Students with credit for Education 171 are limited to enrollment in 3 units.

173. Vision Testing and Hygiene (2) Irregular
Measurement of visual acuity including an analysis of vision tests, hygiene and physiology of the eye, conservation of sight, and classroom adaptation for the visually handicapped.

174. Principles and Methods of Speech Correction (3) II
(Same course as Speech Arts 174)
Prerequisites: Speech Arts 150 and 170, or consent of instructor.
Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

175. Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) II or Summer
Selection, organization and presentation of curricular materials for mentally retarded children in the secondary grades.

176. Stuttering and Neurological Disorders (3) I
(Same course as Speech Arts 176)
Prerequisites: Speech Arts 100 and 170.
Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children.

177. Audiometry (3) I
(Same course as Speech Arts 171)
Prerequisite: Consent of instructor.
Anatomy, physiology, and psycho-physics of the human ear, theories of hearing, medical aspects, pathology, audiometric techniques with practice, including tuning fork assessment, pure tone screening techniques, discreet frequency, pure tone threshhold testing, play audiometry, and speech audiometric procedures. Meets audiometric certification requirement.

178. The Teaching of Lipreading (3) II
(Same course as Speech Arts 178)
Prerequisite: Education 177 or Speech Arts 171; or consent of instructor.
History, theory, and methods of lipreading and language development for the deaf, including hearing conservation and education. Aids for the classroom teacher; program and materials of instruction for the specialized teacher.

Student Teaching

180. Directed Teaching—Secondary (2-12) I, II
Prerequisites: Admission to teacher education and education program approved by the Coordinator of Secondary Education. Any grade below a C is unacceptable for a credential.
Systematic observation, participation and teaching under supervision in a junior or senior high school. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

181. Directed Teaching—Elementary (2-12) I, II
Prerequisites: Admission to teacher education and education program approved by the Coordinator of Elementary Education. Any grade below C is unacceptable for a credential.
Systematic observation, participation and teaching under supervision in the Campus Elementary School or affiliated elementary schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

182. Directed Teaching—Mentally Retarded (4) I, II
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

183. Directed Teaching—Library Practice (2-4) I, II
Prerequisites: Admission to teacher education and concurrent completion of a teaching minor in library science.
Systematic observation and participation in library and audiovisual service under supervision in a school library and/or teaching materials center. During each semester of student library work a weekly conference period is required as indicated in the time schedule.

184. Directed Teaching—Speech Correction (4) I, II
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

Conference and Special Courses

190. Conference on the Teaching of Mathematics (1) Summer
May be taken three times for credit.
Lectures, discussions, and demonstrations on problems in teaching of mathematics in the elementary and secondary schools. Designed for teachers, supervisors, and administrators interested in current developments in this area.

191. Guidance Conference (1) Summer
Prerequisite: Consent of director of the conference. Course may be taken three times for credit.
A series of lecture and discussion sessions centering on current problems in counseling and guidance. Designed to serve the needs of any person desiring to keep informed of developments in this area.

192. Audiovisual Conference (1) Summer
May be taken three times for credit. Course does not fulfill credential requirement.
A series of lectures, discussions and demonstrations, centering on problems in the use of audiovisual instructional materials. Designed for teachers, administrators, audiovisual representatives, and others interested in current developments in this area.

199. Special Study (1-6) I, II, and Summer
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor. Open only to senior and graduate students in education who have shown ability to work independently.

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EXTENSION COURSES

X-197. Problems in Education (Credit to be arranged) Extension
Prerequisite: Consent of instructor.
Class study of specially selected problems in education. Does not apply to pattern requirements for credentials. Offered only in extension.

GRADUATE COURSES

Prerequisites for All Graduate Courses

For requirements for admission to graduate courses, refer to the section of this catalog on the Graduate Division. In addition to these general requirements, 12 units of professional education courses are prerequisite for enrollment in all graduate courses in education except Education 201, 223, and 251.

Sociological Foundations

201. The Junior College (2) I
Fieldwork, including observation and audiovisual experiences required.
Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the junior college. Relation of the junior college to elementary and secondary schools and to four-year colleges.

204. Comparative Education (3) I, Summer
The contemporary educational ideas and practices of various countries of the world and their impact upon our culture and education.

205. History of Education (3) Irregular
Prerequisite: Education 100 or 101.
Advanced study of the history of education with emphasis on educational practices as related to present day problems.

206. Philosophy of Education (3) Irregular
Prerequisite: Education 100 or 101.
Advanced study of philosophical backgrounds of educational thought; a study of comparative philosophies, and an analysis of selected current trends and problems.

207. Educational Sociology (3) Irregular
Prerequisite: Education 100 or 101.
A study of the social, economic, political and moral setting in which present day American education functions.

208. Workshop in Community Influences on Learning and Curriculum Planning (3 or 6) Summer
Prerequisite: Teaching experience.
Advanced study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning. Provides opportunity for work on individual problems of the participants.

Educational Psychology

220. Advanced Educational Psychology (3) I, II, Summer
Prerequisite: Education 110 or 111.
Advanced study of research and its application to learning and human growth.

221. Seminar in Educational Measurement (3) Summer
Prerequisite: One of the following: Education 150, 151, or 152.
Problems in educational testing. Emphasis upon construction, administration, and validation of teacher-made tests.

222. The Gifted Child (3) I, Summer
Prerequisites: Education 110 or 111, and 112.
The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance.

223. Educational Psychology: Junior College (2) I
Fieldwork required.
Prerequisite: Credit or concurrent registration in Education 201.
The nature of the junior college student; the learning process including contributions of audiovisual materials. The functions of student personnel services in the junior college.

230. Guidance Problems in Secondary Education (3) I, II, Summer
Prerequisite: Education 110 or equivalent, and student teaching or teaching experience.
The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors.

231. Techniques of Pupil Appraisal (3) I, II or Summer
Prerequisites: Psychology 104A and either Education 151 or 152.
Techniques of collecting, assembling, and interpreting data about individual pupils for guidance purposes. Fieldwork required.

232. Problems in Vocational Guidance (3) I, Summer
Prerequisites: Education 230 and 231.
To prepare counselors for vocational guidance in secondary schools. Emphasizes group and individual procedures for assisting pupils to understand and integrate vocational and self information.

233. Guidance Counseling Techniques (3) I, II
(Same course as Psychology 233)
Prerequisite: Education 115 or 230, or Psychology 151.
Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing.

234. Administration of Pupil Personnel Services (3) I, Summer
Prerequisite: Education 230.
The organization and administration of school guidance services, including the use of community resources and a study of laws relating to children and child welfare.

237. Research in Guidance Problems (1-3) Summer
Admission by permission of the Coordinator of Secondary Education and instructor.
Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

238. Fieldwork in School Guidance (3) II
Prerequisites: Consent of instructor and 12 units in guidance and related areas.
Application of the principles and procedures in testing, counseling, and related personnel work in the public school. Weekly seminar sessions with college and cooperating staff.

239. Workshop in Pupil Personnel Services (3) Summer
Prerequisites: Teaching experience and consent of director of the workshop.
Application of principles and procedures to specific situations for improvement of pupil personnel services. Individual problems emphasized.

Elementary Education

240. Curriculum Construction and evaluation in Elementary Education (3) I, II, Summer
Prerequisites: 12 units of work in elementary education and consent of instructor.
Advanced study of the research in curriculum development, construction, and evaluation.

241. Problems in the Teaching of Arithmetic (3) Irregular
Prerequisite: Education 130A.
A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic.

242. Problems in the Teaching of Reading (3) Irregular
Prerequisites: Education 130E and 137.
Advanced study of trends in reading instructions. Topics include developmental sequences in reading skills and abilities, reading in the content fields, individual differences, and interests. Students will develop individual projects or problems.

243. Seminar in Social Studies in Elementary Education (3) Irregular
Prerequisite: Consent of instructor.
Advanced study of problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field.

244. Seminar in Language Arts in Elementary Education (3) Irregular
Prerequisite: Consent of instructor.
Advanced study of problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of scientific research in the field.

245. Seminar in Elementary Education (3) Irregular
Prerequisites: 12 units in elementary education and consent of instructor.
A study of the methodology of research with particular reference to the basic research in the psychology and teaching of the elementary school subjects.

246. Advanced Diagnosis in Reading (3) II, Summer
Prerequisites: Psychology 204 and Education 137, or consent of instructor.
Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments of diagnosis.

247. Advanced Diagnosis and Treatment of Learning Difficulties (3) II, Summer
Prerequisites: A teaching credential and Education 151 or 152.
Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents.

248. Problems in the Teaching of Science in Elementary Education (3) Irregular
Prerequisites: Nine units in natural science and Education 131B, or consent of instructor.
Advanced study of the problems of teaching science in the elementary school with emphasis on the literature of science education.

Secondary Education

250. Curricular Problems in Secondary Education (3) I, II, Summer
Prerequisite: Student teaching or teaching experience.
Present status and development of the secondary school curriculum with emphasis upon curriculum construction and curriculum evaluation. Opportunities provided for study of problems submitted by students.

251. Instructional Methods and Materials: Junior College (2) II
Prerequisites: Education 223 and concurrent registration in Education 316.
The teaching process at the junior college level, including lesson planning, utilization of audiovisual and other instructional materials and procedures of evaluation.

252. General Education in the Secondary School (3) Summer
Prerequisites: 12 units in secondary education and consent of instructor.
A course designed for teachers in service. A study of the function and implementation of general education in the secondary school.

254. Advanced Problems in Secondary School Instruction (3) II, Summer
Prerequisites: Teaching experience and consent of instructor.
An analysis of the scientific research and philosophical principles in secondary school instruction.

256. Recent Trends in Secondary Curriculum (3) Irregular
Prerequisites: 12 units in secondary education and consent of instructor.
Current practices and trends in secondary schools. Extensive individual work on related problems of interest to members of the class.

257. Workshop in Intercultural Education (4) Summer
Enrollment only by application to the Dean of Education.
A cooperative workshop sponsored by the college and the San Diego City Schools to study trends in intercultural education in American schools, including units, curricula and instructional materials and techniques.

258. Research in Curricular Problems (1-3) Irregular
Admission by consent of the Coordinator of Secondary Education and the instructor.
Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

School Administration and Supervision

260. Federal, State, County and City School Organization and Administration (3) I, II, Summer
Prerequisite: Possession of a valid teaching credential.
A study of federal, state, county and city school organization and administration including the interrelationships of the four levels.

262. The Organization and Administration of Elementary Schools (3) I, Summer
Prerequisites: Possession of a general elementary credential, teaching experience, Education 115, 240, 260, 270 and admission to the program of Administrative Studies.
A study of the problems of personnel, local finance, curriculum, school plant and community relations of elementary schools. Field project required.

263. The Organization and Administration of Secondary Schools (3) I, Summer
Prerequisites: Possession of a valid general secondary credential, teaching experience, Education 230, 250, 260, 270 and admission to the program of Administrative Studies.
A study of the problems of personnel, local finance, curriculum, school plant, transportation and community relations of secondary schools. Field project required.

264. Elementary School Supervision (3) II, Summer
Prerequisites: Possession of a general elementary credential, teaching experience, Education 115, 240, 260, 270 and admission to the program of Administrative Studies.
Principles and practices of supervision and methods of evaluating instruction and the curriculum in elementary education. Field project required.

265. Secondary School Supervision (3) II, Summer
Prerequisites: Possession of a general secondary credential, teaching experience, Education 230, 250, 260, 270 and admission to the program of Administrative Studies.
Principles and practices of supervision, curriculum and teaching methods in secondary education. Field project required.

266. Fieldwork in Elementary School Administration and Supervision (3) I, II
Prerequisites: Prior to registration in the course, admission to the program of Administrative Studies, completion concurrently of all other requirements for the elementary administration or supervision credential, and permission of local school administrator and the instructor.
Study of the administration and supervision of an elementary school with the cooperation of a local school administrator and under the supervision of a college staff member. Field projects required.

267. Fieldwork in Secondary School Administration and Supervision (3) I, II
Prerequisites: Prior to registration in the course, admission to the program of Administrative Studies, completion concurrently of all other requirements for the secondary administration or supervision credential, and permission of local school administrator and the instructor.
Study of the administration and supervision of a secondary school with the cooperation of a local school administrator and under the supervision of a college staff member. Field projects required.

268. Seminar in School Administration (3) Summer
Prerequisite: Consent of instructor.
An intensive study of research on selected problems in the field of school administration. Provision will be made for individual work on social topics of interest to students.

270. School Finance, Business Administration, and Law (3) I, II, Summer
Prerequisite: Possession of a valid teaching credential or consent of instructor.
A study of public school finance at federal, state and local levels; an analysis of the business administration of schools and a study of school law as it applies to finance, administration and other aspects of school administration.

271. Supervision of Student Teaching (2) Irregular
Open to experienced teachers interested in the teacher education program.
Study of selection, orientation, induction, counseling and evaluation of credential candidates and student teachers; and helping student teachers plan lessons, conduct classroom learning, analyze pupils' difficulties and achievement.

272. Seminar in Education of Exceptional Children (3) Irregular
Prerequisite: Education 170.
Principles, trends and research in the education of exceptional children.

273. Seminar in Education of the Mentally Retarded (3) Irregular
Prerequisites: Education 171 or 175 and Psychology 109.
Review of studies and investigation in learning and adjustment of retarded children including etiology, classification, diagnosis, and assessment.

274A. Utilizing Audiovisual Materials in the Classroom (3) I, Summer
Prerequisite: Education 140.
A critical analysis of research evaluating the use of visual, auditory, and other sensory materials in education.

275. Administering the Use of Audiovisual Materials (3) II, Summer
Prerequisite: Education 140 or consent of instructor.
Organizing, supervising, and coordinating audiovisual centers as an integral part of educational systems.

278. Educational Leadership (3) I, II, Summer
Prerequisite: Possession of a valid teaching credential or consent of instructor.
An analysis of the factors and practice in procedures of group and individual leadership in four areas: (a) the community; (b) the teaching staff; (c) the student personnel; (d) the professional field of educational administration and supervision.

Procedures of Investigation

290A. Procedures of Investigation and Report (2) I, II, Summer
For majors in education, concurrent registration in 290B.
Methods of investigation, data analysis, and reporting. Procedures for selecting topics and writing papers, projects, and thesis. Exercises in locating, selecting, analyzing, and summarizing professional literature.

290B. Bibliography (1) I, II, Summer
Exercises in the use of basic reference books, journals, and specialized bibliographies preparatory to a seminar project or to the writing of a thesis.

295A-295B. Seminar (3-3) I, II, Summer
Prerequisites: Education 290 and advancement to candidacy for the master's degree in education.
An intensive study in selected areas of education culminating in a written project. Limited to students following Plan B for the master of arts degree in education.

298. Special Study (1-6) I, II, Summer
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II, Summer
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

Student Teaching and Internship

316. Directed Teaching (3-7)
Prerequisites: Admission to teacher education; education program approved by the Coordinator of Elementary or Secondary Education. Any grade below C is unacceptable for a credential.
Systematic observation, participation and teaching under supervision in the campus elementary school, the affiliated elementary, junior high and senior high schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

330. Guidance Internship (2-6)
Application to take the course should be made early during the preceding semester.
Supervised internship experience in pupil personnel activities with school age pupils. May be repeated with new content for additional credit.

360. Internship in Public School Administration and Supervision (2-6)
Application to take the course should be made during the preceding semester.
An intensive analysis and extensive practical application of problems and procedures in school administration and supervision. Permission of school district administrator and college staff member required.

371. Directed Internship—Mentally Retarded (4)
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

374. Directed Internship—Speech Correction (4)
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

375. Directed Internship in Audiovisual Education (2-6)
Application to take the course should be made during the preceding semester.
Supervised internship experience in audiovisual services in the public schools.

ENGINEERING

IN THE DIVISION OF ENGINEERING

Offered by the Division

For a description of the following programs, refer to the section of this catalog on Engineering Professional Curricula.

Master of science degree in mechanical engineering.
Major in engineering with the B.S. degree, with fields of specialization in aerospace, civil, electrical and electronic, and mechanical engineering.
Minor in engineering.

LOWER DIVISION COURSES

A. Introduction to Engineering (1)
No prerequisite.
A survey of the fields of engineering, designed to familiarize the student with the nature, the requirements, the responsibilities, and the opportunities of the profession.

2. Plane Surveying (3)
One lecture and six hours of laboratory.
Prerequisite: Mathematics 21 or 40.
Use, care, and adjustment of surveying equipment. Introduction to standard procedures, techniques of plane surveying, and plane table mapping.

20A-20B. Engineering Graphics (2-2) I, II
Six hours of laboratory.
Prerequisites: Industrial Arts 21, or equivalent, and Mathematics 40, or equivalent (may be taken concurrently). Engineering 20A is prerequisite to 20B.
Representation and analysis of basic engineering problems using systems of projection, co-ordinate systems, and space solutions with mathematical correlation. Shape and size description, sketching, and mechanical illustration. Theory and standard practices of graphical communication. Graphical computation, functional scales, nomography, and representations and analysis of empirical data.

21. Descriptive Geometry (3)
One lecture and six hours of laboratory.
Prerequisite: Mathematics 40 or qualification by examination.
Advanced engineering drawing theory and its application to the solution of engineering problems. Solution of point, line, and plane problems; curved lines, surfaces, and intersections.

23. Manufacturing Process (3)
Two lectures and three hours of laboratory.
Prerequisite: Sophomore standing.
Analysis of the various tools and processes utilized in modern manufacturing and fabrication operations. Field trips are made to local manufacturing organizations.

24. Engineering Measurements (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 50 and Engineering 20B.
Fundamental principles of physical measurement as applied to engineering science. Recognition, analysis, and control of errors, evaluation of observations, reliability of computations, graphical representation of measured quantities, curve fitting.

25. Engineering Materials (3) I, II
Prerequisites: Chemistry 1B, Physics 4B, and credit or concurrent registration in Mathematics 52.
Atomic and molecular structure of materials utilized in engineering. Analysis of the relationships between structure of materials and their mechanical, thermal, electrical, corrosion and radiation properties, together with examples of specific application to engineering problems.

50. Engineering Mechanics—Statics (3) I, II
Prerequisites: Physics 4A and credit or concurrent registration in Mathematics 51.
Engineering applications of the principles of static equilibrium of force systems acting on rigid bodies. Centroids and moments of inertia, introduction to fluid statics, and dry friction.

51. Engineering Mechanics—Dynamics (3) I, II
Prerequisites: Engineering 50 and credit or concurrent registration in Mathematics 52.
Kinematics and kinetics of particles and rigid bodies. Newtonian laws of motion, work and energy, linear and angular momentum. Applications to engineering problems. Vector notation will be used. Not open to students with credit for Engineering 102.

65A-65B. Industrial Practice (2-2)
Prerequisite: Sophomore standing in engineering. Selection based on personal interview, following written application.
Supervised training in co-operating industrial organizations. First year of a three-year program providing the opportunity for selected students to correlate their formal college training with industrial experience at corresponding levels of responsibility and difficulty.

UPPER DIVISION COURSES

100A. Electric Circuits (3) I, II
Prerequisites: Physics 4B and Mathematics 51.
Direct-current circuits, magnetic circuits, induced voltages, single-phase and polyphase alternating-current circuits, coupled circuits, the transformer and introduction to network analysis.

100B. Electrical Machinery (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 100A.
Theory of operation and the analysis of the characteristics of transformers, DC and AC motors and generators. Associated control devices.

100C. Electric and Magnetic Fields (3) I, II
Prerequisite: Engineering 100A.
Electric and magnetic fields using vector notation. Capacitance and inductance. Magnetic fields in generators, motors, and transformers.

101. Elements of Applied Electronics (2) I, II
Prerequisite: Engineering 100A.
Application of electron tubes, transistors in typical electronic circuits. Analysis of the operational characteristics of electron tubes and transistors. Emphasis on their utilization in engineering devices and systems.

102. Dynamics (3) I, II
Prerequisites: Engineering 50, and Mathematics 52 or registration in Mathematics 117.
Fundamentals of Newtonian mechanics. Elements of vector algebra and calculus. Kinematics and kinetics of particles and rigid bodies. Newtonian laws of motion, work and energy, linear and angular momentum. Applications to engineering problems. Primarily for transfer students who have not had a course in dynamics. Not open to students with credit for Engineering 51.

103. Electrical Engineering Laboratory (1) II
Three hours of laboratory.
Prerequisites: Engineering 100B and credit or concurrent registration in Engineering 101. Not open to students filing an electrical engineering master plan.
A laboratory course to include selected experiments in electrical circuits, electrical machinery, and electronics.

108. Thermodynamics (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Physics 4C and credit or registration in Engineering 51 or 102.
Generalized concepts of force, displacement, work and energy; development of laws of classical thermodynamics; general equations of thermodynamics; application to simple chemical systems.

109. Physical Metallurgy (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 25 and Physics 4C.
Fundamentals of ferrous and nonferrous metallurgy in those aspects which affect physical qualities of metals. Effect of heat treatment, aging, and other processes on physical properties.

115. Fluid Mechanics (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 51 or 102; Engineering 108 and 116; and credit or concurrent registration in Mathematics 118A.
The statics and dynamics of incompressible and compressible fluids. Fluid measuring instruments, pipe flow, open channel flow, fluid machinery.

116. Resistance of Materials (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 25; Engineering 51 or credit or concurrent registration in Engineering 102; and credit or concurrent registration in Mathematics 118A.
Elastic and plastic properties and strength of engineering materials. Analysis of types of failures, stress analysis and deformation of simple structural and machine members. Laboratory testing procedures and experimental confirmation of elastic and plastic theory.

118. Transfer and Rate Processes (3) I, II
Prerequisites: Mathematics 118A and credit or concurrent registration in Engineering 115.
Fundamentals of rates of change in enthalpy and composition of matter; heat and mass transfer and chemical reaction rates.

120A. Structural Analysis I (3) II
Prerequisite: Engineering 116.
Stresses in beams, trusses, frames, graphical methods, influence lines; moving loads; introduction to statically indeterminate structures and moment distribution.

120B. Structural Analysis II (3) I
Prerequisite: Engineering 120A.
Various analytical and graphical methods applied to determination of stresses in statically indeterminate structures.

121. Reinforced Concrete (3) I
Prerequisite: Engineering 120A.
Properties and characteristics of reinforced concrete; design of structural components. Introduction to plastic theory and limit design.

122. Soil Mechanics and Foundation Engineering (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 116 and Geology 53.
Properties of soils as structural and foundation materials. Sampling and testing techniques.

123. Applied Hydraulics (3) I
Prerequisite: Engineering 115.
Application of principles of fluid mechanics in the fields of water supply engineering, drainage practice, and basic sanitary engineering.

125. Sanitary Engineering (3) II
Prerequisite: Engineering 123.
A study of water treatment plants, water distribution systems, sewage collection systems, and sewage disposal facilities; introduction to industrial and radioactive waste disposal; stream sanitation.

126. Engineering Photogrammetry (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 24.
Principles of metrical photography as they apply to engineering. Use of aerial and terrestrial photographs for interpretation of topography, soil types and drainage conditions for engineering works. Stereoscopic compilation of maps from photographs.

127. Transportation Engineering (3) I
Prerequisite: Engineering 128.
Transportation engineering as related to problems in highway and airport engineering; planning, design, and construction of municipal street layout elements; traffic engineering.

128. Surveying for Civil Engineers (3) II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 24 or 2.
Principles of control surveys, highway curves, city surveys, earthwork, engineering astronomy, precise surveys. Introduction to photogrammetry.

130. Network Analysis (4) I
Prerequisites: Engineering 100A and Mathematics 52.
Analysis of complex direct-current and single-phase and poly-phase alternating-current networks. Four-terminal network theory.

131. Electromechanical Control Devices (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 51 or 102; Engineering 100B and Mathematics 118A; and credit or concurrent registration in Engineering 101.
Application of amplidynes, thymatrols, rototrols, synchros, and selsyns in servo-systems and other devices.

132. Time-Domain Analysis of Linear Networks (3) I
Prerequisites: Engineering 130 and Mathematics 118A.
Transient analysis of circuits containing resistance, inductance, and capacitance with various input wave forms by means of the Laplace-transform method. (Formerly entitled: Transient Analysis of Control Systems.)

133. Power System Analysis (3) I
Prerequisite: Engineering 100B.
Comprehensive analysis of power systems. Further study of AC machinery including symmetrical components. Electrical, mechanical, and economic factors in transmission and distribution of electrical energy. Performance of generating and transmission equipment under normal and short-circuit conditions.

134A. Analysis and Design of Electronic Circuits (4) I
Three lectures and three hours of laboratory.
Prerequisites: Engineering 101, 130, and Mathematics 118A.
A unified treatment of vacuum-tube and transistor voltage and power amplifiers utilizing graphical methods and equivalent circuits. Feedback theory, tuned amplifiers, regulated power supplies, and oscillators; theoretical analysis of amplitude, frequency, and phase modulation; modulator and detector circuits; applications to communication field.

134B. Analysis and Design of Electronic Circuits (4) II
Three lectures and three hours of laboratory.
Prerequisite: Engineering 134A.
Continuation of Engineering 134A.

135. Advanced Electrical Machinery (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 100B.
Advanced analysis and application of electrical machinery. Emphasis upon synchronous equipment and special purpose machines. Related control equipment.

136. Electronic Instrumentation (2)
Prerequisite: Engineering 101.
Application of electronics to the instrumentation of mechanical, hydraulic and electrical devices. Indicating and recording instruments.

137. Communication Networks (3) I
Prerequisites: Engineering 100C, 130, and Mathematics 118A.
Theory and application of transmission lines including analysis by matrix notation; use of Smith chart and other transmission line charts; impedance-matching with transmission line stubs and lumped constants; theory and design of constant-k, m-derived, and other types of filter networks.

138. Frequency-Domain Analysis of Linear Networks (3) I
Prerequisites: Engineering 132 and Mathematics 118B.
Complex Fourier series, Fourier integrals, Fourier transform pairs, and the Laplace transform with emphasis on the physical interpretation. Magnitude and phase response curves in terms of s-plane and log-db plots, transient analysis, modulation and noise.

139. Advanced Field Theory (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 134B, 137, and Mathematics 118B.
Time-varying electric and magnetic fields. Application of Maxwell's equations to wave propagation; skin effect, circuit impedance elements; vector potential, and other time-varying electrical phenomena; wave guides and resonators, electromagnetic radiation.

140. Principles of Heat Transfer (3) I
Prerequisite: Engineering 118.
Modes of heat transfer; principles of steady state conduction, radiation, and convection; introduction to heat transfer by evaporation and condensation; application of the principles of heat transfer.

141. Internal Combustion Engines (4) I
Three lectures and three hours of laboratory.
Prerequisite: Engineering 148.
Analysis of idealized and real internal combustion engine cycles; combustion problems; performance of reciprocating and rotary types of internal combustion engines. Principles of reaction motors.

142. Fuels and Combustion (3) I
Prerequisites: Engineering 148 and Chemistry 1B.
Types of fuels; stoichiometric and thermochemical analysis of combustion. Process of combustion. Physical properties of fuels. Applications to combustion in engines and furnaces.

143. Gas Dynamics (3) II
Prerequisite: Engineering 148.
Thermodynamics of high velocity compressible fluid flow. Shock regions; adiabatic and diabatic flow. Applications to the propulsive duct and discharge nozzles.

144. Air Conditioning and Refrigeration (3)
Two lectures and three hours of laboratory.
Prerequisite: Engineering 108.
Applications of thermodynamics and fluid mechanics to problems in air conditioning and refrigeration involved in several fields of engineering.

145. Mechanics of Machinery (3) II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 51 or 102.
An extension of the principles of statics and dynamics to mechanisms and to mechanical systems. Analysis of velocity and acceleration and the determination of static and dynamic forces. Evaluation of stability of systems.

146. Elements of Machine Design (3) I
Prerequisite: Engineering 116.
Application of mechanics, physical properties of materials, and strength of materials to the design of machine elements.

147. Introduction to Mechanical Vibrations (3) I
Prerequisites: Engineering 51 or 102, 116, and Mathematics 118A.
Analysis of mechanical vibration; single- and multi-degree of freedom systems; free and forced vibrations; vibration isolation; vibration absorbers. Theory of vibration measuring instruments.

148. Engineering Thermodynamics (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 108 and credit or concurrent registration in Engineering 115.
Further development of the laws of classical thermodynamics; introduction to kinetic theory; applications to energy transformation processes.

149. Kinematics (3) II
Prerequisite: Engineering 145.
Geometry of linkages, with special emphasis on methods of kinematic synthesis.

150A. Subsonic Aerodynamics (3) II
Prerequisites: Engineering 51 or 102; and credit or concurrent registration in Engineering 115 and Mathematics 118A.
Fluid flow, airfoil and wing theory, drag, propeller theory, aircraft and engine performance, maneuvers.

150B. Supersonic Aerodynamics (3) I
Prerequisite: Engineering 150A.
Aerothermodynamics, waves in supersonic flow, equations of frictionless flow, small perturbation theory, similarity rules of high-speed flow.

151A. Aeronautical Stress Analysis (3) II
Prerequisites: Engineering 51 or 102, Engineering 116 and credit or concurrent registration in Mathematics 118A.
Equilibrium of forces, space structures, semimonocoque structures, air-load distribution. (Formerly entitled: Aircraft Structures I.)

151B. Aeronautical Stress Analysis (3) I
Prerequisite: Engineering 151A.
Mechanical properties of aircraft materials, design of aircraft structural components, special methods of analysis. (Formerly entitled: Aircraft Structures II.)

152. Aircraft Propulsion Systems (3) II
Prerequisite: Engineering 148 or 150B.
Theory and performance characteristics of aircraft propulsion systems including reciprocating engines, turbo-jets, ram-jets, etc.

153. Aerospace Flight Mechanics (3)
Prerequisites: Engineering 51 or 102, 150A, and Mathematics 118A.
Aerodynamics and dynamics of ballistic missiles; guidance systems; orbits and space trajectories; effects of areodynamics, mass, rotation and shape of the earth on ballistic and space trajectories. Computer programming and problem solutions will be emphasized.

160A-160B. Principles of Chemical Engineering (3-3)
(Same course as Chemistry 160A-160B)
Prerequisites: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A, or equivalent.
Industrial stoichiometry, unit processes, and unit operations. Problems, reports, and field trips.

165A-165B-165C-165D. Industrial Practice (2-2-2-2)
Prerequisites: Engineering 65A and 65B.
Supervised training in cooperative industrial organizations. Second and third years of a three-year program providing the opportunity for selected students to correlate their formal training with industrial experience at corresponding levels of responsibility and difficulty.

166. Honors Course (Credit to be arranged)
Refer to the Honors Program.

173. Motion and Time Study (3) I, II
(Same course as Business Administration 137)
Two lectures and three hours of laboratory.
Prerequisite: Business Administration 135.
Work simplification through methods improvements; operations analysis; flow charts, calculation of time standards; work and speed analysis; new developments in job timing, standard setting and motion economy study.

176. Production and Quality Control (3) I, II
(Same course as Business Administration 136)
Prerequisites: Business Administration 135 and Mathematics 130A.
Forecasting, planning and controlling production flow; techniques for planning and controlling quality of produced and purchased items; emphasis on modern quantitative methods particularly applicable to scheduling and control.

180. Principles of Engineering Economy (3)
Prerequisite: Engineering 115.
Analysis of the costs of development and promotion, construction, operation, depreciation and depletion. Capital recovery, income, return and yield. Valuations and appraisals, cost analysis and financial analysis. Application to engineering problems.

181. Hydrodynamics (3)
Prerequisites: Engineering 51 or 102 or Physics 105, and Mathematics 118A or 119 or 124.
Kinematics, equations of continuity, energy, and momentum of perfect fluids. Introduction to conformal transformations. Three-dimensional and two-dimensional irrotational motion, with applications to physical problems. Vector notation will be used.

182. Transistor Circuit Analysis (3) II
Prerequisites: Engineering 134B and Mathematics 118B.
Analysis and design of transistor voltage and power amplifier circuits by use of duality and matrix methods. Feedback amplifiers, audio amplifiers, video amplifiers, power supplies, and oscillators; transient analysis and noise considerations.

183. Fuels and Lubricants Laboratory (1)
Three hours of laboratory.
Prerequisite: Engineering 108.
Performance and engineering interpretation of standardized tests of fuels and lubricants. Investigation and analysis of test codes.

186. Advanced Resistance of Materials (3) II
Prerequisites: Engineering 51 or 102, 116, and Mathematics 118A.
Advanced topics in resistance of materials including combined stresses, buckling, and failure theories. Introduction to elastic stability and instability.

187. Methods of Analysis (3)
Two lectures and three hours of laboratory.
Prerequisite: Mathematics 118A.
Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing the methods of analogs, dimensional analysis and the theory of models.

188. Digital Solutions of Engineering Problems (3) II
Prerequisites: Mathematics 7 and 118A, or consent of instructor.
Digital solution of classes of engineering problems. Numerical analysis and flow charting for solutions. Computer characteristics, and an introduction to problem oriented computer languages.

189. Linear Feedback Control Systems (3) I
Prerequisites: Engineering 51 or 102, 100B, and Mathematics 118A or 119. Not open to students filing an electrical engineering master plan.
Analysis of feedback characteristics of linear, mechanical, electrical, hydraulic and pneumatic systems using Nyquist, Bode and root-locus diagrams.

190A. Engineering Applications (Civil Engineering Field) (4) II
Two lectures and six hours of laboratory.
Prerequisites: Engineering 120A, 122, and 123.
Fundamental engineering science applied to the solution of a civil engineering project.

190B. Engineering Applications (Civil Engineering Field) (4) II
Two lectures and six hours of laboratory.
Prerequisites: Engineering 120A, 122, and 123.
Fundamental engineering science applied to the solution of a civil engineering construction project.

190C. Engineering Applications (Electrical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 131 and 134A.
Advanced engineering electronics including the synthesis of electrical control systems involving electronic and electro-mechanical devices.

190D. Engineering Applications (Electrical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 133 and 135.
Advanced analysis of power systems with emphasis on system stability under short-circuit conditions. Protective devices and metering.

190E. Engineering Applications (Mechanical Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 146 and 148.
Applications of fundamental engineering science to heat-power machinery such as internal combustion engines and steam-power equipment, air-conditioning and refrigeration machinery, and air compressors.

190F. Engineering Applications (Mechanical Engineering Field) (4) II
One lecture and nine hours of laboratory.
Prerequisites: Engineering 145, 146, and 148.
Applications of fundamental engineering principles to the practical design of machinery. Considerations of material properties, stress analysis, mechanisms, kinematics, economics, production, and appearance are taken up as needed. Practical design methods utilizing empirical techniques are emphasized and explained in the individual design of a simple machine.

190G. Engineering Applications (Aerospace Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 150B, 151B, and credit or concurrent registration in Engineering 152.
Fundamental engineering principles applied to the analysis and design of aircraft control systems. Control surface theory, stability (static and dynamic) and control, operational methods of solving problems, stability criteria, root-locus method, artificial stabilization, preliminary design of an aircraft.

190H. Engineering Applications (Aerospace Engineering Field) (4) II
Three lectures and three hours of laboratory.
Prerequisite: Engineering 151B.
Applications of engineering principles to a comprehensive problem in the structural analysis and design of an aircraft.

196. Advanced Engineering Topics (2 or 3) I, II
Prerequisite: Consent of instructor.
Analysis of modern developments in engineering. May be repeated with the approval of the instructor for a total of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES IN MECHANICAL ENGINEERING

ME 200. Seminar in Mechanical Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in one of the fields listed below. May be repeated with new subject matter for additional credit.
A. Thermodynamics and fluid flow
B. Cryogenics
C. Engineering materials
D. Engineering systems
E. Operations research in engineering
F. Nuclear engineering
G. Mechanical design

ME 212. Gas Dynamics (3)
Prerequisites: Engineering 143 and Mathematics 118B.
Further considerations of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases.

ME 213. Aircraft and Missile Propulsion (3)
Prerequisites: Engineering 142, 143 and Mathematics 118B.
Analysis of ideal gas turbine cycles. Principles of regeneration, reheat and intercooling. Thermodynamic analysis and performance of turbojet engines, ramjet engines, and rocket motors. Rocket jet propellant systems. Dynamics of rocket propulsion free of gravity and air resistance.

ME 214A-214B. Thermodynamics (3-3)
Prerequisites: Engineering 148; Mathematics 118B or consent of instructor. ME 214A is prerequisite to ME 214B.
A review of classical thermodynamics. The utilization of the methods of kinetic theory and statistical mechanics. Thermodynamics of mixtures. Irreversibility. Comparison of classical and irreversible thermodynamics.

ME 215A-215B. Heat Transfer (3-3)
Prerequisites: Engineering 118; Mathematics 118B or consent of instructor. ME 215A is prerequisite to ME 215B.
Semester I. Convection heat transfer, high speed flow, mass transfer effects. Boiling heat transfer. Introduction to conduction heat transfer.
Semester II. Conduction heat transfer, multidimensional conduction processes, transient analyses. Solid body and gaseous radiation and their measurements.

ME 220. Mechanical Vibrations (3)
Prerequisites: Engineering 147 and credit or concurrent registration in Mathematics 118B.
The application of vibration analysis to the problems of mechanical design, including vibration control, vibration instrumentation, and the response of machines, structures, and mechanical systems to various kinds of excitation. Approximate and digital computer solutions of vibration problems. (Formerly entitled: Vibration Analysis.)

ME 221. Stress Analysis (3)
Prerequisites: Engineering 186 and Mathematics 118B.
Topics in applied elasticity, advanced study of the resistance of materials and experimental stress analysis. Failure theories, energy methods, limit design, theory of plates and shells. Photoelasticity, brittle lacquers, strain gages, and analogs in determining static, dynamic and residual stress distributions.

ME 222. Dynamics of Machinery (3)
Prerequisites: Engineering 146, 149, and credit or concurrent registration in Mathematics 118B.
Mathematical analysis of motion, stresses and deflections as applied to the design of machines. Dynamics of constrained systems; stability and system control. Application to systems involving mechanical, electrical and fluid links.

ME 224. Fluid Power and Control Systems (3)
Prerequisite: Engineering 189 or equivalent.
Analysis of dynamic performance of physical systems such as pneumatic, hydraulic and hot-gas. Transient forces and valve instability. Servo characteristics.

GRADUATE COURSES IN AEROSPACE ENGINEERING

AE 202. Aeroelasticity (3)
Prerequisites: Engineering Mechanics 201 and credit or concurrent registration in Mathematics 118B.
Aircraft and missile structures deformed under static and dynamic loads; aeroelastic instability, vibration modes, divergence, loss of control and alteration of lift distribution; introduction to flutter analysis.

GRADUATE COURSES IN CIVIL ENGINEERING

CE 200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
Advanced study of or within one phase of civil engineering such as hydraulics, surveying, hydrology, transportation, structures, soil mechanics and foundations, sanitary engineering. May be repeated with new content for additional credit.

CE 201. Advanced Theory of Structures (3)
Prerequisites: Engineering 120B and Mathematics 118A.
Analysis of statically indeterminate structures by virtual work. Advanced treatment by slope deflection, moment distribution; column analogy. Analysis or arches; secondary stresses in trusses; advanced treatment of influence lines.

GRADUATE COURSES IN ELECTRICAL ENGINEERING

EE 201. Non-linear Feedback Control Systems (3)
Prerequisite: Engineering 189 or 190C or Physics 153.
Analysis and synthesis of feedback control systems containing one or more non-linear elements. Use of describing functions. Introduction to sampled-data systems.

GRADUATE COURSES IN ENGINEERING MECHANICS

EM 200. Seminar (2 or 3)
Advanced study of, or within, one phase of engineering mechanics, such as elasticity, plasticity, rheology, and micromeritics; buckling, vibration, and stability phenomena; hydrodynamics and magnetohydrodynamics; incompressible, compressible, and non-newtonian flow. May be repeated with new subject matter for additional credit.

EM 201. Advanced Dynamics (3)
Prerequisites: Engineering 102 or equivalent, and Mathematics 118A.
Kinematics and kinetics of systems of particles and rigid bodies with special reference to engineering problems. Moving reference axes, generalized coordinates, Lagrangian equations, Hamilton's principle and variational methods.

EM 203. Theory of Vibrations (3)
Prerequisites: Engineering Mechanics 201 and credit or concurrent registration in Mathematics 118B.
Linear and non-linear periodic phenomena as applied to discrete systems and continuous media with application to physical problems.

EM 221. Theory of Elasticity (3)
Prerequisites: Engineering 116 and credit or concurrent registration in Mathematics 118B. Engineering 186 is recommended.
Analysis of stress and strain: Stress-strain relations; the equations of elasticity; uniqueness theorem; compatibility conditions; flexure and torsion. Vector and tensor notation will be used.

EM 233. Theory of Plasticity (3)
Prerequisite: Engineering Mechanics 221.
Inelastic stress-strain relations. Solutions to engineering problems with ideally-plastic, strain-hardening, and visco-elastic materials.

EM 243. Advanced Fluid Mechanics I (3)
Prerequisites: Engineering 115 and credit or concurrent registration in Mathematics 118B.
Fluid kinematics and kinetics. Conservation of mass, energy, and momentum, applied to Newtonian fluids. Navier-Stokes equations. Couette and Poiseuille flow. Potential flow. Introduction to turbulence and boundary layer theory. Vector and tensor notation will be used.

EM 244. Advanced Fluid Mechanics II (3)
Prerequisite: Engineering Mechanics 243.
A continuation of Engineering Mechanics 243. Further work in laminar and turbulent flow, and boundary layer theory. Diffusion. Applications to engineering problems.

GRADUATE COURSES IN ENGINEERING

E 297. Problem Analysis (3)
Prerequisite: Consent of graduate adviser.
Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.

E 298. Special Study (1-3)
Individual study. Three units maximum credit.
Prerequisite: Consent of staff; to be arranged with division chairman and instructor.

E 299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ENGLISH

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Adams, J. R., Block, Burnett, Gulick, Haskell, Johnson, F., Keeney, Kennedy, Marchand (Chairman), Phillips, G., Shouse, Theobald, Tidwell
Associate Professors: Monteverde, Perkins, Sanderlin, Sandstrom, Tozer
Assistant Professors: Frey, Gellens, Green, Gross, Hinkle, Wanlass, Widmer
Instructors: Mathes, McCoy, Reid
Lecturers: Black, Chater, Laudner, Loomis, Oldenkamp, Prenn

Offered by the Department

Master of arts degree with a major in English.
Master of arts degree for teaching service with a concentration in English.
Major in English with the A.B. degree in liberal arts and sciences.
Minor in English.
Teaching major in English with the A.B. degree and junior high school credential in teacher education.
Teaching major in English leading to the general secondary credential in the postgraduate year.
Teaching minor in English for the general secondary credential.
Teaching minor in English for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree with a major in English and the master of arts degree for teaching service with a concentration in English are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN ENGLISH WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in English must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper divison courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite lower division courses and an additional requirement in foreign language.

Major

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the English Department.

Lower Division Requirements. Twelve units of lower division English, to include English 56A and 56B and six units selected from courses numbered 50 and above.

Upper Division Requirements. At least 24 upper division units in English, selected with the approval of the departmental adviser, and including at least three units of Shakespeare (117A or 117B), six units of British literature before 1800 exclusive of Shakespeare (chosen from 116A, 116B, 118A, 118B, 120A, 120B, 143A, 151), and six units of British literature after 1800 (chosen from 119A, 119B, 126A, 126B, 129A, 129B, 143B).

Selection of Courses

Prospective majors of sophomore standing may, with the consent of the course instructor and subject to general college regulations (see Credit for Upper Division Courses in the section of the catalog on General Regulations), substitute six units of upper division electives for six units of lower division work, such upper division units to be selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 126A, 126B, 143A, 143B.

Students of junior or senior standing may substitute for any deficiencies in lower division requirements in English (except English 1A and 1B) an equivalent number of units of upper division courses selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 143A, 143B, 151.

Major in the General Programs

For a limited time, transfer students may elect the major in English under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are described in the 1961-62 catalog. Information may also be obtained from the departmental adviser in English. Under this program the student will complete the general education requirements described in the section of this catalog on Graduation Requirements instead of the pattern of courses required in the liberal arts and sciences program.

MINOR IN ENGLISH

The minor in English consists of 15 to 22 units in English, nine units of which must be in upper division courses.

TEACHING MAJOR IN ENGLISH WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree in teacher education must be admitted to teacher education and complete, in addition to 45 units of general education courses, (1) a teaching major in English, (2) a minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Education Professional Curricula. Also refer to the section on Graduation Requirements for a description of general education and other graduation requirements.

Requirements

Teaching Major. The major consists of a minimum of 24 units in English and comparative literature, exclusive of courses used in general education. At least 18 units of the major must be in upper division courses, to include three units in American literature and three units in Shakespeare. Recommended as part of the major: English 192.

Minor. A minor to be selected with approval of the Coordinator of Secondary Education.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 121 (methods in the major and minor fields), 180, and Health Education 151.

TEACHING MAJOR IN ENGLISH FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. (For a complete description of credential requirements, refer to the General Secondary Credential in the section of this catalog on Education Professional Curricula.

This major may be used as an undergraduate major for the A.B. degree by students who have been admitted to teacher education for the general secondary credential program.

Requirements

Teaching Major. The lower division requirements are the same as those in an English major for the bachelor's degree. Upper division requirements are as follows: At least 24 upper division units in English, selected with the approval of the departmental adviser, and to include English 191 and 192; three units from English 117A or 117B; six units from English 131, 132, 133, and 134; and nine units of British literature exclusive of Shakespeare, to include at least three units in literature before 1800 (chosen from 116A, 116B, 118A, 118B, 120A, 120B, 143A, 151) and at least three units in literature after 1800 (chosen from 119A, 119B, 126A, 126B, 129A, 129B, 143B).

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete six additional upper division or graduate units in literature, of which three units shall be in British literature. English 290 (Bibliography) must be taken prior to the first seminar a student may elect.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula, for a list of the approved teaching minors.

TEACHING MINOR IN ENGLISH FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in English for the general secondary credential may also be used for the bachelor's degree. This minor consists of a minimum of 21 units to include the following:

Lower Division Requirements. English 1A and a year course chosen from English 50A-50B, 52A-52B, 56A-56B, or 60A-60B (9 units).

Upper Division Requirements. Twelve units to include one course from each of the following areas: Nineteenth Century English Literature, selected from English 119A, 119B, 126A, 126B, or 143B; Shakespeare, selected from English 117A or 117B; American Literature, selected from English 131, 132, 133, or 134; and Language, English 192.

TEACHING MINOR IN ENGLISH FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in English for the general elementary and kindergarten-primary credentials consists of a minimum of 15 units, to include three units in American literature. Six units in the minor must be in upper division courses.

COMPARATIVE LITERATURE

For courses in world literature, see comparative literature; these courses give credit toward the English major or minor or toward the minor in comparative literature.

CREDIT IN COURSE SEQUENCES

All elective year courses in the English Department may be begun in either semester, and either semester may be taken singly for credit.

PREREQUISITES

English 1A is prerequisite to all English courses except English 2.

LOWER DIVISION COURSES

R. Reading Laboratory (0) I, II
A semitutorial service offered by the English Department to those wishing to improve reading ability, or secure individual help with study problems. Open to all students at any level of college work.

W. Writing Laboratory (0) I, II
A semitutorial service offered by the English Department to those wishing assistance in writing projects, either remedial or advanced. Open to students at any level of college work.

*** 1A-1B. First Year Reading and Composition (3-3) I, II**
Prerequisite: English 1A is prerequisite to 1B.
First semester: Principles and methods of expository writing. A general education course in written composition. (1A was formerly English 1.)
Second semester: Introduction to the study of poetry, fiction, and drama, with further practice in writing.
A general education course in written composition. English 1B is not open to students with credit or concurrent enrollment in English 2.

*** 1-X. English for International Students (3) I, II**
A first course in English grammar and composition. To be taken by international or bilingual students as a substitute for English 1A. Students are assigned to this course upon the recommendation of the faculty adviser and the student's performance on the English examination for foreign students. As a substitute for English 1A, this course will meet the general education requirement for written communication.

*** 2. Freshman Literature (3) I, II**
Training in reading literary materials with insight and vividness. A general education course in literature, philosophy, and the arts.

*** 10. Individual Reading (1) I, II**
Development of personal tastes for leisure-time reading through lectures and written reports. May be taken a second time with new materials. A general education course in literature, philosophy, and the arts.

20. Latin and Greek Word Derivation (3) I, II
(Same course as General Language 20)
A general and elementary course in philology. Study of Latin and Greek roots of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

*** 50A-50B. Masterpieces of American Literature (3-3) I, II**
Semester I: Major American writers from the beginning to 1860. Semester II: American literature from 1860 to the present. A general education course in literature, philosophy, and the arts.

*** 52A-52B. Masterpieces of World Literature (3-3) I, II**
(Same course as Comparative Literature 52A-52B)
A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay. A general education course in literature, philosophy, and the arts.

*** 56A-56B. Survey of English Literature (3-3) I, II**
Prerequisite: English 2 or 1B or consent of instructor.
The study of some important works of English literature from the Anglo-Saxon period through the Victorian age, with emphasis upon the literary history of each period. A general education course in literature, philosophy, and the arts.

*** 60A-60B. Literature and Personality (3-3)**
A close study of a limited number of the great creators of literature. The goal of the course is to derive, from markedly different specific works, orderly and generalized methods for the interpretation of great literature. A general education course in literature, philosophy, and the arts.

*** 61. Sophomore Composition (3) I, II**
Prerequisite: English 1A.
Practical writing beyond the freshman level. A general education course in written communication.

*** 62. Directed Writing (3) I, II**
Guidance and extensive practice in effective creative writing, particularly description and narration. A general education course in written communication.

UPPER DIVISION COURSES

100. English Fundamentals (0) I, II
Review of spelling, punctuation, grammar, and usage; exercises in vocabulary building and in fundamental reading skills; theme writing. Three meetings a week with additional optional work in the Reading and Writing Laboratory.

*** 101A-101B. Modern Continental Fiction (3-3)**
(Same course as Comparative Literature 101A-101B)
Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century. A general education course in literature, philosophy, and the arts.

*** 106. Creative Writing (3) I**
A writing workshop in which the students are given opportunity to criticize each other's work. Emphasis on narrative and description, but freedom to pursue whatever writing forms may interest the student most. May be taken a second time with new material. A general education course in written communication.

*** 110. Individual Reading (1) I, II**
An advanced course in the reading of modern drama, poetry and fiction. A general education course in literature, philosophy, and the arts.

113. American English (3) I
The development of American English; regional and cultural differences in pronunciation, grammar, and vocabulary.

*** 115. The Bible as Literature (3) I**
(Same course as Comparative Literature 115)
A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions. A general education course in literature, philosophy, and the arts.

116A-116B. The Age of Elizabeth (3-3)
Semester I: Poetry and prose, exclusive of drama. Semester II: The drama to 1642, excluding Shakespeare.

*** 117A-117B. Shakespeare (3-3) I, II**
The first semester gives special emphasis to the histories and comedies; the second, to tragedy and the dramatic romances. A general education course in literature, philosophy, and the arts.

*** 118A-118B. Eighteenth Century English Literature (3-3) I, II**
The first semester emphasizes the social satire of Swift, Pope, Addison, Steele, Dryden, Gay, Prior; and also the first stirrings of the romantic revolt in a number of important poems and prose works. The second semester is devoted to Johnson and Boswell and their circle and to a significant romantic literature antedating the romantic outburst.

*** 119A. English Romantic Poetry (3) I**
The culmination of the romantic movement in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, in relation to the thought of the revolutionary period. A general education course in literature, philosophy, and the arts.

*** 119B. Victorian Poetry (3) II**
Tennyson and Browning with their contemporaries and successors, relating English poetry to Nineteenth Century life and thought. A general education course in literature, philosophy, and the arts.

120A. The Seventeenth Century: Milton (3) II (Alternate years)
The poetry and major prose works of Milton, with stress on the development of his art and mind; the political and religious background and the events in which Milton participated.

120B. The Seventeenth Century: Metaphysical and Cavalier Poets (3) II (Alternate years)
The Metaphysical and Cavalier poets in relation to the cultural and literary backgrounds of the sixteenth, seventeenth, and eighteenth centuries.

126A. Romantic and Victorian Prose (3) I
Romantic and mid-Victorian prose writers, including Coleridge, Hazlitt, Lamb, DeQuincey, Carlyle, Landor, Macaulay, and Mill, related to the literary, political, and social movements of the period.

*** 126B. Late Nineteenth Century British Prose (3) II**
The essays of Arnold, Thomas Huxley, Newman, Pater, Ruskin, and Stevenson. Study of scientific, aesthetic, and ethical backgrounds. A general education course in literature, philosophy, and the arts.

*** 129A. Early Modern British Literature (3) I**
Selected drama, fiction, and poetry of 1880-1920: Wilde, Shaw, Butler, Hardy (fiction), Bennett, Galsworthy, Wells, Synge, Conrad, Kipling, Yeats (earlier works), Maugham, and certain Georgian and World War I poets. A general education course in literature, philosophy, and the arts.

*** 129B. Contemporary British Literature (3) II**
Selected British prose and poetry largely influential after 1920: Joyce, T. S. Eliot, Hardy (poetry), Forster, Virginia Woolf, Lawrence, Aldous Huxley, Yeats (later works), Greene, Auden, Dylan Thomas, and some representative writers in major current movements. A general education course in literature, philosophy, and the arts.

*** 131. American Literature: 1820-1860 (3) I**
The study of the important romantic writers, with emphasis on the New England group. A general education course in literature, philosophy, and the arts.

*** 132. The Frontier and American Literature (3) I, II**
The influence of the frontier upon American literature, studied through various regions and movements. Examinations of source materials, biographies, and representative writers. A general education course in literature, philosophy, and the arts.

*** 133. American Literature: 1860-1910 (3) II**
The rise of realism in American literature. Influences, foreign and native, which promoted the movement. Definition of realism. The literary creed of the realists. The romantic attack and the realist defense. A general education course in literature, philosophy, and the arts.

*** 134. American Literature: 1910 to the Present (3) I, II**
Ideas and forms in representative poetry and prose. A general education course in literature, philosophy, and the arts.

143A-143B. The English Novel (3-3)
The history of the English novel from its beginnings to the present century. Emphasis in the first semester will be on the Eighteenth Century and in the second semester on the Nineteenth Century.

*** 149. The Study of Poetry (3) I, II**
A course proceeding from simpler to more complex poetic productions. Emphasis on current direction in poetry, and on problems of form. The inclination to write poetry is encourged. A general education course in literature, philosophy, and the arts.

151. Chaucer (3) I
A study of Chaucer's works, with emphasis on "The Canterbury Tales" and "Troilus and Criseyde."

*** 152A-152B. World Drama (3-3)**
(Same course as Comparative Literature 152A-152B)
Study of selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings. A general education course in literature, philosophy, and the arts.

162. The Writing of Fiction (3) II
Prerequisite: Consent of instructor.
Constructing and writing short stories for publication.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

189. Studies in American Folklore (3) I
American folk songs, tales, legends, superstitions, proverbs, and speech, with particular emphasis on one of these.

191. Advanced Composition (3) I, II
A course designed for prospective teachers of English. This is not a methods course, but a content course in grammar, composition, and journalism. Required of all teaching majors in English; open to other students as an elective.

192. The English Language (3) I, II
Prerequisite: Open only to seniors and graduate students.
The study of the history of the English language, of its words and structure, of the changes in inflections, pronunciation, vocabulary, and meaning, and of its use as an instrument of communication and human living.

193. Old English (3) I, II
Prerequisite: Open only to seniors and graduate students.
Elementary grammar and readings in Old English prose and poetry; introduction to *Beowulf*.

195A. History of Literary Criticism (3) I
Prerequisite: Open only to seniors and graduate students.
A historical survey of the principles and practices of literary criticism from Greek times to the nineteenth century. Readings in the works of Aristotle, Horace, Longinus, Sidney, Boileau, Lessing, Sainte-Beuve, Coleridge, and others.

195B. Theory and Practice of Modern Criticism (3) II
Prerequisite: Open only to seniors and graduate students.
A study of the theory and practice of selected nineteenth and twentieth century critics, with attention to the distinctive features of their approach to traditional and modern literary texts.

196. General Linguistics (3) I
(Same course as General Language 196)
Prerequisite: Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.
A study of the principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

197. English Linguistics (3) II
(Same course as General Language 197)
Prerequisite: Open only to seniors and graduate students who have had either English 192 or 196.
The phonological, grammatical, and lexical structure of English.

198. Comprehensive Reading and Survey (3) II
Prerequisite: Open only to students with nine upper division units in English.
A study of major movements in English literature through a review of important writers and key works. Individual programs of readings to fill the needs of each student.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

260. Problems of Literary Creation (2-6)
Prerequisites: Consent of instructor and departmental adviser.
Criticism and coaching in the larger forms.

290. Bibliography and Methods of Literary Research (3)
Prerequisite: 12 units of upper division English.
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research, including editorial procedures. Recommended for the first semester of graduate work. Prerequisite to graduate seminar.

291. Seminar: A Major Author (3)
Prerequisite: 12 units of upper division work in English and English 290.
The critical study of a major author, such as Shakespeare, Dickens, Mark Twain. May be repeated with new content for additional credit.

292. Seminar: A Cultural Period (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study, through its literature, of a cultural period such as the Renaissance, the Enlightenment, the Romantic Revolution, or the like. May be repeated with new content for additional credit.

293. Seminar: A Literary Problem (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study of a literary problem, such as Regionalism in America, or European influences on American Literature, or the like. May be repeated with new content for additional credit.

294. Seminar: A Literary Type (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study of a literary type, such as the Personal Essay, Epic, Tragedy, and the like. May be repeated with new content for additional credit.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

FRENCH

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Brown, E. M., Messier
Associate Professor: Piffard
Assistant Professors: Cox, Dandliker, Jenkins, Ricois

Offered by the Department of Foreign Languages

Master of arts degree with a major in French.
Master of arts degree for teaching service with a concentration in French.
Major in French with the A.B. degree in liberal arts and sciences.
Minor in French.
Teaching major in French with the A.B. degree and junior high school credential.
Teaching major in French leading to the general secondary credential in the postgraduate year.
Teaching minor in French for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree with a major in French and the master of arts degree for teaching service with a concentration in French are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN FRENCH WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in French must complete all requirements prescribed in the liberal arts and sciences program. A minor to be approved by the departmental adviser in French is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses.

Major

Lower Division Requirements. French 1, 2, 3, 4, 10, and 11. Recommended: History 4A-4B.

Upper Division Requirements. 24 upper division units in French to include French 101A, 101B, 102A, 102B, and 12 units in the period literature of the language.

Major in the General Programs

For a limited time, transfer students may elect the major in French under regulations for the general program. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are described in the 1961-62 catalog. Information may also be obtained from the departmental adviser in French. Under this program the student will complete the general education requirements described in the section of this catalog on Graduation Requirements instead of the pattern of courses required in the liberal arts and sciences program.

MINOR IN FRENCH

The minor consists of 15 to 22 units in French (exclusive of course equivalents), six units of which must be in upper division courses.

TEACHING MAJOR IN FRENCH WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units of general education courses, (1) a teaching major in French, (2) a minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on the Education Professional Curricula. Also refer to the section on Graduation Requirements for a description of general education and other graduation requirements.

Requirements

Teaching Major. The major consists of a minimum of 24 units in French, including lower and upper division courses. At least 18 units of the major must be in upper division courses. Courses in the major may not be used to meet requirements in general education.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Minor. A minor to be selected with approval of the Coordinator of Secondary Education.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 180, 121 (methods in the major and minor fields), and Health Education 151.

TEACHING MAJOR IN FRENCH FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

This major may be used as an undergraduate major for the A.B. degree by students who have been admitted to teacher education for the general secondary credential program.

Requirements

Teaching Major. By date of eligibility for the credential, the student must have credit for at least 38 units of French, exclusive of course equivalents, to include six units of prescribed courses taken in the postgraduate year and the following pattern of lower and upper division courses:

Lower Division Requirements. French 1, 2, and 3 (or equivalents), French 4, 10, and 11 (8-20 units).

Upper Division Requirements. 24 upper division units to include French 101A 101B, 102A, 102B, 122, 140, 141, and six upper division units of French in the period literature of the language.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. French majors will meet this requirement by completing six units of French 220 and 201 or 214 or 215.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN FRENCH FOR THE GENERAL SECONDARY CREDENTIAL

Teaching Minor. By date of eligibility for the credential, the student must have credit for at least 22 units of French, exclusive of course equivalents, to include the following pattern of lower and upper division courses:

Lower Division Requirements. French 1, 2, and 3 (or equivalents), French 4, 10, and 11 (8-20 units).

Upper Division Requirements. French 101A, 101B, 102A, 102B, and 122 (14 units).

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

TEACHING MINOR IN FRENCH FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A teaching minor in French is offered for the general elementary and kindergarten-primary credentials. This minor consists of 15 to 22 units in French, six units of which must be in upper division courses.

HIGH SCHOOL EQUIVALENTS

High School Equivalents. Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

*** 1. Elementary (4) I**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on French culture and civilization, minimum essentials of grammar. A general education course in foreign languages.

*** 2. Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: French 1 or two years of high school French.
Continuation of French 1. A general education course in foreign languages.

*** 3. Intermediate (4) I**
Prerequisite: French 2 or three years of high school French.
A practical application of the fundamental principles of grammar. Reading in French of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. A general education course in foreign languages. Not open to students with credit in French 7A-7B or 8A-8B.

*** 4. Intermediate (4) II**
Prerequisite: French 3 or four years of high school French.
Continuation of French 3. A general education course in foreign languages.

7A-7B. Intensive Reading Course in French (2-2)
Prerequisites: French 1 and 2 or three years of high school French.
Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in French. Open only to students preparing for departmental reading examinations. Not open to students with credit in French 3.

8A-8B. Scientific Reading (2-2)
Prerequisite: French 2 with a grade of C or better, or three years of high school French.
Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit for French 3 or 7A-7B.

10. Conversation (2) I
Prerequisite: French 2 or three years of high school French.
Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II
Prerequisite: French 10 or French 3, or four years of high school French.
Continuation of French 10.

*** 40. French Civilization (2) I**
(Same course as Humanities 42)
Conducted in English. No prerequisite.
The major currents and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music, and science. A general education course in the area of foreign languages.

*** 41. French Civilization (2) II**
(Same course as Humanities 43)
Conducted in English. No prerequisite.
Continuation of French 40. A general education course in the area of foreign languages.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: French 4 and 11, with a grade of C or better.
Translation into French from moderately difficult English prose. Outside reading of modern French prose, with written reports in French monthly. Readings and oral discussions in French of various facets of French life and culture.

102A-102B. Survey Course in French Literature (3-3)
Prerequisite: French 4 with a grade of C or better.
A study of important movements, authors, and works in French literature from the Middle Ages to the present. French 10 and 11 strongly recommended for liberal arts minor.

105A-105B. Modern French Drama (3-3)
(Offered in 1964-65)
Prerequisites: French 4 and 11 with grade of C or better.
Plays of Victor Hugo, de Vigny, de Musset, Scribe, Augier, Dumas fils, Pailleron, Brieux, Hervieu, Maeterlinck, Rostand, and others read and discussed as to subject matter and technique. Outside reading and reports.

107A-107B. Eighteenth Century Literature (3-3)
(Offered in 1965-66)
Prerequisites: French 4 and 11 with grade of C or better.
The works of Montesquieu, Voltaire, Rousseau, the Encyclopédistes, as well as the theater and novel of the period. Outside reading and reports.

110A-110B. Modern French Novel (3-3)
(Offered in 1963-64)
Prerequisites: French 4 and 11 with grade of C or better.
The French novel from Victor Hugo to the present day, including such authors as Hugo, Dumas, Stendhal, Balzac, Flaubert, Loti, Anatole France, Bourget, Bordeaux, Bazin, Barrès, Romain Rolland, A. Gide, Marcel Proust, and others. Class reading, outside reading, and reports.

111A-111B. Seventeenth Century Dramatic Literature (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
Reading in class of plays of Molière, Corneille, and Racine. Outside readings and lectures on the background of the seventeenth century in France.

122. The Foreign Language Laboratory (2) I
Conducted in English.
Prerequisite: Admission to teacher education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in German or Spanish 122.

*** 140. French Civilization (2) I**
(Same course as Humanities 142)
Conducted in English. No prerequisite.
An advanced course in French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics. A general education course in the area of foreign languages.

*** 141. French Civilization (2) II**
(Same course as Humanities 143)
Conducted in English. No prerequisite.
Continuation of French 140. A general education course in the area of foreign languages.

150. Advanced Phonetics and Diction (3) Irregular
Prerequisites: French 1, 2, 3, 4, or equivalents, 10 and 11.
For students and teachers of French wishing to perfect their pronunciation and diction. Correct formation of French sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recording.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in French available in any given semester.
Prerequisite: Consent of staff.

GRADUATE COURSES

201. Old French (3)
Prerequisite: 18 units of upper division French.
The elements of the phonology and morphology of Old French; intensive reading and translation of representative texts.

214. The Novel in France in the 20th Century (3)
Prerequisite: 18 units of upper division French.
Current movements and techniques in the novel in France from 1900 to the present, with concentration on the leading novelists of the period.

215. The Theater in France in the 20th Century (3)
(Offered in 1963-64)
Prerequisite: 18 units of upper division French.
Movements and techniques in the French dramatic literature from 1900 to the present, with concentration on the leading dramatists of the period.

220. Explication de Textes (3)
Prerequisite: 18 units of upper division French.
An introduction to the analytical French approach to the detailed study of literature. Demonstrations by instructor and students. This course aims to give teachers of French a greater mastery of French language and literature.

290. Research and Bibliography (2)
Prerequisite: 18 units of upper division French.
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)
Prerequisites: 18 units of upper division French and consent of graduate adviser and department chairman. Required of all candidates for the M.A. degree with the general secondary or junior college credential.
A study of important movements, authors, and works in French literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisites: 18 units of upper division French and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.
Master's degree candidates in general secondary or junior college credential programs are expected to substitute French 294 and a comprehensive examination for the thesis.

GENERAL LANGUAGE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in general language are drawn from the Departments of Foreign Languages and English.
Major or minor work is not offered in general language.

LOWER DIVISION COURSES

20. Latin and Greek Word Derivation (3) I, II
(Same course as English 20)
A general and elementary course in philology. A study of Latin and Greek roots of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

30. Pronunciation of French (1) I
Three hours per week for eight weeks. No prerequisite.
A course designed especially to meet the needs of singers, radio announcers, etc.

31. Pronunciation of Italian (1) I
Three hours per week for eight weeks. No prerequisite.
A course designed especially to meet the needs of singers, radio announcers, etc.

32. Pronunciation of German (1) II
Three hours per week for eight weeks. No prerequisite.
A course designed especially to meet the needs of singers, radio announcers, etc.

33. Pronunciation of Spanish (1) II
Three hours per week for eight weeks. No prerequisite.
A course designed especially to meet the needs of singers, radio announcers, etc.

UPPER DIVISION COURSES

196. General Linguistics (3) I
(Same course as English 196)
Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.
A study of the principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

197. English Linguistics (3) II
(Same course as English 197)
Open only to seniors and graduate students who have had either English 192 or General Language 196.
The phonological, grammatical, and lexical structure of English.

199. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

GENERAL SCIENCE

IN THE DIVISIONS OF THE LIFE SCIENCES AND THE PHYSICAL SCIENCES

Offered by the Divisions of the Life Sciences and the Physical Sciences

Teaching major in general science with the A.B. degree and junior high school credential.
Teaching majors in (1) biology and general science and (2) physical science and general science, leading to the general secondary credential in the post-graduate year.
Teaching minor in general science for the general elementary and kindergarten-primary credentials.

TEACHING MAJOR IN GENERAL SCIENCE WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units of general education courses, (1) a teaching major in general science, (2) a minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.
It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Education Professional Curricula. Also refer to the section on Graduation Requirements for a description of general education and other graduation requirements.

Teaching Major in General Science

The major consists of a prescribed pattern of courses totaling not less than 33 units, including lower and upper division courses. Courses in the major may not be used to meet general education requirements. Required as preparation for the major are prerequisite and related lower division courses, which may not be counted in general education unless otherwise provided in the description of the major.

Prerequisite and Related Courses. Biology 3 and 4, or Biology 5, Physical Science 1 and 2, or equivalents. Nine units of natural science may be counted in general education.
Requirements in the Major. 33 units, at least 12 of which must be in upper division courses, to include one of the folowing life science courses: Biology 110, 111, Botany 112, 114, 119-S, Zoology 114, 117, or 119-S; and one physical science course chosen from Physical Science 130, 150, or Physics 101. Electives to complete the minimum of 33 units may be taken in lower or upper division courses to be selected from the upper division courses listed above or from the following: Biology 15, 158, 161, Zoology 51, 121, 165, Physics 73, Industrial Arts 85 and 185.

Minor

A minor must be selected with approval of the Coordinator of Secondary Education.

Professional Courses in Teacher Education

Twenty-four upper division units of professional courses in teacher education are required, to include the following courses: Education 100, 110, 120, 121 (methods in the major and minor fields), 180, and Health Education 151.

TEACHING MAJORS FOR THE GENERAL SECONDARY CREDENTIAL

Teaching majors are offered for the general secondary credential in (1) biology and general science and (2) physical science and general science. For a description of these majors, refer to the section of this catalog on Biology or on Physical Science.

TEACHING MINOR IN GENERAL SCIENCE FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in general science for the general elementary and kindergarten-primary credentials consists of a minimum of 15 units to include Biology 3 and 4, or Biology 5, or approved equivalents, Physical Science 1 and 2, or approved equivalents, and six upper division units chosen from Biology 160, Botany 119-S, Industrial Arts 185, Physical Science 120, 130, and 150, Zoology 119-S and 165.

GEOGRAPHY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Post, Richardson, Storm, Taylor, J.
Associate Professors: Eidemiller, Yahr (Chairman)
Assistant Professors: Cruttenden, Finch, Vogel

Offered by the Department

Master of arts degree with a major in geography.
Master of arts degree for teaching service with a concentration in social science (geography).
Major in geography with the A.B. degree in liberal arts and sciences.
Minor in geography.

THE MASTER'S DEGREE

The master of arts degree with a major in geography and the master of arts degree for teaching service with a concentration in social science (geography) are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

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MAJOR IN GEOGRAPHY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in geography must complete all requirements prescribed in the liberal arts and sciences program. A minor approved by the major adviser is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. Geography 1, 2 or 12A and 12B, 3 and 60; Geology 1A, which may be used as part of a geology minor if desired. Geography 1 (or 3) and 2 may also be counted toward the liberal arts and sciences requirements.

Upper Division Requirements. A minimum of 24 upper division units in geography to include Geography 100, 101, 180, 181A, and 12 units of electives in geography, no less than six units nor more than nine units of which may be from among the courses numbered 120 to 130 inclusive.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, Spanish, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Department of Geography.

Major in the General Programs

For a limited time, transfer students may elect the major in geography under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are described in the 1961-62 catalog. Information may also be obtained from the departmental adviser in geography. Under this program the student is not required to complete a minor or meet the foreign language requirement. The student will complete the general education requirements described in the section of this catalog on Graduation Requirements instead of the pattern of courses required in the liberal arts and sciences program.

MINOR IN GEOGRAPHY

The minor in geography consists of 15 to 22 units in geography, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

*** 1. Introduction to Geography: Physical Elements (3) I, II**
The nature of maps, weather and climates of the world; natural vegetation; land forms and their associated soils, with reference to their climatic relationships; the seas and their coasts. Related field observations. May count for physical science general education credit provided Geography 3 has not been used to fulfill the same requirement.

*** 2. Introduction to Geography: Cultural Regions (3) I, II**
Prerequisite: Geography 1 or consent of instructor.
The regional differentiation of the world by human activity; areal bases of economy and nationality. A social science course in general education. Not open to students with credit in Geography 12A or 12B.

*** 3. Weather (3) I, II**
Elements of weather, air masses, storms, and their geographic distribution; practical instruction in the use of weather instruments, maps, and records. May count for physical science general education credit provided Geography 1 has not been used to fulfill the same requirement.

*** 12A-12B. Culture Worlds (3-3)**
A study of the evolution, distinguishing cultural characteristics and physical features of the major culture regions of the world, with emphasis on the role man has played in the alteration of the natural landscape. A general education course in social science. Not open to students with credit in Geography 2.

60. Economic Geography (3) I, II
Prerequisite: Geography 1 or consent of instructor.
Man's economic activities over the earth's surface. Principles of agricultural production, extractive industries, manufacturing regions, industrial location, and transportation and trade.

UPPER DIVISION COURSES

100. Climatology (3) II
Prerequisite: Geography 1 or 3, or consent of instructor.
A survey of the principal classifications of climates of the world; regional characteristics of climate; relations to soils, vegetation, and human activities.

101. Physiography (3) I
Prerequisite: Geography 1.
A study of the physiographic processes and concepts, and of selected areas illustrative of physiographic problems. Types of terrain, their origin, and their distribution over the earth.

105. Soils and Natural Vegetation (3) II
Prerequisite: Geography 1 or consent of instructor.
The soils and natural vegetation associations of the world; their distribution, classification, development, and relations to climates, landforms and economic activity.

110. Historical Geography (3) II
Prerequisite: Geography 1 or 2, or consent of instructor.
Transformation of the natural and cultural landscape with emphasis on the utilization and significance of resources. Exploration, migration, and settlement in relation to geographic phenomena.

120. California (3) I, II
Prerequisite: Geography 1 or consent of instructor.
The physiographic regions of California and the cultural landscapes developed by the successive cultural groups.

121. United States (3) I, II
Prerequisite: Geography 1 or consent of instructor.
The natural regions of the United States, their formation and economic and historical development.

122. Canada and Alaska (3) II
Prerequisite: Geography 1 or consent of instructor.
The physical and historical bases of Canadian and Alaskan regionalism; the economic and strategic importance of these two areas.

123. Middle America (3) II
Prerequisite: Geography 1 or consent of instructor.
The land and peoples of Mexico, Central America, and the islands of the Caribbean; a survey of the resources, economies, and trade of the region.

124. South America (3) I
Prerequisite: Geography 1 or consent of instructor.
A study of the physical regions and human geography of South America, including a review of the history of colonization and the exploitation of resources.

125. North Africa and the Near East (3) II
Prerequisite: Geography 1 or consent of instructor.
The geographic bases for the political heritage, economics and peoples of North Africa, including the Sahara, and the Near East.

126. Europe (3) I
Prerequisite: Geography 1 or consent of instructor.
The geographic bases for the political heritage, economics and peoples of Europe.

127. Soviet Union (3) I
Prerequisite: Geography 1 or consent of instructor.
Analysis of natural resources, agricultural production, industrial growth, and transportation.

128. Southern and Eastern Asia (3) II
Prerequisite: Geography 1 or consent of instructor.
The cultural regions of southern and eastern Asia, their physical environment and historical development.

129. Oceania (3) II
Prerequisite: Geography 1 or consent of instructor.
The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

130. Central and Southern Africa (3) I
Prerequisite: Geography 1 or consent of instructor.
A regional geography of Africa south of the Sahara; the physical geographic base for the peoples and their economic activities.

150. Political Geography (3) I
A study of geography as it relates to the strength of nations and international relations.

151. Economic Geography: Primary Production (3) I
Prerequisite: Geography 1 or 12A-12B, or consent of instructor.
The geography of agricultural production and the extractive industries in relation to world commerce.

152. Industrial Geography (3) II
Prerequisite: Geography 1 or 12A-12B, or consent of instructor.
Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions; transportation and world trade.

*** 153. Conservation of Natural Resources (3) I, II**
Prerequisite: Geography 1 or consent of instructor.
Nature and extent of mineral, soil, water, forest, and wildlife resources and their conservation, with particular emphasis on the United States against a general background of world resources. Conservation philosophies and practices and their geographic bases. A general education course in social science.

155. Urban Geography (3) I
Prerequisite: Six units of geography or related experience.
Description and analysis of geographic principles and characteristics related to the distribution, function, structure, and regional setting of urban centers, with discussions of the growth, development and problems of modern cities. Field reconnaissance in local urban areas.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

180. Field Geography (3) II
Prerequisites: Junior, senior or graduate standing and the completion of at least 12 units in geography, including Geography 1 and 2, or 12A-12B, and consent of instructor.
Directed fieldwork in physical and cultural geography.

181A-181B. Maps and Graphic Methods (3-3)
Prerequisite: Geography 181A, or consent of instructor, is prerequisite to 181B.
The use and evaluation of maps and graphic aids in the teaching of geography and other fields in the physical and social sciences. Practice in reproducing maps and graphs.

182. Use and Interpretation of Aerial Photographs (2) II
One lecture and three hours of laboratory.
Prerequisite: Geography 1 and consent of instructor.
The planning of photo reconnaissance, correction of photo errors in the construction of base maps, and principles of stereoscopy. Emphasis on the use of standard photogrammetric instruments and the interpretation of aerial photographs.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: At least 15 units of A or B work in geography and consent of instructor.

GRADUATE COURSES

210. History of Geography (3)
Prerequisite: Approval of graduate adviser.
The evolution of concepts concerning the nature, scope, and methodology of geography.

220. Seminar in Regional Geography (3)
Prerequisite: Approval of departmental advisory committee.
Intensive study of a major world region, such as South America, Southeast Asia and Northern Europe. May be repeated once with new content.

250. Seminar in Systematic Geography (3)
Prerequisite: Approval of departmental advisory committee.
Intensive study of an aspect of systematic geography, such as climatology, economic geography, and graphic presentation. May be repeated once with new content.

280. Techniques of Field Research (3)
Prerequisites: Geography 180 and approval of departmental advisory committee.
Detailed and reconnaissance field work including classification of natural and cultural features and preparation of geographical reports and maps based on field data. May be repeated once with new content.

295. Geographic Research and Techniques of Presentation (3)
Prerequisite: Approval of departmental advisory committee.
Seminar in the use of research materials in the different aspects of geography and the effective presentation of research findings in written and oral form.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

GEOLOGY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty
Professor: Roberts
Associate Professors: Brooks, Thomas, B., (Chairman)
Assistant Professors: Allison, Bassett, Berry, Gastil, Milow, Threet

Offered by the Department

Master of science degree in geology.
Major in geology with the A.B. degree in liberal arts and sciences.
Major in geology with the A.B. degree in the general programs.
Major in geology with the B.S. degree.
Minor in geology.

THE MASTER'S DEGREE

The master of science degree with a major in geology is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of the prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are the prerequisite and related lower division courses. These lower division courses may not be used to meet general education requirements unless otherwise provided in the description of the major.

The major in liberal arts and sciences has an additional requirement in foreign language and a specific pattern of courses for general education.

MAJOR IN GEOLOGY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in geology must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Geology 1A, or 2 and 3, Geology 1B, 21, and 24; Chemistry 1A-1B; Engineering 2; Mathematics 22 or 50; and Physics 2A-2B-3A-3B or 4A-4B-4C. Recommended: Chemistry 4 or 5, Mathematics 51, Engineering 21, and a course in mechanical drawing if not completed in high school.

Upper Division Requirements. A minimum of 24 upper division units in geology to include Geology 100, 106, 108A, 108B, and 198. For the *geophysics* fields, the following courses should be taken in addition to the major: Mathematics 118A, Physics 103, 120A, and Geology 112.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Geology Department.

MAJOR IN GEOLOGY WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Students majoring in geology with the A.B. degree in the general programs must complete 45 units of general education courses in addition to the major, except that nine units of lower division courses in chemistry and physics and six units of mathematics may be counted as general education. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Requirements for this major are the same as those for the major in the liberal arts and sciences program described above, except that foreign language is not required, but is recommended, and students will complete the general education requirements instead of those in the liberal arts and sciences program.

MAJOR IN GEOLOGY WITH THE B.S. DEGREE IN THE GENERAL PROGRAMS

Students majoring in geology with the B.S. degree must complete 45 units of general education courses in addition to the major, except that 12 units of lower division courses in chemistry, physics, and biology, and six units of mathematics may be counted as general education. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Major

The major consists of basic requirements in the lower and upper division for all students plus the requirements in one of the following options: (a) General Physical or Economic Geology, (b) Paleontology and Stratigraphy, (c) Geophysics, and (d) Geochemistry.

Lower Division Requirements for All Students. Geology 1A or 2 and 3, 1B, 21, 24; Chemistry 1A and 1B; Engineering 2; and Biology 3 or 4. Recommended: A foreign language and a course in mechanical drawing if not completed in high school.

Upper Division Requirements for All Students. 36 or 42 upper division units in approved courses to include the following: Geology 100, 108A, 108B, 124, 198, and 120 or 121 (19 units).

Plus requirements in one of the following options:

(a) General Physical or Economic Geology:

Lower Division. Mathematics 12 or equivalent, and 40 and 50; Physics 2A-2B and 3A-3B; Chemistry 4 or 5; Engineering 21 (27 units).

Upper Division. Geology 106; and two of the following courses: Geology 104, 107, 110, 125; and electives approved by the departmental adviser to complete 36 upper division units.

(b) Paleontology and Stratigraphy:

Lower Division. Biology 3 or 4 (take the course not previously completed), and Biology 15, or their equivalents; Mathematics 21 and 22; Physics 2A-2B and 3A-3B (20 units).

Upper Division. Geology 106, 107, and 116; and three courses, one to be chosen from *each* of the following groups: Biology 155 or 160; Biology 110, Zoology 112, or Zoology 119-S; Botany 119-S or Zoology 114. (Botany 51 or Zoology 51 may be substituted for Botany 119-S or Zoology 114, provided that the student has a total of 36 upper division units in the major.)

(c) Geophysics:

Lower Division. Mathematics 50, 51, and 52; Physics 4A-4B-4C (25 units).

Upper Division. Mathematics 118A; Physics 101, 103, 105, and 110; Geology 110 and 112 (21 units). Recommended: Mathematics 118B, Physics 114.

(d) Geochemistry:

Lower Division. Chemistry 5 and 12; Physics 4A-4B-4C; Mathematics 50, 51, 52 (32 units).

Upper Division. Geology 106, 125; Chemistry 110A-110B, 111, 155 or 170; and Physics 101 (23 units).

MINOR IN GEOLOGY

The minor in geology consists of 15 to 22 units in geology, six units of which must be in upper division courses.

LOWER DIVISION COURSES

1A. Physical (4) I
Three lectures and three hours of laboratory with related field study during the semester.
The composition, origin, and distribution of earth materials, and their modification through mechanical and chemical processes. Not open to students with credit for Geology 2.

1B. Historical (4) II
Three lectures and three hours of laboratory. Arrangement for field study during the semester.
Prerequisite: Geology 1A, or 2 and 3.
Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence.

*** 2. General Geology (3) I, II**
Earth materials and processes, the development of land forms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology. No prerequisites. A physical science general education course in the area of the natural sciences.

*** 3. General Geology Laboratory (1) I, II**
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Geology 2.
Recognition of common earth features and materials with experience in both field and map relationships. Designed to accompany and augment Geology 2. Not open to students with previous laboratory credit in geology. A physical science general education course meeting the laboratory requirement in the area of the natural sciences.

21. Mineralogy (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: High school chemistry, or credit or concurrent registration in college chemistry.
Practice in the determination of the common minerals; their geologic environment, utilization and economic significance.

24. Petrology (3) I
Two lectures and three hours of laboratory.
Prerequisites: Geology 1A, or 2 and 3, and credit or concurrent registration in Geology 21.
The origin, occurrence, identification, and classification of rocks and minerals with emphasis on hand specimen characteristics.

53. General Geology for Engineers (1) II
One three-hour laboratory or field project per week.
Prerequisite: Engineering 2 or 24.
Earth materials, geologic processes, and methods of geologic interpretation of particular concern to the engineer. Open only to students majoring in engineering. Not open to students with credit for Geology 3.

UPPER DIVISION COURSES

100. Structural Geology (3) I
Two lectures and three hours of laboratory per week with occasional field trips.
Prerequisites: Geology 1A and 1B.
Structural features of the earth, both deformational and primary. Mechanical principles, causes of folding and faulting, graphic solutions and analyses.

102. Geology of California (3) II
(Offered in 1962-63 and alternate years)
Prerequisites: Geology 1A and 1B.
Directed reading and group discussion of California geologic literature. Designed to acquaint students with the important structural, stratigraphic, and geomorphic units of the state and with the great variety of source materials thereon.

104. Geomorphology (3) II
(Offered in 1963-64 and alternate years)
Prerequisite: Geology 1B.
Development and classification of land forms with consideration of processes involved.

106. Paleontology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Geology 1B and Biology 4, or their equivalents, or consent of instructor.
Principles and methods, exemplified by a study of the morphology, classification, habit, and geologic significance of fossil invertebrates.

107. Principles of Stratigraphy (3) II
Two lectures and three hours of laboratory.
Prerequisites: Geology 24 and 106.
Procedures used in analysis, correlation, and classification of stratigraphic units. The chronologic significance of the important physical and biological criteria.

108A. Field Geology (4) II
One lecture per week and 12 Saturday field sessions in the local area.
Prerequisites: Geology 24 and 100, and Engineering 2.
Techniques and methods of geologic observation, interpretation, and field mapping.

108B. Field Geology (4) I
Prerequisite: Geology 108A.
Geologic investigation of an assigned area with preparation of an individual report and a geologic map.

110. Introduction to Geophysics (3) I
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 22 or 50, Physics 2B and 3B or equivalents, and Geology 100 or concurrent registration therein.
Physics of the earth and its application to prospecting for oil, gas, and mineral deposits.

112. Advanced Geophysics (3) II
(Offered in 1962-63 and alternate years)
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 52, Physics 103 and 110, and Geology 110.
Theoretical principles underlying the physics of the earth and their application to the design and the operation of geophysical instruments, and to the interpretation of the geophysical records.

116. Micropaleontology (3) II
(Offered in 1963-64 and alternate years)
Two lectures and three hours of laboratory.
Prerequisite: Geology 106.
A study of the morphology, classification and geologic significance of the various microfossils.

120. Ore Deposits (3) I
(Offered in 1962-63 and alternate years)
Prerequisites: Completion or concurrent registration in Geology 24 and 100.
Geologic relations, origin, distribution, and economics of metallic and nonmetallic mineral deposits.

121. Petroleum Geology (3) I
(Offered in 1963-64 and alternate years)
Prerequisites: Completion or concurrent registration in Geology 24 and 100.
Geologic occurrence of petroleum and the application of geologic principles in exploration and production.

124. Optical Mineralogy (3) I
Two lectures and three hours of laboratory.
Prerequisite: Geology 21.
Theory and use of the polarizing microscope for determining optical properties of minerals as an aid to their identification.

125. Petrography (4) II
Two lectures and six hours of laboratory.
Prerequisite: Geology 124.
A study of rocks with the polarizing microscope; identification of mineral constituents; interpretation of textures; classification of rocks; problems of genesis.

166. Honors Course (Credit to be arranged) I, II
Special work in any of several phases of geologic science for students of demonstrated ability. Refer to the Honors Program.

198. Senior Report (2) I, II
Six hours of laboratory and discussions.
Prerequisite: Geology 108B.
Individual research project, involving field work in a selected field of geology, with oral reports of progress to the class and a final oral and written report of work accomplished. May be repeated to a total of four units.

199. Special Study (1-4) I, II
Individual study in field, library, laboratory, or museum work. Four units maximum credit.
Prerequisites: Acceptable grade average in at least 12 upper division units within the major and consent of staff.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced geology. May be repeated with new subject matter for additional credit.

210. Advanced Petrology and Mineralogy (3) I
Two lectures and three hours of laboratory.
Prerequisite: Geology 125.
Modern theoretical petrology with emphasis on applications to igneous and metamorphic rocks. X-ray, universal stage, mineralography, and other laboratory techniques and their application to geologic problems.

220. Biostratigraphy (3) I
Two lectures and three hours of laboratory.
Prerequisite: Geology 107.
Stratigraphic and geochronologic synthesis of geological events and their relationship to the temporal and spatial distribution of life forms. Laboratory analysis of biological data applied to stratigraphic problems.

230. Sedimentology (3) II
Two lectures and three hours of laboratory.
Prerequisite: Geology 124.
Classification, distribution, and origin of sedimentary deposits and the theory of their interpretation. Mechanical, chemical, and optical analysis of detrital and chemical sediments and sedimentary rocks and their depositional structures.

240. Regional Tectonics (3) II
Prerequisite: Geology 100.
A consideration of topics on continental origin, ultimate orogenic force, mechanics of earth deformation and geosynclinal theory, with a survey of classic geologic provinces, and individual projects utilizing techniques of regional synthesis.

298. Special Study (1-3) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II
Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a thesis for the master's degree.

GERMAN

IN THE DIVISION OF THE HUMANITIES

Faculty

Professor: Wolf
Associate Professor: Piffard
Assistant Professors: Dandliker, Dukas, Katz, Lawson, R.
Instructor: Pietschmann

Offered by the Department of Foreign Languages

Major in German with the A.B. degree in liberal arts and sciences.
Minor in German.
Teaching major in German with the A.B. degree and junior high school credential.
Teaching major in German leading to the general secondary credential in the postgraduate year.
Teaching minor in German for the general elementary and kindergarten-primary credentials.

MAJOR IN GERMAN WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in German must complete all requirements prescribed in the liberal arts and sciences program. A minor to be approved by the departmental adviser in German is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)
The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses.

Major

Lower Division Requirements. German 1, 2, 3, 4, 10, and 11.

Upper Division Requirements. 24 upper division units in German to include German 101A, 101B, 102A, 102B, and 12 units of courses in the period literature of the language.

Major in the General Programs

For a limited time, transfer students may elect the major in German under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are described in the 1961-62 catalog. Information may also be obtained from the departmental adviser in German. Under this program the student will complete the general education requirements described in the section of this catalog on Graduation Requirements instead of the pattern of courses required in the liberal arts and sciences program.

MINOR IN GERMAN

The minor consists of 15 to 22 units in German (exclusive of course equivalents), six units of which must be in upper division courses.

TEACHING MAJOR IN GERMAN WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units of general education courses, (1) a teaching major in German, (2) a minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Education Professional Curricula. Also refer to the section on Graduation Requirements for a description of general education and other graduation requirements.

Requirements

Teaching Major. The major consists of a minimum of 24 units in German, including lower and upper division courses. At least 18 units of the major must be in upper division courses. Courses in the major may not be used to meet requirements in general education.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Minor. A minor to be selected with approval of the Coordinator of Secondary Education.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 180, 121 (methods in the major and minor fields), and Health Education 151.

TEACHING MAJOR IN GERMAN FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

This major may be used as an undergraduate major for the A.B. degree by students who have been admitted to teacher education for the general secondary credential program.

Requirements

Teaching Major. By date of eligibility for the credential, the student must have credit for at least 38 units of German, exclusive of course equivalents, to include six units of prescribed courses taken in the postgraduate year and the following pattern of lower and upper division courses:

Lower Division Requirements. German 1, 2, and 3 (or equivalents), German 4, 10, and 11 (8-20 units).

Upper Division Requirements. 24 upper division units to include German 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of German in the period literature of the language.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. German majors must meet this requirement by completing six units in German to include German 201 and 204 or 205 or 206.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN GERMAN FOR THE GENERAL SECONDARY CREDENTIAL

Teaching Minor. By date of eligibility for the credential, the student must have credit for at least 22 units of German, exclusive of course equivalents, to include the following pattern of lower and upper division courses:

Lower Division Requirements. German 1, 2, and 3 (or equivalents), German 4, 10, and 11 (8-20 units).

Upper Division Requirements. German 101A, 101B, 102A, 102B, and 122 (14 units).

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

TEACHING MINOR IN GERMAN FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A teaching minor in German is offered for the general elementary and kindergarten-primary credentials. This minor consists of 15 to 22 units in German, six units of which must be in upper division courses.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated language work.

LOWER DIVISION COURSES

*** 1. Elementary (4) I**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on German culture and civilization, minimum essentials of grammar. A general education course in foreign languages.

*** 2. Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: German 1 or two years of high school German.
Continuation of German 1. A general education course in foreign languages.

*** 3. Intermediate (4) I**
Prerequisite: German 2 or three years of high school German.
A practical application of the fundamental principles of grammar. Reading in German of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. A general education course in foreign languages. Not open to students with credit in German 7A-7B or 8A-8B.

*** 4. Intermediate (4) II**
Prerequisite: German 3 or four years of high school German.
Continuation of German 3. A general education course in foreign languages.

7A-7B. Intensive Reading Course in German (2-2)
Prerequisites: German 1 and 2 or three years of high school German.
Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in German. Open only to students preparing for departmental reading examinations. Not open to students with credit in German 3.

8A-8B. Scientific Reading (2-2)
Prerequisite: German 2 with a grade of C or better, or three years of high school German.
Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit for German 3 or 7A-7B.

10. Conversation (2) I
Prerequisite: German 2 or three years of high school German.
Practice in the spoken language; pratical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II
Prerequisite: German 10 or German 3, or four years of high school German.
Continuation of German 10.

*** 40. German Civilization (2) I**
(Same course as Humanities 44)
Conducted in English. No prerequisite.
The major currents and characteristics of German culture, as expressed through the centuries in literature, art, philosophy, music, and science. A general education course in the area of foreign languages.

*** 41. German Civilization (2) II**
(Same course as Humanities 45)
Conducted in English. No prerequisite.
Continuation of German 40. A general education course in the area of foreign languages.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: German 4 and 11, with a grade of C or better.
Translation into German of moderately difficult English prose. Free composition in German, written and oral. Outside reading of modern German plays and prose, discussions in German. Oral and written practice in conversational German.

102A-102B. Survey Course in German Literature (3-3)
Prerequisite: German 4 with a grade of C or better.
A study of important movements, authors, and works in German literature from the Middle Ages to the present.

103A-103B. German Literature of the Eighteenth Century (3-3)
Prerequisites: German 4 and 11 with a grade of C or better.
An introduction to the literature of the German Enlightenment, the "Storm and Stress," the Classical Age, and the beginnings of the Romantic School. Outside readings and reports. (Formerly numbered German 102A-102B.)

105A-105B. German Literature of the 19th Century (3-3)
(Offered in 1963-64)
Prerequisites: German 4 and 11 with grade of C or better.
An introduction to the literature of German Romanticism, Young Germany, Realism, and Naturalism. Outside readings and reports.

110A-110B. Contemporary German Literature (3-3)
(Offered in 1964-65.)
Prerequisites: German 4 and 11 with grade of C or better.
An introduction to the main developments in German literature from Neo-Romanticism to the present. Outside readings and reports.

115-S. Introduction to Goethe's "Faust" (3)
Prerequisite: Six units of upper division German.
A study of Goethe's *Faust*, Parts 1 and 2, its philosophical contents and its position in German and European literature; lectures, readings, reports. (To be offered only in summer, 1962.)

122. The Foreign Language Laboratory (2) I
Conducted in English.
Prerequisite: Admission to teacher education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French or Spanish 122.

*** 140. German Civilization (2) I**
(Same course as Humanities 144)
Conducted in English. No prerequisite.
An advanced course in German culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics. A general education course in the area of foreign languages.

*** 141. German Civilization (2) II**
(Same course as Humanities 145)
Conducted in English. No prerequisite.
Continuation of German 140. A general education course in the area of foreign languages.

*** 142. The Golden Age of German Literature (3) I, II**
(Same course as Comparative Literature 142)
Masterpieces of German literature from the Eighteenth and early Nineteenth Centuries. A general education course in literature, philosophy, and the arts.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in German available in any given semester.

GRADUATE COURSES

201. History of the German Language (3)
Prerequisite: 18 units of upper division German.
The historical development of the German language, with source readings from the Gothic Bible to Luther's translation of the Bible.

204. Seminar in Contemporary German Prose Fiction (3)
Prerequisite: 18 units of upper division German.
Studies in the 20th century German novel or short story.

205. German Lyric Poetry from Goethe to Rilke (3)
Prerequisite: 18 units of upper division German.
The major German lyric poets from the end of the 18th century to the beginning of the 20th century.

206. The German Drama of the 19th Century (3)
Prerequisite: 18 units of upper division German.
Representative works of German dramatic literature from Kleist to Hauptmann.

290. Research and Bibliography (2)
Prerequisite: 18 units of upper division German.
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)
Prerequisites: 18 units of upper division German and consent of graduate adviser and department chairman.
A study of important movements, authors, and works in German literature. Designed to supplement the reading done in previous courses.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisites: 18 units of upper division German and consent of staff; to be arranged with department chairman and instructor.

HEALTH EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Professors: Kitzinger, Lauritsen
Associate Professor: Grawunder (Chairman)
Assistant Professors: Burgess, Harper, Mileff
Lecturer: Huff

Offered by the Department

Master of arts degree for teaching service with a concentration in health education.
Major in health education with the B.S. degree.
Minor in health education.
Teaching major in health education leading to the general secondary credential in the postgraduate year.
Teaching minor in health education for the general secondary credential.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in health education is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN HEALTH EDUCATION WITH THE B.S. DEGREE IN THE GENERAL PROGRAMS

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 36 units. Required as preparation for the major are prerequisite and related lower division courses. These lower division courses may not be counted in general education, except for nine units in the natural sciences.
Students will complete 45 units of general education in addition to the major. A minor is not required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Health Education 65, 90; Zoology 8 and 9; Chemistry 2A-2B; Home Economics 4A; and Psychology 12.

Upper Division Requirements. Thirty-six upper division units to include Health Education 145, 150 or 151, 153, 175, 181, 185, 190, 191; Microbiology 101; Education 112 (or equivalent); Physical Education 161; Sociology 135; and the remaining units to be selected in consultation with the adviser in health education.

MINOR IN HEALTH EDUCATION

The minor consists of 15 to 22 units in health education, nine units of which must be in upper division courses. Courses will be determined in consultation with the departmental adviser.

TEACHING MAJOR IN HEALTH EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in health education for the general secondary credential is the same as the major for the B.S. degree.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Students with the teaching major in health education must meet this requirement by completing six units selected from the following graduate courses: Health Education 200, 202, 205, and 210.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN HEALTH EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in health education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include, in the lower division, Health Education 21, 65, and 90; and in the upper division, 15 units to be selected from Health Education 145, 151, 153, 154, 168, 175, 181, 185, 190, 191, and Physical Education 161. Courses should be selected in consultation with departmental adviser.

LOWER DIVISION COURSES

*** 21. Principles of Healthful Living (2) I, II**
An application of modern knowledge to the development of understandings, attitudes, and practices essential to healthful living. A required general education course. Fulfills statutory requirement in public safety.

65. Community Health (3) I, II
Community health problems; the role of the citizen, of the public, and of community health agencies in promoting and protecting the health of the community.

*** 90. Physiology of Reproduction (1) I, II**
A series of lectures and discussions dealing with normal and abnormal physiology and anatomy of reproduction; facts and frauds in sex hygiene, and related topics. A general education course in family life education.

UPPER DIVISION COURSES

145. Safety Education and Accident Prevention (3) II
Highway safety, the fundamentals of safety programs and techniques in home, school and industry. Partially satifies the requirements for state credential in driver education.

150. Health Education for Elementary Teachers (2) I, II
The teacher's function in the different aspects of the elementary school health program, with emphasis upon the planning and presentation of instructional materials and upon community resources and relationships. Not open to students with credit in Health Education 151.

151. Health Education for Secondary Teachers (2) I, II
A study of the health status of adolescents and of the teacher's function in the secondary school health program. Emphasis is placed upon statutory requirements in stimulants and narcotics and upon safety and accident prevention. Not open to students with credit in Health Education 150.

152. School Health Instruction Programs (3) I
The construction of the health education program, including objectives, scope and sequence of instruction, teaching methods, source materials, evaluation procedures, and instructional units.

153. Administration of the School Health Program (3) II
Administrative responsibilities and procedures in organizing and conducting the school health program. Principles, policies, and practices involved in instruction, service, environment, and community relationships.

154. Workshop in Health Education (2) Summer
For elementary and secondary administrators, school nurses, and teachers. The workshop provides opportunities for participants to work together toward the improvement of the total school health program in such areas as health instruction, health services, health environment, and community health. May be taken three times for credit.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

168. Institute on Current Health Issues (1) I, II, Summer
A critical appraisal and analysis of selected contemporary health issues. May be taken three times for credit.

175. Health in Later Maturity (3) I
An approach to the conservation of human resources, with particular emphasis on understandings, attitudes, and practices related to health in later maturity. Designed for those with a personal or professional interest in the field.

181. Health and Medical Care (3) II
Prerequisite: Senior or graduate standing with a major or minor in health education or closely related areas.
A study of health values, concepts, and attitudes; health products and facilities; hospital care and hospitalization plans; governmental health controls; economic and cultural influences upon health and medical care; professional contributions, relationships, and careers; national and international health programs. Not open to students with credit for Sociology 121.

185. Critical Analysis of Professional Literature (3) I, II
Investigation and study of selected literature in the field which has important bearing on health, physical education, and recreation programs in the school and community. Evaluation of literature content on basis of specific criteria.

190. Introduction to Public Health (3) I
Philosophy, development, organization, administration, and legal aspects of public health in the United States. Disease prevention and control, health education, and the other functions and activities of official health departments, voluntary agencies, private physicians and others engaged in professional health work.

191. Supervised Field Experience (1-3) I, II
Prerequisites: Senior standing and consent of the chairman of the department.
Supervised practical experience in local health agencies.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the special study adviser.

GRADUATE COURSES

200. Evaluation Procedures in Physical Education, Health Education and Recreation (3) I
(Same course as Physical Education 200)
A study of tests and measurements in the profession with practice in their use, construction and interpretation of results.

202. Problems in Health Education (3) (Alternate Years)
Current problems in Health Education, studied through a review of the literature, discussion of trends, observation of school situations, together with the analysis and evaluation of actual problems. Written reports required.

205. Curriculum in Physical Education and Health Education (3)
(Same course as Physical Education 205)
Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation.

210. Seminar (3) I, II
Prerequisite: Major or minor in health education, physical education, or a closely related area, or consent of instructor.
Seminars are offered in the following areas of health education. None of the fields may be repeated for credit.

A. Stimulants and depressants
B. Communicable and noncommunicable disease
C. Dental health

298. Special Study (1-6) I, II
Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.
Individual study. Six units maximum credit.

299. Thesis (3) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

HISTORY

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Johnson, A., Nasatir, Ragen, Ridout, Rohfleisch, Webb
Associate Professors: Hanchett, Merrill, J. (Chairman), Pincetl, Rader, Ridge, Wineman
Assistant Professors: Harris, B., Norman, Ruetten

Offered by the Department

Master of arts degree with a major in history.
Master of arts degree for teaching service with a concentration in history.
Major in history with the A.B. degree in liberal arts and sciences.
Minor in history.
Teaching minor in history for the general secondary credential.

THE MASTER'S DEGREE

The master of arts degree with a major in history and the master of arts degree for teaching service with a concentration in history are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN HISTORY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in history must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. History 4A-4B or 8A-8B. Recommended: Both 4A-4B and 8A-8B; and Political Science 71A-71B or 90 and 91, or Economics 1A-1B. No freshman shall enroll in more than one lower division course in history during any one semester without permission of the departmental adviser.

Upper Division Requirements. A minimum of 24 upper division units in history to include History 198 and a minimum of a year of concentration in **each of three** of the following fields: (a) Ancient and Medieval; (b) Modern Europe; (c) United States; (d) Latin America; (e) Pacific Area and the Far East. These courses must be selected under the guidance of the chairman of the department.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the History Department.

Major in the General Programs

For a limited time, transfer students may elect the major in history under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are the same as those for the major in liberal arts and sciences described above, including the requirement in foreign language. In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MINOR IN HISTORY

The minor consists of 15 to 22 units in history. Six sequence units must be in lower division courses. At least nine units must be in upper division courses, including a year course.

TEACHING MINOR IN HISTORY FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in history for the general secondary credential may also be used as a minor for the bachelor's degree. This teaching minor is not available to students with a major in social science. The teaching minor consists of a minimum of 21 units to include the following courses:

Lower Division Requirements. History 4A-4B or 8A-8B or 17A-17B; six units of social science electives to be chosen from anthropology, economics, geography (except Geography 1 or 3), political science, and sociology.

Upper Division Requirements. Nine upper division units in history to complete the 21-unit minor including a year course.

GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U. S. history, U. S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

(1) History 17A and 17B or 172A and 172B.

(2) History 8A and 8B plus an approved test or course on the U. S. Constitution.

(3) History 176A and 176B, or 179A and 179B, or 181A and 181B plus approved tests or courses on (a) the U. S. Constitution and (b) California government.

(4) History 189 plus approved tests or courses on (a) U. S. history and (b) the U. S. Constitution.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

EXPLANATION OF COURSES

NOTE: History 17A-17B does not count toward credit for a major in history.

LOWER DIVISION COURSES

*** 4A-4B. Western Civilization (3-3)**
Prerequisite: History 4A, or consent of instructor, is prerequisite to History 4B.
European institutions, culture, and thought from ancient times to the present. A general education course in the social sciences.

*** 8A-8B. The Americas (3-3)**
Survey of the history of the western hemisphere from its discovery to the present time. This year course meets the graduation requirements in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government. A general education course in the social sciences.

*** 17A-17B. American Civilization (3-3)**
Prerequisite: History 17A is prerequisite to History 17B.
Survey of the political and social development of the United States, with emphasis upon the rise of American civilization and ideals. This year course meets the graduation requirement in American history, institutions and ideals. The first semester course, 17A, also meets the requirement in U. S. Constitution; and the second semester course, 17B, meets the requirement in California state and local government. This course is a general education course in the social sciences. Ordinarily not open to students with credit for Political Science 71A-71B. History 17A-17B may be taken by such students with the consent of the chairman of the History Department.

UPPER DIVISION COURSES

111A-111B. Ancient History (3-3)
Fall semester: Greece to the Roman Conquest.
Spring semester: Rome to the 5th century A.D.

*** 121A-121B. Europe in the Middle Ages (3-3)**
Prerequisite: History 121A, or consent of instructor, is prerequisite to History 121B.
European social, cultural, and political developments from the fall of Rome to the Renaissance. A general education course in the social sciences.

131A-131B. Renaissance and Reformation (3-3)
Personalities and events connected with the social, political, cultural, economic and religious change between 1300 and 1600. Not open to students with credit for History 132-S.

132-S. Culture of the Renaissance (3) Summer
Development of art, literature, philosophy and social life between 1300 and 1600. Not open to students with credit for History 131A-131B.

141. Europe in the 17th and 18th Centuries (3) I
This course is prerequisite to History 142.
European thought, politics and international relations from the Thirty Years' War and Louis XIV to 1763.

142. The French Revolution and Napoleonic Era (3) II
Prerequisite: History 141 or consent of instructor.
France on the eve of the Revolution; the Great Revolution, 1789-1799; the Napoleonic Era.

143A-143B. Europe in the 19th Century (3-3)
Reaction in Europe, the development of nationalism, the impact of industrialism and social reform.

144A-144B. Europe in the 20th Century (3-3)
Prerequisite: History 144A, or consent of instructor, is prerequisite to History 144B.
Political and social developments from 1870 to the present.

145-S. Diplomatic History of Europe, 1870-1920 (3) Summer
Survey of treaties, alliances and ententes leading up to World War I; World War I and the subsequent international settlements to 1920.

147A-147B. Expansion of Russia (3-3)
Political, social, and economic expansion of Russia in Europe and Asia from the earliest times to the present. Second semester: Emphasis on the twentieth century.

151A-151B. England (3-3)
Prerequisite: History 151A, or consent of instructor, is prerequisite to History 151B.
Political, constitutional, and social developments since the Norman Conquest. Recommended for prelegal students and majors in English.

156A-156B. British and European Imperialism (3-3)
A comparative study of the growth and decline of modern empires with emphasis on the nineteenth and twentieth centuries.

158A-158B. Africa and the Middle East (3-3)
First semester: The historic development of the Middle East and North Africa; the growth and decline of imperialism in that area and French North Africa. Second semester: The history of Africa south of the Sahara.

161. Mexico and Caribbean Countries (3) I
Special attention to relations between the United States and these countries, and to recent developments in Mexico.

162. South America Since Independence (3) II
Republics of South America. Development of nationality, struggles for political stability, exploitation, diplomatic and commercial relations with the United States, and other international problems of South America. Survey of present-day conditions.

165A-165B. Social and Intellectual History of Latin America (3-3)
A study of the development of culture and social life in Latin America, with special attention devoted to the relationship of political and social thought to the socio-economic problems of the area.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

171A-171B. Rise of the American Nation (3-3)
Prerequisite: History 171A, or consent of instructor, is prerequisite to History 171B.
A topical approach to the Colonial experience. The first semester stresses the European background and problems of transplanting Old World Culture to the New World. The second semester focuses attention on contributions of the Colonial experience in literature, education, religion.

*** 172A-172B. Development of the Federal Union (3-3)**
Prerequisite: History 172A, or consent of instructor, is prerequisite to History 172B.
Political, cultural, social and intellectual aspects of the Confederation and early national period; the Convention of 1787 and establishment of the Constitution; the administrations of Washington through John Quincy Adams. This year-course meets the graduation requirements in American history, institutions and ideals; 172A meets the requirement in U. S. Constitution; and 172B includes materials which meet the requirement in California state and local government. This course is a general education course in the social sciences.

173A-173B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3)
Prerequisite: History 173A, or consent of instructor, is prerequisite to History 173B.
Lectures and readings on Jacksonian democracy, territorial expansion, the Mexican War, the slavery controversy, the Civil War and Reconstruction.

174. Emergence of the United States as a World Power (3) I, II
Postwar reconstruction and economic developments to the close of the nineteenth century.

175A-175B. The United States in the 20th Century (3-3)
The United States as a world power; social and economic problems posed by the machine age; political action and adjustment, actual and proposed, intended as solutions for these problems.

176A-176B. American Foreign Policy (3-3)
Lectures and readings in the field of American foreign relations since 1776, with special emphasis, in the second semester, upon affairs since 1900. A general survey course. This year-course meets the graduation requirement in American history, institutions and ideals.

*** 179A-179B. Intellectual History of the American People (3-3)**
A study of the ebb and flow of ideas in the United States since the founding of the English colonies, with special attention devoted to social and political thought. This year course meets the graduation requirement in American history, institutions and ideals. A general education course in the social sciences.

181A-181B. The Westward Movement (3-3)
The American frontier: Expansion, exploration, settlement and building of the new states, with emphasis upon frontier problems of defense, communications, finance, etc.; the development of cultural institutions. A critical examination of the causes, effects and results of the frontier experiences of the American people. This year course meets the graduation requirement in American history, institutions and ideals.

189. California (3) I, II
The economic, social, intellectual, and political development of California from the earliest times. Emphasis will be on the founding of California, international struggles for California; American conquest and Gold Rush Era; development of California as a state. This course meets the graduation requirement in California state and local government.

190A-190B. The Pacific Ocean Area (3-3)
A general survey of the history and civilization of the peoples of the Pacific, with special emphasis upon exploration, trade, international rivalries, and social evolution of the island areas.

191A-191B. The Far East (3-3)
Particular emphasis during the first semester upon the history, both internal and international, of the Far East through the 19th century. The second semester will be devoted to a consideration of developments in the 20th century.

193. China (3) I
A survey of Chinese history and institutions from antiquity to the present.

194. Japan (3) II
A general survey of the political, economic and social development from the foundation of the empire to contemporary times. Special attention will be given to religions, philosophy, literature, and the arts.

197. Introduction to Great Historians and Historical Literature (3) I, II
Lectures and readings in the history of history and the works of major historians. Open to all upper division students; especially recommended for history and social science majors.

198. Introduction to Historical Method (2) II
Prerequisite: Senior standing.
Required of history majors and recommended for students in the social science major.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of department chairman and instructor.

GRADUATE COURSES

201. Historical Method (3)
General historical bibliography. The use of libraries and archives. Methods of critical historical investigation. The interpretations of history. Required of all applicants for advanced degrees in history.

202. Seminar in Historiography (3)
Prerequisite: History 197 or consent of instructor.
A critical study of the works of major historians, their philosophies, and the schools of scholarship associated with their work.

251A-251B. Seminar in English History (3-3)
Prerequisite: Consent of instructor. History 251A is prerequisite to 251B.
Directed research in selected aspects of English history.

270A-270B. Seminar in American History (3-3)
Prerequisite: Consent of instructor. History 270A is prerequisite to 270B.
An introduction to intensive investigation of various phases of American history.

276A-276B. Seminar in Diplomatic History (3-3)
Prerequisite: Consent of instructor. History 276A is prerequisite to 276B.
Selected topics in recent diplomatic relations.

281A-281B. Seminar in the History of the West and California (3-3)
Prerequisite: Consent of instructor. History 281A is prerequisite to 281B.
Directed research in various topics in the History of the West and California.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

HOME ECONOMICS

IN THE DIVISION OF THE FINE ARTS

Faculty

Associate Professors: Cannon, Comin, Dorris (Chairman), Talboy, Thomas A.
Assistant Professor: Martin

Offered by the Department

Major in home economics with the A.B. degree in the general programs, with concentrations in (1) general home economics or (2) food and nutrition.

Minor in home economics.

Teaching major in homemaking education with the A.B. degree and special secondary credential.

Teaching major in homemaking education leading to the general secondary credential in the postgraduate year.

Teaching minor in homemaking education for the general secondary credential.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are prerequisite and related lower division courses which may not be counted in general education unless otherwise provided. In addition to the major, the student will complete 45 units of general education. A minor is not required. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN HOME ECONOMICS WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Major With Emphasis in General Home Economics

Lower Division Requirements. Home Economics 2, 3, 15, 30, 35, 40, 43, 70; and the following courses which may be counted as general education: Art 6A, Economics 1A, Sociology 10, Biology 1, Chemistry 2A-2B, and Physics 5. (Total, 39 units.)

Upper Division Requirements. A minimum of 24 upper division units to include Home Economics 100, 115, 131, 151, 152, 170, 179; and six units selected from Home Economics 102, 105, 116, 117, 118, 119, 143, 171, and 180.

Major With Emphasis in Food and Nutrition

This program is planned for students interested in qualifying professionally in the field of dietetics, institutional food management or commercial home economics. A student who successfully completes this program and receives departmental recommendation is eligible to apply for a year of internship under auspices of the American Dietetic Association. Upon completion of an administrative food clinic or dietetic internship, or a three-year apprenticeship under a qualified dietitian in a recognized hospital, a student is eligible for membership in the American Dietetic Association and recognition as a qualified dietitian. Additional food and nutrition careers include extension service, teaching, business, health agencies and research.

Requirements

Lower Division Requirements. Home Economics 2, 3, 15, 30, 35, 40, 43, 70; Business Administration 1A; the following courses which may be counted as general education: Art 6A, Economics 1A, Sociology 10; and Biology 3, Zoology 22, Chemistry 2A-2B, Chemistry 3, and Physics 5. (Total, 48 units.) Twelve units of lower division courses in the natural sciences may be counted as general education.

Upper Division Requirements. Thirty-three upper division units to include Home Economics 100, 102, 103, 104, 105, 151, 152, 170, 180, Microbiology 101, Psychology 145, and Education 111 or Psychology 130.

MINOR IN HOME ECONOMICS

The minor consists of 17 units in home economics to include Home Economics 3, 15, 70, 150, and six upper division units of electives in home economics.

TEACHING MAJOR IN HOMEMAKING EDUCATION WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must complete, in addition to 45 units in general education courses, (1) a teaching major in homemaking education and (2) the additional professional courses in teacher education. A minor is not required for the degree.

For additional information on the credential, refer to the section of this catalog on Education Professional Curricula. For a description of general education requirements, refer to the section on Graduation Requirements.

Teaching Major in Homemaking Education

Lower Division Requirements. Home Economics 2, 3, 15, 30, 35, 40, 43, 70; and the following courses which may be counted as general education: Art 6A, Economics 1A, Sociology 10, Biology 1, Chemistry 2A-2B, and Physics 5. (Total, 39 units.)

Upper Division Requirements. A minimum of 24 upper division units in home economics to include Home Economics 100, 115, 131, 151, 152, 170, 179, 181; and four units selected from Home Economics 102, 105, 116, 117, 118, 119, 143, 171, and 180.

Professional Courses in Teacher Education

In addition to the teaching major in homemaking education, the student must complete 22 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121C, 180, and Health Education 151.

TEACHING MAJOR IN HOMEMAKING EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirement in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in homemaking education may be completed in one of the following ways:

(1) By completing the special secondary credential in homemaking education with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing the home economics major for the A.B. degree, with emphasis in general home economics (without the special secondary credential), Home Economics 181, and the required courses in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include at least four upper division or graduate units in home economics courses to be approved by the departmental adviser in homemaking education.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN HOMEMAKING EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in homemaking education for the general secondary credential may also be used as a minor in home economics for the bachelor's degree. The minor consists of a minimum of 21 units to include the following courses: in the lower division, Home Economics 3, 15, 70, and one to four units of electives in home economics (9-12 units); and in the upper division, Home Economics 150, 170, and seven to nine units of upper division electives in home economics (12-14 units).

LOWER DIVISION COURSES

*** 1. General Home Arts (3) I, II**
Three lectures. No prerequisite.
A general education course in family life education. Consideration of necessary preparation for marriage with emphasis on a stable, happy democratic family life; family budgets and money management; finding a home to buy, build or rent; child care, proper training and guidance; home safety. Open to men and women.

2. Orientation to Home Economics as a Profession (1) I, II
One lecture. No prerequisite.
Introduction to the opportunities and requirements in various professional fields for home economists.

*** 3. Food and Nutrition (3) I, II**
One lecture and six hours of laboratory. No prerequisite.
Selection, purchase, and serving of meals with a consideration of nutritional needs of the family groups, food habits, and social customs; management problems. A general education course in family life education or in practical arts in the area of literature, philosophy, and the arts.

*** 4A. General Nutrition (2) I, II**
Two lectures. No prerequisite.
Practical problems of nutrition, including food requirements, food selection, and food habits. The relation of nutrition to health. Open to both men and women, except home economics majors. Maximum credit in Home Economics 3 and 4A is four units. A general education course in family life education or in practical arts in the area of literature, philosophy, and the arts.

4B. Nutrition Laboratory (1) II
Three hours of laboratory.
Prerequisite: Limited to students in the nursing program.
Principles of nutrition applied to food preparation, meal planning, and special diets.

14-S. Workshop for School Lunch Personnel (1) Summer
Open to school lunch personnel only.
The following areas are included:
A. Nutrition for School Lunches.
B. Beginning Meal Planning.
C. Food Purchasing.
D. Sanitation and Safety.
E. Work Simplification and Personnel Management.
F. Advanced Menu Planning.
G. Record Keeping and Cost Analysis.
No area may be repeated for credit, but credit may be earned in two areas concurrently. Maximum credit six units. May not be used as part of a major or minor in home economics or homemaking education.

*** 15. Clothing and Textiles (3) I, II**
Six hours activity. No prerequisite.
Commercial patterns and their adaptation; fitting and construction, primarily with cotton material. Selection and care of textiles. Wardrobe planning and buying practices. Good grooming. A general education course in family life education and in practical arts in the area of literature, philosophy, and the arts.

30. Family Housing (2) I
One lecture and three hours of laboratory.
Prerequisite: Art 6A.
Choosing and furnishing a home from the standpoint of economy, comfort, and beauty.

*** 35. Courtship and Marriage (3) I, II**
(Same course as Sociology 35)
Emphasizes preparation for successful marital adjustment by presenting materials that will help students to solve their own courtship, marriage, and family problems. A general education course in family life education.

40. Budgeting the Family Income (2) I, II
Two lecures. No prerequisite.
Family buying problems; finance planning, accounting; consumer credit, investments and control of property.

43. Household Equipment (2) I, II
Three hours activity.
Prerequisite: Physics 5.
Selection, methods of operation, and care of household appliances. Testing of equipment for safety, efficiency, and cost of operation. Efficient kitchen arrangement.

*** 70. Children in the Home (2) I, II**
Two lectures and one hour of observation. No prerequisite.
Development during the prenatal period, first 10 years. Nutrition, physical development, and family influences on the young child. A general education course in family life education.

UPPER DIVISION COURSES

100. Advanced Foods (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Home Economics 3 and Chemistry 2B.
Fundamentals and practices of scientific food preperation. Development of standards in food preparation, meal planning, and service.

101. Family Meals (3) I
Six hours activity. No prerequisite.
Planning, preparing, and serving of attractive, well-balanced meals for different income levels and for various occasions. Not open to home economics majors.

102. Advanced Nutrition and Dietetics (3) II
Two lectures and three hours of laboratory.
Prerequisite: Home Economics 100.
Principles of nutrition and dietetics as related to individuals and family groups.

103. Quantity Cookery (3) I
One lecture and six hours of laboratory.
Prerequisites: Home Economics 100 and Business Administration 1A.
Application of basic principles to quantity foods, including experiences in planning, purchasing, storage, preparation, serving and cost accounting for institutional food service. Laboratory experience is provided in the campus cafeteria, industrial food services and hospitals.

104. Institutional Food Organization and Management (3) II
Two lectures and three hours of laboratory.
Prerequisites: Home Economics 103.
Study of problems involved in the organization of food service units, problems of administration, cost of food service, specifications, operation and care of equipment for institutions, and routing of work. Special projects and field trips.

105. Experimental Foods (3) Irregular
One lecture and six hours of laboratory.
Prerequisite: Home Economics 100.
Physical and chemical tests applied to problems in processing and preparation of food. Studies relate to protein foods; batters, doughs and sugar cookery; emulsions, fats and oils; and developments in food preservation.

115. Advanced Clothing (3) I, II
Six hours activity.
Prerequisite: Home Economics 15.
Fitting and construction processes applied to wool, silk, and synthetics, emphasizing fundamental principles of handling.

116. Advanced Clothing Design (3) II
Six hours activity.
Prerequisite: Home Economics 115.
Principles of tailoring; planning and construction of coats and suits.

117. Clothing Selection (3) I
Three lectures. No prerequisite.
Appropriate clothing for the individual and the family. Basic art principles, fashion trends, history of costume, buying practices; current legislation in textiles and clothing.

118. Flat Pattern Design (3) Irregular
Six hours activity.
Prerequisites: Home Economics 115 and Art 6A.
Problems involving principles and techniques of flat pattern construction. Development of basic sloper for purpose of interpreting new designs. Investigation of sources of inspiration and their relationship to significant trend in design.

119. Textile Analysis and Testing (3) Irregular
Six hours activity.
Prerequisites: Home Economics 15 and Chemistry 2B.
Analysis based on physical and chemical tests for quality differences due to variation in fibers, content, structure, and finishes and their suitability for specified uses.

131. Home Furnishing Laboratory (2) II
One lecture and three hours of laboratory.
Prerequisite: Home Economics 15.
Simple upholstering techniques; finishing furniture and interior woodwork. Student supplies his own tools, furniture, and fabrics.

143. Household Equipment and Processes (3) II
Six hours activity.
Prerequisites: Home Economics 43 and Physics 5.
Study and laboratory experience to acquaint students with current research findings in relation to equipment and household supplies. Emphasis placed upon characteristics and composition of household materials, use and care.

*** 150. Home Management (3) II**
Open to both men and women, but not open to home economics majors.
Efficient management of the home, family co-operation, establishment of goals, and productive use of money, time and energy. A general education course in family life education. Not open to students with credit for Home Economics 151, Management in Family Living.

151. Management in Family Living (3) I, II
Prerequisite: Home Economics 40. Open only to home economics majors.
Scope and meaning of management in the home, recognition and use of resources available; emphasis on time and energy; adaptation of work simplification techniques for use in studies of activities in home and in home economics laboratories; family health. May not be taken by students who have previously received credit for Home Economics 150.

152. Home Management Laboratory (3) I, II
Five weeks' residence in a family-size unit.
Prerequisites: Home Economics 100 and 151; and written request made to department chairman one year prior to enrollment.
Practical applications and evaluative experience in home management and family living.

160. Merchandise Analysis (3) II
(Same course as Business Administration 160)
Three lectures. No prerequisite.
Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Child Development Laboratory (2) I, II
One lecture and discussion and two hours of observation and participation.
Prerequisite: Home Economics 70 or consent of the instructor.
Observation of young children; participation in child and parent education.

171. Advanced Child Study (3) II
Prerequisites: Psychology 1 and Home Economics 70, or equivalents.
Readings and interpretations of scientific literature which contribute to an understanding of child behavior. An advanced analysis of physical, social, and psychological factors which determine the direction of human development.

179. Problems of Family Living (2) I
Prerequisites: Psychology 1, Home Economics 35 and 70, or equivalents.
Dynamics of family living; attitudes, practices, social and psychological interaction, and family life patterns in different cultures, social classes and ethnic purposes. (Formerly Home Economics 42; not open to students with credit in this course.)

180. Food Demonstration Techniques (1) II
Two hours activity.
Prerequisite: Nine units in home economics courses.
Organizing materials and acquiring techniques for demonstrations; observation and evaluation of professional demonstrations.

181. Materials and Techniques for Teaching Home Economics (2) II
Two hours.
Prerequisite: Education 121C or concurrent registration.
Development and use of audio-visual and other instructional materials.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor.

GRADUATE COURSES

200. Seminar (3) I, II
Prerequisite: Home economics major.
Seminars are offered in each of the following fields of home economics. None of the fields may be repeated for credit.

A. Food and Nutrition
B. Home Management and Family Economics
C. Textiles and Clothing
D. Home Economics Education and Organization
E. Child Care and Development
F. Marriage and Family Relationships

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

HUMANITIES

IN THE DIVISION OF THE HUMANITIES

Faculty

Faculty assigned to teach courses in humanities are drawn from departments in the Division of the Humanities.

Offered by the Division

Curriculum in American Studies.
Curriculum in European Studies.
Curriculum in Humanities.
These curricula are made available to students who wish to organize and correlate their course work beyond the minimum requirements for the liberal arts degree. The programs are made possible through a guided selection of courses within the major and minor fields and additional courses in related fields.

AMERICAN STUDIES CURRICULUM

The program in American Studies is designed for the undergraduate student who wishes to earn a liberal arts degree with a concentration in American Studies. The program stresses the American heritage, in both its uniqueness and its debts to other societies. The curriculum centers in American history and literature, and includes relevant fields, outside as well as inside the Division of the Humanities.

Major and Minor Combinations. A departmental major is required in history (with concentration in American history) or in English (with concentration in American literature). A minor, to be approved by the faculty adviser in American Studies, is required, and may be taken in any department of the college which offers an appropriate grouping of courses. Knowledge of one foreign language is required, as specified in the departmental major.

Within the scope of the American Studies program, the English-Social Science or the Social Science-English major-minor combination, as defined by the state for a general secondary teaching credential, may be arranged in consultation with the adviser for the program.

Course Requirements and Recommendations. Arrangement of courses in the American Studies curriculum must conform to the following pattern:

	Units
I. Forty-two units in courses on American culture, with from 12 to 18 Units in each of the following fields:	42
(a) History of the United States	
(b) American literature and philosophy	
(c) The United States in the social sciences of anthropology, economics, geography, political science, and sociology	
Courses will be selected from approved lists, with approval of the adviser in American Studies.	
II. Fifteen units of courses in the foreign backgrounds of American civilization, as recorded and interpreted by history, literature, philosophy, the arts, and the social sciences	15
Courses will be selected from approved lists, with approval of the faculty adviser in American Studies.	
III. Humanities 198, Integration in the Humanities	3
Total course requirements	60

The student will file with the Evaluations Office a master plan approved by the faculty adviser in Amercan Studies.

EUROPEAN STUDIES CURRICULUM

Specialization in European Studies beyond the requirements for a departmental liberal arts degree is available within the Division of the Humanities. The largest groupings of courses are in the departments of Foreign Languages and History, and in Comparative Literature, and supporting courses are offered regularly by other departments and other divisions of the college. The extended curriculum in European Studies provides (1) the basis for a superior understanding of European civilization, (2) a foundation for graduate work in the major departments, and (3) preparation for residence in continental Europe.

Major and Minor Combinations. A departmental major is required in history (with a concentration upon European history), or in French, German, or Spanish. A minor is required in comparative literature, economics, English, French, geography, German, political science, or Spanish. The major and minor must not both be taken in foreign languages, but a reading and speaking knowledge of at least one European language besides English is required.

Course Requirements	*Units*
I. A minimum of 42 upper division units, including a departmental major as explained above and one or two departmental minors, selected with the approval of a faculty adviser for the European Studies curriculum	42

II. Humanities 198, Integration in the Humanities 3

III. A minimum of 70 units, in either the lower or upper division, distributed as follows: 70
(a) Literature, philosophy, and the fine arts in continental Europe (no fewer than 12 units)
(b) European historical development (no fewer than 12 units)
(c) European geographical, governmental, and economic conditions (no fewer than 6 units)
(d) Foreign languages (no fewer than 16 units, or the equivalent, in one language)

A list of approved courses, including options in general education, will be issued annually

Total course requirements 70

The student will file a master plan with the Evaluations Office approved by a faculty adviser in European studies. In order to complete this curriculum, it is advisable that the master plan be made not later than the end of the freshman year.

HUMANITIES CURRICULUM

The intensive program in humanities provides a course of study which gives a comprehensive view of the development of contemporary civilization, with practice in critical thinking and careful expression. The program encourages extensive reading in history, literature, and philosophy, with oral and written discussion.

Specific Requirements and Recommendations

I. A major in one of the departments of the Division of the Humanities, consisting of 24 upper division units and the required introductory courses, plus a minor if required by the major department. Knowledge of one foreign language is required, as specified in the departmental major.

II. Twelve or more upper division units in related fields, selected with approval of the faculty adviser for the curriculum. (May include courses in the minor, if appropriate.)

III. The adviser will assist the student who undertakes this program to distribute his course work among the following areas:
(a) The Origins of Western Civilization: Greek and Roman, Hebrew, Medieval.
(b) Western Civilization, 1500-1900; Continental, British, and American.
(c) Contemporary Civilization.
(d) Type courses concerned with more than one period; comparative study of Asian Civilization; linguistics and composition; theory.

IV. Humanities 198, Integration in the Humanities (3 units).

The student will file with the Evaluations Office a master plan approved by the adviser for the humanities curriculum.

LOWER DIVISION COURSES

42. French Civilization (2) I
(Same course as French 40)
Conducted in English. No prerequisite.
The major currents and characteristics of French culture, as expressed through the centuries in literature, art, and philosophy.

43. French Civilization (2) II
(Same course as French 41)
Conducted in English. No prerequisite.
Continuation of Humanities 42.

44. German Civilization (2) I
(Same course as German 40)
Conducted in English. No prerequisite.
The major currents and characteristics of German culture, as expressed through the centuries in literature, art, and philosophy.

45. German Civilization (2) II
(Same course as German 41)
Conducted in English. No prerequisite.
Continuation of Humanities 44.

46. Spanish Civilization (2) I
(Same course as Spanish 40)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish culture, as expressed through the centuries in literaure, art, and philosophy.

47. Spanish-American Civilization (2) II
(Same course as Spanish 41)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish-American culture, as expressed through the centuries in literature, art, and philosophy.

48-S. European Civilization (3) Summer
No prerequisite.
A study of the civilization of Europe through a conducted travel tour.

66A-66B. Honors Colloquium (3-3)
Prerequisites: Sophomore standing and admission to the special advising program.
Interdisciplinary conference, with readings, discussion, reports.

UPPER DIVISION COURSES

138. Introduction to Aesthetic Appreciation (1) I
(Same course as Comparative Literature 138)
Conducted in English. No prerequisite.
Major forms of expressions and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstration, and panel discussions.

142. French Civilization (2) I
(Same course as French 140)
Conducted in English. No prerequisite.
An advanced course in French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

143. French Civilization (2) II
(Same course as French 141)
Conducted in English. No prerequisite.
Continuation of Humanities 142.

144. German Civilization (2) I
(Same course as German 140)
Conducted in English. No prerequisite.
An advanced course in German culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

145. German Civilization (2) II
(Same course as German 141)
Conducted in English. No prerequisite.
Continuation of Humanities 144.

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146. Spanish Civilization (2) I
(Same course as Spanish 140)
Conducted in English. No prerequisite.
An advanced course in Spanish culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

147. Spanish-American Civilization (2) II
(Same course as Spanish 141)
Conducted in English. No prerequisite.
An advanced course in Spanish-American culture from the period of the Spanish Conquest to the present, with emphasis on the arts, literature, and philosophy. Lectures, class discussions, outside readings, written reports on individual topics.

148-S. European Civilization (3) Summer
A study of the civilization of Europe through a conducted travel tour.

150-S. The Cultural Heritage of Europe (3)
The bases and development of the common cultural heritage of Europe in its history, literature, and philosophy, and in related areas like religion, the arts, architecture, and music; the efforts being made today towards cooperation in cultural activities and in various fields connected with them.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. The Humanities and Modern Man (1) Irregular
Lectures open to the public. May be repeated for a total of three units.
Weekly lectures on literature, language, philosophy, and cultural history. Reading and reports required of students enrolled for credit.

198. Integration in the Humanities (3) I, II
The investigation of topics common to two or more departments, with oral and written reports. Required of all senior majors in divisional programs in humanities, and open to seniors with majors in English, foreign languages, history, and philosophy.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: A major within the Division of the Humanities, senior standing, and consent of the instructor.

INDUSTRIAL ARTS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Associate Professors: Anderson, W., Irgang (Chairman), Luce, Thiel
Assistant Professors: Ford, McLoney, McMullen, O'Dell

Offered by the Department

Master of arts degree for teaching service with a concentration in industrial arts.
Major in industrial arts with the A.B. degree in the general programs.
Minor in industrial arts.
Teaching major in industrial arts with the A.B. degree and special secondary credential.

Teaching major in industrial arts leading to the general secondary credential in the postgraduate year.
Teaching minor in industrial arts for the general secondary credential.
Teaching minor in industrial arts for the general elementary or kindergarten-primary credential.
Industrial arts courses for general education and individual interests, including practical shop experience on an elective basis.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in industrial arts is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN INDUSTRIAL ARTS WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses which may not be counted in general education unless otherwise provided in the description of the major. In addition to the major, the student will complete 45 units of general education. A minor is not required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Industrial Arts 11, to be taken at the beginning of the major; five courses to be selected from Industrial Arts 21, 31, 51, 61, 71, and 81; and Art 6A, a prerequisite for certain upper division courses, which may be counted in general education.

Upper Division Requirements. A minimum of 24 upper division units to include nine units in *each of two* of the following fields: industrial drawing, general metalworking, general woodworking, electricity-radio, transportation, or graphic arts; and six units selected from the areas just mentioned, or from handicraft courses, photography courses, or the general shop sequence.

MINOR IN INDUSTRIAL ARTS

The minor consists of 20 units in industrial arts to include Industrial Arts 11, 21, and 123, and one lower division and one upper division course in each of two of the following fields: general woodworking, general metalworking, electricity-radio, transportation, and graphic arts. Electives should be chosen in consultation with the chairman of the department.

TEACHING MAJOR IN INDUSTRIAL ARTS WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in industrial arts and (2) the additional professional courses in teacher education. A minor is not required for the degree.
For additional information on the credential, refer to the section of this catalog on Education Professional Curricula. For a description of general education requirements, refer to the section on Graduation Requirements.

Teaching Major in Industrial Arts

The teaching major in industrial arts is the same as the major for the A.B. degree. Refer to the description above.

Professional Courses in Teacher Education

In addition to the teaching major in industrial arts, the student must complete 22 upper division units of professional education courses in teacher education to include Education 100, 110, 120, 121D, 180, and Health Education 151.

TEACHING MAJOR IN INDUSTRIAL ARTS FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in industrial arts may be completed in one of the following ways:

(1) By completing the special secondary credential in industrial arts with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing the industrial arts major for the A.B. degree (without the credential) and the additional courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include three units of Industrial Arts 200 and one to three additional units in upper division courses selected with approval of the department chairman.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN INDUSTRIAL ARTS FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in industrial arts for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include, in the lower division, Industrial Arts 11, 21, and nine units to be selected from at least three of the following courses: Industrial Arts 31, 51, 61, 71, and 81; and in the upper division, Industrial Arts 123 and four to six units of upper division elective courses in industrial arts.

TEACHING MINOR IN INDUSTRIAL ARTS FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor for the general elementary and kindergarten-primary credentials is the same as the industrial arts minor for the A.B. degree. Refer to the description above.

LOWER DIVISION COURSES

*** 5. General Education Shop (3) I, II**
One lecture and six hours of laboratory.
A course in practical arts utilizing the tools and materials of the general metalworking area. Activities include individual projects, field trips, and audiovisual materials. May be counted toward general education requirements in the area of literature, philosophy, and the arts.

*** 6. General Education Shop (3) I, II**
One lecture and six hours of laboratory.
Prerequisite: Consent of instructor.
A course in practical arts utilizing the tools and materials of industrial arts. Activities include individual projects, field trips, and audiovisual materials. May be counted toward general education requirements in the area of literature, philosophy, and the arts.

11. Orientation to the Industrial Arts Profession (2) I, II
Two lectures.
Professional requirements and modern trends in industrial arts education. Problems of teaching and shop organization in the various fields of specialization, directed observation. Required of all industrial arts majors during their first semester.

21. Industrial Drawing (3) I, II
One lecture and six hours of laboratory.
Development of the skills of industrial drawing. Experience in sketching, architectural drafting, mechanical drawing, sheetmetal layout, design, planning, blackboard drawing, mapping and other forms of graphic presentation.

31. General Metalworking (3) I, II
One lecture and six hours of laboratory.
Development of the skills of general metalworking. Experience in machine shop practice, welding, bench metal, art metal, forge, foundry and sheetmetal.

51. General Woodworking (3) I, II
One lecture and six hours of laboratory.
Development of the skills of general woodworking. Experience in cabinetmaking, woodturning, patternmaking, carpentry, boatbuilding, and finishing.

61. Electricity-Radio (3) I, II
One lecture and six hours of laboratory.
Development of the skills for and the understandings of the electricity-radio area. Experience with electrical and radio principals and their application.

71. Transportation (3) I, II
One lecture and six hours of laboratory.
Development of the skills of transportation machinery maintenance. Experience in the maintenance of equipment for land, sea and air transportation and an understanding of the mechanical principles involved.

81. Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Development of the skills of graphic arts. Experience in hand composition, presswork, and other activities such as bookbinding, photography, silk screen, relief and intaglio printing and other duplicating processes. An understanding of the composition of papers and inks.

*** 85. Introduction to Photography (3) I, II**
One lecture and six hours of laboratory.
A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. A course in practical arts which may be counted toward general education requirements in the area of literature, philosophy, and the arts, unless used as part of the major in industrial arts. Not open to students with credit for Journalism 50.

UPPER DIVISION COURSES

101. Handicrafts for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Consent of the instructor and previous shop experience.
For industrial arts or recreational students who desire to teach handicrafts. Skills in handicrafts are emphasized and directed toward the instructional process.

102. Materials and Techniques for Teaching Handicrafts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 101.
More advanced techniques of handicrafts. Development of audiovisual aids, projects, and resource material for handicrafts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

105-S. Construction Activities for Teachers (3) Summer
One lecture and six hours of laboratory.
Use of common hand tools in construction of teaching aids. Preparation of materials for classroom use in arithmetic, reading, science, social studies, and other curriculum areas. Not open to Industrial Arts majors.

111. General Shop for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Consent of the instructor and previous shop experience.
For industrial arts students who desire to teach general shop. Skill in the general shop is emphasized and directed toward the instructional process.

112. Materials and Techniques for Teaching General Shop (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 111.
More advanced techniques for the general shop. Development of audiovisual aids, projects, and resource material for teaching general shop. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

121. Industrial Drawing (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 21 or consent of instructor.
Further experience in sketching, architectural drafting, mechanical drawing, sheetmetal layout, design, planning, blackboard drawing, mapping, and other forms of graphic presentation. A high level of performance is expected.

122. Industrial Drawing for Teachers (3) I, II,
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 121 and Art 6A.
For industrial arts students who desire to teach industrial drawing. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

123. Materials and Techniques for Teaching Industrial Drawing (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Education 100 or consent of instructor.
More advanced techniques of industrial drawing. Development of audiovisual aids, projects, and resource material for industrial drawing. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

131. General Metalworking (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 31.
Further experience in machine shop practice, welding, bench metal, art metal, forge, foundry, and sheetmetal. A high level of performance is expected.

132. General Metalworking for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 131 and Art 6A.
For industrial arts students who desire to teach metalworking. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

133. Materials and Techniques for Teaching General Metalworking (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 132 and Education 100.
More advanced techniques of metalworking. Development of audiovisual aids, projects and resource material for metalworking. Physical setting, organization and other pertinent problems. A course of instruction is prepared.

151. General Woodworking (3) I, II
One lecture and six hours of laboratory.
Further experience in cabinetmaking, woodturning, patternmaking, carpentry, boatbuilding, and finishing. A high level of performance is expected.

152. General Woodworking for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 151 and Art 6A.
For industrial arts students who desire to teach woodworking. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

153. Materials and Techniques for Teaching General Woodworking (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 152 and Education 100.
More advanced techniques of woodworking. Development of audiovisual aids, projects, and resource material for woodworking. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

161. Electricity-Radio (3) I, II
One lecture and six hours of laboratory.
Prerequsite: Industrial Arts 61.
Further experience with electrical and radio principles and their applications. A high level of performance is expected.

162. Electricity-Radio for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 161 and Art 6A.
For industrial arts students who desire to teach electricity-radio. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

163. Materials and Techniques for Teaching Electricity-Radio (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 162 and Education 100.
More advanced techniques for electricity and radio. Development of audiovisual aids, projects, and resource material for electricity and radio. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

171. Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 71.
Further experience in the maintenance of equipment for land, sea, and air transportation, and development of an understanding of the mechanical principles involved. A high level of performance is expected.

172. Transportation for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 171 and Art 6A.
For industrial arts students who desire to teach transportation. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

173. Materials and Techniques for Teaching Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 172 and Education 100.
More advanced techniques of transportation machinery maintenance. Development of audiovisual aids, projects, and resource material for transportation. Physical setting, organization, and other pertinent problems are discussed. A course of instruction is prepared.

181. Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 81.
Further experience in hand composition, presswork, and other activities such as bookbinding, photography, silk screen, relief and intaglio printing, and other duplicating processes. A high level of performance is expected.

182. Graphic Arts for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 181 and Art 6A.
For industrial arts students who desire to teach graphic arts. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

183. Materials and Techniques for Teaching Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 182 and Education 100.
More advanced techniques of graphic arts. Development of audiovisual aids, projects, and resources material for graphic arts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

185. Photography for Teachers (3) I, II
One lecture and six hours of laboratory.
Designed for more mature students to learn photographic skills useful in teaching.

186. Advanced Photography (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 85 or equivalent.
A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques.

190. Experimental Shop (1 or 2) I, II
Prerequisite: Consent of instructor.
Individual shopwork on complex projects on an experimental basis. May be repeated with consent of instructor.

193. Industrial Arts Organization and Management (2) I, II
Two lectures.
Study of the organization of industrial arts in secondary schools, review of project requirements and methods of developing student participation in shop management.

194. Recent Trends in Industrial Arts Education (2) I, II
Two lectures.
Survey of current trends and practices in the field of industrial arts in secondary education. There will be opportunity for individual work on related problems of interest to members of the class.

198. Senior Project (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Consent of instructor.
Each student will work on a project in a selected industrial arts activity area. Oral progress reports will be made and a final written report is required.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (3) I, II
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced industrial arts. May be repeated with new subject matter for additional credit.

201. Advanced Teaching Problems (3)
Prerequisites: Teaching experience in area selected and consent of instructor. May be repeated with new materials for additional credit.
Materials and advanced techniques of teaching specific activity areas, such as (a) industrial drawing; (b) general metalworking; (c) general woodworking; (d) electricity-radio; (e) transportation; (f) graphic arts; (g) photography; (h) comprehensive general shop. Stress on project design and visual materials. May be repeated with new materials for additional credit.

220. History and Philosophy of Industrial Education (3)
A study of the philosophical foundations and development of industrial education and its continuing role in American culture. Contemporary practices and trends will be given consideration.

221. Curriculum Construction in Industrial Arts Education (3)
Selection of teaching content for school situations in compliance with the best known procedures regarding analysis, objectives, methods, and learning, and development of instructional devices related directly to course content.

222. Instructional Resources for Industrial Arts Education (3)
Survey, selection, and compilation of materials used in the development of resource units for instruction in industrial education, involving publications, organized talks, field trips, visual materials, technical literature, and related materials. Organization and evaluation of such materials.

223. Evaluation in Industrial Arts Education (3)
Consideration of the purposes, principles, methods, and criteria of evaluation as applied to industrial education, with emphasis on the special problems of measuring growth, achievement, and performance in various phases of educational effort.

267. Field Work in Industrial Arts (3)
Prerequisites: Consent of instructor, Industrial Arts 200 and industrial arts teaching experience.
Application of the principles of shop organization, management and planning in reference to the objectives of industrial arts in development of school programs. May be repeated with new materials to a total of six units.

290. Bibliography (1) I, II
Exercise in the use of basic reference books, professional literature, and specialized bibliographies, preparatory to the writing of a master's thesis.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project of thesis for the master's degree.

ITALIAN

IN THE DIVISION OF THE HUMANITIES

Faculty

Professor: Wolf
Associate Professor: Piffard

Offered by the Department of Foreign Languages

Courses in Italian.
Major or minor work is not offered.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

*** 1. Elementary (4) I**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on Italian culture and civilization, minimum essentials of grammar. A general education course in foreign languages.

*** 2. Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: Italian 1.
Continuation of Italian 1. A general education course in foreign languages.

*** 3. Intermediate (4) I**
Prerequisite: Italian 2.
A practical application of the fundamental principles of grammar. Reading in Italian of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. A general education course in foreign languages.

*** 4. Intermediate (4) II**
Prerequisite: Italian 3.
Continuation of Italian 3. Reading of selections from Italian literature. A general education course in foreign languages.

JOURNALISM

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Julian (Chairman), Wimer
Assistant Professors: Herring, Holowach

Offered by the Department

Major in journalism with the A.B. degree in the general programs.
Minor in journalism.

MAJOR IN JOURNALISM WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite lower division courses. These lower division courses may not be counted in general education. In addition to the major, the student must complete 45 units of general education. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

A minor is not required for the degree; however, several minors are available to increase the scope of training for careers in journalism. Available are those in business administration for students interested in advertising or newspaper management, and in speech arts (broadcasting emphasis) for those interested in radio and television news. Students planning to enter public relations should work out with their advisers a pattern of courses from other departments to supplement requirements for a major in journalism.

Major

Lower Division Requirements. Journalism 50, 51A and 51B (9 units).

Upper Division Requirements. A minimum of 24 upper division units in journalism to include Journalism 102, 117, 121, 151, and one year's enrollment in 192 (or 92) in reporting, editing, makeup, or photography, or the equivalent in professional experience.

MINOR IN JOURNALISM

The minor consists of 15 to 22 units in journalism to include Journalism 49, 51A, 51B, 102, and 151.

LOWER DIVISION COURSES

49. Introduction to Mass Communications (3) I
A survey of the work of mass media, their interrelationships, and the services they perform for society; common problems and responsibilities of the mass media; training and background needed in different media.

50. News and Feature Photography (3) I, II
Two lectures and three hours of laboratory.
An elementary course designed primarily for students of journalism and public relations; experience with professional photographic equipment and film processing; contact and projection printing; emphasis on composition and news value of pictures. Not open to students with credit for Industrial Arts 85.

51A. News Reporting (3) I
Two lectures and three hours of laboratory.
Prerequisites: Sophomore standing or consent of instructor and ability to type.
Study of reporting techniques, with intensive laboratory practice in gathering, evaluating, and writing the basic types of news stories.

51B. Advanced News Reporting (3) II
Two lectures and three hours of laboratory.
Prerequisite: Grade of C or better in Journalism 51A.
Intensive laboratory practice in writing the more complex types of news stories. Work includes some reporting for the campus newspaper, *The Daily Aztec*.

92. Newspaper Production (1-3) I, II
Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.
Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec*.

93. Yearbook and Magazine Production (1-3) I, II
Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.
Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

UPPER DIVISION COURSES

101. Magazine Article Writing (3) II
Prerequisite: Consent of instructor.
Practice in gathering material and writing articles for specialized areas, with emphasis on the business press. Production of eight articles and marketing of at least one article required.

102. Law of Mass Communications (3) II
Study of libel, defamation, privacy, censorship, advertising laws, postal regulations, and constitutional guaranties affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

103. Magazine Editing (3) II
Study in mechanics of the editorial process in magazines, with emphasis on industrial and business publications; selection and preparation of editorial material; picture selection, cropping, captioning; graphic production processes; layout; preparation of dummies; special purpose booklets and magazines. (Formerly entitled: Picture Editing.)

104. Radio and Television News (3) I, II
(Same course as Speech Arts 187)
Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures, and kinescopes; filming, editing, and scripting news on motion pictures; using recorders to report special events.

105. Editorial Writing (3) I
Training in the principles and policies of editorial composition for mass communications media.

107. Technical Writing (3) II
Reporting technical developments in nontechnical language. A course in writing and editing primarily for nonmajors in journalism.

117. History of Mass Communications (3) I
American journalism from colonial times to the present, with special attention to radio and other mass media which have entered the news and entertainment field; the relation of their development to society.

121. Current Problems in Mass Communications (3) II
Forces affecting American mass communications today: Government restrictions, economics, pressure groups, censorship, mechanical developments, interrelationships of the media and society; professional ethics.

122. Public Opinion Measurement (3) I
(Same course as Psychology 122)
The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

124A-124B. Radio and Television News Production (2-2) I, II
Prerequisite: Journalism 104 or consent of instructor.
Radio and television news production with experience in writing, editing national wire copy and local copy, preparing tapes and on-the-spot recordings of news events for programs produced over local radio and television stations.

132. Propaganda and Public Opinion (3) I, II
(Same course as Political Science 122)
A study of the forces which mold the American public mind, the practice of propaganda, a description and analysis of public relations, pressure groups and their effect in American public life.

144. Reporting of Public Affairs (3) II
Prerequisites: Journalism 51A and 51B.
Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers.

150. Advanced News and Feature Photography (3) II
Two lectures and three hours of laboratory.
Prerequisite: Journalism 50 or equivalent.
Techniques for achieving the technical and story-telling quality in photojournalism. (Formerly Journalism 53; not open to students with credit for this course.)

151. News Editing (3) I
Three lectures and two additional hours of laboratory.
Prerequisites: Journalism 51A and 51B.
Editing copy, writing headlines, making up pages, handling telegraph copy.

152. High School Journalism (3) II
Methods of conducting high school journalism classes. Editorial, business and mechanical aspects of school publication work, with emphasis on copy editing, headline writing and layout. Not open to journalism majors.

153. Newspaper Advertising (3) I
Principles of advertising for newspapers and trade papers. Emphasis on copy-writing, layout, typography, and production. Use of consumer and market surveys, and advertising readership studies in planning local advertisers' sales problems and promotions.

154. Newspaper Advertising Practice (1-2) I, II
Prerequisite: Journalism 153.
Practical work in servicing accounts in advertising department of *The Daily Aztec*. Supervised work in preparation of newspaper copy and layout. Copy-testing methods emphasized. May be repeated for a total of four units.

166. Honors Course (Credit to be arranged) I, II
Special study open to members of the Honors Program in journalism. Refer to the Honors Program.

180. Public Relations (3) I, II
(Same course as Business Administration 155)
Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems.

183. Problems in Public Relations (3) II
Prerequisite: Journalism 180 or Business Administration 155.
Current public relations problems of industry, public agencies, and other institutions.

191. Internship in Journalism (1-6) I, II
Prerequisites: Journalism 51A, 51B, and consent of instructor.
Prearranged and supervised work on local magazines, city and county newspapers, radio and television stations, and on public relations, publicity, and advertising staffs of civic and business groups. May be repeated to a maximum of six units with no more than three units in any one semester.

192. Newspaper Production (1-3) I, II
Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.
Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec*.

193. Yearbook and Magazine Production (1-3) I, II
Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.
Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

LANGUAGE ARTS

IN THE DIVISIONS OF THE FINE ARTS, HUMANITIES, AND SOCIAL SCIENCES

Offered by the Divisions of the Fine Arts, Humanities, and Social Sciences

Major in language arts with the A.B. degree in the general programs (limited to students in teacher education).

Teaching major in language arts leading to the general secondary credential in the postgraduate year.

MAJOR IN LANGUAGE ARTS WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 27 units. Required as preparation for the major are prerequisite and related lower division courses. These lower division courses may not be counted in general education. In addition to the major, students will complete 45 units of general education. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

The language arts major includes courses in the fields of composition, dramatics, journalism, language, literature, radio, television, and speech arts. It is primarily designed for students who plan to take the general secondary credential.

Students selecting this major for the bachelor's degree must have completed the following requirements by date of degree candidacy:

(1) Admission to teacher education.

(2) At least eight units in professional education courses.

(3) A teaching minor, other than in English or speech arts, selected from one of the teaching minors for the general secondary credential. At least 15 units in this minor, six units of which must be in upper division courses, must be completed for the degree. Students taking the general secondary credential may complete the remaining units for this teaching minor in either the undergraduate or postgraduate program.

Requirements in the Major

Lower Division Requirements. Six units selected from English 50A, 50B, 52A, 52B, 60A, 60B (or a substitution of two upper division courses selected from English 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 143A, or 143B); Journalism 51A; three units from Speech Arts 60A, 60B, 55A, or 55B; and three units in lower division speech arts from the areas of radio and television, selected with approval of the adviser in language arts. (15 units.)

Upper Division Requirements. Twenty-seven upper division units to include English 192; English 196 or 191; English 131, 132, 133, or 134; English 117A, 117B, 152A, or 152B; Journalism 152; Speech Arts 108, 159 and 174; Speech Arts 191, 192A, or 192B. If six units in the lower division requirements were taken in American literature, the upper division course work in literature should be taken in other areas.

TEACHING MAJOR IN LANGUAGE ARTS FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in language arts is the same as the major for the A.B. degree.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include four to six units to be selected from one 200-numbered course in speech arts and one 200-numbered course in English.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential (other than a minor in English or in speech arts). Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

LATIN

IN THE DIVISION OF THE HUMANITIES

Faculty

Professor: Burnett
Assistant Professor: Frey

Offered by the Department of Foreign Languages

Courses in Latin.
Major or minor work in Latin is not offered.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

*** 1. Elementary (4) I**
Four lectures and one hour of laboratory.
Study of the language and Roman culture, with reading of selected prose passages. A general education course in foreign languages.

*** 2. Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: Latin 1 or two years of high school Latin.
Continuation of Latin 1. A general education course in foreign languages.

*** 3. Intermediate (4) I**
Prerequisite: Latin 2 or three years of high school Latin.
A practical application of the fundamental principles of grammar. Reading of selected passages emphasizing the contribution of the ancient culture to our own. A general education course in foreign languages.

*** 4. Intermediate (4) II**
Prerequisite: Latin 3 or four years of high school Latin.
Continuation of Latin 3. A general education course in foreign languages.

LATIN-AMERICAN STUDIES

IN THE DIVISION OF THE SOCIAL SCIENCES

Offered by the Division

Major in Latin-American studies with the A.B. degree in liberal arts and sciences.

MAJOR IN LATIN-AMERICAN STUDIES WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

This major in Latin-American studies provides (1) a basis for a more effective understanding of the cultures and governments of the western hemisphere; and (2) a basic education and training for a business or professional career involving understanding of Latin-America.

High School Preparation

High school students preparing to enter this program should include in the high school course of study three years of study in one foreign language, preferably Spanish or Portuguese. Proficiency in either or both of these languages is indispensable to a successful career in this area of study.

Liberal Arts and Sciences Program

Students taking this major in Latin-American studies must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required, but students must have a reading and speaking knowledge of Spanish or Portuguese; their program is selected with the approval of the adviser. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 30 units. Required as preparation for the major are prerequisite and related lower division courses and an additional requirement in foreign language.

Lower Division Requirements. Six units in **each of three** of the following groups of courses: Anthropology 2 and 3; Economics 1A-1B; Geography 1 and 2; History 8A-8B; and Political Science 90 and 91 (18 units).

Upper Division Requirements. Thirty upper division units from the fields named above, to include 12 units from **one field**, six units from **each of two additional fields**, and six units from **any of the fields.** Courses strongly recommended: Anthropology 162, Economics 195, Geography 123 and 124, History 161 and 162, Political Science 175 and 182. Recommended selection of courses to complete the major include Anthropology 151B, Economics 190, Geography 121, History 165A-165B, and Political Science 170A-170B and 171.

Requirements in Foreign Language and Area Studies. A reading and speaking knowledge of Spanish or Portuguese. Proficiency may be demonstrated either by 12 units of course work in the language or by an examination administered by the Department of Foreign Languages in consultation with the representative of the division for this major. Students are also urged to include the following courses in the program: Art 51, Comparative Literature 104A-104B, and Spanish 141 or Humanities 147.

Major in the General Programs

For a limited time, transfer students may elect this major in Latin-American studies under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are the same as those for the major in liberal arts and sciences described above, including the foreign language requirement. In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

LIBRARY SCIENCE

IN THE DIVISION OF EDUCATION

Faculty

Professor: Stone, John Paul (Coordinator of Library Science)

Offered by the Division of Education

Minor in library science.
Teaching minor in library science for the general elementary or junior high school credential.
Librarianship program for secondary schools.

MINOR

The minor in library science consists of 15 to 22 units in library science, six units of which must be in upper division courses.

TEACHING MINOR IN LIBRARY SCIENCE FOR THE GENERAL ELEMENTARY OR JUNIOR HIGH SCHOOL CREDENTIAL

This teaching minor in library science consists of 22 units to include Library Science 110, 118, 119, 136, 138; and Education 133 and 183.

LIBRARIANSHIP PROGRAM FOR SECONDARY SCHOOLS

Students planning to take the general secondary credential who wish to obtain education for librarianship in the secondary schools should complete the minor in library science, including Library Science 110, 118, 119, 136, and 138; and in addition, Education 183. These and other offered courses approved for the purpose meet the state requirements for issuance of the librarianship credential.

LOWER DIVISION COURSES

*** 1. Use of the Library (1) I, II**
Introduction to use of the library. Includes classification, card catalog, periodical indexes, selected reference books, and preparation of bibliographies. A general education course in practical arts in the area of literature, philosophy, and the arts.

UPPER DIVISION COURSES

110. Bibliography and Reference Materials (3) I, II
Prerequisite: Library Science 1 or consent of instructor.
A comprehensive course dealing with reference books, bibliographies, and source materials, with emphasis upon their use in research. A course of general interest and utility.

118. Selection and Acquisition of Library Materials (3) I
Study of all types of book and nonbook materials, including sources of information, selection, and evaluation. Attention is given to book and film reviews, standard lists, trade publications and bibliographies, publishers' and producers' announcements.

119. Technical Processes (3) II
Theory and methods of organizing library materials; a study of classification, cataloging, and choice of subject headings.

136. School Library Administration (3) I
Objectives, standards, and activities involved in operating the school materials program. Planning, organizing, administering, and coordinating the school library with the instructional program of the school.

138. Organizing and Processing of Curriculum and Special Materials (3) II
Prerequisite: Library Science 119.
Methods of purchasing, processing, classifying, cataloging and servicing special curriculum and audio-visual materials.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

184. History of Books and Libraries (3) II
The historical development of the book and of the library from the earliest times to the present day; examines their influence upon our schools and culture. Open to all upper division students.

199. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

MATHEMATICS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Branstetter, Eagle, Harris, V., Harvey, A., Riggs, Smith, N. B. (Chairman)
Associate Professors: Bell, Holmes, C., Shaw, Warren, L., Willerding
Assistant Professors: Becker, Burton, Clark, H., Deaton, DeMalignon, Emerson, Fountain, Gindler, Killgrove, Lopez, Moser, Saltz, Van de Wetering

Offered by the Department

Master of arts degree with a major in mathematics.
Master of arts degree for teaching service with a concentration in mathematics.
Master of science degree in mathematics.
Major in mathematics with the A.B. degree in liberal arts and sciences.
Major in mathematics with the A.B. degree in the general programs.
Minor in mathematics.
Teaching major in mathematics with the A.B. degree and junior high school credential.
Teaching major in mathematics leading to the general secondary credential in the postgraduate year.
Teaching minor in mathematics for the general secondary credential.
Teaching minor in mathematics for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree with a major in mathematics, the master of arts degree for teaching service with a concentration in mathematics, and the master of science degree in mathematics are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a pattern of upper division courses, exclusive of general education, totaling not less than 24 units (except for the major with the junior high school credential). Required as preparation for the major are the prerequisite lower division courses. Mathematics courses may not be counted in general education by students majoring in mathematics. The major in liberal arts and sciences is governed by a separate set of regulations covering general education and has, in addition to the major, a requirement in foreign language.

MAJOR IN MATHEMATICS WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in mathematics must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. Recommended: Physics 4A-4B-4C.

Upper Division Requirements. A minimum of 24 upper division units in mathematics subject to the approval of the departmental adviser. Six units may be selected from upper division courses in related areas with the approval of the adviser.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Mathematics Department.

MAJOR IN MATHEMATICS WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Students majoring in mathematics with the A.B. degree in the general programs must complete 45 units of general education courses in addition to the major. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Requirements for this major are the same as those in the major for the liberal arts and sciences program described above, except that foreign language is not required and students will complete the general education requirements instead of those in the liberal arts and sciences program.

MINOR IN MATHEMATICS

The minor consists of 15 to 22 units in mathematics, six units of which must be in upper division courses. Courses should be selected in consultation with the departmental representative.

TEACHING MAJOR IN MATHEMATICS WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units of general education courses, (1) a teaching major in mathematics, (2) a minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the

junior high school credential and the combination credential program, refer to the section of this catalog on Education Professional Curricula. Also refer to the section on Graduation Requirements for a description of general education and other graduation requirements.

Teaching Major. The major consists of a minimum of 24 units in mathematics, exclusive of general education, including lower and upper division courses. At least 18 units must be in upper division courses. Courses in mathematics may not be counted in general education by students majoring in mathematics.

Minor. A minor to be selected with approval of the Coordinator of Secondary Education.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 121 (methods in the major and minor fields), 180, and Health Education 151.

TEACHING MAJORS IN MATHEMATICS FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in mathematics is the same as that for the A.B. degree or A.B. degree in liberal arts and sciences, except as follows: Mathematics 52 is not required in the lower division; and upper division courses must include 101, 104, 150A, a geometry course, and a statistics course. Students who have been admitted to the general secondary credential program in teacher education may use this major for the bachelor's degree.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include four units of upper division or 200-numbered courses in mathematics, selected with approval of the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN MATHEMATICS FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in mathematics for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units, exclusive of course equivalents, to include the following courses:

Lower Division Requirements. Mathematics 40, or qualifying by examination, Mathematics 50 and 51; one course in related areas selected from Astronomy 1, Business Administration 2, Engineering 20 or 21, Physics 4A or 2A.

Upper Division Requirements. Nine upper division units in mathematics to include Mathematics 104 and six units of mathematics electives.

TEACHING MINOR IN MATHEMATICS FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in mathematics for the general elementary and kindergarten-primary credentials consists of 15 units in mathematics, not including Mathematics A.

MATHEMATICS PLACEMENT EXAMINATIONS

All students who expect to enroll in Mathematics 3, 4, 21, 22, 40, or 50 and have not completed prerequisite courses at San Diego State College must take the mathematics placement tests. These tests may be used to satisfy all or part of the prerequisite requirements for these courses and they also serve as a basis for the selec-

tion of students for the mathematics honors program. The schedule for these examinations will be posted on the mathematics bulletin board. Provision is also made for these examinations to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

LOWER DIVISION COURSES

A. Basic Mathematics (3)
Fundamentals of mathematics with applications to everyday problems. Required of all students failing the competency examination in mathematics. Not open for credit to students passing this examination. May not be used in the major or minor.

*** 3. Intermediate Algebra (3) I, II**
Prerequisite: One year of elementary algebra.
Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions.

*** 4. Trigonometry (2)**
Prerequisites: Credit in plane geometry in either high school or college combined with either credit in Mathematics 3 at this college or qualification by examination. Mathematics 3 and 4 or Mathematics 4 and 40 may be taken concurrently.
Numerical and practical aspects of trigonometry.

7. Introduction to Computer Programming (2)
One lecture and three hours of laboratory.
Elementary mathematical principles of computation. Instruction in the use of some of the peripheral equipment. Programming of problems and operation of the computer will be stressed.

8. Theory and Use of the Slide Rule (1)
Practice in performing the fundamental operations of the slide rule.

9. Use of Desk Calculators (1) II
Technique of computation with desk calculators with applications to the sciences.

*** 10. Mathematics for General Education (3) I, II**
Prerequisite: Passing score on mathematics competency test.
Basic concepts of arithmetic, algebra, and geometry with applications. A general education course in mathematics recommended for students in elementary education.

12. Elementary Statistics (3)
Prerequisite: Mathematics 3 or equivalent.
Tabular and graphical presentation, measures of central tendency and variability, analysis of times series, linear correlation coefficient. Applications from the fields of biology, economics, education, engineering and psychology. Not open to students with credit in another statistics course.

*** 18. Introduction to Mathematics (3) I, II**
Prerequisites: Two years of high school mathematics, or equivalent.
Topics from logic, modern algebra, and analysis designed to give the student an introduction to the structure of mathematical theories and their applications. A general education course in mathematics.

*** 21. Mathematical Analysis (3) I, II**
Prerequisites: Mathematics 3 or equivalent.
Concepts and applications of algebra, analytic geometry and the polynomial calculus, with emphasis on graphical methods. Designed for students who do not intend to prepare for a professional career in one of the physical sciences or in engineering. A general education course in mathematics. Not open to students with credit for Mathematics 40.

*** 22. Mathematical Analysis (3) II**
Prerequisite: Mathematics 21.
A continuation of Mathematics 21 including concepts of trigonometry and the calculus of elementary transcendental functions. A general education course in mathematics. Not open to students with credit for Mathematics 50.

*** 40. Advanced Algebra and Trigonometry (5) I, II**
Prerequisite: Credit in trigonometry in either high school or college combined with either Mathematics 3 at this college with a grade of C or better, or qualification by examination.
Variation, progressions, complex numbers, De Moivre's theorem, solutions of equations, binomial theorem, determinants, permutations, combinations, probability, inequalities, partial fractions, analytical trigonometry, graphs or trigonometric functions, etc. A general education course.

*** 50. Analytic Geometry and Calculus (5) I, II**
Prerequisite: Mathematics 40 at this college with grade of C or better, or qualification by examination on subject matter of Mathematics 40.
Topics in analytic geometry, differentiation and integration of algebraic functions. A general education course.

51. Differential and Integral Calculus (4) I, II
Prerequisite: Mathematics 50 with grade of C or better.
Differentiation and integration of the elementary transcendental functions; applications.

52. Differential and Integral Calculus (4) I, II
Prerequisite: Mathematics 51 with grade of C or better.
Infinite series, partial differentiation, differential equations, multiple integrals, applications. Not open to students with credit for Mathematics 117.

60. Introduction to Modern Mathematical Concepts (3) II
Prerequisite: Mathematics 40 or 21.
Elementary approach to selected topics from mathematical logic, set theory, probability, matrices, linear programing and theory of games.

UPPER DIVISION COURSES

101. Mathematical Concepts for Secondary School Teachers (3) I, II
Prerequisite: Mathematics 50 or consent of instructor.
An examination of the concepts of secondary school mathematics from the teacher's point of view.

***104. History of Mathematics (3) I, II**
History of mathematics down to early modern times. A general education course in mathematics.

105. Introduction to the Foundations of Geometry (3)
Prerequisite: Mathematics 51 or 52.
The foundations of Euclidean and hyperbolic geometries. Highly recommended for all prospective teachers of high school geometry.

106. Projective Geometry (3) II
Prerequisites: Mathematics 51 or 22 and consent of instructor.
Concurrence of lines, collinearity of points and other properties of figures not altered by projections; construction and study of ellipses, hyperbolas, and parabolas by means of projections.

108. Differential Geometry (3)
Prerequisite: Mathematics 52.
Curves in space, Frenet formulas, curves on surfaces, geodesics, lines of curvature, asymptotic lines, Gaussian curvature.

117. Intermediate Calculus (4) I, II
Prerequisite: Math 51 with grade of C or better.
Essentially the same as Mathematics 52. Advanced students may be assigned special work. Not open to mathematics majors or students with credit in Mathematics 52.

118A. Advanced Mathematics for Engineering Students (3) I, II
Prerequisite: Math 52 or equivalent.
Selected topics from ordinary differential equations, with applications; hyperbolic, elliptic, Bessel and gamma functions, Fourier series and integrals, electromechanical analogies, the Laplace transform, and partial differential equations.

118B. Advanced Mathematics for Engineering Students (3) I, II
Prerequisite: Mathematics 118A.
A continuation of Mathematics 118A.

119. Differential Equations (3) I, II
Prerequisite: Mathematics 52 or equivalent.
Ordinary differential equations with applications to geometry, physics, and chemistry.

121A. Advanced Calculus I (3)
Prerequisite: Mathematics 52 or equivalent.
The real number system, limits and other topics, with emphasis on functions of one variable.

121B. Advanced Calculus II (3)
Prerequisite: Mathematics 121A.
A continuation of Mathematics 121A with emphasis on functions of two or more variables.

124. Vector Analysis (3)
Prerequisite: Mathematics 52 or equivalent.
Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics.

130A. Statistical Methods (3) I
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 12 or equivalent and Mathematics 22 or 40.
Sampling and sampling distributions; normal distributions; F, T, Chi-square tests; confidence limits; analysis of variations.

130B. Statistical Methods (3) II
Prerequisite: Mathematics 130A.
Correlation, regression, analysis of convariance, nonparametric techniques, sensitivity experiments, design of experiments.

134. Probability (3)
Prerequisite: Mathematics 52 or equivalent.
Definitions, computation of probability by enumeration of cases, discrete and continuous chance variables, density functions, moments, limit theorems, selected distributions.

135A. Numerical Analysis and Computation (3) I
Prerequisite: Mathematics 52 or equivalent.
Newton, Lagrange and Chebyshev approximation of functions. Inverse interpolation, numerical evaluation of roots and definite integrals.

135B. Numerical Analysis and Computation (3) II
Prerequisites: Mathematics 119 or 118A and 135A.
Solution of systems of linear equations. Application of numerical methods to the solution of partial differential equations and of integral equations.

137. Combinatorial Principles for Digital Computers (3)
Prerequisite: Mathematics 7 and 52, or consent of instructor.
Comparison of digital and analog computers. Number base representation theory. Boolean functions and generalized binary operators. Code-controlled machines. Logical organization of digital computers. Externally programmed machines. Turing machines, algorithms and their implications to computability and writing of programs. Coding of combinatorial problems.

140A. Mathematical Statistics (3) I
Prerequisite: Mathematics 52 or equivalent.
Graphical and arithmetical characterization of observed frequency distributions, moments, use of normal curve, curve fitting, correlation, etc.

140B. Mathematical Statistics (3) II
Prerequisite: Mathematics 140A.
Theoretical discrete and continuous distributions, multiple and partial correlation, large and small sample theory including student's T, Chi-square, and the F distributions with applications.

150A. Modern Algebra (3)
Prerequisite: Mathematics 52 or consent of instructor.
Selected topics from modern algebra to include an introduction to the theory of groups, theory of equations, and finite mathematics.

150B. Modern Algebra (3)
Prerequisite: Mathematics 150A.
A continuation of Math 150A to include a study of matrices, determinants and fields.

152. Number Theory (3)
Prerequisite: Mathematics 50 or consent of instructor.
Selected topics from the theory of numbers to include congruences, Diophantine equations, and a study of prime numbers.

155. Mathematical Logic (3)
Prerequisite: Mathematics 51 or 60, or Philosophy 121.
The logical rules of proof governing sentential connectives and the universal and existential quantifiers with applications.

156. Logical Foundations of Mathematics (3)
Prerequisite: Mathematics 52 or 155.
The axiomatic method. Cantor's set theory and its antinomies. Development of various viewpoints on foundations of mathematics: logicism, intuitionalism, formalism.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Partial Differential Equations (3)
Prerequisite: Mathematics 119 or equivalent.
A study of initial and boundary value problems using separation of variables methodology.

175. Functions of a Complex Variable (3)
Prerequisite: Mathematics 52.
Analytic functions, Cauchy-Riemann equations, theorem of Cauchy, Laurent series, calculus of residues.

196. Advanced Topics in Mathematics (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in classical and modern mathematics. May be repeated with the approval of the instructor for a total of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced mathematics. May be repeated with new subject matter for additional credit.

210A-210B. Mathematics of Physics (3-3)
(Same course as Physics 210A-210B.)
Prerequisite: Admission into a master's degree program.
Selected topics from matrix theory, vector and tensor analysis, orthogonal function, theory, calculus of variations and probability theory with particular emphasis on application to physical theory.

212. Advanced Ordinary Differential Equations (3)
Prerequisite: Mathematics 119 and 121A.
Existence and uniqueness theorems, Wronskians, adjoint systems, Sturm-Liouville boundary value problems, equations of Fuchsian type.

214. Advanced Partial Differential Equations (3)
Prerequisite: Mathematics 170.
Theory and application of the solution of boundary value problems in the partial differential equations of engineering and physics by various methods; orthogonal functions, the Laplace transformation, other transformation methods, Green's functions.

220A-220B. Topology (3-3)
Prerequisite: Mathematics 121B.
Metric spaces, regular spaces, Hausdorff spaces, general topological spaces, arcs and curves, and the Jordan Curve Theorem.

224A-224B. Functions of a Complex Variable (3-3)
Prerequisites: Mathematics 121B and 175. 224A is prerequisite to 224B.
Analytic continuation, elliptic functions, conformal mapping, Riemann surfaces.

226A-226B. Functions of a Real Variable (3-3)
Prerequisites: Mathematics 119 and 121B. 226A is prerequisite to 226B.
Point sets, functions and limits, continuity, differentiation. Riemann and Lebesgue integration.

231. Theory of Groups (3)
Prerequisite: Mathematics 150B or consent of instructor.
A development of the theory of groups.

232. Theory of Fields (3)
Prerequisite: Mathematics 150B or consent of instructor.
A study of both finite and infinite fields, and field extensions.

233. Linear Algebra and Matrix Theory (3)
Prerequisite: Mathematics 150B or consent of instructor.
A study of matrices, determinants, and vector spaces.

240A-240B. Advanced Mathematical Statistics (3-3)
Prerequisites: Mathematics 140B and 121A. 240A is prerequisite to 240B.
Theory of common distribution functions, derivation of sampling distributions with emphasis on normal populations, estimation of maximum likelihood, ratio tests of parametric hypotheses, general linear hypothesis theory.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

SPECIAL COURSES FOR NATIONAL SCIENCE FOUNDATION INSTITUTE

The following courses are open only to participants in the National Science Foundation Institute, except with consent of instructor.

Lower Division Course

54. Calculus Review (2)
Review of the fundamentals of elementary calculus.

Upper Division Courses

181A-181B. Selected Topics of Secondary School Mathematics (2-2)
Selected concepts of secondary school mathematics; recommended modern presentation of these concepts; relation of these concepts to more advanced college mathematics.

187A-187B. Probability and Statistics for High School Teachers (2-2)
Probability, measures of central tendency and dispersion, characteristics of frequency functions of discrete and continuous variates; applications.

Graduate Course

287. Intermediate Analysis (3)
Point-set theory, fundamental theorems on continuous functions, theory of integration, and infinite series.

MICROBIOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professor: Myers
Associate Professor: Walch (Chairman)
Assistant Professor: Moore

Offered by the Department

Master of arts degree with a major in biology and an emphasis in microbiology.
Master of arts degree in biology for teaching service with a concentration in microbiology.
Master of science degree in biology with an emphasis in microbiology.
Major in microbiology with the A.B. degree in liberal arts and sciences.
Major in microbiology with the B.S. degree.
Minor in microbiology.
Curriculum in medical technology.

THE MASTER'S DEGREE

The master of arts degree with a major in biology and an emphasis in microbiology, the master of arts degree in biology for teaching service with a concentration in microbiology, and the master of science degree in biology with an emphasis in microbiology are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of the prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are the prerequisite and related lower division courses. The major in liberal arts and sciences also requires a foreign language. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN MICROBIOLOGY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in microbiology must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Microbiology 1 or 101; Biology 5 and 15 (or equivalent); Chemistry 1A, 1B, 4 or 5, and 12; and Mathematics 21 or 40. Recommended: Chemistry 13; Mathematics 22 or 50; Physics 2A-2B-3A-3B; Zoology 8 and 9.

Upper Division Requirements. A minimum of 24 upper division units in microbiology and approved related fields, to include Microbiology 102, 103, 104, 107; Chemistry 115A-115B. Recommended: Microbiology 105, 106 or Biology 101, Microbiology 108; Biology 103, 110, 155; Chemistry 109A, 109B.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Microbiology Department.

Major in the General Programs

For a limited time, transfer students may elect the major in microbiology under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program.

Requirements for this major are the same as those for the major in liberal arts and sciences described above with the following exceptions: In the lower division, mathematics is recommended, but not required. Foreign language is not required. Nine units of lower division courses in the natural sciences may be counted in general education. In the upper division, Microbiology 102, 103, 104, 107, and Chemistry 115A, 115B are required, the remaining courses to be selected with approval of the adviser. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN MICROBIOLOGY WITH THE B.S. DEGREE

Students majoring in microbiology with the B.S. degree must complete 45 units of general education courses in addition to the major, except that 12 units of lower division courses in the natural sciences may be counted as general education. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Microbiology 1 or 101; Biology 3 and 4, or Biology 5; Biology 15; and Chemistry 1A, 1B, 4 or 5, and 12. Recommended: French or German; Chemistry 13; Mathematics 21 and 22, or 40 and 50; Physics 2A-2B; and Zoology 8 and 9.

Upper Division Requirements. A minimum of 36 upper division units in microbiology and approved related fields to include Microbiology 102, 103, 104, 105, 107, and 109; Zoology 128; Chemistry 115A, 115B; and electives selected with approval of the adviser. Recommended: Biology 103; Chemistry 109A, 109B; Microbiology 106 and 108.

MINOR IN MICROBIOLOGY

The minor consists of 15 to 22 units in microbiology to include Microbiology 1 or 101, 102, 103, and the remainder of the units to be chosen from Microbiology 104, 105, 106, 107, 108, and 199. Recommended courses to supplement the minor: Zoology 8, Zoology 9 or Biology 101, Chemistry 115A, 115B, or equivalents.

MEDICAL TECHNOLOGY CURRICULUM

A student majoring in microbiology may also satisfy the curriculum in medical technology by modifications in the arrangement of courses outlined for the major.

Public Health Microbiologist. To fulfill the academic requirements to qualify for the licensing examination given by the State of California Public Health Department for Public Health Microbiologist, the student should include Microbiology 189, in addition to the major in microbiology described above for the B.S. degree, except that he may choose from the following courses sufficient units to complete his major: Biology 103, Microbiology 106, 108, and Zoology 108 and 126.

Clinical Technologist or Bioanalyst. To fulfill the academic requirements to qualify for the licensing examination given by the State either for Clinical Technologist or Bioanalyst, the student should include Microbiology 189 and Physics 2A and 3A, in addition to the major in microbiology described above for the B.S. degree, except that he should substitute Chemistry 114A-114B for Chemistry 115A-115B, and he may choose from the following courses sufficient units to complete the major: Biology 103, Microbiology 106, 108, and Zoology 108 and 126.

LOWER DIVISION COURSES

1. General Microbiology (Bacteriology) (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1A or 2A (Chemistry 1A-1B for major or minor in microbiology). Students with credit for Microbiology 110 may enroll but will receive only two additional units of credit.
An introduction to microbiology. Effects of physical and chemical agencies upon bacteria; biochemical activities of bacteria; microscopic examination and cultivation of micro-organisms; the bacteria of air, water, soil, milk, and dairy products, other foods; industrial applications. Introduction to disease-producing micro-organisms.

UPPER DIVISION COURSES

101. General Microbiology (Bacteriology) (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1A or 2A. (Chemistry 1A-1B for major in microbiology.)
Students with credit in Microbiology 110 may enroll but will receive only two additional units of credit.
Same general areas covered as in Microbiology 1, but on more intsensive upper division level.

102. Advanced Bacteriology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 1 or 101. Recommended: Chemistry 12, biochemistry, and physiology.
Agents of disease and methods of host resistance. Laboratory experience in diagnosis of bacterial pathogens and antibiotic sensitivity. Concepts of virulence and pathogenicity, considering the host-parasite relationship.

103. Fundamentals of Immunology and Serology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 1 or 101 and 102, or consent of instructor.
Antigen-antibody reactions, the immunochemistry of protein and nonprotein cell substances, hemo-serology, and theoretical and pathologic aspects of hypersensitivity. Laboratory diagnosis by use of serological techniques.

104. Medical Mycology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Credit or concurrent registration in Microbiology 102.
A study of the mycotic agents of disease and methods of systematic identification of such agents. Concept of epidemiology, diagnosis, pathology, and host-responses are considered.

105. Bacterial Physiology (2) II
Prerequisites: Microbiology 1 or 101 and Chemistry 12 (Organic Chemistry).
A study of the physiology and intermediary metabolism of micro-organisms.

106. Bacterial Physiology Laboratory (2) II
Six hours of laboratory.
Prerequisite: Microbiology 105 or concurrent registration.
A study of bacterial growth and variation and the methods used to assess and control these activities. Preparation of cellular extracts; determination of enzyme activity; manometric techniques; determination of metabolic products; microbiologic assay.

107. Virology (2) I
Two lectures.
Prerequisite: Credit or concurrent registration in Microbiology 102.
An introduction to viruses, their structure, function, culture, and methods of study.

108. Virology Laboratory (2)
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Microbiology 107.
The culture, isolation, and characterization of viruses.

109. Hematology (3)
One lecture and six hours of laboratory.
Prerequisite: Biology 5. Recommended: Chemistry 12 and physiology.
The study of normal and pathological blood with chemical, physical, and microscopic methods.

*** 110. Microbiology and Man (2) I**
Two lectures and demonstrations.
Prerequisite: A college course in biology.
A nontechnical course covering the nature of micro-organisms; their significance in infection, agriculture, sanitation, and industry. A general education course in the life sciences. Not open to students with credit for Microbiology 1 or 101.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

189. Clinical Laboratory Procedures (4) II
One lecture and nine hours of laboratory.
Prerequisites: Microbiology 102, 103, 104, 109; and Chemistry 114A and 114B, taken concurrently or previously, or consent of instructor.
Experience in laboratory procedures in the college health services and science laboratories, with instruction in the appropriate fields of the licensing examinations.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units of work in the life sciences (including courses in microbiology) with grades of A or B, and consent of the instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced microbiology. May be repeated with new content for additional credit.

210. Seminar in Medical Bacteriology (2)
Prerequisite: Microbiology 102 or consent of instructor.
May be repeated with new content to a maximum of four units.

220. Seminar in Industrial and Agricultural Microbiology (2)
Prerequisite: Microbiology 101 or consent of instructor.
May be repeated with new content to a maximum of four units.

230. Seminar in Medical Mycology (2)
Prerequisite: Microbiology 104 or consent of instructor.
May be repeated with new content to a maximum of four units.

240. Seminar in General Microbiology (2)
Prerequisites: Microbiology 101 and 105, or consent of instructor.
May be repeated with new content to a maximum of four units.

250. Seminar in Virology (2)
Prerequisite: Microbiology 107 or consent of instructor.
May be repeated with new content to a maximum of four units.

260. Seminar in Immunology and Serology (2)
Prerequisite: Microbiology 103 or consent of instructor.
May be repeated with new content to a maximum of four units.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

MUSIC

IN THE DIVISION OF THE FINE ARTS

Faculty

Professors: Smith, J. D. (Chairman), Springston
Associate Professors: Anderson, P. V., Blyth, Genzlinger, Rost, Smith, D., Snider
Assistant Professors: Biggs, Flye, Hurd, Lambert, Loomis, Savage, Ward-Steinman
Lecturers: Back, Cunningham, Eller, Mullenix, Murray, Schroeder

Offered by the Department

Master of arts degree with a major in music.
Master of arts degree for teaching service with a concentration in music.
Major in music with the A.B. degree in the general programs.
Minor in music.

Teaching major in music with the A.B. degree and special secondary credential.
Teaching major in music leading to the general secondary credential in the postgraduate year.
Teaching minor in music for the general secondary credential.
Elective courses for enrichment of cultural background.

THE MASTER'S DEGREE

The master of arts degree with a major in music and the master of arts degree for teaching service with a concentration in music are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MUSIC CURRICULA

Several plans of study are available with varying degrees of emphasis on performance, history and literature, creative activity, and teaching.
The music curricula are designed to fulfill the needs of all students: (1) those who have professional ambitions in music performance, or seek a foundation for graduate study leading to college or university teaching, (2) those who are preparing for one of the several state teaching credentials with music as either a major or minor, (3) those whose major professional interest is in another department, and are seeking musical study as a minor, and (4) those who are interested in music as an elective study area for the enrichment of their cultural background.

GENERAL BASIC REQUIREMENTS FOR ALL MAJORS

General basic requirements for the A.B. degree with a major in music in arts and sciences or in teacher education are as follows:

1. Upon entering the department, each student is required to take an examination in piano for classification, and to commence on no less than four consecutive semesters of class or private piano study for credit.
2. Upon entering the department, each student is required to declare his major instrument (voice, piano, clarinet, etc.), take an examination thereon for classification, and continue the development of his performance ability through class or individual study for credit after admission to the program.
3. Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.
4. As laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for eight semesters for students with the major in arts and sciences, or for seven semesters for students in the special secondary credential program, one of which must be a major group (choir, piano ensemble, orchestra, or band) in which the major instrument or voice is regularly used.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are prerequisite lower division courses which may not be counted in general education unless otherwise provided in the description of the major. In addition to the major, students must complete 45 units of general education. A minor is not required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN MUSIC WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Lower Division Requirements. Music 9A-9B, 10ABCD (may be waived in full or in part by examination), 52, 59A-59B, eight units selected from courses numbered 70-88, and four units in the major instrument (27-31 units). Nine units of music courses in the performance groups may be counted in general education.

Upper Division Requirements. Thirty-one to 33 upper division units include Music 108, 109A, 146A, 146B, 152A, 152B; eight units selected from courses numbered 170-188; four units of courses in the major instrument; four units selected from Music 102A, 102B, 103A, 103B; and the requirements in one of the following fields of emphasis:

(a) Performance. Four units from Music 105, 106, 153, 199.

Students emphasizing performance must appear in a joint recital during the junior year and must present a solo recital during the senior year. The student must pass an audition of the compositions to be performed before the music faculty preceding the recitals.

(b) Music History and Literature. Six units from Music 102A, 102B, 103A, 103B, 199.

During his senior year, the student emphasizing music history and literature is required to organize, prepare program notes, and present two recitals consisting of recorded or "live" performances. Each will deal with representative works of a certain period or composer or with certain periods, composers, or styles to be compared. Such students must pass a preliminary audition of the material to be presented before the music faculty at least one month in advance of each performance.

(c) Creative Activity and Composition. Six units from Music 105, 106, 107, 109B, 199.

The student emphasizing creative activity and composition is required to present a concert of his compositions during the senior year and present the scores of works to be performed to the same music faculty one month in advance of the performance.

Outline of Specific Requirements

First Year	*Units*
Music 9AB	6
†Music 10AB	0–2
Music organization courses numbered 70-88	4
Major instrument	2
* Health Education 21	2
* Psychology 1	3
* English 1A and Speech Arts 3	5
* Social Science	3
* Physical Education	1
Free electives	4
Total	30

Second Year	*Units*
Music 52	3
† Music 10 CD	2
Music 59AB	6
Music organization courses numbered 70-88	4
Major instrument	2
* U. S. History, Constitution, California Government	6
* Literature or philosophy	3
* Physical Education	1
Free electives	3
Total	30

Third Year	*Units*
Music 108	3
Music 146AB	2
Music 152AB	4
Major instrument	2
Music organization courses numbered 170-188	4
* Natural Science	9
‡ Electives	8
Total	32

Fourth Year	*Units*
Music 109A	2
Four units selected from Music 102AB, 103AB	4
Major instrument	2
Music organization courses numbered 170-188	4
Units from one of the fields of emphasis listed below	4–6
(a) *Performance:* Four units from Music 105, 106, 153, 199.	
(b) *Music History and Literature:* Six units from Music 102AB, 103AB, 199.	
(c) *Composition:* Six units from Music 105, 106, 107, 109B, 199.	
General education electives	3
‡ Electives	11–13
Total	30–32

* General education courses. Nine units of music organization courses may be counted as general education in the area of literature, philosophy, and the arts.
† May be waived in part or in full by examination.
‡ In addition to the upper division courses in the major, the student must have a sufficient number of upper division units to meet the minimum of 40 required for the A.B. degree.

MINOR IN MUSIC

The general basic requirements for the minor in music are as follows:

(1) Demonstration of vocal or instrumental performing ability before admission to the minor program may be granted.

(2) Proficiency in piano equivalent to Music 10ABCD.

The minor consists of 22 units in music to include the following: In the lower division, Music 9A, 9B, 52, and 59B; in the upper division, Music 151, three units selected from courses numbered 170-188, and four units from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 150.

TEACHING MAJOR IN MUSIC WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in music and (2) the additional professional courses in teacher education. A minor is not required for the degree. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements. For additional information on the credential, refer to the section on Education Professional Curricula.

Minimum Basic and Credential Requirements

In addition to the general basic requirements for all majors, described above, and before recommendation for admission to directed teaching will be granted, credential candidates must have completed all lower division courses in beginning class study of orchestral instruments and voice. Music 146A-146B, and must have passed the minimum state credential requirements in voice and piano, with or without credit, which are as follows:

(a) Piano: Ability (1) to play a Bach two-part invention; (2) to play an artistic accompaniment; (3) to play at sight four-part hymns.

(b) Voice: Ability (1) to sing at least one song representative of each of the following periods of vocal literature: classic, romantic, modern; (2) to sing at sight any part of a four-part hymn.

Students whose background in piano is inadequate for these requirements must register in their first semester for appropriate private or class instruction, with or without credit. Students with insufficient background in voice must register for voice instruction no later than the third semester.

Teaching Major in Music

Lower Division Requirements. Music 10ABCD (may be waived in full or in part by examination), Music 9A-9B; Music 15A-15B (or equivalents), 52, 59A-59B; four units selected from Music 20A, 20B, 25A, 25B, 30A, 30B, 35; eight units selected from courses numbered 70-88; and four units in the major instrument (31-37 units). Nine units of music courses in the performance groups may be counted in general education.

Upper Division Requirements. Twenty-seven upper division units to include Music 108, 109A, 146A, 146B, 152A, 152B; three units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, 135; six units selected from courses numbered 170-188; three units in the major instrument; and four units of upper division music electives.

Professional Courses in Teacher Education

In addition to the teaching major in music, the student must complete 26 upper division units of professional courses in teacher education to include Education 100, 110, 120, 121G, 125, 130D, 180, and Health Education 151.

Outline of Special Secondary Credential Requirements

First year	*Units*
Music 9AB	6
†Music 10 AB (piano)	0–2
†Music 15 AB	0–2
Music organization (courses numbered 70-88)	4
Music courses selected from 20AB, 25AB, 30AB, 35	2
Major instrument	2
*English 1 and Speech Arts 3	5
*Health Education 21	2
*Psychology 1	3
*Social Science	3
*Physical Education	1
Total	30

Second year	*Units*
Music 59AB	6
†Music 10CD (piano)	2
Music 52	3
Music organization (courses numbered 70-88)	4
Music courses selected from 20AB, 25AB, 30AB, 35	2
Major instrument	2
*U.S. History, Constitution, California Government	6
*Literature or philosophy	3
*Natural Science	3
*Physical Education	1
Total	32

Third year	*Units*
Music 146AB	2
Music 152AB	4
Music courses selected from 120AB, 125AB, 130AB, 135	2
Music organization (courses numbered 170-188)	4
Major instrument	2
*Natural Science	3
Education 100, 110	8
Education 130D	2
Education 121G	2
Education 125	2
Total	31

Fourth year	*Units*
Music 108	3
Upper division music electives	4
Music 109A	2
Music courses selected from 120AB, 125AB, 130AB, 135	1
Music organization (courses numbered 170-188)	2
Major instrument	1
*Natural Science	3
General education electives	3
Education 120	4
Health Education 151	2
Education 180	6
Total	31

* General education courses. Nine units of music organization courses may be counted as general education in the area of literature, philosophy, and the arts.
† May be waived in part or in full by examination.

TEACHING MAJOR IN MUSIC FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in music may be completed in one of the following ways:

(1) By completing the special secondary credential in music with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing the music major for the A.B. degree (without the special secondary credential) and including in the major the following courses: Music 15A-15B (or equivalent); four units selected from Music 20A, 20B, 25A, 25B, 30A, 30B, 35; and three units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, and 135. In addition to the major, the student must pass the Minimum State Credential Requirements in voice and piano, with or without credit (see description of these requirements under the special secondary credential above). The required courses in the postgraduate year must also be completed.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Music majors must meet this requirement by completing six graduate units to be selected from Music 200, 203, 207, 208, 209, 246, and 252.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN MUSIC FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in music for the general secondary credential consists of (1) general basic requirements and (2) course requirements in the minor.

General Basic Requirements. (1) Demonstration of vocal or instrumental performing ability before admission to the minor program may be granted, and (2) as laboratory experience, participation in one music performance group each semester for seven semesters (may be waived in special cases by the department chairman).

Course Requirements in the Minor. Twenty-one units (exclusive of course equivalents) to include the following courses:

Lower Division. Music 9A and 52; Music 10A-10B (which may be omitted in part or in full upon demonstration of proficiency); four units of performance group courses selected from courses numbered 70-88; and three to five units selected from Music 15A, 20A, 20B, 25A, 25B, 30A, and 30B.

Upper Division. Music 146A and 146B; three units of performance group courses selected from courses numbered 170-188; and one unit selected from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 150.

A student desiring to use music as a minor for the A.B. degree and at the same time meet the requirements for a teaching minor for the general secondary credential can do so by completing the music minor for the degree, to include Music 52 and the following additional courses: three units from Music 15A, 20A, 20B, 25A, 25B, 30A, and 30B; Music 146A and 146B; and one unit from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 150.

ELECTIVES IN MUSIC

The Music Department offers certain courses which fulfill the needs of students who do not have music as a major or minor subject but who are interested in music as an elective study area for the enrichment of their cultural background. Courses particularly suited for these needs are Music 51 and 151 and the music courses numbered 70 to 88 and from 170 to 188; such courses are designated as general education courses and may be taken as partial fulfillment of the literature, philosophy, and the arts requirement in general education.

Some students will be musically prepared to elect courses in music which may or may not be included in the general education group. Enrollment by qualified students who wish to elect these courses is encouraged.

CONDITIONS UNDER WHICH CREDIT MAY BE GIVEN FOR MUSIC STUDY UNDER PRIVATE INSTRUCTORS

Credit may be allowed for private instruction in music under the following conditions:

1. The applicant for such credit must be either a regularly enrolled student in the Music Department of the college (that is, a music major or minor), or he must have as a prerequisite or be taking concurrently with his private study, three units chosen from these specific courses: Music 7A, 9A, 51, or 151.

2. The instructor giving such private work must be approved by the Music Department. All private work and names of all such teachers must be registered in the office of the Music Department chairman at the beginning of the semester.

3. Under no circumstances may a student change teachers in the middle of a semester without first notifying the chairman of the Music Department and securing his permission for this change.

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4. Prior to the start of private study in San Diego State College, the student is required to take a placement examination conducted by the Music Department faculty at the beginning of the semester, which will show the status of the student at the beginning of his work.

5. Students who have dropped out of school, or have stopped taking Applied Music for credit for one semester or more, upon the resumption of that instruction for credit are required to take the placement examination.

6. Evidence that the standards of the Music Department have been met will be shown by an examination conducted by the Music Department faculty at the end of the semester.

7. Ten clock hours of lessons and adequate preparation to pass the Applied Music examinations and the curriculum requirements of the department are required for one unit of credit.

LOWER DIVISION COURSES

*** 7A. Musicianship—For General Elementary Teachers (3) I, II**
Four hours. No prerequisite.
Elementary music theory and skills including notation, meter, rhythm, scales, intervals, triads, sight-singing, ear-training, dictation, elementary keyboard facility and other rudiments. State-adopted elementary music texts used. A general elementary credential requirement. Open only to candidates for the general elementary credential. A general education course in literature, philosophy, and the arts.

7B. Music Materials for the Elementary School (3) I, II
Three hours.
Prerequisite: Music 7A or consent of instructor.
Study of all phases of elementary school music: singing, listening, reading, creative music, instruments, repertoire of songs and records, music projects. Required of all general elementary credential candidates.

9A-9B. Elementary Harmony (3-3) I, II
Four hours.
Prerequisite: Music 9A is prerequisite to 9B.
Sight-singing and ear-training, keyboard harmony, study of traditional distonicism, basic four-voice writing and analysis.

*** 10A-10B. Piano—Elementary Class Instruction (1-1) I, II**
Two hours.
Prerequisite: Music 10A is prerequisite to 10B.
Basic keyboard experience through study of music reading, notation, scales, chords, and sight-reading covering a repertoire of beginning and intermediate songs and piano literature, with emphasis on keyboard harmony. Required for the kindergarten-primary credential and music majors and minors. A general education course in literature, philosophy, and the arts.

10C-10D. Piano—Elementary Class Instruction (1-1) I, II
Two hours.
Prerequisite: Music 10B is prerequisite to 10C; and 10C to 10D.
Continuation of Music 10A-10B.

11. Piano—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units.

15A. Voice—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
A class for beginners in the vocal field taking up the problems of breath control, tone placement, articulation and enunciation. Frequent classroom performance of simple songs.

15B. Class Voice—Continuation First Semester Voice (1) I, II
Two hours.
Prerequisite: Music 15A or equivalent.
Study of more advanced songs with attention being given to interpretation, as well as continued work on tone, articulation and placement. Frequent performance before class required.

16. Voice—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units of credit.

20A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Primarily for students preparing for a teaching credential in music. Not open to students with credit in Music 120A.

20B. Strings—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 20A or 120A.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A as well as string class methods. Not open to students with credit in Music 120B.

21. Strings—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Material and techniques of intermediate level are studied in detail. Sections are offered in violin, viola, cello, bass. May be repeated to a maximum of four units of credit.

25A. Clarinet—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching the clarinet by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125A.

25B. Oboe, Flute, and Bassoon—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching oboe, flute, and bassoon by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125B.

26. Woodwinds—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

30A. Brass—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching the trumpet and French horn by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 130A.

30B. Brass—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 30A or 130A.
Fundamentals of teaching the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 130B.

31. Brass—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

35. Percussion—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 135.

50. Applied Music—Individual Study (1) I, II
Ten one-hour lessons or 15 40-minute lessons.
For the teaching credential performance requirement or for the requirements of the major emphasis curricula leading to the A.B. degree with a major in music. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated for a total of four units.

Piano	Oboe	Trumpet	Violin
Organ	Clarinet	Trombone	Viola
Voice	Saxophone	Baritone Horn	Cello
Flute	Bassoon	Tuba	Contrabass
	French Horn	Percussion	Composition

*** 51. Introduction to Music (3) I**
Three lectures. No prerequisite.
Practical approach to hearing music with understanding and pleasure, through study of representative compositions of various styles and performance media, great musicians and their art. Music correlated with other arts through lectures, recordings, concerts. Closed to music majors and minors. A general education course in literature, philosophy, and the arts.

52. Orientation in Music Literature (3) I, II
Three lectures. No prerequisite.
An introductory course in the elements of musical style, structure, and media of expression as found in representative musical literature. Lectures, text, and assigned study of phonograph recordings and musical scores.

53. Opera Technique (2) I, II
Four hours per week. No prerequisite.
Training in the interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble.

59A. Intermediate Harmony and Two-part Counterpoint (3) I, II
Four hours.
Prerequisite: Music 9B.
Continuation of Music 9B. Harmonic alteration, two-voice counterpoint based on baroque polyphonic technique, simple chorale figuration and the invention.

59B. Advanced Harmony and Three-part Counterpoint (3) I, II
Four hours.
Prerequisite: Music 59A.
Harmonic alteration, analysis and writing of the smaller homophonic forms. Baroque polyphony in three-voice technique, chorale figuration, the suite, the fughetta.

PERFORMANCE ORGANIZATION COURSES

The performance organization courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques. Courses preceded by an asterisk (*) are general education courses in literature, philosophy, and the arts, unless used in the major (see the music major for specific information).

*** 70. Chamber Music (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. May be repeated to a maximum of four units.

72A. Beginning Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: One of the following: Music 20A, 20B, 25A, 25B, 30A, 30B, or equivalent.
Open to all instrumental students. Group performance of simple orchestral and band scores.

72B. Intermediate Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: Music 72A or equivalent.
Group performance of orchestral and band scores of more advanced grade. Materials covered will prepare the student for minor parts in either the symphony orchestra or the symphony band.

*** 75. Marching Band (1) I**
Concurrent registration in Music 75 and 76 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of two units.

*** 76. Symphonic Band (1) I, II**
Semester I: Concurrent registration in Music 75 and 76 required. Combined activity, six hours.
Semester II: Activity, five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 80. Symphony Orchestra (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 85. Concert Choir (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 86. Treble Clef (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 87. Men's Glee Club (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 88. College Chorus (1) I, II**
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

UPPER DIVISION COURSES

102A. Chamber Music Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
Instrumental ensemble repertoire, including all ensemble combinations from sixteenth to twentieth centuries. Analysis by use of scores and recordings.

102B. Keyboard Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
Piano, organ, and other clavier literature from the sixteenth to twentieth centuries. Recordings, scores, and guest performers.

103A. Symphonic Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
A study of the symphony and symphonic poem; the evolution of their growth; an analysis with scores of the structure, harmonic content, and instrumentation of representative works of each period; an examination of their meaning and place in the history of music.

103B. Song Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
Historical and musical development of the art song and of the folk song. Works of representative European and American composers in these media. Recordings and scores.

105. Modern Harmonic Practice and Four-part Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59B.
Analysis and composition in modern idioms. Continuation of baroque polyphony into four-voice technique, writing of canon and fugue.

106. Sixteenth Century Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59B.
Study of the contrapuntal techniques of the sixteenth century, as revealed in the works of Palestrina, Lassus, and Ingegneri. Compositional exercise in setting parts of the Mass. Not open to students with credit in Music 106A-106B.

107. Composition (3) I, II
Three lectures.
Prerequisite: Music 59B.
Original writing in the larger homophonic and polyphonic forms, for various media. Opportunity for recital performance of original works.

108. Form and Analysis (3) I, II
Three lectures.
Prerequisite: Music 59B.
A study of structure and design as found in the traditional musical forms.

109A-109B. Instrumentation and Arranging (2-2) I, II
Two lectures.
Prerequisite: Music 59B. Music 109A is prerequisite to 109B.
Arranging of music for full orchestra. Selected works of students to be performed by standard orchestras.

111. Piano—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units of credit.

112. Piano—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the advanced level are studied in detail. May be repeated to a maximum of four units of credit.

116. Voice—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the intermediate level are studied in detail. May be repeated to a maximum of four units of credit.

117. Voice—Advanced Voice Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the advanced level are studied in detail. May be repeated to a maximum of four units of credit.

118S. Workshop in Choral Art (6) Summer
Prerequisite: Consent of instructor.
An integrated course in choral and chamber music to be performed by workshop participants with the College Chorus and the San Diego Symphony Orchestra and in chamber music concerts. Development of analytical technique; study of vocal technique, of the larger forms, and of styles, including performing practices of the baroque and later periods. May be taken twice for credit.

120A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Primarily for students preparing for a teaching credential in music. Not open to students with credit in Music 20A.

120B. Strings—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 20A or 120A.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A as well as string class methods. Not open to students with credit in Music 20B.

121. Strings—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in violin, viola, cello, and bass. May be repeated to a maximum of four units of credit.

122. Strings—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Sections are offered in violin, viola, cello, and bass. May be repeated to a maximum of four units of credit.

123-S. Workshop in Instrumental Techniques and Chamber Music for String, Woodwind, and Brass Instruments (2) Summer
Prerequisite: Consent of instructor.
The analysis and interpretation of the literature for each instrument, with performance in various ensemble units; both group and individual instruction in class, under performing professional musicians.

125A. Clarinet—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching the clarinet by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 25A.

125B. Oboe, Flute, and Bassoon—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching oboe, flute, and bassoon by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 25B.

126. Woodwinds—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

127. Woodwinds—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

130A. Brass—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching the trumpet and French horn by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 30A.

130B. Brass—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 30A or 130A.
Fundamentals of teaching the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 30B.

131. Brass—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

132. Brass—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Junior standing.
Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

135. Percussion—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 35.

141. Methods in Teaching Piano (3) I, II
Three hours.
Prerequisite: Junior standing.
Teaching of beginning and intermediate piano. Survey of materials available for child and adult classes. Special consideration of the problems of the adult beginner. Supervised teaching of beginning students in individual lessons and class groups.

142. Survey of Harmony and Musical Form (2) (Irregular)
Two lectures.
Prerequisite: A minimum of four semesters of basic music theory.
A review of diatonic and chromatic harmony, modulation and musical form. The material covered will serve as refresher study for the Colleague Examination under the California Plan of the Music Teachers Association of California. Not open to music majors or minors.

146A. Choral Conducting (1) I, II
Three hours.
Prerequisite: Junior standing.
Elements of baton technique and development of basic skills common to choral conducting. Representative literature and techniques for choral organizations will be studied and performed. Practical experience in typical conducting situations will be emphasized in various grade levels.

146B. Instrumental Conducting (1) II
Three hours.
Prerequisite: Music 146A.
Study of orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performances.

150. Applied Music—Individual Study (1) I, II
For the teaching credential performance requirement or for the requirements of the major emphasis curricula leading to the A.B. degree with a major in music. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated for a total of four units.

Piano	Oboe	Trumpet	Violin
Organ	Clarinet	Trombone	Viola
Voice	Saxophone	Baritone horn	Cello
Flute	Bassoon	Tuba	Contrabass
	French horn	Percussion	Composition

*** 151. Great Music (3) I, II**
Three lectures. No prerequisite.
Instrumental and vocal music in the larger forms studied through directed listening. Artistic trends and their effect upon music composition and performance. Completion of Music 51 is recommended, but not required as a prerequisite. A general education course in literature, philosophy, and the arts.

152A-152B. History of Music (2-2) I, II
Two lectures.
Prerequisites: Music 52 and 59B; Music 152A is prerequisite to 152B.
Detailed study of the chronological development of musical art and forms from the Middle Ages to the present. Analytical score study and assigned recordings. Familiarity with musicological resources through individual assignments.

153. Opera Technique (2) I, II
Four hours. No prerequisite.
Training in interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.

166. Honors Course I, II (Credit to be arranged)
To be arranged after consultation with the chairman of the department. Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the department chairman.

PERFORMANCE ORGANIZATION COURSES

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques. Courses preceded by an asterisk (*) are general education courses in literature, philosophy, and the arts, unless used in the major (see the music major for specific information).

*** 170. Chamber Music (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. May be repeated to a maximum of four units.

172A. Beginning Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: One of the following: Music 20A, 20B, 25A, 25B, 30A, 30B, or equivalent.
Open to all instrumental students. Group performance of simple orchestral parts and band scores.

172B. Intermediate Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: Music 72A or equivalent.
Group performance of orchestral and band scores of more advanced grade. Materials covered will prepare the student for minor parts in either the symphony orchestra or the symphony band.

*** 175. Marching Band (1) I**
Concurrent registration in Music 175 and 176 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of two units.

*** 176. Symphonic Band (1) I, II**
Semester I: Concurrent registration in 175 and 176 required. Combined activity, six hours.
Semester II: Five hours per week.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 180. Symphony Orchestra (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 185. Concert Choir (1) I, II**
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 186. Treble Clef (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 187. Men's Glee Club (1) I, II**
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

*** 188. College Chorus (1) I, II**
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

GRADUATE COURSES

200. Seminar in Music Education (3)
Prerequisite: Consent of instructor.
Seminars in music education are offered to provide an opportunuity for concentrated study in the several areas listed.
A. Supervision of music education
B. Junior high school music
C. Marching band technic
D. Instrumental methods
E. Choral methods

203. Musicology (3)
Prerequisites: Music 152A and 152B.
Problems and methods of research in aesthetics, acoustics, music history and related fields. Source materials, bibliography. Completion of written project.

207. Composition (2 to 3)
Prerequisite: Music 107.
Advanced composition for various media, development of original idiom, intensive study of modern music. Public performance of an extended original work as a project.

208. Seminar: Music Theory (3)
Prerequisite: Music 108.
Seminar in the history of theoretical materials and procedures from the twelfth century to the present with detailed analysis of selected major works.

209. Advanced Orchestration (2) I, II
Prerequisites: Music 102A, 103A, and 109B.
Intensive work in the practical scoring for ensembles, full orchestra, and symphonic band. Score analysis. Selected works of the class members will be performed.

218. Seminar in Choral Art (6) Summer
Prerequisite: Consent of instructor.
A study of choral and chamber music performed by seminar participants in the College Chorus, the San Diego Symphony Orchestra, and Chamber Music Concerts. Development of analytical technique; study of vocal techniques, of the larger forms, and of styles, including performing practices of the baroque and later periods. Total credit for Music 118-S and Music 218 limited to 18 units, with a limit of six units which may be applied to the master's degree. (Formerly Music 207.)

246A. Advanced Choral Conducting (2)
Prerequisite: Music 146B.
Course designed to develop skills at professional level; study of different styles of choral literature and their relationship to conductor's art; score analysis and experience in conducting.

246B. Advanced Instrumental Conducting (2)
Prerequisite: Music 146B
Course designed to develop skills at professional level; study of conducting style as related to band and orchestra literature, score analysis and experience in conducting.

250. Applied Music—Advanced Individual Study (1)
For the graduate student who qualifies for advanced study through an audition before the Music Department faculty. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated to a maximum of two units.

Piano	Oboe	French Horn	Violin
Organ	Clarinet	Trumpet	Viola
Voice	Saxophone	Trombone	Cello
Flute	Bassoon	Baritone Horn	Contrabass
	Tuba	Percussion	Composition

252. Seminar: Music History (3)
Prerequisites: Music 152B and consent of instructor.
Seminars in music history are offered for intensive study in each of the historical eras listed below.

A. Music of the Baroque Era
B. Music of the eighteenth and nineteenth centuries
C. Twentieth century music

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

NURSING

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professor: Nye (Chairman)
Associate Professors: Coveny, Moses
Assistant Professors: Atkinson, Coakley, Ganong, Geitgey, Gilchrist, Lee, Nelson, O.

Offered by the Department

Major in nursing with the B. S. degree.
Courses for graduate nurses.

NURSING CURRICULUM

The nursing program consists of a four-year course of study leading to a B.S. degree in nursing. Graduates of the program are eligible to write the examination for licensure as a registered nurse. The Department of Nursing is accredited by the California Board of Nursing Education and Nurse Registration.

The curriculum in nursing requires completion of a minimum of 128 semester units of work as prescribed. Opportunity for clinical laboratory practice is offered in hospitals and health agencies. During the first semester only, all courses are held on the San Diego State campus.

Any student who is regularly admitted to the college may enter the nursing program. Students will normally enter the program in the freshman year, beginning with the fall semester. Students who enter with advanced standing credit from other colleges will be required to complete the remaining requirements in the nursing program for the degree. Graduate nurses from accredited hospital schools of nursing who hold the R.N. license may normally be expected to complete requirements for the degree within three years, subject to satisfactory completion of placement examinations in the professional nursing courses.

MAJOR IN NURSING WITH THE B.S. DEGREE IN THE GENERAL PROGRAMS

The major consists of a prescribed pattern of upper division courses, totaling not less than 47 units. At least 36 units of these courses must be exclusive of general education requirements. Required as preparation for the major are prerequisite and related lower division courses which may not be counted in general education unless otherwise provided. (For a description of general education and other graduation requirements, refer to the section of the catalog on Graduation Requirements.)

Major

Lower Division Requirements. Nursing 1, 20A-20B, 33A-33B, 34, 36 (24 units); Microbiology 1; Chemistry 2A-2B and 3; Physics 5; Sociology 1; Zoology 8 and 9 (28 units).

Upper Division Requirements. Nursing 112, 114, 115, 118, 124, 125, 126, and 130 (32 units); Sociology 121, 135, 140; Psychology 106 and 131 (15 units).

General Education Requirements. The following courses may be counted in general education: 12 units in the natural sciences for required lower division courses in chemistry and zoology; six units in the social sciences for Sociology 1 and 140; three units in family life education for Sociology 135; and two units of pattern credit in Health Education 21 for completion of the total nursing program. (23 units.) The additional 22 units to complete the 45 units required in general education will be selected from the regularly listed courses in general education.

OUTLINE OF COURSES

The following outline of courses, subject to individual adjustments to a small degree, is included as a guide to students in the nursing curriculum:

First Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 1	1	Nursing 20A	3
English 1A	3	English 2	3
Chemistry 2A	3	Chemistry 2B	3
Zoology 8	4	Zoology 9	4
Psychology 1	3	Physics 5	4
Speech Arts 3	2	Physical Education	½
Physical Education	½		17½
	16½		

Second Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 20B	5	Nursing 33B	3
Chemistry 3	3	Nursing 34	5
Nursing 36	2	Microbiology 1	4
Nursing 33A	5	Sociology 1	3
Physical Education	½	Physical Education	½
	15½		15½

Third Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 112	5	Nursing 114	5
Nursing 115	3	Nursing 130	2
Sociology 135	3	Sociology 140	3
Psychology 106	3	Psychology 131	3
Electives	2	Electives	3
	16		16

Fourth Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 118	5	U. S. History, Constitution, California Government	3
U. S. History, Constitution, California Government	3	Nursing 124	3
Sociology 121	3	Nursing 125	4
Electives	5	Nursing 126	5
	16		15

LOWER DIVISION COURSES

1. Orientation to Nursing (1) I

One lecture. No prerequisite.

An introduction and orientation to the profession of nursing. Considers ethical principles, the nurses' code, and professional problems which will face the student nurse.

20A. Nursing Arts (3) II

One lecture and six hours of laboratory.

Prerequisites: Zoology 8, Psychology 1, and Nursing 1.

Individual hygiene and family health; orientation to the hospital as a community health agency and to the responsibilities of a nurse in providing good patient care.

20B. Nursing Arts (5) I
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 20A; credit or concurrent registration in Zoology 9 and Microbiology 1.
Introduction to the elements of observation and the records involved in patient care, and to the application of bacteriologic principles of asepsis and disinfection.

33A. Medical Nursing (5) I
Three lectures and six hours of laboratory.
Prerequisite: Credit or concurrent registration in Nursing 20B.
Theory and practice of nursing care and medical therapy for the individual patient. Problems in total patient care.

33B. Medical Nursing (3) II
One lecture and six hours of laboratory.
Prerequisite: Nursing 33A.
Continuation of Nursing 33A.

34. Surgical Nursing (5) II
Two lectures and nine hours of laboratory.
Prerequisites: Microbiology 1 and credit or concurrent registration in Nursing 33B.
Theory and practice of nursing care and surgical therapy for the individual patient. Problems in total patient care.

36. Community Nursing (2) I
Two lectures.
Prerequisite: Nursing 20A.
A study of social and health agencies and how they meet the nursing needs of individuals and families in the hospital, home, and community.

UPPER DIVISION COURSES

Courses numbered 150 to 160 are open only to graduate nurses.

112. Obstetric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisite: Nursing 34.
Study of care and treatment of the obstetric patient and newborn infant.

114. Pediatric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 34 and credit or concurrent registration in Psychology 106.
Nursing care of infants and children; prevention and control of disease; and instruction of parents.

115. Advanced Surgical Nursing (3) I
One lecture and six hours of laboratory.
Prerequisite: Nursing 34.
Methods and principles of surgical nursing in selected clinical areas. Emphasis on specialized therapeutic techniques.

118. Psychiatric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 34 and credit or concurrent registration in Psychology 131.
Major concepts of psychiatric nursing and mental health that are involved in care of the mentally ill; therapies and rehabilitation measures.

124. Leadership Roles in Nursing (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Nursing 130.
Professional and legal responsibilities of the nurse: selected practice activities in the role of team leader.

125. Public Health Nursing (4) I, II
Four lectures.
Prerequisite: Nursing 36 and credit or concurrent registration in Nursing 126.
Principles of Public Health Nursing and organization and administration of health services.

126. Public Health Nursing Practice (5) I, II
Fifteen hours of laboratory.
Prerequisites: Nursing 36 and credit or concurrent registration in Nursing 125.
Guided public health nursing practice in community health agencies, out-patient clinics, schools and homes.

130. History of Nursing (2) II
Two lectures.
Prerequisite: Nursing 1.
Nursing from earliest times; emphasis on the place of nursing in world history and the present social order.

Courses for Graduate Nurses

152. In-service Instruction (2) II
Two lectures.
Prerequisite: R.N. certificate.
Application of the principles and methods of teaching in the various clinical services.

160. Nursing in School Health Services (3) II
Three lectures.
Prerequisite: Nursing 125, or equivalent to be determined by examination.
The application of health principles and current best practices in schools with emphasis on the functions of the school nurse related to the school, home, and community.

Individual Study

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor.

OCEANOGRAPHY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty
Assistant Professor: McBlair

UPPER DIVISION COURSES

*** 100. The Oceans (2) I**
Prerequisites: Introductory courses in life and physical sciences.
Biological and physical aspects of the oceans and their significance to man; problems of modern oceanography. One unit to apply as life science and one unit as physical science for general education in the natural sciences.

PHILOSOPHY

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Mendenhall, Ruja, Shields
Associate Professor: Nelson, S. (Chairman)
Assistant Professors: Crawford, P., Snyder

Offered by the Department

Master of arts degree with a major in philosophy.
Major in philosophy with the A.B. degree in liberal arts and sciences.
Minor in philosophy.

MASTER OF ARTS DEGREE

The master of arts degree with a major in philosophy is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN PHILOSOPHY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in philosophy must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. Nine units in philosophy.

Upper Division Requirements. A minimum of 24 upper division units in philosophy, or 18 units in philosophy and six units selected from related fields with the approval of the departmental adviser.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Philosophy Department. Selection of French or German is strongly recommended.

MAJOR IN THE GENERAL PROGRAMS

For a limited time, transfer students may elect the major in philosophy under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for the major are the same as those for the major in liberal arts and sciences described above, including the foreign language requirement. In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MINOR IN PHILOSOPHY

The minor consists of 15 to 22 units in philosophy, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

*** 1A. Introduction to Philosophy (3) I, II**
The place of philosophy in intelligent living. The methods, values, and areas of philosophical inquiry. Through discussion procedures, each student is encouraged to think independently on issues in ethics and religion. A general education course in literature, philosophy, and the arts.

*** 1B. Introduction to Philosophy (3) I, II**
Prerequisite: Philosophy 1A.
The nature of philosophical inquiry as applied to problems of knowledge and reality. Through discussion procedures, the student has opportunity and is encouraged to formulate his own tentative conclusions. A general education course in literature, philosophy, and the arts.

*** 20. Logic (3) I, II**
Introduction to deductive and inductive logic. Logic and language. Analysis of fallacies. Uses of logic in science and in daily life. A general education course in literature, philosophy and the arts.

UPPER DIVISION COURSES

Philosophy 1A is prerequisite to all upper division courses except Philosophy 111A-111B and 130.

*** 100A. Ancient and Medieval Philosophy (3) I, II**
Prerequisite: Philosophy 1A.
Roots of Western science and philosophy, with special emphasis on Socrates, Plato, and Aristotle; philosophy in the Christian era. A general education course in literature, philosophy, and the arts.

*** 100B. Modern Philosophy (3) I, II**
Prerequisite: Philosophy 1A.
Renaissance thought and the rise of modern empirical science; including the systematic thought of Descartes, Leibniz, Spinoza, Locke, Berkeley, Hume, and Kant. A general education course in literature, philosophy, and the arts.

*** 101. Contemporary Philosophy (3) II**
Prerequisite: Philosophy 1A.
The major philosophical issues, movements, and figures in American and European philosophy of the twentieth century. A general education course in literature, philosophy, and the arts.

103. Recent Existentialism (3) II
Prerequisite: Philosophy 1A or consent of instructor.
An examination of the philosophical aspects of Existentialism. Major emphasis is on the diversity of thought within a common approach as this is shown in individual thinkers.

*** 111A-111B. Theory of the State (3-3)**
(Same course as Political Science 111A-111B)
Prerequisite: Philosophy 111A is prerequisite to 111B.
The nature of the state, its organization and activities, and its relation to the individual and to other states. A general education course in literature, philosophy, and the arts.

121. Deductive Logic (3) I
Prerequisite: Philosophy 1A and 20.
Analysis of propositions. Immediate and mediate inference. The syllogism. Dilemmas. Modern symbolic logic.

122. Inductive Logic (3) II
Prerequisite: Philosophy 1A and 20.
Definition, classification, and division. The logic of experimentation and statistics. Formation and validation of hypotheses. Probability theories.

123. Theory of Knowledge (3) II
Prerequisite: Philosophy 1B or equivalent.
A critical study of the major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

125. Metaphysics (3) I
Prerequisite: Philosophy 1B or equivalent.
Explorations of prominent theories of reality, e.g., realism and nominalism, materialism and idealism, teleology and determinism.

128. Theory of Ethics (3) I
Prerequisite: Philosophy 1A.
A study of significant and typical value theories and systems and of the concrete problems such theories seek to explain. The emphasis will be placed on moral values. The student will be encouraged to examine critically his own system of values.

*** 129. Social Ethics (3) II**
Prerequisite: Philosophy 1A.
Ethical issues of contemporary life. Individualism vs. collectivism; democracy vs. dictatorship; ethical problems arising in law, medicine, business, government, and interpersonal relationships. A general education course in literature, philosophy, and the arts.

130. Semantics (3) II
(Same course as Speech Arts 130)
Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies.

134. Philosophy of Literature (3) I
Prerequisite: Philosophy 1A.
Study of literature of philosophical significance, and of philosophical problems of literature. Representative works of rationalism, realism, romanticism, existentialism and other modern directions of thought are considered with regard to both their intellectual and literary principles.

*** 135. Philosophy of Religion (3) I, II**
Prerequisite: Philosophy 1A.
An impartial survey of religious thought and practice in the major world religions; exploration of issues raised by the history, psychology, and sociology of religion. A general education course in literature, philosophy, and the arts.

*** 136. Philosophy of Art (3) II**
Prerequisite: Philosophy 1A.
The nature of esthetic experience. The principal theories of art, both traditional and contemporary, are studied at length, both in relation to actual artistic production and to the role of art in society. A general education course in literature, philosophy, and the arts.

137. Philosophy of Science (3) I
Prerequisite: Philosophy 1A.
A critical examination of the basic concepts and methods underlying contemporary scientific thought. Contributions of the special sciences to a view of the universe as a whole.

150A-150B. Asian Thought (3-3)
Prerequisite: Philosophy 1A.
The religious and philosophical modes of thought and ways of life of the Orient. First semester: India and Southeast Asia. Second semester: China and Japan.

162. Continental Rationalism (3) I
(Offered in 1963-64 and alternate years)
Prerequisite: Philosophy 1A.
The origins, content, and contemporary significance of the rationalistic tradition, with reference primarily to the philosophies of Descartes, Spinoza, and Leibniz.

163. British Empiricism (3) II
(Offered in 1962-63 and alternate years)
Prerequisite: Philosophy 1A.
The origins, content, and contemporary significance of the empirical tradition, with reference primarily to the philosophies of Locke, Berkeley, and Hume.

164. American Philosophy (3) I
(Offered in 1963-64 and alternate years)
Prerequisite: Philosophy 1A.
A systematic and critical study of the work of American philosophers from the Puritans through the Pragmatists. Major emphasis is placed upon Peirce, James, Royce, Santayana, Dewey, and Whitehead.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar in Plato (3)
Prerequisite: 12 units of upper division work in philosophy.
An intensive study of the major dialogues.

201. Seminar in Aristotle (3)
Prerequisite: 12 units of upper division work in philosophy.
An intensive study of the major Aristotelian writings.

207. Seminar in Kant (3)
Prerequisite: 12 units of upper division work in philosophy.
Kant's critique of the foundations of human knowledge, moral obligation, and religious faith, with readings from the three *Critiques* but with special emphasis upon the *Critique of Pure Reason.*

210. Seminar in Contemporary Philosophy (3)
Prerequisite: 12 units of upper division work in philosophy.
Significant philosophical movements and figures of the 20th century.

223. Seminar in Epistemology (3)
Prerequisite: 12 units of upper division work in philosophy.
An examination of some of the basic problems concerning meaning, perception, and knowledge. Readings in the works of leading contemporary philosophers, such as C. I. Lewis and Bertrand Russell.

225. Seminar in Metaphysics (3)
Prerequisite: 12 units of upper division work in philosophy.
An inquiry into the search for significant qualities of reality.

228. Seminar in Ethics (3)
Prerequisite: 12 units of upper division work in philosophy.
Contemporary ethical issues. Critical analysis of the works of some leading theorists, such as Moore, Dewey, Stevenson, and Toulmin.

236. Seminar in Philosophy of Art (3)
Prerequisite: 12 units of upper division work in philosophy.
An analysis, criticism, and comparative study of selected philosophies of art.

298. Special Study (1-6)
Prerequisites: 12 units of upper division work in philosophy and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Men's Department

Professors: Governali (Chairman), Kasch, Scott, Terry, Ziegenfuss

Associate Professors: Benton, Broadbent, Coryell, Schutte, Smith, C. R., Sportsman

Assistant Professors: Olsen, A., Olsen, L.

Instructor: Wells

Lecturer: Beekley

Women's Department

Associate Professors: Shannon, Lockman, Murphy, M. (Chairman), Tollefsen

Assistant Professors: Barone, Cave, Griffin, Wilhelm, Williamson

Lecturer: Iverson

Offered by the Departments

Master of arts degree for teaching service with a concentration in physical education.

Major in physical education with the A.B. degree in the general programs.

Minor in physical education.

Teaching major in physical education with the A.B. degree and special secondary credential.

Teaching major in physical education leading to the general secondary credential in the postgraduate year.

Teaching minor in physical education for the general secondary credential.

Teaching minor in physical education for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in physical education is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are prerequisites and related lower division courses, which may not be counted in general education unless otherwise provided in the description of the major. In addition to the major, the student will complete 45 units of general education. A minor is required for the degree. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN PHYSICAL EDUCATION WITH THE A.B. DEGREE—MEN IN THE GENERAL PROGRAMS

Lower Division Requirements. 18 units to include two units of physical education activity courses (may be counted in general education); Physical Education 61, 63, 64, 72, 74; Zoology 8 and 22.

Upper Division Requirements. 25 upper division units to include nine units from physical education courses numbered 141 to 148, inclusive; Physical Education 167, 168, 169, 170A or 170B; and four units selected from courses in health education, physical education, or recreation.

MAJOR IN PHYSICAL EDUCATION WITH THE A.B. DEGREE—WOMEN IN THE GENERAL PROGRAMS

Lower Division Requirements. Four units of physical education activity courses to include Physical Education 1A, 2A, 2B, 3A, 3B (two of these units may be counted in general education); Physical Education 56, 72, 74; and Zoology 8 and 22 (16 units).

Upper Division Requirements. 27 upper division units to include Physical Education 151, 156A, 156B, 160, 167, 168, 170A or 170B; and nine units selected from courses in health education, physical education, or recreation.

MINOR IN PHYSICAL EDUCATION

The minor consists of 15 to 22 units in physical education, nine units of which must be in upper division courses. The minor should be planned in consultation with the departmental adviser in physical education.

TEACHING MAJOR IN PHYSICAL EDUCATION WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in physical education and (2) the additional professional courses in teacher education. A minor is not required for the degree.

For additional information on the credential, refer to the section of this catalog on Education Professional Curricula. For a description of general education and other graduation requirements, refer to the section on Graduation Requirements.

Teaching Major for Men

Lower Division Requirements. 21 units to include two units of physical education activity courses (may be counted in general education), Physical Education 61, 63, 64, 72, 74, Health Education 65, and Zoology 8 and 22.

Upper Division Requirements. 26 upper division units to include Physical Education 141, 142 or 122, 145, 146, 161, 167, 168, 169, 170A or 170B, 190, and two units of upper division electives.

Teaching Major for Women

Lower Division Requirements. Physical Education 1A or 4, 2A, 2B, 3A, 12A, 13A, 14A, 18A, 56, 72, 74, and Zoology 8 and 22. (Two units of physical education activity courses may be counted in general education.)

Upper Division Requirements. 29 upper division units to include Physical Education 142 or 122, 151, 154A, 154B, 155, 156A, 156B, 160, 161, 167, 168, 170A or 170B, and 190.

TEACHING MAJOR IN PHYSICAL EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in physical education may be completed in one of the following ways:

(1) By completing the special secondary credential in physical education with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing the physical education major for the A.B. degree (without the special secondary credential) and including or adding the following courses:

For Men. Health Education 65, Physical Education 141, 142 or 122, 145, 146, 161 and 190. The student must also complete the courses required in the postgraduate year.

For Women. Physical Education 12A, 13A, 14A, 18A, and Physical Education 142 or 122, 154A, 154B, 155, 161, and 190. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Physical education majors must meet this requirement by completing six units of 200-numbered courses in physical education to be selected with approval of the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN PHYSICAL EDUCATION FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in physical education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units as follows:

Minor for Men. In the lower division, Physical Education 72, 74, and two to four units of physical education electives (other than general education courses); and in the upper division, four units of professional activity courses to be selected in consultation with the departmental representative; Physical Education 161, 170A or 170B, and five to seven units of upper division electives in physical education.

Minor for Women. In the lower division, Physical Education 1A, 2A, 2B, 3A, 56, 74, and three to four units of physical education electives; and in the upper division, Physical Education 151, 156A, 156B, and five to six units from Physical Education 154A, 154B, 170A, 170B, and 190.

TEACHING MINOR IN PHYSICAL EDUCATION FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in physical education for the general elementary and kindergarten-primary credentials is the same as the minor for the degree. Courses should be selected in consultation with the departmental representative in physical education.

REQUIRED ACTIVITY COURSES

To meet general education requirements, all freshman and sophomore students must enroll in an activity course each semester. Four semesters of activity courses are required. Two units are needed for general education and graduation, but no more than one activity course in any one semester may be counted toward this requirement. An activity course taken in the summer session may be counted in lieu of a semester.

Exemptions or Postponements

Veterans who have served a minimum of one continuous year in the United States armed forces are exempted from the general education requirement in physical education. Students carrying fewer than 12 units during any semester may apply to the Chairman of the Physical Education Department for a postponement of the physical education activity requirement. For reasons of health, the Director of Health Services may postpone the enrollment of a student in a physical education activity course. Permanent postponement from the activity requirement will not be made and a postponement does not eliminate the graduation requirement.

Types of Activity Courses

A health history record is required of each student entering college. Adapted physical education classes to care for special needs are offered. The content of the required courses is planned to give each student an opportunity to participate in many activities of carry-over value, developmental nature, and recreational interest. An apportunity is afforded students to participate in competitive sports and intramural programs.

MEN'S ACTIVITY COURSES

Physical Education 1 is the basic orientation course required of all entering male freshmen. College transfers are exempt from Physical Education 1. All male students must take 2 (or 5), 3, and 4. Credit for transfer students will be appropriately evaluated.

Activity courses 1, 2, 3, 4, and 5 are general education courses which fulfill the general education requirement. Each course is taken for one-half unit and meets two hours per week.

A student may be excused from regular physical education activity on the recommendation of Health Services or the chairman of the Department of Physical Education. A student so excused will be assigned to Individual Adaptation sections offered in Physical Education 1, 2, 3, and 4.

Courses

*** 1. Physical Education (½) I, II**
A choice of vigorous, competitive activity: boxing, gymnastics, soccer, conditioning with weights, track, or wrestling. Physical fitness emphasis. Tests are administered for appropriate student placement in future physical education classes.

*** 2. Physical Education (½) I, II**
Beginning swimming, intermediate swimming, or advanced aquatics. Second or third semester course.

*** 3. Physical Education (½) I, II**
A choice of activity: archery, beginning badminton, basketball, boxing, beginning dance, golf, gymnastics, soccer, or beginning tennis. Second or third semester course.

*** 4. Physical Education (½) I, II**
A choice of activity: advanced badminton, bowling, conditioning by training with weights and other related devices, advanced dance, fencing, handball, advanced tennis, track and field, volleyball, or wrestling.

*** 5. Physical Education (½) I, II**
May be taken in lieu of Physical Education 2. Students may select any activity in Physical Education 3 or 4.

10. Physical Education (½) I, II
An elective for students interested in pursuing further their physical education activities. Students may repeat this course for credit. This course is not a general education course and therefore does not satisfy the physical education requirement.

Intercollegiate Sports

An intercollegiate sport is not a general education course and therefore does not satisfy the physical education requirement. Courses in intercollegiate sports meet 10 hours per week.

30. Baseball (½) II
31. Basketball (½) I
32. Cross Country (½) I
33. Football (½) I
34. Golf (½) II
35. Gymnastics (½) II
36. Tennis (½) II
37. Track (½) II
38. Wrestling (½) II
39. Swimming (½) II
40. Rowing (½) II
41. Water Polo (½) I

WOMEN'S ACTIVITY COURSES

General Education Activity Courses

Freshmen may choose from courses numbered 1-11 or 20AB. Sophomores may choose from all courses offered. Courses offered for one-half unit credit meet two hours per week. An activity course may be taken for credit only once.

*** 1A-1B. Fundamental Skills (½-½) I, II**

*** 2A-2B. Folk, Square, and Round Dancing (Men and Women) (½-½) I, II**
2A is prerequisite to 2B.

*** 3A-3B. Modern Dance (Men and Women) (½-½) I, II**
3A is prerequisite to 3B.

*** 4A. Gymnastics and Related Activities (½) I, II**

*** 4B. Intermediate Gymnastics (½) I, II**
Prerequisite: Physical Education 4A or consent of instructor.

*** 5A. Soccer, Speedball, Hockey (½) I, II**

*** 5B. Softball, Volleyball (½) I, II**

*** 6. Basketball (½) I, II**

*** 11. Ballroom Dancing (Men and Women) (½) I, II**

*** 12A. Advanced Modern Dance (Men and Women) (1) I, II**
Four hours.
Prerequisites: P.E. 3A and 3B (except for physical education majors who are not required to take 3B).
Skill techniques, rhythmic form and analysis. Materials of design and group composition. Criticism of student sketches, studies and completed dances.

*** 12B. Advanced Modern Dance (Men and Women) (1) I, II**
Four hours.
Prerequisite: P.E. 12A.
Advanced skill techniques and group choreography. The use of percussion instruments and various forms of accompaniment. Discussion, lectures, practice.

*** 13A-13B. Archery (½-½) I, II**

*** 14A-14B. Badminton (Men and Women) (½-½) I, II**

*** 15A-15B. Fencing (½-½) I, II**
Prerequisite: P.E. 15A is prerequisite to 15B.

*** 16A-16B. Golf (½-½) I, II**

*** 18A. Tennis (Beginning) (½) I, II**

*** 18B. Tennis (Intermediate) (Men and Women) (½) I, II**

*** 19. Bowling (Men and Women) (½) I, II**

*** 20A-20B. Swimming (Men and Women) (½-½) I, II**

*** 24. Hiking (Men and Women) (½) I, II**

MEN AND WOMEN

PROFESSIONAL THEORY COURSES

LOWER DIVISION COURSES

50. Life Saving (1) I, II
Three hours per week.
Standard American Red Cross course in life saving and water safety, designed to qualify superior swimmers for Senior Life Savings Certificate.

53. Physical Education in the Elementary School (3) I, II
Two lectures and two hours of laboratory.
The state program in physical education for the elementary school forms the basis of the course, including selection of materials, methods and techniques of teaching and practice in skills. Candidates for the elementary credential are required to take this course. Not open to students with credit in Physical Education 74 or Recreation 74.

56. Professional Activities: Team Sports (Women) (1) I
Four hours of lecture and laboratory.
Team sports for women approached through a study of competencies, skills and knowledge needed for teaching.

61. Professional Activities (Men) (1) I, II
Designed for the orientation and guidance of major students in physical education. Course must be taken during the first semseter of enrollment in the major at San Diego State (transfer major students included).

63. Professional Activities (Men) (2) I, II
(Same course as Recreation 63)
Five hours of lecture and laboratory.
Practice in the skills and techniques of the dance, and experience in the organization and presentation of dance materials. Not open to students with credit in Recreation 63.

64. Professional Activities (Men) (2) I, II
Six hours of lecture and laboratory.
The acquisition of skills and teaching techniques, and the development of knowledge and interest in the combative activities, primarily wrestling and boxing.

72. Introduction to Physical Education (2) I, II
History and principles of physical education and sports. Study of the objectives of modern physical education with a view toward the development of a basic philosophy and background for professional education.

74. Elementary School Physical Education Activities (2) I, II
(Same course as Recreation 74)
Physical education activities designed for the elementary school child; emphasis on the organization, supervision, and evaluation of the physical education program in the elementary school. Not open to students with credit in Physical Education 53 or Recreation 74.

UPPER DIVISION COURSES

122. Water Safety Instruction (1) II
Four hours of lecture and laboratory.
Prerequisites: P.E. 20B or equivalent, and current American Red Cross Senior Life Saving Certificate.
Methods and materials for teaching swimming. Course designed to qualify expert swimmers for American Red Cross Swimming Instructors Certificate.

141. Professional Activities: Gymnastics (Men) (2) I, II
Six hours of lecture and laboratory.
Prerequisite: Consent of instructor.
The development of skills and teaching techniques in gymnastics, with emphasis on tumbling, apparatus activities, self-testing and calisthenics in the school program. Consideration of organizing, conducting, and officiating gymnastics meets.

142. Professional Activities: Swimming (Men and Women) (1) I, II
Four hours of lecture and laboratory.
Prerequisite: P.E. 20B or equivalent.
The development of skills in swimming, with emphasis on the teaching techniques. Scope of course is from beginning swimming to life saving techniques.

143. Professional Activities: Coaching Track (Men) (1) I
Two hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy and organization.

144. Professional Activities: Coaching Baseball (Men) (1) II
Two hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

145. Professional Activities: Team Sports (Men) (2) I, II
Six hours of lecture and laboratory.
The skills, rules, teaching techniques, officiating, and organization of materials in such sports as soccer, touch football, softball, speedball, basketball and volleyball.

146. Professional Activities: Individual Sports (Men) (2) I, II
Six hours of lecture and laboratory.
The skills, rules, teaching techniques, officiating, and organization of materials in such sports as handball, tennis, badminton, archery and golf.

147. Professional Activities: Coaching Football (Men) (1) I
Two hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

148. Professional Activities: Coaching Basketball (Men) (1) I
Two hours of lecture and laboratory.
Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

151. Folk Dance Materials and Advanced Techniques (Women) (2) I
Three hours of lecture and laboratory.
Prerequisite: P.E. 2B.
Folk customs, festivals, and costumes. Selection of dance materials for various age groups. Analysis of teaching techniques.

153A-153B. Problems in Modern Dance (Men and Women) (2-2) I, II
Four hours of lecture and laboratory.
Prerequisite: P.E. 12B or consent of instructor. 153A is prerequisite to 153B.
The construction and critical evaluation of the more complex forms of choreography.

154A-154B. Methods of Teaching Modern Dance (2-2)
Four hours of lecture and laboratory.
Prerequisite: P.E. 12A.
Advanced skill techniques with emphasis upon individual choreography. Selection of materials and course planning for the secondary school. Class teaching experience. Brief survey of basic literature and current readings in the field.

155. Techniques of Individual Sports (Women) (1) II
Two hours of lecture and laboratory.
Review of individual playing techniques, knowledge, rules, and teaching methods in tennis, archery, badminton, and golf. Designed for senior majors in physical education, who are expected to demonstrate a high degree of competency in the sports indicated.

156A-156B. Methods of Teaching Team Sports (Women) (2-2) I, II
Three hours of lecture and laboratory.
Prerequisites: P.E. 56 or equivalent.
Analysis of skills, teaching techniques, officiating, and the organization of materials in team sports for women.

157A-157B. Choreography in Contemporary Dance (Men and Women) (3-3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Consent of instructor.
Experimentation in the dance, relating contemporary theories to other art forms. The study of force and time-space relationships as factors in choreography. Production problems.

160. Teaching of Body Mechanics (Women) (3) II
Three hours of lecture and laboratory.
Prerequisite: P.E. 167.
Efficient use of the body in daily living; evaluation and classification of exercises, study of methods, and practice in planning and presenting material.

161. Instructor's Course in First Aid (2) I, II
Three hours of lecture and laboratory.
Instructor's course in first aid, as outlined by the American Red Cross. Standard first aid techniques, care of injured, certification and record keeping, and practical work in first aid.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167. Applied Anatomy and Kinesiology (3) I, II
Prerequisites: Zoology 8 and 22.
Anatomical and kinesiological analysis of human structure and movement. Application of analysis relative to mechanical principles as influenced by efficiency factors of body functions.

168. Physiology of Exercise (3) I, II
Prerequisites: Zoology 8 and 22.
A nonlaboratory course emphasizing the relation of physiology to muscular exercise in physical activities.

169. Adapted Activities (3) I, II
Three hours of lecture and two hours of laboratory.
Prerequisites: Zoology 8, 22, and P.E. 167.
The adaptation of programs for the atypical individual, including physical examinations, training and prescribed exercises, followup, instructional problems, and evaluation.

170A-170B. Recreation Leadership (3-3)
(Same course as Recreation 170A-170B)
Principles and practices in recreation leadership. Course content of 170A includes organization of competition, intramurals, playground practices; content of 170B includes recreational arts and crafts, dramatics, social recreation, and music. Neither course is prerequisite to the other.

175. Workshop in Physical Education (Men and Women) (1-2) Irregular
Methods, techniques and development of skills in such areas as aquatics, combatives, gymnastics, rhythms and dance, and indivdual and team sports. Designed for secondary school administrators, teachers, coaches, recreation and youth leaders. May be repeated for a total of six units.

190. Administration of Physical Education in the Secondary School (3) I, II
Problems and practices in the organization and administration of the secondary school activity program. Study, selection and adaptation of activities, examination and grouping of pupils, use and evaluation of tests. Selection and maintenance of equipment and facilities.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of special study adviser.

GRADUATE COURSES

200. Evaluation Procedures in Physical Education, Health Education and Recreation (3) I
(Same course as Health Education 200)
A study of tests and measurements in the profession, with practice in their construction and use, and interpretation of results.

201. Developmental Physical Education (3)
Prerequisite: P.E. 167.
Intensive study of postural divergencies, lack of physical development, and methods of correcting such conditions through exercise. Practice in making physical examinations, constructing individual exercise programs, and teaching remedial exercises. Consideration of ethical procedures and limitations.

203. Problems in Physical Education (3)
A survey of current problems facing the physical education profession, through a review of literature, discussion of trends, and observation of school situations. Analysis and evaluation of actual problems. Written reports required.

204. Problems in Recreation (3)
(Same course as Recreation 204)
A survey of current problems facing the recreation profession, through a review of literature, discussion of trends, and observation of school situations. Analysis and evaluation of actual problems. Written reports required.

205. Curriculum in Physical Education and Health Education (3)
(Same course as Health Education 205)
Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation.

210. Seminar in Facilities for Physical Education (3)
Prerequisite: Major or minor in physical education.
Individual study of problems related to the planning, development and maintenance of physical education and athletic facilities.

211. Seminar in Competitive Athletics for Men (3)
Prerequisite: Major or minor in physical education.
Knowledge and appreciation of the skills, techniques and teaching methods involved with the coaching of athletics; the study of possible solutions to problems associated with the program of competitive school athletics.

212. Seminar in History and Philosophy of Physical Education (3)
Prerequisite: Major or minor in physical education.
The historical and philosophical forces guiding the development of physical education from ancient to modern times.

213. Seminar in Women's Physical Education (3)
Prerequisite: Major or minor in physical education.
An intensive study of selected areas of the women's physical education program.

214. Seminar in Dance Programs (3)
Prerequisite: Major or minor in physical education.
Procedures and evaluation of all forms of educational dance with implications for curriculum planning. Lectures and research. Completion of written project.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL SCIENCE

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professor: Stewart, P.
Assistant Professors: Merzbacher, Nelson, B., Ziegelmaier

Offered by the Division of Physical Sciences

Master of arts degree in the physical sciences for teaching service.
Major in physical science in the general programs (limited to students who have been admitted to teacher education).

Teaching major in physical science and general science leading to the general secondary credential in the postgraduate year.
Teaching minor in physical science and general science for the general secondary credential.

THE MASTER'S DEGREE

The master of arts degree in the physical sciences for teaching service is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN PHYSICAL SCIENCE WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

The major in physical science is available to students who have been admitted to teacher education and have completed at least eight units of professional education courses to include Education 100 and 110 by date of degree candidacy.

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses. Twelve units of these lower division courses in the natural sciences and a maximum of six units of mathematics taken in prerequisite to entrance in Mathematics 50 may be counted in general education. A minor is not required for the degree. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Astronomy 1 and 9; Chemistry 1A, 1B, 5, and 12; Geology 1A or 2 and 3; Mathematics 50 and 51; Physics 4A, 4B, 4C, or 2A, 2B, 3A, and 3B; Biology 3 and 4, or 5 (Total: 48 to 53 units).

Upper Division Requirements. 24 units in the physical and life sciences selected with the approval of the adviser in physical science. Eighteen of the 24 units must be from the following four groups of courses with a minimum of six units from each of two groups and a minimum of three units from each of the other two groups. (See the Postgraduate Year, under the General Secondary Credential, below.)

Group I: Chemistry 110A-110B or 109A-109B, 112, 115A, 115B, 150.

Group II: Physics 101, 103, 105, 110, 112, 120A, 120B, 122, Physical Science 130.

Group III: Mathematics 117, 119, Physical Science 150, Industrial Arts 185.

Group IV: Biology 110, 111, 158, 161, Botany 112, 114, 119-S, Zoology 114, 117 119-S, 121, 165.

Minor

This minor is limited to students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy.

The minor consists of a minimum of 22 units to include three or more units in at least three of the following groups of courses: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; Chemistry 2A-2B or 1A-1B; Geology 2 and 3, or Geology 1A; Physics 2A-2B-3A-3B or 4A-4B-4C; and six upper division units from courses in the physical and life sciences.

TEACHING MAJOR IN PHYSICAL SCIENCE AND GENERAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in physical science and general science may be obtained in one of the following ways:

(1) By completing the major in physical science with the A.B. degree in the general programs and the additional courses required in the postgraduate year.

(2) By completing a major in chemistry or in physics with an A.B. or B.S. degree and the following additional courses, which may be counted in general education: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; and Geology 2 and 3 or 1A. Recommended electives if not otherwise included in the major: Geography 3, Industrial Arts 5, 6, 85, Botany 119-S, Chemistry 12, Geography 153, Physics 101 or Physical Science 130, Physics 120A, and Zoology 119-S. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In the postgraduate program the credential candidate must complete a minimum of six upper division or graduate units in the physical or life sciences, and must have completed a minimum of six upper division units in each of the four groups listed under the major for the A.B. degree in physical science.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN PHYSICAL SCIENCE AND GENERAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

This minor consists of a minimum of 27 units to include the following courses: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; Chemistry 2A-2B or 1A-1B; Geology 1A or 2 and 3; and Physics 2A-2B-3A-3B or 4A-4B-4C. Recommended electives: Geography 3, Industrial Arts 5, 6, 85, Botany 119-S, Chemistry 12, Physical Science 130, 150, Physics 101, and Zoology 119-S.

COURSES IN PHYSICAL SCIENCE

The courses listed below are designed to explore critically topics and concepts in the physical sciences selected for their challenge and significance, and presented in terms of their historical and intellectual development. While of importance to the specialist in science, these courses are of particular value to students in other major fields who seek to broaden and deepen their comprehension of the theoretical as well as the empirical aspects of science, especially as related to their own field of specialization and to contemporary problems and endeavors. This approach to the fundamentals of science is not emphasized elsewhere.

LOWER DIVISION COURSES

*** 1. Principles of Physical Science (3) I, II**
The nature of the physical universe, with emphasis on the whole field of physical science rather than on its separate divisions. This is a general education course in the physical sciences, which may be followed by or, preferably, taken with Physical Science 4 for laboratory credit in the natural science area of general education. Not open to students with credit for or concurrent registration in Physical Science 5 or a college lecture course in physics or astronomy.

*** 2. Principles of Physical Science (3) I, II**
Continuation of Physical Science 1, which course is a recommended but not a required prerequisite. A general education course in the area of the physical sciences. Not open to students with credit for or concurrent registration in Physical Science 5 or a college lecture course in chemistry or geology.

*** 4. Experimental Methods in Physical Science (1) I, II**
Three hours of laboratory.
Prerequisite: Credit for or concurrent registration in Physical Science 1 or 5.
Methods in physical science as illustrated by the use of significant examples from the various disciplines. The technique of observation, measurement, and discovery of relationships. Fulfills the general education laboratory requirement in the natural science area.

*** 5. Fundamentals of Physical Science (3) I, II**
Topics selected from Physical Science 1 and 2 to give a single course for the benefit of those students intending to take only one semester of physical science. This is a general education course in the area of the physical sciences, which may be followed by or, preferably, taken with Physical Science 4 for laboratory credit in the natural science area of general education. Not open to students with credit for or concurrent registration in a college lecture course in astronomy, chemistry, geology, physics, or physical science.

UPPER DIVISION COURSES

120. Physical Science for Elementary Teachers (3) II, Summer
An integrated study of the physical sciences for teachers in order to provide a broad background of information, a consideration of current developments, and an opportunity for individualized work. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

*** 130. Modern Physical Science (3) II**
Recent and current developments in the physical sciences. Discussions concerning such phenomena as radioactivity, cosmic rays, nuclear energy, tracer techniques, radio telescopy, supergalaxies. A general education course in physical science. Not open for credit to physics majors.

140S. Contemporary Problems in Physical Science (1) Summer
A series of six weekly lectures on varied aspects of physical science by scientists engaged in research. Reading and reports required of students enrolled for credit. May be repeated to a total of three units. These lectures are open to the public.

*** 150. Readings in Physical Science (3) I**
Reading of selected materials with informal class discussion of topics. Emphasis on the historical background, the philosophical implications, and the impact of science on our thought and culture. A general education course in the area of the physical sciences.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced physical science. May be repeated with new subject matter for additional credit.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis in one of the physical sciences for the master's degree.

PHYSICS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Moe, Skolil, Smith, L. E.
Associate Professors: Garrison, Morris, Teasdale (Chairman), Wolter
Assistant Professors: Beauchamp, Burns, Clark, O., Craig, Dessel, Sogo, Terhune
Instructors: Alcaraz, Kirkpatrick, Wenzel
Lecturers: Ehricke, Howard, Kalbfell, Muhl, Nichols, M., Norris, Wood

Offered by the Department

Master of arts degree with a major in physics.
Master of arts degree for teaching service with a concentration in physics.
Master of science degree in physics.

Major in physics with the A.B. degree in liberal arts and sciences.
Major in physics with the A.B. degree in the general programs.
Major in physics with the B.S. degree.
Minor in physics.
Teaching major in physical science and general science, with a concentration in physics, leading to the general secondary credential in the postgraduate year.

THE MASTER'S DEGREE

The master of arts degree with a major in physics, the master of arts degree for teaching service with a concentration in physics, and the master of science degree in physics are offered. For further information, refer to the Bulletin of the Graduate Division and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of the prescribed pattern of upper division courses, exclusive of general education.

Required as preparation for the major are the prerequisite and related lower division courses. These courses may not be counted in general education, except for nine units in lower division chemistry and physics and a maximum of six units in mathematics taken in prerequisite to entrance in Mathematics 50. These general education regulations do not apply to the major in liberal arts and sciences which requires a specific pattern of courses for general education.

For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.

A minor is required with the major in physics for the A.B. degree, but is not required for the B.S. degree.

MAJOR IN PHYSICS WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in physics must complete all requirements prescribed in the liberal arts and sciences program. A minor in mathematics, as prescribed by the major department, is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Physics 4A, 4B, 4C, 73, and Chemistry 1A and 1B, or their equivalents.

Upper Division Requirements. A minimum of 24 upper division units in physics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 175, and 190 or 198A and 198B. Students who plan to do advanced work in physics should include Physics 106, 114, 151, and 180 to have preparation acceptable for graduate work in physics. Electives must be approved by the departmental adviser.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Physics Department.

Minor in Mathematics Required. A minor in mathematics is required. The minor consists of Mathematics 50, 51, and 52, or their equivalents, Mathematics 119, 175, and three units from Mathematics 121A, 150A, or 170. (Mathematics 104 acceptable for students admitted to teacher education.) Additional mathematics is recommended for students planning graduate work in physics.

MAJOR IN PHYSICS WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

The major in physics with the A.B. degree in the General Programs is the same as the major in liberal arts and sciences described above, including the minor in mathematics, except that the student will complete the general education requirements instead of the pattern of courses required in the liberal arts and sciences program. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

Foreign Language Requirement. The major in physics with the A.B. degree in the General Programs has the following foreign language requirement: French 2 or German 2 or Russian 2, or their equivalents demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Physics Department.

Students who have been admitted to teacher education who plan to use this major as a preparation for teaching in the secondary schools or junior colleges may substitute Education 100 and 110 for the foreign language requirement.

MAJOR IN PHYSICS WITH THE B.S. DEGREE IN THE GENERAL PROGRAMS

Lower Division Requirements. Physics 4A, 4B, 4C, 73, Chemistry 1A, 1B, Mathmatics 50, 51, and 52, or their equivalents.

Upper Division Requirements. A minimum of 36-39 upper division units in physics and mathematics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 198A, and 198B; Mathematics 119 and 175. The program, planned in consultation with the departmental adviser for this degree, must be designed to provide either a four-year terminal program or preparation to enter the graduate program toward a master of science degree. The following courses are required as a part of the three options approved under this degree:

Applied Physics. Physics 122 and six units selected from Physics 106, 114, 151, 175, 180, and 190. Electives must be approved by the departmental adviser.

Electronics. Physics 160, 163, 173A, and 173B.

Nuclear Physics. Physics 148, 151, and 190.

MINOR IN PHYSICS

The minor in physics consists of 15 to 22 units in physics, six units of which must be in upper division courses.

TEACHING MAJOR FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in physical science and general science may be completed in one of the following ways:

(1) By completing the physical science major with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing a major in physics or in chemistry with an A.B. or B.S. degree and the following additional courses, which may be counted in general education: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; and Geology 2 and 3, or 1A. Recommended electives if not otherwise included in the major; Geography 3, Industrial Arts 5, 6, 85, Botany 119-S, Chemistry 12, Geography 153, Physics 101, 120A, and Zoology 119-S. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In the postgraduate program the credential candidate must complete a minimum of six upper division or graduate units in the physical or life sciences, selected with approval of the adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

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LOWER DIVISION COURSES

NOTE: A maximum of 15 units of lower division physics credit may be applied toward the A.B. or B.S. degrees.

*** 2A-2B. General Physics (3-3) I, II**
Lectures, demonstrations and discussions.
Prerequisites: Two years of high school mathematics. Physics 2A is prerequisite to 2B. Recommended: Concurrent registration in Physics 2A and 3A, and in Physics 2B and 3B.
This course is for liberal arts and certain preprofessional students who do not desire intensive physics preparation. 2A properties of matter, mechanics, heat, and sound; 2B, light, electricity, magnetism, and atomic physics. A physical science general education course in the area of natural science.

*** 3A-3B. Physical Measurements (1-1) I, II**
Three hours of laboratory.
Prerequisite for 3A: Credit or concurrent registration in Physics 2A.
Prerequisite for 3B: Physics 3A and credit or concurrent registration in Physics 2B.
A laboratory course to accompany Physics 2A-2B. 3A: properties of matter, mechanics, heat and sound. 3B: electricity, magnetism, and light. A physical science general education course, either semester of which meets the laboratory requirement in natural science.

4A-4B-4C. Principles of Physics (4-4-4) I, II
Three hours of lecture and three hours of laboratory.
Prerequisite for 4A: Credit or concurrent registration in Mathematics 50.
Prerequisites for 4B: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 51.
Prerequisites for 4C: Physics 4B with a grade of C or better and credit or concurrent registration in Mathematics 52.
This course is designed to give a thorough understanding of the fundamental principles of physics in the areas of mechanics, wave motion, heat, electricity, and light.

*** 5. Practical Physics (4) II**
Three lectures and three hours of laboratory.
Everyday application of physics in heating, lighting, insulating, cooking, nursing, refrigeration, air-conditioning, sound, music, mechanical and electrical appliances. Not open to students with credit for Physics 2A, 2B, 4A, 4B, or 4C. A general education course in physical science which also meets the laboratory requirement in natural science.

73. Introductory Electronics (3) I, II
Prerequisite: Physics 4B.
A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 103.

UPPER DIVISION COURSES

101. Modern Physics (3) I, II
Prerequisite: Physics 4C or equivalent.
Modern developments in physics, including an introduction to the quantum and relativity theories, and to the fields of atomic, nuclear and solid state physics.

103. Basic Electronics (3) I, II
Prerequisites: Physics 4C; or 2B and 3B and a working knowledge of the calculus.
A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 73.

105. Analytical Mechanics (3) I, II
Prerequisites: Physics 4C and Mathematics 119.
Principles of Newtonian mechanics developed through the use of vector methods. Statics and dynamics of particles and rigid bodies.

106. Optics (3) II
Prerequisites: Physics 4C, or Physics 2B and 3B.
A study of reflection, refraction, dispersion, interference, diffraction, double refraction and polarization, with applications to optical instruments. Also wave propagation, radiation, spectra and the nature of light.

110. Electricity and Magnetism (3) I, II
Prerequisites: Physics 4C, 73, and concurrent registration in Mathematics 119, or consent of instructor.
Analysis of direct and alternating current circuits using the operator "j" and circuit theorems; introduction to coupled circuits, resonance and transients. Electrostatics; dieletrics and conductors. Chemical, photo and thermal effects. Electromagnetism, and magnetic properties.

112. Thermodynamics and Kinetic Theory (3) I, II
Prerequisites: Physics 4C and Mathematics 52.
Thermal properties of matter, laws of thermodynamics, kinetic theory of gases, and an introduction to statistical mechanics.

114. Acoustics (3) I
Prerequisites: Physics 73, 105, and 110.
Wave motion and its application to the production, transmission and reception of sound. Development of acoustic circuits using electro-acoustic analogs.

120A-120B. Advanced Physical Measurements (2-2)
Six hours of laboratory.
Prerequisites: Physics 4C and either 73 or 103, or consent of instructor.
A year course stressing laboratory experiments and measurements chosen from all the major areas of physics.

121. Radiation Physics (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Physics 2A, 2B, 3A, and 3B.
X-rays, radioactivity, interactions of radiations with matter, and methods of measurement. May not be used in the physics major. Not open to students with credit in Physics 101.

122. Senior Physics Laboratory (2) I, II
Six hours of laboratory.
Prerequisite: Physics 120B or consent of instructor.
Advanced experimental measurements in the fields of classical and modern physics, such as: acoustics, optics, heat and thermodynamics, mechanics, electricity and magnetism, atomic and nuclear physics, analog computers and physical electronics. With consent of instructor and adviser the course may be repeated with new material to a maximum of four units.

126. Solid State Devices Laboratory (2) II
One lecture and three hours of laboratory.
Prerequisites: Physics 101, 120B, and 170.
Experiments with diodes, crystal rectifiers, transistors, transistor amplifiers, oscillators, modulators, wave-shaping and control circuits, magnetic and dielectric amplifiers, photoelectric and thermoelectric devices.

131. Astronautics (2) I
Prerequisites: Mathematics 119 and Physics 105 or their equivalents.
Applications of celestial mechanics to space flight with particular emphasis on the effect of velocity changes or errors on the vehicle orbit. Analysis of slow and fast energy transfer with tangential or intersecting departure and arrival.

148. Nuclear Physics Laboratory (3) II
One lecture and six hours of laboratory.
Prerequisites: Physics 120B and concurrent registration in Physics 151.
Techniques and instrumentation for the detection, identification and measurement of the properties of nuclear radiations and particles, and their use in the study of nuclear reactions. (Formerly Physics 148B.)

151. Nuclear Physics (3) I, II
Prerequisites: Physics 112 and 190.
Nuclear phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles.

152. Transients in Linear Systems (3) I
Prerequisites: Physics 110 and Mathematics 119, or consent of instructor.
Formulation and solution of equations of behavior of linear electrical and mechanical systems by the Laplace-transform method. Applications of the transform method to lumped parameter systems.

153. Servo-System Design (3) II
Prerequisites: Physics 73 and 152, or consent of instructor.
Regulatory systems, including servomechanisms by the Laplace Transform. System performance and stability. Practical components and examples of typical designs.

155. Analog Computers (3) II
Prerequisites: Physics 73, Mathematics 119, and 175, or consent of instructor.
Electronic integration and differentiation; solution of differential equations; multiplication, division and function generation; simulation of mechanical systems varying with time, solution of typical problems; auxiliary equipment, layout of large installations.

156. Digital Computers (3) I
Prerequisites: Physics 73, Mathematics 7, 119, and 175, or consent of instructor.
The binary number system; electronic and magnetic flip-flop circuits; memory devices; programming; complete computer systems. Auxiliary equipment for inserting information and reading out results rapidly. Typical applications and limitations.

160. Circuit Analysis (3) I, II
Prerequisites: Physics 73 and 110.
Filter design, transmission lines, and network analysis.

163. Electronics Laboratory (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Physics 120B and concurrent registration in Physics 173A.
Dynamic tube and transistor characteristics, cathode ray oscillograph. One stage RC amplifier. One stage and multistage amplifiers including feedback. Equivalent circuits. (Formerly Physics 123.)

164. Applied Electronics Laboratory (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Physics 163 and 173A, or consent of instructor.
An experimental study of chosen topics from: oscillators, multi-vibrators, wave-shaping, filters, gating, modulation, demodulation, signal to noise ratio. (Formerly Physics 124.)

165. Microwave Measurements (2) I
One lecture and three hours of laboratory.
Prerequisites: Physics 163 and concurrent registration in 173B, or consent of instructor.
An experimental study of fundamentals in VHF, UHF, and microwave phenomena; coaxial lines, waveguides, resonant cavities. Microwave frequency generators, impedance, frequency, and power measurements. (Formerly Physics 125.)

166. Honors Course (Credit to be arranged) I, II
An individual study arrangement for students admitted to the Honors Program. Enrollment through the department chairman, subject to the approval by the Committee on Honors. Refer to the Honors Program.

167. Transistor Circuits (3) I
Prerequisite: Physics 173B or consent of instructor.
Properties of transistors and their application to amplifiers, oscillators and trigger circuits.

170. Electromagnetic Theory (3) II
Prerequisites: Physics 110 and credit or concurrent registration in Mathematics 175.
Electrostatics and magnetostatics treated by vector methods; Maxwell's equations, electromagnetic induction, radiation and wave propagation.

173A. Physical Electronics (3) I
Prerequisites: Physics 101, 110, 112, and Mathematics 175.
Conductors, Fermi model, thermionic, photoelectric, and field emission, contact potentials, space charge. Semiconductors, linear equivalent, circuits, elements of frequency and time domain analysis, linear feedback circuits. (Formerly Physics 104A.)

173B. Physical Electronics (3) II
Prerequisites: Physics 160, 163, and 173A, each with a minimum grade of C.
Field approach to transmission lines, coaxial cables, wave guides, resonant cavities, stub matching, radiation and antenna phenomena, interaction of fields and electronic beams and power extraction from fields. (Formerly Physics 104B.)

175. Advanced Mechanics (2) I
Prerequisites: Physics 105 and Mathematics 119.
Special theory of relativity, generalized coordinates, Lagrangian and Hamiltonian formulations, normal coordinates and theory of vibrations.

180. Solid State Physics (3) II
Prerequisites: Physics 170 and 190.
Elastic, thermal, electric, magnetic and optical properties of solids. Introduction to the energy band theory of solids, with applications to dielectrics, semi-conductors, and metals.

190. Introductory Quantum Mechanics (3) I
Prerequisites: Physics 101, 105, 112, Mathematics 119 and 175.
The physical basis of the quantum theory and its mathematical formulation in terms of Schroedinger's wave equation.

196. Advanced Physics (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in classical and modern physics. May be repeated with the approval of the instructor for a total of six units.

198A. Senior Report (1) I, II
One discussion period.
Prerequisite: An acceptable master plan for graduation within one year.
Selection and design of individual project; oral and written progress reports.

198B. Senior Report (2) I, II
Prerequisite: Physics 198A.
Laboratory work, progress reports, oral and written final reports. Six hours of laboratory per week.

199. Special Study (1-6) I, II
Individual study or laboratory work on a special problem in physics selected by the student. Each student will be assigned a member of the staff who will supervise his work. Credit, hours and topics to be arranged in each case. Six units maximum credit.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced physics. May be repeated with new subject matter for additional credit.

205. Theoretical Mechanics (3) II
Prerequisite: Physics 175 or consent of instructor.
An intensive study of mechanics utilizing vector and tensor methods. Study of the motion of rigid bodies, vibration, coupled circuits. Lagrange's and Hamilton's equations. Principle of least action.

210A-210B. Mathematics of Physics (3-3)
(Same course as Mathematics 210A-210B.)
Prerequisite: Admission into a master's degree program.
Selected topics from matrix theory, vector and tensor analysis, orthagonal function theory, calculus of variations and probability theory with particular emphasis on applications to physical theory.

214. Advanced Acoustics (2) II
Prerequisite: Physics 114 or consent of instructor.
An intensive study of the acoustic wave equation in two and three dimensions. Propagation of sound in bounded media and enclosures. Radiation and scattering. Electrical-mechanical-acoustical elements and circuits.

219. Statistical Mechanics (3) II
Prerequisites: Physics 112, 175, and 190; or consent or instructor.
Foundations of Statistical Mechanics. Applications to Physical Systems. Includes classical and quantum statistics, kinetic theory, low pressure phenomena, Boltzmann transport equation, irreversible processes.

225. Microwaves (2) II
Prerequisite: Physics 165 or equivalent.
Generation and detection, propagation and attenuation in wave guides and ferromagnetic components. Nuclear resonance, radio and microwave spectroscopy, masers, atomic clock, radio astronomy.

231. Advanced Astronautics (2) II
Prerequisite: Physics 131 or consent of instructor.
Special emphasis on perturbations due to inhomogeneity of the central force field.

240A-240B. Reactor Materials Technology (3-3)
Prerequisites: Physics 180, 190, and Chemistry 161.
A study of certain engineering, chemical, and nuclear properties of materials used in reactors, and of the influence of the reactor environment on these properties.

245A-245B. Reactor Theory (3-3)
Prerequisites: Physics 151 and 190.
Theory of chain reactions and their application to the operation of various types of reactors. Kinetics, theoretical design, and control of reactors in relation to the fundamental nuclear processes.

246. Problems in Reactor Design Parameters (3)
Concurrent registration in Physics 240B, 245B, and 248B required.
A combined seminar and group project course in which the class will be assigned a specific, detailed reactor problem. Subgroups will work on specific problems within the main reactor design problem.

248A-248B. Reactor Laboratory (2-2)
Prerequisites: Chemistry 161, Physics 148, and concurrent registration in Physics 245A-245B.
Measurement of the static and dynamic characteristics of a reactor. Reactor operation, reactor radiations, neutron flux properties and temperature effects. Use of the reactor as an experimental tool.

251. Nuclear Physics (3) II
Prerequisites: Physics 151, 175, and 190; or consent of instructor.
Applications of quantum theory to nuclear physics. Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics.

260. Advanced Electronics (3) II
Prerequisite: Physics 173B or consent of instructor.
Selected advanced topics in contemporary electronics.

261. Pulse and Digital Circuits (2) I
Prerequisites: Physics 160 and 173B, or consent of instructor.
Analysis of multivibrators, time base generators, pulse transformers, blocking oscillators, delay lines, counting circuits, digital computer circuits, and transmission gates. Design of practical circuits.

270. Electromagnetic Theory (3) I
Prerequisite: Physics 170 or consent of instructor.
Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides.

275. Quantum Mechanics (3) II
Prerequisites: Physics 151, 175, and 190; or consent of instructor.
The physical basis of quantum mechanics. Schroedinger's wave equation, and Heisenberg's matrix mechanics. Quantum theory of radiation, molecular, and nuclear systems. Approximation methods.

280. Theory of the Solid State (3) I
Prerequisites: Physics 175, 180, and 190; or consent of instructor.
The energy band theory of solids, with applications to the electrical and optical properties of dielectrics, semi-conductors, and metals.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis in physics for the master's degree.

POLITICAL SCIENCE

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Bigger, Generales, Janssen, Joy, Leiffer, Nigro, Wilcox (Chairman)
Associate Professor: Padgett
Assistant Professors: Crain, Feierabend, Gripp, Kitchen, Kubanis
Lecturer: Rao

Offered by the Department

Master of arts degree with a major in political science.
Master of arts degree for teaching service with a concentration in social science (political science).
Master of science degree in public administration.
Major in political science with the A.B. degree in liberal arts and sciences.
Major in public administration with the A.B. degree in the general programs.
Major in public personnel management with the A.B. degree in the general programs.
Minor in political science.
Minor in public administration.
Certificate (nondegree) in public administration.

THE MASTER'S DEGREE

The master of arts degree with a major in political science, the master of arts degree for teaching service with a concentration in social science (political science), and the master of science degree in public administration are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are prerequisite and related lower division courses. The major in liberal arts and sciences has an additional requirement in foreign language.

MAJOR IN POLITICAL SCIENCE WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in political science must complete all requirements prescribed in the liberal arts and sciences program. A minor to be approved by the department chairman of the major field is required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Political Science 71A-71B or 90 and 91.

Upper Division Requirements. A minimum of 24 upper division units to include (a) three units in Political Science 197 or 198 and (b) 21 upper division units in political science distributed among at least three of the groups listed below, *provided* that at least three units shall be taken in Group I.

Group I, Political Theory. Courses numbered 100 to 114.

Group II, Politics. Courses numbered 115 to 129.

Group III, Public Law. Courses numbered 130 to 139.

Group IV, Public Administration. Courses numbered 140 to 164.

Group V, International Relations. Courses numbered 165 to 179.

Group VI, Comparative Government. Courses numbered 180 to 195.

Students majoring in political science are advised to become as familiar as possible with related social science fields.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Political Science Department.

Major in the General Programs

For a limited time, transfer students may elect the major in political science under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for the major are the same as those for the major in liberal arts and sciences described above, except that foreign language is not required. In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program. A minor is required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN PUBLIC ADMINISTRATION WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

A major in public administration is offered with the A.B. degree. (For a complete description of this major, refer to the section of this catalog on Public Administration.)

MAJOR IN PUBLIC PERSONNEL MANAGEMENT WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Students majoring in public personnel management must complete 45 units of general education courses in addition to the major. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Lower Division Requirements. Political Science 71A-71B, Economics 1A-1B, Psychology 1 (which may be counted in general education) and Psychology 11.

Upper Division Requirements. Thirty-eight upper division units to include Political Science 140, 144, 145, 146, 147, 198; Economics 150, 151, 185; Psychology 104A, 105, 121, and 152. Another political science course may be substituted for Political Science 198 on the basis of individual counseling. Recommended in addition to the major: Business Administration 134, Economics 131, Political Science 142, 143, 155, and Psychology 131.

MINOR IN POLITICAL SCIENCE

The minor in political science consists of 15 to 22 units in political science, nine units of which must be in upper division courses.

MINOR IN PUBLIC ADMINISTRATION

For a description of the minor in public administration, refer to the section of this catalog on Public Administration.

CERTIFICATE (NONDEGREE) PROGRAM

A Certificate in Public Administration (a nondegree program) is offered by the Department of Political Science. (For a description of this program, refer to the section of this catalog on Certificates, under The General Programs.)

PROGRAMS FOR GOVERNMENTAL SERVICE

Students preparing to work in government service may wish to follow one of the programs named above, take minor work in political science or public administration, or advanced study for a master's degree. Also available is a program in Latin American Studies, offered by the Division of the Social Sciences.

PUBLIC AFFAIRS RESEARCH INSTITUTE

The Public Affairs Research Institute is an agency of San Diego State College. It is organized to conduct research on a nonprofit basis into community and governmental problems of a public and/or administrative nature. The institute is staffed by members of the faculty of San Diego State College and operates under the advisory supervision of a board appointed by the president of the college. Closely associated with the institute is the Public Administration Center with a specialized and growing collection of research materials. The institute engages in cooperative or joint research efforts with the various departments of instruction, institutes and research centers of the college. Administration of the institute is under a director.

GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U.S. history, U.S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

(1) Political Science 71A and 71B.

(2) Political Science 115 and 142 or 143 or 148.

(3) Political Science 107A and 107B plus approved tests or courses on United States history, institutions and ideals.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

LOWER DIVISION COURSES

*** 71A-71B. Introduction to American Government and Politics (3-3) I, II**

The origin and development, structure and operation of the government of the United States, national, state, and local. This year course meets the graduation requirement in American history, institutions and ideals. The first semester course, 71A, also meets the requirement in United States Constitution. The second semester course, 71B, meets the requirement in California state and local government. A general education course in the social sciences. Ordinarily not open to students with credit in History 17A-17B. Political Science 71A-71B may be taken by such students with consent of the chairman of the Political Science Department. 71A or 71B is not open to students with credit in Political Science 115.

*** 90. Principles of Political Science (3) I, II**
Principal concepts of political science, utilizing the theories of some of the great political philosophers and examples drawn from contemporary governments. A general education course in the social sciences.

*** 91. The Political Process (3) I, II**
Analytical models and techniques for examination of the problems of decision making and control. Patterns of political action in various cultural contexts. A general education course in the social sciences.

UPPER DIVISION COURSES

Political Theory (Group I)

*** 105. American Political Thought (3) I, II**
A survey of the development of American ideas concerning political authority from the period of colonial foundation to the present time. A general education course in the social sciences.

*** 107A-107B. Constitutional Government (2-2)**
Modern government and politics; its theoretical foundations, institutions and problems. Emphasis will be on American experience with useful comparisons with other countries. Either semester may be taken first. A general education course in social science. This year course meets the graduation requirement in the United States Constitution. The second semester course, 107B, also meets the graduation requirement in California state and local government.

*** 111A-111B. Theory of the State (3-3)**
(Same course as Philosophy 111A-111B)
Prerequisite: Political Science 111A is prerequisite to 111B.
The nature of the State, its organization and activities, and its relation to the individual and other states. A general education course in social science.

*** 112. Modern Political Thought (3) I, II**
Concepts concerning the nature of the state from Burke to the present. A general education course in social science.

Politics (Group II)

*** 115. American Institutions (3) I, II**
The principles of the Constitution of the United States of America, and a survey of the political and social institutions which have developed under the Constitution. A general education course in social science which also meets the graduation requirement in the United States Constitution and California state and local government. When taken with Political Science 142 or 143 or 148, will also meet requirements in American history, institutions, and ideals. Not open to students with credit in Political Science 71A or 71B.

116. American National Government (3) I, II
Prerequisite: Political Science 71A or 115.
An intensive examination of the primary institutions of the national government. Critical analysis of changing aspects of traditional relationships among the institutions of president, congress, and the judiciary.

120. Political Parties (3) I, II
A critical analysis of the political party as a part of the process of government; party organization and activities; nominating and campaign methods; theories and functions of the party system; party responsibility. Special emphasis will be placed upon the function of the two-party system in American government.

122. Propaganda and Public Opinion (3) I, II
(Same course as Journalism 132)
A study of the forces which mold the American public mind, the practice of propaganda, a description and analysis of public relations, pressure groups and their effect in American public life.

123-S. Contemporary American Politics (3) Summer
A consideration of a selected group of current major political problems in terms of their possible future implications and of their relationship to established American democratic principles and ideals.

124. Political Behavior (3)
Selected social and cultural factors affecting political behavior; role of groups in formation of political preference, participation, attitudes; voting behavior; emphasis on quantitative research data.

125. The Legislative Process (3) I, II
A detailed analysis of legislatures. Special attention will be devoted to the impact of dynamic factors on formal procedures.

Public Law (Group III)

136. Administrative Law (3) II
The law of public office and public officers, powers of administrative authorities, scope and limits of administrative powers, remedies against administrative action.

*** 138. Introduction to Jurisprudence (3) I**
The development of legal systems and theories of the function of law. A general education course in social science.

*** 139A-139B. American Constitutional Law (3-3)**
Prerequisite: Political Science 139A is prerequisite to 139B.
Principles of American Constitutional law. Includes judicial review, the federal system, the separation of powers, the nature of selected Congressional powers, and the liberties protected by the constitution against national and state action. A general education course in social science. Meets the graduation requirement in the United States Constitution.

Public Administration (Group IV)

140. Introduction to Public Administration (3)
Administration of public services; organization and procedure in theory and practice; dynamics of public management; politics and administration; responsible bureaucracy.

142. State Government (3) I, II
A study of the political structure and its operation used in the carrying on of the functions exercised by the state; state-federal relations; state-local government relations; particular emphasis on California government. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American History, institutions, and ideals, and in the U.S. Constitution.

143. Municipal and County Government (3) I
A study of the organization and its operation used to carry into effect the functions assigned to local governmental units; particular emphasis upon local government in California. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U. S. Constitution.

144. Introduction to Public Personnel Administration (3) I, II
Prerequisite: Consent of instructor.
An introduction to the field, giving general coverage of the problems involved in recruitment, placement, supervision, etc., of public employees.

145. Human Factors in Management (3) I, II
(Same course as Business Administration 145)
Prerequisite: Political Science 144.
Organizations as social systems; power and authority; communication, motivation and leadership; impacts of technology on management and workers, resistance to change; human needs and the imperatives of management.

146. Wage and Salary Administration (3) I
(Same course as Business Administration BA 142)
Prerequisite: Political Science 144.
Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice.

147. Government and Public Policy (3)
Theory and practice of process of formulating public policy; roles of administrators, legislators, courts, interest groups, and political parties; public agencies and public interest; case studies in formulating public policies.

148. The Government of Metropolitan Areas (3) I, II
A study of the governmental problems of metropolitanism; overlapping of governments, services, planning and financing. The use of intergovernmental contracts for public service, proper public service areas, and special authorities. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

149. Comparative Public Administration (3)
Prerequisite: Political Science 140 or equivalent.
Administrative organization and process in selected foreign and American governments. Analysis of the cultural basis of administrative systems.

151. California Law of Municipal Corporations (2) II
California law governing the nature, regulation and control of the counties, charter cities, sixth class cities, school districts and special districts. The creation, alteration, dissolution, legal actions by and against, powers and duties; rights and liabilities of local governments.

152. Administrative Management (3) I, II
Areas and problems of administrative research; methods of analyzing structures and procedures in organizations; planning and administration of programs; design of forms; job classification and salary surveys; preparation of administrative reports.

153. Case Studies in Public Administration (3) I, II
Prerequisite: One course in public administration or consent of instructor.
Analysis, by case studies, of management problems in public agencies and the organization and methods techniques used to solve them. Practical limitations upon the use of these techniques.

157. Public Relations of Public Agencies (3)
Prerequisite: Political Science 140 or equivalent.
Theory and practice of public relations in government. Public opinion and clientele groups in relation to administrative agencies. Problems in public relations of public agencies. Techniques of public relations.

160. Principles of Planning (2 or 3) I, II
An introduction to community planning: regional, county, and city. Consideration of the Master Plan, including its purposes, contents, and method of adoption.

161. Field Studies in Government (3) II, Summer
Prerequisite: Consent of instructor.
Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspection of work operations and facilities in management, public safety, public works and utilities, and other major governmental operations.

162. Finance Administration (2 or 3) I
Principles and practices studied from the administrator's viewpoint. Problems of revenue, debt and treasury management, current and capital budget preparation and administration; purchasing and stores supervision; accounting and control and financial reporting.

Honors Course

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

International Relations (Group V)

165. Dynamics of Modern International Crises (3) I
Prerequisite: Consent of instructor.
The determination and analysis of facts surrounding international crises since World War II; the evaluation of these crises and their effects upon external policies of the Uunited States and the operations of the United Nations.

*** 168-S. Institute on World Affairs (3) Summer**
Contemporary problems in international relations. May be repeated once for course credit with permission of the instructor. A general education course in social science.

*** 170A-170B. International Relations (3-3)**
A historical and analytical consideration of the basic factors—historic, geographic, economic, ideologic, and strategic—which underly and condition the modern conflict between the "sovereign state" and the "community of nations." Fall semester: Origins and development through the nineteenth century. Spring semester: Twentieth century experimentation and conflict. A general education course in social science.

171. The Conduct of American Foreign Relations (3) II
An examination of the legal, administrative, and political organizations by which American foreign policies are formulated and implemented.

172. International Organization (3) I
A critical analysis of the organization by which the international community seeks to provide for the exercise of legislative, administrative and judicial functions on the international level: diplomatic and consular corps; conferences; administration through commissions and unions; amicable procedures for settlement of disputes; the League of Nations-United Nations experiment.

173. Principles of International Law (3) I
The function of law in the international community. The historical development of the ideas and rules of international law and their place in the modern diplomatic and legal structure.

175. International Relations of the Latin American States (3) II
The foreign policies of the Latin American states; the organization of American states; relationships with the United Nations and with the United States.

Comparative Government (Group VI)

180. Government of England (3) I
The structure and functioning of the English parliamentary system with emphasis upon present day political principles and parties.

181. Government of the Soviet Union (3) I
Theory and practice of government in the Soviet Union, with some attention to foreign affairs.

182. Political Systems of South America (3)
Government and politics of selected South American countries. Values, governmental institutions and patterns of political activity which condition domestic and foreign policy.

183. Governments and Politics of South and Southeast Asia (3)
The internal political systems and foreign policies of India, Pakistan, Thailand, the Indochinese area, Indonesia, and the Phillipines.

184. The Mexican Political System (3)
Principal factors in Mexican governmental decision-making. Ideology, political groups, tactics of leaders and governmental structure.

185. Governments of Continental Europe (3) I, II
An analysis of the political systems of the countries of western continental Europe.

187. Governments and Politics of the Far East (3)
The internal political structure and foreign policies of China, Japan, and Korea.

188. Governments and Politics of the African States (3)
Political institutions and philosophies of selected African states.

196-S. Institute of Public Affairs (1-3) Summer
Study of selected phases of American or Comparative Government. May be repeated to a maximum of six units of course credit with new content and consent of instructor.

197. Investigation and Report (3) I, II
Analysis of special topics. Admission by permission of instructor.

198. Internship in Public Administration (2-6) I, II
Prerequisite: Consent of instructor.
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

EXTENSION COURSE

X-141. Government Report Writing (2)
Actual writing problems in government, including surveys, recommendations, studies, analysis, progress reports, annual reports, etc., are discussed and their solutions analyzed. Attention to methods of collecting and organizing data, and practice in effective presentation of facts and ideas. Special consideration is given to problems of class members.

GRADUATE COURSES

200. The Scope and Method of Political Science (3)
The discipline of political science and systematic training in its methodology. Required of all applicants for advanced degrees in political science.

210. Seminar in Political Theory (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

215. Seminar in American National Government (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

220. Seminar in Politics (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

230. Seminar in Public Law (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

240. Seminar in Public Administration (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

250. Seminar in Local Government (3)
Selected problems of state and local government and inter-governmental relations. May be repeated with new content to a maximum of six units with consent of graduate adviser.

260. Planning and Public Policy (3)
Prerequisites: Appropriate undergraduate courses in planning, political science, or related fields.
Relationship of the planning process to governmental policies and administration. Examination of social, political, and administrative problems involved in planning governmental programs and community facilities.

270. Seminar in International Relations (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

280. Seminar in Comparative Government (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

290. Bibilography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Problem Analysis (3)
Analytical treatment of selected problems in political science. Review of methods for investigation and reporting of data. Consideration of problems in preparation of projects or thesis.

296. Internship in Public Administration (1-6)
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by consent of instructor.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

PORTUGUESE

IN THE DIVISION OF THE HUMANITIES

Faculty
Assistant Professor: Freitas

Offered by the Department of Foreign Languages
Courses in Portuguese.
Major or minor work is not offered.

UPPER DIVISION COURSES

131. Portuguese (3) I
Prerequisite: 22 units of college Spanish, including Spanish 101A and 101B, or consent of instructor.
An accelerated course covering various aspects of the language and literature of the Portuguese world.

132. Portuguese (3) II
Prerequisite: Portuguese 131 or equivalent.
Continuation of Portuguese 131.

PSYCHOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty
Professors: Carlson, H., Kaplan, McCollom, Treat, Turner, M. B. (Chairman), Voeks
Associate Professors: Crow, Daniel, Harrison, Hunrichs, Leukel, Rumbaugh, Sidowski, Stevens
Assistant Professors: Abraham, Eason, Horowitz, Kass, Kinnon, O'Day, Penn, Psomas, Rechtschaffen, Smith, J. R.

Offered by the Department

Master of arts degree with a major in psychology.

Master of arts degree for teaching service with a concentration in psychology.

Master of science degree in applied psychology.

Major in psychology with the A.B. degree in liberal arts and sciences.

Major in psychology with the A.B. degree in the general programs (limited to students in teacher education).

Minor in psychology.

Major in psychology leading to the general secondary credential in the postgraduate year.

Center for Survey Research.

THE MASTER'S DEGREE

The master of arts degree with a major in psychology, the master of arts degree for teaching service with a concentration in psychology, and the master of science degree in applied psychology are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

Undergraduate Preparation

Before beginning work which can count toward meeting requirements for a master's degree in psychology, the student must

(1) Have completed 24 units of upper division work in psychology, including Psychology 104A, 105, 110, 178, and one of the following: 111, 112, 113, 114, or the equivalents,

(2) Have an over-all grade point average of 3.0 in his last 60 units of work,

(3) Have a percentile rank of 50 or higher on the psychology department comprehensive examination "total."

All students in psychology must complete satisfactorily the following courses (or their equivalents), either as a part of the undergraduate or graduate work: Psychology 104B, 175, and 177. Transfer students from other colleges are also required to take Psychology 201, preferably during their first semester here.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses. A minor is not required. The major in liberal arts and sciences has an additional requirement in foreign language. (For a description of graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN PSYCHOLOGY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Two plans are provided for the major in psychology: **Plan A** for those students who wish to extend their liberal arts education in the field of psychology; and **Plan B** for those students expecting to pursue the study of psychology beyond the A.B. degree.

Students taking this major in psychology under either plan must complete all requirements prescribed in the liberal arts and sciences program, including the foreign language requirement. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Psychology Department.

Plan A

Plan A is for a nonprofessional major in psychology and is designed to provide the student with a greater understanding of his expanding group relations leading to happy and effective family and community living. The recommended pattern of courses for this program is not designed to facilitate graduate and professional study in psychology.

Lower Division Requirements. Psychology 5 and 6. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Upper Division Requirements. A minimum of 24 upper division units in psychology to include Psychology 106, 131, and 145. It is expected that each student under Plan A will select, with the assistance of his adviser, a pattern of courses in line with his particular objectives in pursuing Plan A. For most students in Plan A, the following courses will be found particularly helpful: Psychology 105, 107, 122, 150, and 152.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Anthropology 1, 2; Biology 1, 160; Economics 1A-1B, 102; Health Education 90; Philosophy 1A-1B; Zoology 165; and courses in home economics.

Plan B

The purpose of Plan B is to facilitate the specific preparation of those students who wish to pursue graduate and professional preparation in clinical, industrial and personnel, social, and theoretical-experimental psychology.

Lower Division Requirements. Psychology 5 and 6; and Zoology 22 and 23. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Upper Division Requirements. A minimum of 24 upper division units in psychology to include Psychology 104A, 105, 110, 178, and one of the following: 111, 112, 113, or 114; and nine additional units selected from courses in consultation with the departmental adviser.

MAJOR IN PSYCHOLOGY WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS FOR STUDENTS IN TEACHER EDUCATION

The major in psychology with the A.B. degree in the general programs is limited to students who have been admitted to teacher education for the general secondary credential. The major is the same as the major in liberal arts and sciences described above, except that foreign language is not required. Students will complete the general education requirements instead of the pattern of courses required in the liberal arts and sciences program. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

For a limited time, transfer students who are not in teacher education may elect the psychology major under regulations for the general programs. (For availability of this major, refer to the section of this catalog on the A.B. Degree in the General Programs.)

MINOR IN PSYCHOLOGY

The minor in psychology consists of 15 to 22 units in psychology, nine units of which must be in upper division courses.

PSYCHOLOGY MAJOR FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a nonteaching major in psychology, two teaching minors, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

The major in psychology for the general secondary credential may be used as a major for the A.B. degree in the general programs by students who have been

admitted to the general secondary credential program in teacher education. These students must complete 45 units of general education courses in addition to the major. A minor is not required for the degree, but two teaching minors are required for the credential. A foreign language is not required unless the student takes the psychology major in liberal arts and sciences. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Requirements

Psychology Major. This is a nonteaching major in psychology which must be accompanied by two teaching minors when offered as part of the general secondary credential requirements.

Lower Division Requirements: Psychology 5 and 6.

Upper Division Requirements. A minimum of 24 upper division units in psychology to include Psychology 104A, 105, 110, 131, 151, and nine upper division units in psychology selected with approval of the departmental adviser. Students taking the psychology major in liberal arts and sciences, described above, must include the upper division courses listed here as part of the major.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. In addition, the student majoring in psychology must complete Psychology 201 (3 units).

Teaching Minors. In the undergraduate program the student should include two of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

CENTER FOR SURVEY RESEARCH

The Center for Survey Research has been established to encourage nonprofit research in the sample survey field. The Center is prepared to undertake surveys requested by government or nongovernment organizations, and to do field work on a local, state, or national basis. Faculty members who wish to submit applications for off-campus support in survey research in the name of the Center may do so, upon approval of the project by the Center's Advisory Committee. The Center is administered by a Director.

LOWER DIVISION COURSES

*** 1. General (3) I, II**
An introduction to some of the facts, principles, and concepts which are basic to understanding human behavior. A required general education course in psychology.

2. Psychology Laboratory (1)
One lecture and three hours of laboratory.
Prerequisite: Psychology 1.
Application of experimental methods to psychological problems. Includes design and execution of experiments.

5. Principles of Psychology: Basic Organization of Behavior (3) I, II
Prerequisites: Psychology 1 and sophomore standing.
The basic sensory, neural and motor mechanisms and their functions in human behavior.

6. Principles of Psychology: Learning and Integrated Behavior (3) I, II
Prerequisites: Psychology 1 and sophomore standing.
Attending, perceiving, and learning, including social learning, personality development, and conditions of efficient work.

*** 11. Applied Psychology (3) I, II**
Prerequisite: Psychology 1.
A survey of the application of the basic principles of psychology to business, education, industry, government, law, medicine and related fields. A general education course in psychology.

*** 12. Psychology of Individual Adjustment (3) I, II**
Prerequisite: Psychology 1.
An examination and interpretation of the factors which go into the making of the person as he adapts himself to the social world about him. The development of the normal personality. A general education course in psychology.

*** 14. Applied Group Dynamics (3) I, II**
Two lectures and four hours of laboratory.
Prerequisite: Psychology 1.
Psychological analysis of group processes and training in the human relations skills necessary for effective participation in groups. A general education course in psychology.

UPPER DIVISION COURSES

104A. Statistical Methods in Psychology (3) I, II
Prerequisite: Psychology 1.
An introduction to the use of quantitative methods in psychology, with emphasis upon measures of central tendency and variability, graphic methods and percentiles, linear correlation, and the applications of the normal probability curve. Not open to students with credit for another upper division course in statistical methods.

104B. Advanced Statistics (3) II
Prerequisites: Mathematics 3 and Psychology 104A, or consent of instructor.
A further study of quantitative methods in psychology with particular emphasis on methods of correlation, chi-square, and contingency, and an introduction to the analysis of variance.

105. Psychological Testing (3) I, II
(Same course as Education 150)
Prerequisite: One of the following courses: Psychology 104A, Education 120, 151, and 152, or a semester of statistical methods in any other department.
The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

*** 106. Developmental Psychology (3) I, II**
Prerequisite: Psychology 1.
A study of the psychological development of the normal individual from conception through childhood, adolescence, maturity, and old age. Stress is laid upon the interdependence of the various periods of the individual's life. A general education course in psychology or in family life education.

*** 107. Psychology of Later Maturity (3) II**
Prerequisite: Psychology 1.
The psychological, physiological, and sociological factors influencing behavior in the later years of life. A general education course in psychology.

109. Mental Deficiency (3) I, Summer
Prerequisite: One of the following: Psychology 106, Education 110, 112, 113, or equivalents.
The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective.

110. Introduction to Experimental Psychology: Learning and Motivation (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Psychology 5, 6 and 104A.
Introduction to experimental method in psychology; application to learning and motivation.

111. Experimental Psychology: Sensation and Perception (3) I
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to sensation and perception.

112. Experimental Psychology: Social (3) II
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to social behavior.

113. Experimental Psychology: Physiological (3) I
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to physiological concomitants of behavior.

114. Experimental Psychology: Comparative (3) II
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to animal behavior and comparative psychology.

121. Personnel and Industrial Psychology (3) I, II
Prerequisite: Psychology 104A or Sociology 160.
Psychological principles applied to problems of selection and assignment of industrial personnel, employee training, and fatigue.

122. Public Opinion Measurement (3) I
(Same course as Journalism 122)
The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

124. Engineering Psychology (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Psychology 1 and upper division standing.
Psychological problems of man-machine systems. Visual, auditory, and other sensory factors involved in the inter-relations between man and machines. Motion-study, work arrangement, fatigue, and environmental influences in relation to production.

130. Educational Psychology (2) I, II
(Same course as Education 111)
Prerequisite: Psychology 1.
To develop understanding of the applications of psychological research for effective classroom teaching. Observation and field work required. Not open to students with credit in Education 111.

131. Psychology of Personality (3) I, II
Prerequisite: One full year of psychology.
The principles of personality and their application to problems of adaptation and mental hygiene.

133. Principles of Interviewing (3) I, II
Prerequisites: Six units of psychology. Recommended: Psychology 12, 14, or 131.
Psychological factors in interviewing; interviewing techniques. Supervised practice in interviewing for purposes of personnel appraisal and development.

141. Neural Bases of Behavior (3) I
Two lectures and two hours of activity periods.
Prerequisites: Psychology 5 and 6; or nine units in biological sciences.
Elements of neurology, with particular attention to the psycho-physiology of sensory mechanisms and motor systems.

142. Physiological Psychology (3) II
Two lectures and two hours of activity periods.
Prerequisites: Psychology 5 and 6 and three hours of biology; or nine hours of biology.
The neurophysiology of emotion, sleep, bodily needs, instinctive patterns of behavior, and of learning; brain and behavior disorders.

***145. Social Psychology (3) I, II**
The major problems and findings concerning group behavior and group membership, the socialization of the individual, and processes of social interaction. A general education course in psychology. Not open to students with credit in Sociology 140.

150. Abnormal Psychology (3) I, II
Prerequisite: One full year of psychology.
The psychology of behavior disorders, with emphasis on the amentias, neuroses, and psychoses.

151. Introduction to Clinical Appraisal (3) I, II
Prerequisites: Psychology 105 and 150, or Education 170 plus Education 151 or 152 or 120; and one additional course in psychology selected from the following: Psychology 105, 106, 131, 142, or 150.
A study of diagnostic devices in psychology, tests of clinical significance, ratings, and interviewing. Projective and case study analyses; problems of insight, rapport, empathy, and prediction of individual behavior.

152. Introduction to Methods of Counseling (3) I, II
Two lectures and two hours of activity periods.
Prerequisites: Senior standing in psychology or presocial work, and consent of instructor.
An introduction to problems and methods of counseling and adjustment. The utilization of psychological principles and techniques in dealing with various types of guidance situations. Not open to students with credit in Psychology 233 or Education 233.

153. Advanced Abnormal Psychology (3)
Prerequisite: Psychology 150.
An intensive study and evaluation of research methodology and current literature concerning the neuroses, psychoses, aphasias, ataxia, mental defect, and psychopharmacology.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

175. Theories of Learning (3) II
Prerequisites: Psychology 1, 5, 6, 104A; or consent of instructor.
A critical study of the facts, principles, and major theories of learning.

177. History of Psychology (3) II
Limited to psychology majors with senior standing and to graduate students.
A survey of the historical background of modern psychology.

178. Theories of Personality (3) I, II
Prerequisite: Major in psychology with senior or graduate standing.
Integration of the findings from perception, learning, motivation, and from physiological and social psychology through a systematic treatment of personality theories and of related experimental data.

180-S. Contemporary Problems in Psychology (1) Summer
Lectures open to the public.
Enrollment for credit limited to upper division and graduate majors in psychology; or consent of instructor.
A series of six weekly lectures by visiting psychologists on subjects related to current research problems. Reading and reports required of students enrolled for credit.

199. Special Study (1-6) I, II
Individual study, including library or laboratory research and a written report. Six units maximum credit.
Prerequisites: Senior standing and consent of instructor.

GRADUATE COURSES

201. Seminar (3) I
Prerequisites: 24 units in psychology, which may include educational psychology courses in the Education Department.
A review, integration, and supplementation of the student's knowledge of psychology.

202A-202B. Contemporary Psychology (3-3)
Prerequisite: Bachelor's degree in psychology or permission of the coordinating instructor.
A comprehensive survey of contemporary literature in psychology, dealing with recent developments in the areas of learning and motivation, perception, psychophysiology, personality and psychodynamics, social behavior, and experimental inference.

204. Individual Psychological Testing (3)
One lecture and six hours of laboratory.
Prerequisites: Psychology 104A and 105.
Principles of individual testing. Instruction and practice in the administration and scoring of the Stanford-Binet, Wechsler scales, and some similar tests.

205. Advanced Mental Testing (3) II
Two hours of lecture and three hours of laboratory.
Prerequisites: Psychology 104A, 105, 151, and 204.
The theory of mental testing and a comprehensive survey of various verbal and nonverbal individual mental tests. Supervised administration, scoring and interpretation of some individual psychological tests. Tests other than the Wechsler scales and the Stanford-Binet are stressed.

211. Advanced Clinical Psychology (3) I
Two hours of lecture and three hours of laboratory.
Prerequisites: Psychology 151, 152, and 204.
Seminar integrating psychological testing, counseling, and clinical research. Includes supervised laboratory experience in counseling and in integrating data involved in clinical cases.

220. Seminar in Human Relations in Industry (3) II
Prerequisite: Psychology 121 or Business Administration 145.
Applications of psychological principles and methods of investigation to problems of industrial relations and motivation of employees; factors influencing morale and employee productivity; criteria of job proficiency; psychological aspects of worker-management relationships and leadership.

221. Seminar in Problems in Social Psychology (3) II
Prerequisites: Psychology 104A, 145, 110 or 111, and 175; or consent of instructor.
Factors influencing the formation of attitudes, opinions, and stereotypes; the establishment of roles during socialization of the individual; social crises, change, and resistance to change; the causes and alleviation of interpersonal confiict.

222. Seminar in Theoretical Psychology (3) I
Prerequisites: Psychology 175 and 178.
Basic concepts and principles integrating information in the areas of learning, emotion, motivation, personality, and social interaction. Relationships of scientific methods to the formation and testing of hypotheses and other conceptualizations. Limited to students who have a qualifiying score on the Psychology Department Comprehensive Examination.

223. Experimental Design (3) I
Prerequisites: Psychology 104B and 110.
Principles and methods of planning and carrying out systematic investigations to answer questions concerning human behavior with stress on the interdependence of experimental design and statistical evaluation of results. Practice in formulation of testable hypotheses, techniques of equating groups, solution of sampling problems, and interpretation of results. Limited to students who have a qualifying score on the Psychology Department Comprehensive Examination.

224. Advanced Experimental (3) II
One lecture and six hours of laboratory.
Prerequisite: Psychology 223.
Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretation, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations.

225. Principles of Test Construction (3) II
Prerequisites: Psychology 104B and 105.
Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests.

231. Seminar in Ethology and Comparative Psychology (2)
(Same course as Biology 231)
Prerequisite: Psychology 114 or Biology 110, or consent of instructor.
A seminar in the types of species, specific behavior patterns and their function in the living system of animals. May be repeated with new content to a total of four units.

233. Guidance Counseling Techniques (3) I, II
(Same course as Education 233)
Prerequisite: Education 115 or 230, or Psychology 151.
Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing.

234. Projective Psychology (3) I
Prerequisites: Psychology 104A, 105, 151, 178, and 204.
Introduction to the theory and principles underlying use of projective techniques by clinical psychologists; a review of the structure and dynamics of personality as interpreted by projective devices.

235. The Rorschach Method (3) II
Prerequisites: Psychology 104A, 105, 151, 178, 204, and 234.
A seminar and practicum in basic administration and scoring of the Rorschach Test, with critical appraisal of the problems involved in estimations of reliability and validity of this technique.

236. Interpretation of Projective Materials (3)
Prerequisite: Psychology 235.
A seminar in the clinical interpretation of the Rorschach Test, the Thematic Apperception Test, and other projective devices, with critical emphasis on methods of research and validation. Not acceptable for credit toward the M.S. degree in psychology.

290. Bibliography (1) I, II
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

296. Directed Field Experience (1-6)
Limited to graduate students in psychology, with appropriate qualifications in a field of professional skill.
The student must arrange his practicum setting in cooperation with the chairman of the Psychology Department Practicum Committee and with the express approval of that committee during the semester prior to enrolling for credit in this course.

298. Special Study (1-6) I, II
Prerequisite: Consent of instructor.
Individual projects involving library research or laboratory research in physiological, industrial, learning, clinical, and other areas of experimental psychology. Maximum credit six units.

299. Thesis (3) I, II
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree. Credit is contingent upon acceptance of the completed thesis by the Department of Psychology.

PUBLIC ADMINISTRATION

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Bigger (Director), Nigro, Wilcox
Assistant Professor: Kitchen

Offered by the Department of Political Science

Master of science degree in public administration.
Major in public administration with the A.B. degree in the general programs.
Minor in public administration.
Certificate (nondegree) in public administration.

THE MASTER'S DEGREE

The master of science degree in public administration is offered for persons interested in public service. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

PROGRAMS

The program in public administration can be obtained by completion of the major in public administration or through a major in political science. In either case, the student will include in his program a sequence of work dealing with (1) the philosophies, problems, and policies of government, and (2) direction and management of the public service, including planning, finance, research, and human relations.

This is an interdisciplinary program, with an emphasis in political science, designed to give a broad background to students who are interested in the direction of programs and policies of government at all levels, and in governmental research.

Selected students may participate in an internship program in government offices or research activities. Working under the close supervision of public officials and an adviser in public administration, the intern deals with actual procedures and problems of government.

Two certificates (nondegree) programs are offered to public service employees. These programs are described below.

PUBLIC ADMINISTRATION MAJOR WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 36 units. Required as preparation for the major are prerequisite and related lower division courses. These lower division courses may not be counted in general education. In addition to the major, students will complete 45 units of general education. A minor is not required. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Political Science 71A-71B and Economics 1A-1B.

Upper Division Requirements. A minimum of 36 upper division units to include Political Science 140 and 197 or 198, Economics 131, a three-unit course in statistics, and additional courses selected with approval of the departmental adviser to complete the major.

PUBLIC ADMINISTRATION MINOR

The minor in public administration is available to students majoring in fields other than political science or public administration. This minor consists of Political Science 71A-71B, 140, and six units of upper division work selected from Political Science 197, 198, or other upper division political science course approved by the adviser in public administration.

CERTIFICATE IN PUBLIC ADMINISTRATION

A Certificate in Public Administration (a nondegree program) is offered by the Department of Political Science. (For a description of this program, refer to the section of this catalog on Certificates, under the General Programs.)

PUBLIC ADMINISTRATION CENTER

The Public Administration Center is an agency within the Public Administration Program which provides specialized library and reference services to faculty, students, public officials and the community. It contains a large and growing collection of documentary material and periodicals in the field of public administration and local government. Its staff serves as the secretariat for the local chapter of the American Society for Public Administration and the San Diego Institute on Government, and it may provide meeting and conference facilities for these and other organizations.

RECREATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Professor: Scott (Chairman)

Offered by the Department

Major in recreation with the A.B. degree in the general programs.
Minor in recreation.

MAJOR IN RECREATION WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 36 units. Required as preparation for the major are prerequisite and related lower division courses. These courses may not be counted in general education. In addition to the major, students will complete 45 units of general education. A minor is not required. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

Lower Division Requirements. Recreation 74 and 80; men must also complete Recreation 63 and women must complete Physical Education 2A, 5A, 5B, and 6. Additional requirements in related fields for all recreation majors: 12 units selected from the fields of art, industrial arts, music, physical education, and speech arts, with a maximum of five units in any one field. Courses in related fields which are designated as general education courses may be counted in general education requirements.

Upper Division Requirements. Thirty-six upper division units distributed as follows: Recreation 165, 170A-170B, 184A-184B; Psychology 106 and 145; Education 140; Physical Education 161; Political Science 143; Sociology 148; and six units selected from Sociology 114, 125, 157, 180, 183, and 184. Students should consult with the adviser in the recreation curriculum for selection and arrangement of courses.

MINOR IN RECREATION

The minor in recreation consists of 15 to 22 units to include the following courses: Lower division: two units of physical education activity courses; Recreation 74; and two units chosen from the fields of art, dance, drama, or music. Upper division: Recreation 165, 170A-170B, and 184A or 184B. Recommended: Physical Education 161. Consultation with the departmental chairman in recreation is advised.

LOWER DIVISION COURSES

63. Professional Activities: Techniques of the Dance (2) II
(Same course as Physical Education 63)
Practice in the skills and techniques of the dance, and experience in the organization and presentation of dance materials.

74. Elementary School Physical Education Activities (2) I, II
(Same course as Physical Education 74)
Physical education activities designed for the elementary school child; emphasis on the organization, supervision, and evaluation of the physical education program in the elementary school.

80. Camp Leadership (2) II
Consideration of camp administration and principles of good camp leadership. Lectures and practical sessions aimed at general training in all phases of outdoor education and camp leadership, including skills in axemanship, outdoor cooking, nature projects, camp crafts, campfire and special camp programs.

UPPER DIVISION COURSES

165. Administration of Community Recreation (3) II
The principles of organization and promotion of leisure time and recreation activities. Course content covers growth of the recreation movement, administration of areas and facilities, program of activities, features, services, organization and administration problems. A required course for recreation minors.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

170A-170B. Recreation Leadership (3-3)
(Same course as Physical Education 170A-170B)
Principles and practices in recreation leadership. Course content of 170A includes organization of competition, intramurals, playground practices; content of 170B includes recreational arts and crafts, dramatics, social recreation, and music. Neither course is a prerequisite for the other.

184A-184B. Field Work in Recreation (3-3)
For recreation majors and minors. Others only with consent of instructor.
Observation and participation in supervised group activities in the field. Practical experience in the various public and semipublic community recreation agencies.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of special study adviser.

GRADUATE COURSES

204. Problems in Recreation (3) (Alternate years)
(Same course as Physical Education 204)
A survey of current problems facing the recreation profession, a review of literature, discussion of trends and observation of school situations together with the analysis and evaluation of actual problems. Written reports are required.

RUSSIAN

IN THE DIVISION OF THE HUMANITIES

Faculty

Assistant Professor: Dukas

Offered by the Department of Foreign Languages

Minor in Russian.
Teaching minor in Russian for the general secondary credential.
Teaching minor in Russian for the general elementary and kindergarten-primary credentials.

MINOR

The minor consists of 15 to 22 units in Russian (exclusive of course equivalents), six units of which must be in upper division courses.

TEACHING MINOR IN RUSSIAN FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in Russian for the general secondary credential may also be used as a minor for the bachelor's degree. This minor consists of a minimum of 22 units in Russian (exclusive of course equivalents) to include the following courses: Russian 1, 2, 3, 4 and 101A-101B.

TEACHING MINOR IN RUSSIAN FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A teaching minor in Russian is offered for the general elementary and kindergarten-primary credentials. This minor consists of 15 to 22 units in Russian, six units of which must be in upper division courses.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

*** 1. Elementary (4) I**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, reading in Russian literature, minimum essentials of grammar. A general education course in foreign languages.

*** 2. Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: Russian 1.
Continuation of Russian 1. A general education course in foreign languages.

*** 3. Intermediate (4) I**
Prerequisite: Russian 2 or three years of high school Russian.
A practical application of the fundamental principles of grammar. Reading in Russian of cultural material, short stories, novels or plays; oral practice, outside reading with oral and written reports. A general education course in foreign languages.

*** 4. Intermediate (4) II**
Prerequisite: Russian 3.
Continuation of Russian 3. A general education course in foreign language.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-3)
Prerequisite: Russian 4 with grade of C or better, or consent of instructor.
Translation into Russian from moderately difficult English prose, with written reports in Russian. Readings and oral discussions of Russian plays and short stories.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

SOCIAL SCIENCE

IN THE DIVISION OF THE SOCIAL SCIENCES

Offered by the Division of the Social Sciences

Master of arts degree for teaching service with a concentration in social science with emphasis in economics, geography, political science, or sociology.
Major in social science with the A.B. degree in liberal arts and sciences.
Major in social science with the A.B. degree in the general programs for students in teacher education.
Curriculum on Africa and the Near East, an area of emphasis with the social science major.
Teaching major in social science with the A.B. degree and junior high school credential.
Teaching major in social science leading to the A.B. degree and to the general secondary credenial in the postgraduate year.
Teaching minor in social science for the general secondary credential.
Teaching minor in social science for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in social science with emphasis in economics, geography, political science, or sociology is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN SOCIAL SCIENCE WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in social science must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 30 units. Required as preparation for the major are the prerequisite and related lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. A six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. Courses recommended for these sequences are as follows: Anthropology 1 and 2, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 90 and 91 or 71A-71B, Sociology 1 and 10.

Upper Division Requirements. Thirty upper division units to include 12 units from any field named above; six units from each of two additional fields named above; and six units of electives from any of the fields named above. The major must include six units in U.S. history in either lower or upper division and three units in a fourth field, selected from the social science fields named above.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Division of Social Sciences.

MAJOR IN SOCIAL SCIENCE WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS FOR STUDENTS IN TEACHER EDUCATION

The major in social science in the general programs is limited to students who have been admitted to teacher education for the general secondary credential program. The major is the same as the major in liberal arts and sciences described above, except that foreign language is not required and 12 units of lower division social science courses may be counted in general education. Students will complete

the general education requirements instead of the pattern of courses required in the liberal arts and sciences program. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

For a limited time, transfer students who are not in teacher education may elect the social science major under regulations for the general programs. (For availability of this major, refer to the section of this catalog on the A.B. Degree in the General Programs.)

CURRICULUM ON AFRICA AND THE NEAR EAST

The major in social science may be taken with an emphasis on Africa and the Near East by substituting the following sequence of courses for those outlined above for the major in liberal arts and sciences:

Lower Division Requirements. History 4A-4B or Political Science 90 and 91; Economics 1A-1B; Anthropology 2 and Geography 1 (18 units).

Upper Division Requirements. Thirty upper division units from the departments of anthropology, economics, geography, history, political science, and sociology, chosen with the consent of the adviser and including not less than 12 units in one department and six units in each of two other departments. Required courses in this curriculum include: History 158A-158B; Geography 125 and 130; Political Science 188; Economics 196; and Anthropology 152. Additional recommended courses to make the minimum of 12 units in one social science field are as follows: History 156A-156B or 121A-121B; Geography 150 and 151; Political Science 170A-170B and 165; Economics 102, 190, and 195; Anthropology 153, 154, and 156.

Foreign Language and Area Studies. French 1, 2, 3, 4 (or equivalent competence demonstrated by examination). Recommended: Comparative Literature 52A-52B.

TEACHING MAJOR IN SOCIAL SCIENCE WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units of general education courses, (1) a teaching major in social science, (2) a minor approved by the Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Education Professional Curricula. Also refer to the section on Graduation Requirements for a description of general education and other graduation requirements.

Requirements

Teaching Major. The major consists of a minimum of 24 units, including lower and upper division courses, selected from courses in anthropology, economics, geography (except Geography 1 and 3), history, political science, and sociology, 18 units of which must be in upper division courses. Twelve units in social science courses must be concentrated in one field, six units of which must be in upper division courses. A maximum of nine units of social science taken beyond the minimum of 24 units required in the major may be counted in general education.

Minor. A minor to be selected with approval of the Coordinator of Secondary Education.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 121 (methods in the major and minor fields), 180, and Health Education 151.

TEACHING MAJOR IN SOCIAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including

a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Students who have been admitted to the general secondary credential program in teacher education may use the teaching major in social science for the A.B. degree in the general programs by completing the general education requirements instead of those in the liberal arts and sciences program. Foreign language will not be required. A minor is not required for the degree; however, a teaching minor in an area other than the social sciences is required for the credential.

Requirements

Teaching Major. The teaching major in social science is the same as the undergraduate major in social science.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include at least four units in the social sciences selected with approval of the adviser in social science.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential, other than a minor in the social sciences. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN SOCIAL SCIENCE FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in social science for the general secondary credential may also be used for the bachelor's degree by students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy. This minor is not available to students with a social science major. The minor consists of 27 units distributed as follows:

Lower Division Requirements. A six-unit sequence from each of three of the following groups: Anthropology 1 and 2; Economics 1A-1B; Geography 1 and 2 or 12A-12B; History 4A-4B or 8A-8B; Political Science 90 and 91 or 71A-71B; and Sociology 1 and 10.

Upper Division Requirements. Six units in an upper division sequence course in U. S. history and three upper division units of social science electives.

TEACHING MINOR IN SOCIAL SCIENCE FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in social science for the general elementary and kindergarten-primary credentials consists of a minimum of 15 units selected from anthropology, economics, geography (except Geography 1 and 3), history, political science, and sociology, to include at least six upper division units in history and/or geography.

SOCIAL WELFARE

(PRESOCIAL WORK)

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Assistant Professor: Tebor
Lecturer: Murphy, M. L.

Offered by the Department of Sociology-Anthropology

Major in social welfare with the A.B. degree in liberal arts and sciences.

CURRICULUM IN SOCIAL WELFARE

The professional curriculum in social welfare prepares for admission to graduate work in recognized American schools of social work. This curriculum should be pursued by those who plan careers in federal, state and local welfare work; social work in public schools including preparation for a teaching credential; family and children's private casework agencies; social settlement work; county probation work; child welfare agencies; statistical and investigation work in private and public agencies; work in public institutions for the defective and delinquent; medical social service and psychiatric social work in hospitals and clinics; executive positions in social work; and social work in numerous other organizations.

MAJOR IN SOCIAL WELFARE WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in social welfare must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the program in liberal arts and sciences, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 36 units. Required as preparation for the major are prerequisite and related lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. Sociology 1, 10, and 60; Economics 1A-1B; Political Science 71A-71B; and Psychology 6 or 12. Recommended: Biology 3 and courses from anthropology and speech arts.

Upper Division Requirements. 36 upper division units distributed as follows: Sociology 140; Social Welfare 100, 180, 182, 189; six units selected from Social Welfare 183, 184, 185, 186, 187, and Sociology 110, 113 (or 114), 121, 125, 136, and 157; Psychology 150 and six units selected from Psychology 106 (not to be selected if Psychology 6 has been taken), 107, 109, 131 (not to be selected if Psychology 12 has been taken), 151, and 152; three units selected from Political Science 105, 112, 122, 140, 142, 143, and 147. Recommended: Zoology 165 and courses from anthropology. Students should consult with the advisers in the social welfare curriculum for selection and arrangement of courses.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Sociology-Anthropology Department.

Major in the General Programs

For a limited time, transfer students may elect the major in social welfare under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for the major are the same as those for the major in liberal arts and sciences described above, except that a foreign language is not required; and in addition to the major, 45 units of general education are required instead of the pattern of courses prescribed in the liberal arts and sciences program. Students using this major in the general programs may count 12 units of lower division social science courses and Psychology 12 toward meeting the 45 unit general education requirement.

UPPER DIVISION COURSES

100. History and Philosophy of Social Welfare (3) I

Prerequisite: Sociology 1 or 10.

Growth and differentiation of social welfare programs in response to changing historical conditions. Developments from the time of the English Poor Laws to the current social security and voluntary programs.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

180. Social Welfare Organization (3) II
Prerequisites: Social Welfare 100 and Sociology 1 or 10.
A survey of the nature of social work and the various settings in which social work is practiced in American society. The student is familiarized with the various social agencies and their operations by use of readings, lectures and speakers from various social agencies.

182. Methods of Social Work (3) II
Prerequisite: Social Welfare 180.
Introduction to the basic concepts and methods used in casework, group work, and community organization agencies, with emphasis on discussion of case materials.

183. Social Group Work (3) I
Prerequisite: Social Welfare 180.
The role of the social worker with the group and its individuals; understanding group processes; use of program media for the development of interpersonal relations and group structure. Discussion includes process recording.

184. Community Welfare Organization (3) II
Prerequisite: Social Welfare 180.
The social structure of communities and processes of change as related to the community welfare programs; strategy of change; the role of the professional worker; public-private relationships.

185. Public Welfare (3) II
Prerequisite: Social Welfare 180.
A historical and current perspective of public welfare. Analysis of current programs of social insurance, public assistance, general relief, and other public welfare policies and programs.

186. Social Work and the Law (3) I
Prerequisite: Social Welfare 180.
Trends and current developments in social legislation; laws regarding poor relief, child labor, and the family, including marriage and divorce laws, illegitimacy, adoption, guardianship.

187. Child Welfare (3) I
Prerequisite: Social Welfare 180.
Analysis of the development and current programs of child welfare on the local, state, national, and international levels; the relationship between private and public agencies in promoting the welfare of children.

189. Field Assignment in Social Work (3) II
Prerequisite: Credit or concurrent registration in Social Welfare 182.
Approximately 10 hours weekly spent in an approved local social agency in the field of social casework, group work, or community organization, under the supervision of an experienced agency worker and including periodic consultations with the faculty adviser.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

SOCIOLOGY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Barnhart, Klapp, Milne
Associate Professors: Daniels, Kirby, Wendling (Chairman, Sociology-Anthropology)
Assistant Professors: Bates, DeLora, Elliott, Gillette, McJunkins, Mouratides

Offered by the Department of Sociology-Anthropology

Master of arts degree with a major in sociology.
Master of arts degree for teaching service in social science (sociology).
Major in sociology with the A.B. degree in liberal arts and sciences.
Minor in sociology.

THE MASTER'S DEGREE

The master of arts degree with a major in sociology and the master of arts degree for teaching service in social science (sociology) are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN SOCIOLOGY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in sociology must complete all requirements prescribed in the liberal arts and sciences program. A minor is required. (For a description of the program in liberal arts and sciences, refer to the section of this catalog on the College of Arts and Sciences.)
The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite lower division courses and an additional requirement in foreign language.

Major

Lower Division Requirements. Sociology 1, 10, and 60.

Upper Division Requirements. A minimum of 24 upper division units in sociology to include Sociology 100, 101, 122 and 140.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Sociology-Anthropology Department.

Major in the General Programs

For a limited time, transfer students may elect the major in sociology under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for the major are the same as those for the major in liberal arts and sciences described above, except that foreign language is not required. In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program. A minor is required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MINOR IN SOCIOLOGY

The minor in sociology consists of 15 to 22 units in sociology, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

*** 1. Principles of Sociology (3) I, II**
This course is a prerequisite for all upper division courses in sociology.
The development and use of the concepts applied to sociological analysis; the effects of isolation and social contacts, interaction, processes, forces, controls, collective behavior and social progress. A general education course in the social sciences.

*** 10. Contemporary Social Problems (3) I, II**
May be taken before Sociology I.
Survey of modern social problems recognizing the sociological factors involved. Emphasis on the scientific method of approach. An evaluation of various causes and solutions of problems. A general education course in the social sciences.

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*** 35. Courtship and Marriage (3) I, II**
(Same course as Home Economics 35)
Emphasizes preparation for successful marital adjustment by presenting materials that will help students to solve their own courtship, marriage, and family problems. A general education course in family life education.

60. Elementary Social Statistics (3) I, II
Prerequisites: Sociology 1 and Mathematics 18 or a higher numbered course.
Analysis and presentation of elementary materials in the fields of sociology and social work. Tabular and graphic presentation, analysis of frequency distribution, trends, simple correlation, sampling and reliability techniques. Not open to students with credit for another course in statistics. (Formerly numbered 160.)

UPPER DIVISION COURSES

100. History of Social Thought (3) I, II
Prerequisite: Sociology 1.
The origin and development of social theory in Europe and America; consideration of the fields and specialization and research in contemporary American sociology.

101. Modern Social Theory (3) I, II
Prerequisites: Sociology 1 and 100, or consent of instructor.
A study of theories basic to modern sociological research, including the viewpoints of European and American thinkers.

110. Social Disorganization (3) I, II
Prerequisite: Sociology 1.
Survey of many alleged abnormal phenomena in society as seen in society today in various forms of individual, family, community and world disorganization, such as crime, prostitution, extreme alcoholism, migratory workers, divorce, revolution, war, etc.

113. Criminology and Penology (3) I, II
Prerequisite: Sociology 1 or consent of instructor.
The extent and characteristics of crime; consideration of physical, mental, economic, and sociological causes of crime; study of methods of penal discipline, prison labor, parole, and probation; programs of prevention.

114. Juvenile Delinquency (3) I, II
Prerequisite: Sociology 1 or consent of instructor.
The nature and extent of delinquency; the causative factors involved; methods of control and prevention, with special attention to the protective and remedial measures offered by the school, home, juvenile court, correctional institutions and camps, probation and parole, and recreational agencies.

116. Contemporary Correctional Administration (3) II
Prerequisite: Sociology 113 or 114, or consent of instructor.
A study of the problems encountered in administering modern correctional institutions, forestry and road camps, detention homes, and jails.

120. Industrial Sociology (3) II
Prerequisite: Sociology 1.
Analysis of group relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions.

121. Medical Sociology (3) I
Prerequisite: Sociology 1.
A sociological analysis of health and medical institutions. Cultural factors in conceptions of disease, health, and healing. Social structure of medical facilities and the role of personnel in such institutions. Relation of illness to income, housing, and other socio-economic factors. Not open to students with credit for Health Education 181.

122. Social Organization (3) I, II
Prerequisite: Sociology 1.
Major forms of social organization such as institutions, associations, bureaucracy, primary groups, and stratification. Study of underlying processes of development, social control and organizational change.

*** 125. Race Relations (3) I, II**
Prerequisite: Sociology 1.
A study of Negro, Oriental, and other minority groups in the United States. A study of mental capacities, education, cultural achievement, family life, delinquency and other social factors of each group. Race prejudice, racial consciousness, theories of racial superiority and inferiority will be considered. A general education course in the social sciences.

*** 135. Marriage and the Family (3) I, II**
Background factors predictive of happy and successful marriages; principal areas of adjustment in marriage; parent-child problems; the changing adolescent; causes and results of divorce; the family of tomorrow. A general education course in family life education. Not open to students with credit for Sociology or Home Economics 35 or other course in marriage and the family.

136. Sociology of the Family (3) II
Prerequisite: Sociology 1. Recommended: Sociology 101 and 146.
A comparative study of family systems in different societies. Changing role-structure and functions of the modern family; rural-urban, social class, racial and ethnic differences in family organization; marriage and family as a developing system of interpersonal relationships.

138. Sociology of Religion (3) II
Prerequisite: Sociology 1. Recommended: Sociology 101 and 146.
The role of religion in society as cult and institution, including primitive religion, modern sects and churches, ritual, secularization, and religious movements.

*** 140. Social-Psychological Foundations of Society (3) I, II**
Prerequisites: Sociology 1 and Psychology 1.
The major problems and findings of social-psychological studies with reference to group behavior and group membership, the socialization of the individual, and processes of social interaction. A general education course in the social sciences. Not open to students with credit for Psychology 145.

146. Collective Behavior (3) I, II
Prerequisites: Sociology 1 and 140, or consent of instructor.
The basic processes of social behavior in masses and groups, including crowd behavior, fads, fashions, crazes, panics, rumors; sects and cults; heroes and scapegoats; social movements; effects of mass communication.

148. Small Groups (3) I
Prerequisites: Sociology 1 and 140, or consent of instructor.
Processes, morale and organization of small groups; their role in society and institutions such as industry, military, recreation and education; recent studies and methods of research.

150. Population Problems (3) I
Prerequisite: Sociology 1 or consent of instructor.
Problems of population relative to age, sex, and racial distribution. Population practices and theories. Biological and geographical aspects of population problems. International population movements.

157. Urban Sociology (3) II
Prerequisite: Sociology 1 or consent of instructor.
A study of the structure and function of the modern city; types of neighborhoods; forms of recreation; social forces in a metropolitan area; types of urban personalities and groups; rural-urban conflicts of culture. Practical field studies required.

164. Methods of Social Research (3) I, II
Prerequisites: Sociology 1 and 60, or consent of instructor.
Research methods and interpretation used in the study of communities, institutions, and social conditions.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

197. Investigation and Report (3) I, II
Prerequisite: Consent of instructor.
Analysis of special topics in sociology.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar in Social Theory (3)
Prerequisites: Sociology 101 and 164, or consent of instructor.
Advanced study of social theory, its modern formulations and historical development, with emphasis on individual research and report of findings.

210. Seminar in Social Disorganization (3)
Prerequisites: Sociology 110 and 164, or consent of instructor.
Advanced study of the processes which contribute to and maintain social and personal disorganization. The relationship of sociological factors, including urbanization, secularization and social change, to these processes, with emphasis on contemporary theory and research.

220. Seminar in Social Organization (3)
Prerequisite: Sociology 164 or consent of instructor.
Analysis of the principal organizational forms of society and groups, in terms of their basic patterns, interrelations, organizational change, and the relation of the individual to social structure. Study of bureaucracy, consensus, formal and informal structure and function.

230. Seminar in Social Institutions (3)
Prerequisite: Sociology 164 or consent of instructor.
Advanced study of institutional forms and processes, including the institutional bases of social mores. The effect of sociological factors, including cultural lag, on contemporary social institutions.

240. Seminar in Social Interaction (3)
Prerequisites: Sociology 140 and 164, or consent of instructor.
Advanced study of social-pyschological interaction, including sociological factors in personality development and analysis of morale, motivation, leadership and other elements of group behavior.

250. Seminar in Human Ecology and Demography (3)
Prerequisites: Sociology 150 and 164, or consent of instructor.
Analysis of the sociological variables which influence distribution and composition of populations and social institutions, with special emphasis on urban social organization.

260. Seminar in Research Methods (3)
Prerequisites: Sociology 101 and 164, or consent of instructor.
Analysis of methods used in current sociological research, including evaluation of reported findings. Discussion of research designs appropriate to particular types of projects. Evaluation of research in progress by members of the seminar.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

SPANISH

IN THE DIVISION OF THE HUMANITIES

Faculty

Associate Professor: Baker, C. (Chairman, Department of Foreign Languages)
Assistant Professors: Case, Freitas, Lemus

Offered by the Department of Foreign Languages

Master of arts degree with a major in Spanish.
Master of arts degree for teaching service with a concentration in Spanish.
Major in Spanish with the A.B. degree in liberal arts and sciences.
Minor in Spanish.
Teaching major in Spanish with the A.B. degree and junior high school credential.
Teaching major in Spanish leading to the general secondary credential in the postgraduate year.
Teaching minor in Spanish for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree with a major in Spanish and the master of arts degree for teaching service with a concentration in Spanish are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJOR IN SPANISH WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in Spanish must complete all requirements prescribed in the liberal arts and sciences program. A minor to be approved by the departmental adviser in Spanish is required. (For a description of requirements in the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

The major consists of a prescribed pattern of upper division courses, exclusive of general education, totaling not less than 24 units. Required as preparation for the major are prerequisite and related lower division courses.

Major

Lower Division Requirements. Spanish 1, 2, 3, 4, 10, and 11.

Upper Division Requirements. 24 upper division units in Spanish to include Spanish 101A, 101B, 102A, 102B, and 12 units of courses in the period literature of the language.

Major in the General Programs

For a limited time, transfer students may elect the major in Spanish under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) Requirements for this major are described in the 1961-62 catalog. Information may also be obtained from the departmental adviser in Spanish. Under this program the student will complete the general education requirements described in the section of this catalog on Graduation Requirements instead of the pattern of courses required in the liberal arts and sciences program.

MINOR IN SPANISH

The minor consists of 15 to 22 units in Spanish (exclusive of course equivalents), six units of which must be in upper division courses.

TEACHING MAJOR IN SPANISH WITH THE A.B. DEGREE AND JUNIOR HIGH SCHOOL CREDENTIAL

Students taking the junior high school credential with the A.B. degree must be admitted to teacher education and complete, in addition to 45 units of general education courses, (1) a teaching major in Spanish, (2) a minor approved by the

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Coordinator of Secondary Education, and (3) the additional professional courses in teacher education.

It is recommended that this credential be taken in combination with the general elementary or special secondary credential. For a complete description of the junior high school credential and the combination credential program, refer to the section of this catalog on Education Professional Curricula. Also refer to the section on Graduation Requirements for a description of general education and other graduation requirements.

Requirements

Teaching Major. The major consists of a minimum of 24 units in Spanish, including lower and upper division courses. At least 18 units of the major must be in upper division courses. Courses in the major may not be used to meet requirements in general education.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40 and 140 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Minor. A minor to be selected with approval of the Coordinator of Secondary Education.

Professional Courses in Teacher Education. Twenty-four upper division units to include Education 100, 110, 120, 180, 121 (methods in the major and minor fields), and Health Education 151.

TEACHING MAJOR IN SPANISH FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

This major may be used as an undergraduate major for the A.B. degree by students who have been admitted to teacher education for the general secondary credential program.

Requirements

Teaching Major. By date of eligibility for the credential, the student must have credit for at least 38 units of Spanish, exclusive of course equivalents, to include six units of prescribed courses taken in the postgraduate year and the following pattern of lower and upper division courses:

Lower Division Requirements. Spanish 1, 2, and 3 (or equivalents), Spanish 4, 10, and 11 (8-20 units).

Upper Division Requirements. 24 upper division units to include Spanish 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of Spanish in the period literature of the language.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40 and 140 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Spanish majors must meet this requirement by completing six units of Spanish 204 or 205 and 201 or 202.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

TEACHING MINOR IN SPANISH FOR THE GENERAL SECONDARY CREDENTIAL

Teaching Minor. By date of eligibility for the credential, the student must have credit for at least 22 units of Spanish, exclusive of course equivalents, to include the following pattern of lower and upper division courses:

Lower Division Requirements. Spanish 1, 2, and 3 (or equivalents), Spanish 4, 10, and 11 (8-20 units).

Upper Division Requirements. Spanish 101A, 101B, 102A, 102B, and 122 (14 units).

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40 and 140 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

TEACHING MINOR IN SPANISH FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

A teaching minor in Spanish is offered for the general elementary and kindergarten-primary credentials. This minor consists of 15 to 22 units in Spanish, six units of which must be in upper division courses.

HIGH SCHOOL EQUIVALENTS

High School Equivalents. Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

*** 1. Elementary (4) I**
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on Spanish culture and civilization, minimum essentials of grammar. A general education course in foreign languages.

*** 2. Elementary (4) II**
Four lectures and one hour of laboratory.
Prerequisite: Spanish 1 or two years of high school Spanish.
Continuation of Spanish 1. A general education course in foreign languages.

*** 3. Intermediate (4) I**
Prerequisite: Spanish 2 or three years of high school Spanish.
A practical application of the fundamental principles of grammar. Reading in Spanish of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. A general education course in foreign languages.

*** 4. Intermediate (4) II**
Prerequisite: Spanish 3 or four years of high school Spanish.
Continuation of Spanish 3. A general education course in foreign languages.

10. Conversation (2) I
Prerequisite: Spanish 2 or three years of high school Spanish.
Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II
Prerequisite: Spanish 10 or Spanish 3, or four years of high school Spanish.
Continuation of Spanish 10.

*** 40. Spanish Civilization (2) I**
(Same course as Humanities 46)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish culture, as expressed through the centuries in literature, art, and philosophy. A general education course in the area of foreign languages.

*** 41. Spanish-American Civilization (2) II**
(Same course as Humanities 47)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish-American culture, as expressed through the centuries in literature, art, and philosophy. A general education course in the area of foreign languages.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: Spanish 4 and 11, with a grade of C or better.
Translation into Spanish of moderately difficult English prose passages. Free composition in Spanish. Outside reading of modern Spanish plays, with written reports in Spanish. Oral practice on colloquial Spanish with extensive use of phonograph recordings.

102A-102B. Survey Course in Spanish Literature (3-3)
Prerequisite: Spanish 4 with a grade of C or better.
A study of important movements, authors, and works in Spanish literature from the Middle Ages to the present.

103A-103B. The Literature of the Spanish Golden Age (3-3)
(Offered in 1965-66)
Prerequisites: Spanish 4 and 11, with a grade of C or better.
Readings from the major writers (all genres) of the Siglo de Oro, class discussion and written reports. (Formerly Spanish 102A-102B, Introduction to Spanish Classics.)

104A-104B. Spanish-American Literature (3-3)
(Same course as Comparative Literature 104A-104B)
Prerequisites: Spanish 4 and 11 with grade of C or better.
Reading from representative Spanish-American authors during the colonial, revolutionary and modern periods. Lectures, class reading, collateral reading and reports. May be taken as Comparative Literature *104A-104B, a general education course, when work is done in English translation.

105A-105B. Modern Spanish Drama (3-3)
Prerequisites: Spanish 4 and 11 with grade of C or better.
The development of the drama of Spain from the beginning of the nineteenth century to the present time.

110A-110B. Novel and Short Story in Spain (3-3)
(Offered in 1964-65)
Prerequisites: Spanish 4 and 11 with grade of C or better.
The development of the novel and short story in Spain from 1830 to the present time.

122. The Foreign Language Laboratory (2) I
Conducted in English.
Prerequisite: Admission to teacher education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French or German 122.

*** 140. Spanish Civilization (2) I**
(Same course as Humanities 146)
Conducted in English. No prerequisite.
An advanced course in Spanish culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics. A general education course in the area of foreign languages.

*** 141. Spanish-American Civilization (2) II**
(Same course as Humanities 147)
Conducted in English. No prereqiusite.
An advanced course in Spanish-American culture. From the period of the Spanish Conquest to the present, with emphasis on the arts, literature, and philosophy. Lectures, class discussions, outside readings, written reports on individual topics. A general education course in the area of foreign languages.

166. Honors Course (Credit to be arranged) I, II
Refer to Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in Spanish available in any given semester.
Prerequisite: Consent of staff.

GRADUATE COURSES

201. Old Spanish (3)
Prerequisite: 18 units of upper division Spanish.
A study of the language and literature of Spain from the 12th to the 15th centuries.

202. Cervantes (3)
Prerequisite: 18 units of upper division Spanish.
A study of the principal prose works of Cervantes: The Novelas ejemplares and Don Quixote.

204. The Spanish-American Novel (3)
Prerequisite: 18 units of upper division Spanish.
A study of some aspect of the Spanish-American novel.

205. Spanish-American Poetry (3)
(Offered in spring 1963)
Prerequisite: 18 units of upper division Spanish.
An intensive study of Modernism or of the Gaucho Epic.

290. Research and Bibliography (2)
Prerequisite: 18 units of upper division Spanish.
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)
Prerequisites: 18 units of upper division Spanish and consent of graduate adviser and department chairman. Required of all candidates for the M.A. degree with the general secondary or junior college credential.
A study of important movements, authors, and works in Spanish literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisites: 18 units of upper division Spanish and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to Candidacy.
Guidance in the preparation of a project or thesis for the master's degree.
Master's degree candidates in general secondary or junior college credential programs are expected to substitute Spanish 294 and a comprehensive examination for the thesis.

SPEECH ARTS

IN THE DIVISION OF THE FINE ARTS

Faculty

Professors: Ackley, Earnest, S., Jones, K., Pfaff, Povenmire, Sellman
Associate Professors: Adams, W., Benjamin, Mills, Norwood, Powell (Chairman)
Assistant Professors: Day, Harris, R., Lee, R., Ouellette, Rogers, P., Skinner
Lecturer: Reed

Offered by the Department

Master of arts degree with a major in speech arts.
Master of arts degree for teaching service with a concentration in speech arts.
Major in speech arts with the A.B. degree in the general programs.
Major in radio and television broadcasting with the B.S. degree.
Minor in speech arts.
Minor in radio and television broadcasting.
Teaching major in speech arts with the A.B. degree and special secondary credential.
Teaching major in speech arts leading to the general secondary credential in the postgraduate year.
Credential to teach exceptional children (in the area of speech correction and lip reading).
Teaching minor for the general secondary credential.
Teaching minor for the general elementary and kindergarten-primary credentials.

THE MASTER'S DEGREE

The master of arts degree with a major in speech arts and the master of arts degree for teaching service with a concentration in speech arts are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of a prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are prerequisite and related lower division courses. These lower division courses may not be counted in general education. In addition to the major, students will complete 45 units of general education. A minor is not required. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN SPEECH ARTS WITH THE A.B. DEGREE IN THE GENERAL PROGRAMS

Lower Division Requirements. In addition to Speech Arts 3, which is a general education requirement, a minimum of 13 units of lower division courses, emphasizing (1) theater, (2) broadcasting, (3) public address, or (4) speech therapy. Courses should be selected in consultation with the adviser or the student should follow one of the patterns of courses recommended in the various areas of emphasis outlined below.

Upper Division Requirements. A minimum of 24 upper division units in speech arts, to include Speech Arts 100 and at least 12 units with emphasis in one of the following areas: (1) theater, including design for theater and design for television, (2) broadcasting, (3) public address, or (4) speech and hearing pathology. Courses should be selected in consultation with the adviser or the student should follow one of the patterns of courses recommended in the various areas of emphasis outlined below.

In addition to course requirements, students electing the area of the theater, including design for theater, must participate in a minimum of five Major Theater performances and three Studio Theater activities prior to graduation. Substitutions for such participation will require departmental approval.

Areas of Emphasis

Theater. Lower division: 21 units in speech arts including Speech Arts 1, 5, 8, 11A, 55A or 55B, 56, and one lower division course in broadcasting. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 118A, 154A, 155, 159, and nine units from Speech Arts 108, 118B, 140A, 140B, 145, 152, 154B, 156, 160, 163.

In addition to course requirements, the student must participate in a minimum of five Major Theater performances and three Studio Theater activities prior to graduation. Substitutions for such participation will require departmental approval.

Design for Theater. Lower division: 18 units in speech arts including Speech Arts 1, 5, 8, 55A or 55B, 56, and three units of speech arts electives. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 140A, 140B, 145, 152, 154A, 154B, and 159. In addition to course requirements, the student must participate in a minimum of five Major Theater performances and three Studio Theater activities prior to graduation. Substitutions for such participation will require departmental approval.

Design for Television. Lower division: 17 units including Speech Arts 1, 56, 81, 83, 84, and Art 14B. Upper division: 24 units including Speech Arts 140A, 140B, 145, 156, 159, 182, 184, and one unit of upper division speech arts electives.

Broadcasting. Lower division: Speech Arts 1 and the lower division prerequisites for the core selected for upper division. Upper division: Speech Arts 100, one of the cores listed below, and upper division speech arts electives, selected with approval of the adviser, to complete a minimum of 24 upper division units. Select one of the following cores:

Core I. Speech Arts 181, with consent of instructor (4 units); and the following prerequisites: Speech Arts 80, 81, 82, and 83. (12 units.)

Core II. Speech Arts 182, with consent of instructor (4 units); and the following prerequisites: Speech Arts 56, 80, 81, and 84. (12 units.)

Core III. Speech Arts 183, with consent of instructor (4 units); and the following prerequisites: Speech Arts 80, 81, 82, 83, and 84. (15 units.)

Core IV. Speech Arts 184, with consent of instructor (4 units); and the following prerequisites: Speech Arts 56, 81, 82, 83, and 84. (15 units.)

Public Address. Lower division: 13 units of speech arts including Speech Arts 1, 4, 60A, 60B, and one unit of 61. Upper division: 24 upper division units in speech arts including Speech Arts 100, 130, 162, 190, 191, 192A, 192B, and three units of speech arts electives.

Speech and Hearing Pathology. Lower division: Speech Arts 1, 4, 70 and a course in statistics (which may be taken as a lower or upper division course). Upper division: A minimum of 24 upper division units selected with approval of the adviser from the following courses: Speech Arts 100, 170, 171, 172, 173, 174, 176, 177, 178, 179, 180A, 180B.

MAJOR IN RADIO AND TELEVISION BROADCASTING WITH THE B.S. DEGREE

The purpose of the curriculum in radio and television broadcasting is to provide training in all phases of radio and television station operation, programming and production in which the personnel of broadcasting stations and/or contributing organizations will be involved in providing a broadcast service. Participants in the entire curriculum will have training in the duties of each department of radio and television stations and their allied businesses. The program of study leading to the B.S. degree is so planned that the emphasis during the first two years is upon general education and backgrounds. The last two years are designed to prepare the student to meet the requirements in the professional and vocational field of his choice.

Courses in the major are in addition to 45 units of general education courses. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Speech Arts 56, 80, 81, 82, 83, and 84. Demonstration of proficiency in typing is required. (18 units.)

Upper Division Requirements. 36 upper division units to include Speech Arts 159, 181, 182, 183, 184, 187, 188; Psychology 122 or Journalism 122; Political Science 122 or Journalism 132; three units from Speech Arts 118A, Business Administration 153, and Journalism 124A-124B; and two units of upper division electives selected with approval of the major adviser.

MINOR IN SPEECH ARTS

The minor in speech arts consists of 15 to 22 units in one of the areas of emphasis, nine units of which must be in upper division courses.

MINOR IN RADIO AND TELEVISION BROADCASTING

The minor in radio and television broadcasting consists of from 18 to 25 units in speech arts. Student must select one of the following cores:

Core I. Speech Arts 181 and two upper division units of speech arts electives, with consent of the core instructor; and the following prerequisites: Speech Arts 80, 81, 82, 83. (Total, 18 units.)

Core II. Speech Arts 182 and two upper division units of speech arts electives, with consent of the core instructor; and the following prerequisites: Speech Arts 56, 80, 81, 84. (Total, 18 units.)

Core III. Speech Arts 183 with consent of the core instructor, 187; and the following prerequisites: Speech Arts 80, 81, 82, 83, 84. (Total, 22 units.)

Core IV. Speech Arts 184 with consent of the core instructor, 159, 187; and the following prerequisites: Speech Arts 56, 81, 82, 83, 84. (Total, 25 units.)

TEACHING MAJOR IN SPEECH ARTS WITH THE A.B. DEGREE AND SPECIAL SECONDARY CREDENTIAL

Students taking the special secondary credential with the A.B. degree must be admitted to teacher education and must complete, in addition to 45 units in general education courses, (1) a teaching major in speech arts and (2) the additional

professional courses in teacher education. A minor is not required for the bachelor's degree.

For additional information on the credential, refer to the section of this catalog on Education Professional Curricula. For a description of general education and other graduation requirements, refer to the section on Graduation Requirements.

Teaching Major in Speech Arts

Lower Division Requirements. 20 units to include Speech Arts 11A, 55A or 55B, 56, 60A or 60B, 63, 85, and three units of speech arts electives.

Upper Division Requirements. 27 upper division units to include Speech Arts 100, 101, 110, 140A, 159, 170, 191, 192A or 192B, and six units selected from Speech Arts 108, 118A, 118B, 130, 143-S, 145, 152, 154A, 154B, 155, 162, 174, 176, 182 and 183.

Professional Courses in Teacher Education

In addition to the teaching major in speech arts, the student must complete 22 upper division units to include Education 100, 110, 120, 121L, 180, and Health Education 151.

TEACHING MAJOR IN SPEECH ARTS FOR THE GENERAL SECONDARY CREDENTIAL

Requirements for the general secondary credential include admission to teacher education, possession of a bachelor's degree, completion of a teaching major, a teaching minor, and additional requirements in the credential program, including a postgraduate year. For a complete description of the credential requirements, refer to the section of this catalog on Education Professional Curricula.

Teaching Major. The teaching major in speech arts may be completed in one of the following ways:

(1) By completing the special secondary credential in speech arts with the A.B. degree and the additional courses required in the postgraduate year.

(2) By completing the teaching major outlined for the special secondary credential and the A.B. degree (without taking the credential) and completing the additional courses required in the postgraduate year.

(3) By completing a major in speech arts for the bachelor's degree, to include, by date of credential candidacy, the specific courses required in the teaching major for the special secondary credential. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Students with the major in speech arts will meet this requirement by completing six units of 200-numbered courses in speech arts, selected with approval of the adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential. Refer to the section of this catalog on Education Professional Curricula for a list of the approved teaching minors.

CREDENTIAL TO TEACH EXCEPTIONAL CHILDREN

(In the Area of Speech Correction and Lip Reading)

Credential to Teach Exceptional Children. This credential is available to students who hold a basic credential in kindergarten-primary, general elementary, junior high school, or general secondary education. The student taking this credential will specialize in speech correction and lip reading in remedial classes. For a complete description of this credential, refer to the section of the catalog on Education Professional Curricula.

TEACHING MINOR IN SPEECH ARTS FOR THE GENERAL SECONDARY CREDENTIAL

The teaching minor in speech arts for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include Speech Arts 3, 4, 11A, 55A or 55B, 85, zero to one unit from courses numbered 61 and 63, and six to seven upper division units in speech arts courses to be selected with approval of the departmental adviser in speech arts.

TEACHING MINOR IN SPEECH ARTS FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

The teaching minor in speech arts for the general elementary and kindergarten-primary credentials consists of 15 to 22 units in speech arts, nine units of which must be in upper division courses. The student may emphasize speech and hearing pathology by selecting courses in consultation with the adviser.

LOWER DIVISION COURSES

1. Voice and Diction (3) I, II
Exercises and drills to improve the quality, flexibility and effectiveness of the speaking voice leading to good usage in standard American speech. Preparatory to further courses in public speaking and dramatic art.

1-X. Speech for International Students (3)
Training in production of American speech sounds, blending and assimilation, American prose rhythm and oral communications. Emphasis on clarity and intelligibility. Practical work in aural comprehension. Prerequisite: Designation by speech testing committee. (Two units of this course may be counted as fulfilling the general education requirement in Speech Arts 3.)

2. Oral Communication Laboratory (1) I, II
Two hours of laboratory.
Those who fail the speech test should take this course concurrently with Speech Arts 3. This course provides training in articulation, voice control, vocabulary. Individual laboratory assistance on specific speech problems.

*** 3. Oral Communication (2) I, II**
Training in fundamental processes of oral expression; method of obtaining and organizing material; outlining principles of attention and delivery; practice in construction and delivery of various forms of speeches.

4. Intermediate Public Speaking (3) I, II
Practice in extemporaneous speaking on subjects of current interest, both national and local, with stress on organization and delivery.

5. Introduction to the Theater (3) I
A survey of theory and practice in the contemporary theater, including its literary, critical, and technical aspects viewed against historical backgrounds. Attendance at selected rehearsals and performances required.

8. Elementary Stage Costume and Makeup (3) I
Two hours lecture-demonstration and three hours activity.
Principles and application of makeup for stage and television. Pattern drafting, draping, color harmony and use of fabrics for stage costuming. Practical training in the construction of stage costumes and application of makeup for departmental productions.

11A. Fundamentals of Interpretation (3) I
Application of the principles involved in "making words come alive": response to thought and mood, sensory association, emphasis, climax. Practice selections in poetry and prose. Offered as demand requires.

11B. Intermediate Interpretation (3)
Prerequisite: Speech Arts 11A or 55A.
Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse.

55A. Elementary Acting (3) I, II
Three lectures per week and an additional 32 hours of laboratory per semester.
Development of the individual's ability to express thought and emotion through the effective use of the voice and body. These fundamental skills may be applied to stage, radio, and television acting.

55B. Intermediate Acting (3) I, II
Three lecture-demonstrations per week and an additional 32 hours of laboratory per semester.
Prerequisite: Speech Arts 55A or consent of instructor.
Continuation of 55A, emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting.

56. Dramatic Production (3) I
Two lectures and three hours of laboratory.
Technical practices and organization of production for theater and television. Practice in drafting and construction of stage scenery for the college dramatic productions.

60A-60B. Argumentation and Debate (3-3)
Obtaining and organizing of evidence and the construction and use of the brief; study and discussion of current issues; the presentation of formal and informal debates. Participation in intercollegiate debate optional.

61. Intercollegiate Debate (1) I, II
Two hours of activity. Credit for participation in intercollegiate program. May be repeated to a total of four units, including lower division and upper division courses, 61 and 161.

63. Verse Choir (2) I, II
Three hours.
Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and readings on the nature, artistic function and history of the Verse Choir. May be repeated to a total of four units, including lower division and upper division courses, 63 and 163.

64. Principles of Parliamentary Procedure (1) I
A study of the rules which govern discussion and procedures in organized assemblies. The class will be arranged as a parliamentary body to afford practice in the application of the rules.

65. Business and Professional Speaking (1) I, II
Basic principles of oral communication with application to the study, preparation, and presentation of business speeches. Special attention to conference, interview, presentation of graphic materials. To be taken in conjunction with selected sections of Oral Communication.

70. Survey of Speech and Hearing Disorders (3) I
Introduction to concepts and principles basic to the fields of speech and hearing disorders. Twenty-five hours of observation or project required.

80. Backgrounds in Broadcasting (3) I
Two lectures and three hours of scheduled activity.
Theory and operation of the radio-television broadcasting industry to include the history of broadcasting. The administration and organization of radio-television stations, emphasizing the inter-relationship of the four major phases of station operation: administration, programming, engineering, and sales.

81. Technical Operations for Radio and Television (3) I, II
Two lectures and three hours of scheduled activity.
Radio-television control room and studio techniques necessary to maintain a broadcast operation. Includes the operation of audiovideo equipment in radio-television production, such as microphone techniques, video control, camera operation, recording, kinescope and microwave operations. (Formerly Speech Arts 81C.)

82. Radio Programming and Production (3) I
Two lectures and three hours of scheduled activity.
Prerequisite: Speech Arts 81.
Theory and practice in the skills and knowledge of radio programming. Includes development of basic radio program types and experience in announcing, writing, directing and production for radio. (Formerly Speech Arts 82A-82B.)

83. Television Programming and Production (3) II
Two lectures and three hours of scheduled activity.
Prerequisite: Speech Arts 81.
Theory and practice in the skills and knowledge of television programming. Includes development of basic television program types and experience in television production, such as directing, writing, graphics. (Formerly 83A-83B.)

84. Motion Picture Techniques for Television (3) I
Two lectures and three hours of scheduled activity.
Prerequisite: Speech Arts 81.
Film techniques as they apply to television. Principles of cinematography, film editing, and use of motion picture equipment. Preparation of filmed television programs and program materials. (Formerly Speech Arts 189.)

85. Programming and Production for Educational Broadcasting (3) II
Two lectures and three hours of scheduled activity.
The planning and production of educational radio and television broadcasts. Designed for students interested in handling broadcast activities in speech and drama classes and workshops for high schools and junior colleges. Not open to students with credit for Speech Arts 80. Students in the occupational program should not enroll in this course.

UPPER DIVISION COURSES

100. Phonetics (3) I, II
Auditory and kinesthetic analysis of the sounds of the English language. Valuable as a corrective course in pronunciation and articulation. Required of speech majors and those seeking to teach exceptional children in the area of speech correction and lip reading.

101. Management of Speech Arts Activities (1) I, II
Planning, preparation, management and supervision of speech and drama tournaments, festivals and other interscholastic and intrascholastic activities under the supervision of the speech arts staff. May be repeated for a maximum of two units.

108. Advanced Interpretation (3) I, II
Prerequisite: Speech Arts 11A or 11B, or consent of instructor.
Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artist as they affect the interpretative artist.

109. Workshop in Speech (1 to 3)
Study of some problem in theater, public address, radio and television, or speech and hearing pathology. Maximum credit six units.

110. Creative Dramatics (2) II
Practical training in the principles and techniques of creative dramatization for work with children in the classroom and recreation. Emphasis on the development of the child emotionally and socially through dramatic improvisation.

118A. Play Analysis (3) I
The structure and style of drama. Several short plays and one full-length play are read, discussed and analyzed.

118B. Playwriting (3) II
Lectures, discussion and reading of one-act plays written by the students.

130. Semantics (3) II
(Same course as Philosophy 130)
Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies.

140A-140B. Scene Design for Stage and Television (3-3) I, II
Prerequisite: Speech Arts 56 or consent of instructor.
The application of the principles of design, color and perspective to the designing of various types of dramatic productions; the history of stage design. Students will learn to make sketches and models and paint scenery for departmental stage and television productions.

142. Theater Workshop (2) I, II, Summer (3 or 6)
Two hours of activity per unit.
A laboratory to give the student a variety of experience in the theater including acting, lighting, scenery, costumes and stage management. May be repeated for a maximum of six units.

143-S. Workshop in Educational Television (6) Summer
(Same course as Education 143-S)
Open to teachers and students interested in instruction by television.
The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

144-S. Workshop in Educational Radio Broadcasting (6) Summer (9 weeks)
Practice and theory in educational radio broadcasting operation to include program planning, staff administration, and announcing. Students in this workshop will function in staff duties for KEBS(FM).

145. Stage and Television Lighting (3) I
Principles and practice of light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays and television. Students will serve as light crews for departmental productions.

152. History and Design of Costume (Stage) (3) II
Two hours lecture-demonstration and three hours of laboratory.
A study of costume from Egyptian period to the present. Emphasis on the use of historical costumes on the stage. Costume designs for one stage production. Drawing and painting experience desirable but not necessary.

154A-154B. History of the Theater (3-3)
A study of the theater from primitive times to the present. Special attention will be given to the theater as a mirror of the social and cultural background of the various countries and periods in which it is studied. (Speech Arts 154B may be taken without 154A.)

155. Advanced Acting (3) II
Prerequisites: Speech Arts 55A and 55B.
Problems in characterization: acting styles of the Elizabethan and Eighteenth Century periods.

156. Advanced Dramatic Production (3) II
Two lectures and three hours of laboratory.
Prerequisite: Speech Arts 56 or consent of instructor.
Further study of scenery drafting and construction, with attention to the multiple-set play. Planning of scenery construction and rigging for stage and television productions.

159. Stage Direction (3) I
Planned for prospective directors of plays in schools, colleges and community theaters. Through lectures, discussions, and exercise projects the student will become acquainted with the principles, procedures and methods of stage direction.

160. Stage Direction Laboratory (1) I, II
Prerequisite: Speech Arts 159 or concurrent registration.
This will consist of experience in directing a one-act play before a departmental or public audience. It may be taken with or it may be preceded by Speech Arts 159. May be repeated for a total of two units.

161. Advanced Intercollegiate Debate (1) I, II
Two hours of activity. Credit for participation in intercollegiate program. May be repeated to a total of four units, including lower division and upper division courses, 61 and 161.

162. Advanced Argumentation (3) I
Prerequisite: Consent of instructor.
Detailed study of analysis, preparation of briefs, types of reasoning and use of evidence, fallacies and techniques of refutation. Participation in intercollegiate debate optional.

163. Advanced Verse Choir (2) I, II
Three hours.
Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and reading on the nature, artistic function and history of the Verse Choir, with a written report or project. May be repeated to a total of four units, including lower division and upper division courses, 63 and 163.

164. Verse Choir Directing (2 or 3)
Organizing a given group as a Verse Choir, considering age, voice quality, background, selection and arrangement of material, and techniques of directing. Demonstration and practice of techniques to improve speech through the Verse Choir.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Speech Development (3) I
Development of normal speech in children; typical and common speech defects in preschool and school children; basic techniques for their prevention and correction. Twenty-five hours of observation or project required.

171. Audiometry (3) I
(Same course as Education 177)
Prerequisite: Consent of instructor.
Anatomy, physiology, and psycho-physics of the human ear, theories of hearing, medical aspects, pathology, audiometric techniques, including tuning fork assessment, pure tone screening techniques with practice, discreet frequency, pure tone threshold testing, play audiometry, and speech audiometric procedures. Meets audiometric certification requirement.

172. Mechanics of Speech Production (3)
Prerequisite: Psychology 5.
Lectures, readings, discussions and demonstrations presenting the structure and function of the neuro-muscular system involved in respiration, phonation, resonance and articulation, physiology of the speech mechanism and the physics of sound transmission. Recommended for speech majors.

173. Functional Problems of Speech and Hearing (3)
Prerequisite: Speech Arts 170 or consent of instructor.
Phenomena of human communication; relation between disorders of personality and difficulties in communication.

174. Principles and Methods of Speech Correction (3) I
(Same course as Education 174)
Prerequisites: Speech Arts 100 and 170, or consent of instructor.
Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

176. Stuttering and Neurological Disorders (3) II
(Same course as Education 176)
Prerequisites: Speech Arts 100 and 170, or consent of instructor.
Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children.

177. Audiology (3) II
Prerequisite: Speech Arts 171.
Diagnostic and predictive tests of auditory functioning; types and characteristics of hearing aids; clinical practice.

178. The Teaching of Lipreading (3) II
(Same course as Education 178)
Prerequisite: Speech Arts 171 or Education 177; or consent of instructor.
History, theory, and methods of lipreading and language development for the deaf, including hearing conservation and education. Aids for the classroom teacher; program and materials of instruction for the specialized teacher.

179. Clinical Methods in Speech Correction (2) I, II
Prerequisite: Speech Arts 100, 170, 174, and 176; or consent of instructor.
Construction and use of materials and equipment applicable to speech therapy; clinical techniques in speech correction, including case histories, interviews and speech tests; parent and teacher counseling. May be repeated to a total of four units.

180A. Field Work in Clinical Practice in Speech Correction (1 or 2) I, II, Summer
Prerequisites: Speech Arts 100, 170, 174, and 176; or consent of instructor.
Supervised work with representative speech problems; "staffing" of cases; speech testing; record keeping. Maximum credit eight units for both 180A and 180B. Not more than three units of 180A and 180B may be taken for graduate credit.

180B. Field Work in Clinical Practice in Hearing Problems (1 or 2) I, II, Summer
Prerequisites: Speech Arts 171, 177, and 178; or consent of instructor.
Supervised work with pure tone and speech audiometric testing of all ages; hearing therapy, "staffing" or cases, record keeping. Maximum credit eight units for both 180A and 180B. Not more than three units of 180A and 180B may be taken for graduate credit.

181. Radio and Television Station Operation and Management (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 80, 81, 82, 83, and consent of instructor.
This course is Core I in the major in Radio and Television Broadcasting. Administration and organization of radio and television stations and related agencies. Operational procedures for KEBS-FM, CCTV, and ETV programming over local channels. Experience in station departments, such as traffic, continuity, music, graphics. Development of broadcasting operational methods.

182. Technical Operations and Staging for Radio and Television (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 56, 80, 81, 84, and consent of instructor.
This course is Core II in the major in Radio and Television Broadcasting. Production elements of radio, television, and film, to include sound effects, audio techniques, recording and kinescoping, video techniques, art and graphics, scene design and set decoration, film editing and film techniques. Experience in the various technical and production specialties of radio and television program production for KEBS-FM, CCTV, and ETV.

183. Program Planning and Development for Radio, Television, and Film (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 80, 81, 82, 83, 84, 187, and consent of instructor.
This course is Core III in the major in Radio and Television Broadcasting. The development of program ideas into production formats for radio, television, and filmed programs of all types, such as news, music, dramatic, instructional. Radio, television, and film writing. Experience in developing and writing programs for KEBS-FM, CCTV, and ETV. Students will serve as producers of radio, television, and film programs.

184. Production Directing and Presentation for Radio, Television, and Film (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 56, 81, 82, 83, 84, 159, 187, and consent of instructor.
This course is Core IV in the major in Radio and Television Broadcasting. Development of directorial techniques and procedures for all types of programs in the media of radio, television, and film. Emphasis on the principles of presentational techniques and picture composition. Experience in directing and performance in programs presented over KEBS-FM, CCTV, and ETV over local television channels. Students serve as directors, announcers, actors, etc., for broadcast activities.

187. Radio and Television News (3) I
(Same course as Journalism 104)
Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures and kinescopes; filming, editing and scripting news on motion pictures; using recorders to report special events.

188. Senior Project in Broadcasting (3) II
Limited to students with the major in Radio and Television Broadcasting, leading to the B.S. degree.
Student must demonstrate proficiency in a phase of broadcasting from development of a program idea through production for either radio, television, or film. A research paper may be substituted at the discretion of the adviser if the project chosen does not involve production.

190. Rhetorical Theory (3) II
An analysis of rhetorical theory with special attention to Plato, Aristotle, Cicero, Quintilian, Cox, Wilson, Blair, Campbell, Whately, Bain, and modern authors on public speaking. The development of a theory and rhetorical criticism, culminating in a critical evaluation of contemporary public address.

191. Organized Discussion (3) II
Prerequisite: Speech Arts 60A or 60B, or consent of instructor.
A study of the principles of group discussion. Consideration of the symposium, the panel, the open forum, the business session, and conference speaking. Emphasis upon preparation and presentation.

192A-192B. Advanced Public Speaking (3-3)
Prerequisite: Speech Arts 4.
Emphasis upon the preparation and delivery of longer speeches. Study of classic models of public address.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

EXTENSION COURSES

Lower Division

X-6. Speech Workshop for Stutterers (3)
Participation by stutterers in various techniques designed to alleviate stuttering blocks. May be repeated to a maximum of six units.

Upper Division

X-175. The Role of Parents in Problems of Speech Correction (2) (Extension)
Assistance to parents in understanding the speech-handicapped child. Open to parents of children with a speech problem. May be repeated for a total of four units.

GRADUATE COURSES

243. Seminar in Staging Practices for Theater and Television (3)
An investigation of the recent developments of modern staging facilities. The application of technological advances and electro-mechanical devices to the scenic arts for theater and television.

244. Seminar in Stage Direction (3)
Prerequisite: Speech Arts 159.
A discussion of the aesthetic principles and the practices of stage direction with an emphasis on styles and historical periods.

245. Seminar in Lighting for Stage and Television (3)
Prerequisite: Speech Arts 145.
Discussion of principles concerned with the aesthetic and the technical problems of lighting in stage and television.

246. Seminar in Design for Stage and Television (3)
The principles of design in the theater with an emphasis on the historical development of theatrical costume or scenic environment. The investigation of recent tendencies in styles and their evolution. Each section may be taken once for credit.
A. Costume Design
Prerequisite: Speech Arts 152.
B. Scenery Design
Prerequisites: Speech Arts 140A, 140B, and 156.

247. Seminar in History of the Theater and Drama (3)
Prerequisites: Speech Arts 154A and 154B.
Detailed examination of the important periods, personalities, and theater structures in connection with this general field.

271. Seminar: Functional Problems of Speech (3)
Prerequisites: Speech Arts 173, 174 and 176, or consent of instructor.
Theoretical consideration of etiologies and symptomatologies of speech disorders; principles of nonmedical therapy; survey of theories and experiments relating to functional speech disorders.

272. Seminar: Organic Speech Disorders (3)
Prerequisites: Speech Arts 172, 174 and 176, or consent of instructor.
Survey of theories and experiments relating to organic speech disorders and their management.

280A. Advanced Field Work in Clinical Practice in Speech Correction (1 or 2)
Prerequisites: Speech Arts 174 and 176, or consent of instructor.
Supervised work with representative advanced speech cases such as stuttering, aphasia, laryngectomies, etc. May be repeated for a maximum of four units, only two of which may be used for graduate credit on a master's degree.

280B. Advanced Field Work in Clinical Practice in Hearing Problems (1 or 2)
Prerequisites: Speech Arts 171, 177, and 178; or consent of instructor.
Advanced casework in hearing evaluation, record keeping, research problems, and therapy (auditory training, lipreading, speech correction for hard of hearing or deaf, and language building). May be repeated to a maximum of four units, only two of which may be used for graduate credit on a master's degree.

281. Seminar in Broadcasting (3)
Reports and discussion involving research in some aspect or problem in radio and television broadcasting. This seminar analyzes procedure and trends in educational and commercial broadcasting. Two of the following seminar topics may be taken for a total of six units:
A. Management
Prerequisites: The equivalent of an undergraduate major in broadcasting, Speech Arts 181, and consent of instructor.
B. Programming
Prerequisites: The equivalent of an undergraduate major in broadcasting and Speech Arts 183, 184, and consent of instructor.
C. Audience Measurement and Research
Prerequisites: The equivalent of an undergraduate major in broadcasting, Political Science 122, Psychology 122, and consent of instructor.
D. Writing
Prerequisites: The equivalent of an undergraduate major in broadcasting, Speech Arts 118A, 118B, 183, 184, English 195A, and consent of instructor.

292. Methods in Research and Bibliography (3)
The use of basic reference books, journals, pertinent bibliographies, and other methods of research in the various areas of speech and theater.

293. Seminar: Greek and Roman Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

294. Seminar: 18th Century British Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

295. Seminar: American Public Address—1700-1900 (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

297. Seminar: Contemporary American Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ZOOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professors: Crouch, Harwood, Taylor, K., Tucker, Olsen
Associate Professors: Bohnsack, Brandt, Crawford, R. (Chairman), Huffman, Jameson, Shepard, Ratty
Assistant Professors: Barham, Collier, Etheridge, Farris, Hunsaker, Koevenig, McBlair, Norland, Resseguie, Sloan, Taylor, M.

Offered by the Department

Master of arts degree with a major in biology and an emphasis in zoology.
Master of arts degree for teaching service with a concentration in zoology.
Master of science degree in biology.
Major in zoology with the A.B. degree in liberal arts and sciences.
Major in zoology with the A.B. degree in the general programs.
Major in zoology with the B.S. degree.
Minor in zoology.

THE MASTER'S DEGREE

The master of arts degree with a major in biology and an emphasis in zoology, the master of arts degree for teaching service with a concentration in zoology, and the master of science degree in biology are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

MAJORS FOR THE BACHELOR'S DEGREE

The major consists of the prescribed pattern of upper division courses, exclusive of general education. Required as preparation for the major are the prerequisite and related lower division courses. The major in liberal arts and sciences also requires a foreign language. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN ZOOLOGY WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Students taking this major in zoology must complete all requirements prescribed in the liberal arts and sciences program. A minor is not required. (For a description of the liberal arts and sciences program, refer to the section of this catalog on the College of Arts and Sciences.)

Major

Lower Division Requirements. Biology 5 and 15; Zoology 50 and 51; Chemistry 1A-1B; Physics 2A-2B and 3A-3B; and Mathematics 21 or 40. Recommended: Mathematics 22 or 50.

Upper Division Requirements. A minimum of 24 upper division units in zoology, biology, and related fields, to include Zoology 100; Zoology 164 or Biology 155; Biology 101, 110; and Microbiology 101.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Zoology Department.

Major in the General Programs

For a limited time, transfer students may elect the major in zoology under regulations for the general programs. (Refer to the section of this catalog on the A.B. Degree in the General Programs for information on availability of the major.) In addition to the major, the student will complete 45 units of general education instead of the pattern of courses required in the liberal arts and sciences program.

Requirements for this major are the same as those for the major in liberal arts and sciences described above with the following exceptions: In the lower division, mathematics is not a requirement and Chemistry 2A-2B may be substituted for 1A-1B. Foreign language is not required. Nine units of lower division courses in the natural sciences may be counted in general education. Zoology 100 and Biology 101 and 155 are required in the upper division, the remaining courses to be selected with approval of the adviser. (For information on general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

MAJOR IN ZOOLOGY WITH THE B.S. DEGREE

Students majoring in zoology with the B.S. degree must complete 45 units of general education courses in addition to the major, except that 12 units of lower division courses in the natural sciences may be counted as general education. A minor is not required. (For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.)

Major

Lower Division Requirements. Biology 5 and 15; Zoology 50 and 51; Chemistry 1A-1B; Physics 2A-2B and 3A-3B; and Mathematics 21 or 40. Recommended: Mathematics 22 or 50.

Upper Division Requirements. A minimum of 36 upper division units in zoology, biology, and related fields, to include Zoology 100; Zoology 164 or Biology 155; Biology 101, 110; and Microbiology 101.

MINOR

The minor in zoology consists of 15 to 22 units in zoology, six units of which must be in upper division courses.

LOWER DIVISION COURSES

8. Human Anatomy (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: An introductory course in high school or college biology or zoology.
Systems of the human body and their interrelationships.

9. Human Physiology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Zoology 8 or 51; Chemistry 2A-2B.
Functions of the human body: emphasis on the circulatory, muscular, and nervous systems. Not open for credit to students with credit for Zoology 22.

22. Principles of Human Physiology (3) II
Prerequisite: A college course in biology or human anatomy.
A lecture course in the principles of human physiology with special emphasis on nerve and muscle physiology. Not open to students with credit for Zoology 9.

23. Human Physiology Laboratory (1) II
Three hours of laboratory.
Prerequisite: Zoology 22 or concurrent registration.
Laboratory work in human physiology. Not open to students with credit for Zoology 9.

50. Invertebrate Zoology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
Structure, function, relationships and significance of invertebrate animals as shown through a study of selected invertebrate types.

51. Comparative Anatomy of the Vertebrates (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
Dissection, study and comparison of organ systems of typical vertebrates.

UPPER DIVISION COURSES

100. Embryology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5, or Biology 3 and consent of instructor.
The development of vertebrates as illustrated by the frog, chick, and pig.

108. Histology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Either Biology 5 or 3 and 4. Recommended: Zoology 100.
A study of the microscopic structures and differentiation of tissues and organs of the vertebrates, especially mammals.

112. Marine Invertebrates (4) I
Two lectures and six hours of laboratory or field work.
Prerequisites: Biology 5, or Biology 4 and consent of instructor.
Identification and study of behavior and life histories of invertebrates of the San Diego region. Frequent collecting trips to the beaches required.

114. Natural History of the Vertebrates (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 51.
Natural history, distribution, and classification of vertebrate animals; emphasis on local forms.

115. Ichthyology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Biology 15 and Zoology 51.
Evolution, interrelationships, structure, identification, habits, and ecology of fishes.

117. Ornithology (4) II
One lecture and six hours of laboratory or field excursions, and a field project.
Prerequisites: Biology 5, or Biology 4 and consent of instructor.
The study and identification of birds, especially those of the Pacific Coast and the San Diego region.

119-S. Field Zoology (4) Summer
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science or consent of instructor.
Observational methods; collecting techniques; identification, ecology, and behavior of southern California animals. Primarily for students not majoring in the Life Sciences Division.

121. General Entomology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50.
Structure, physiology, natural history, and classification of insects.

122. Advanced Entomology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Zoology 121.
Intensive treatment of the areas introduced in Zoology 121.

123. Immature Insects (3) II
Two lectures and three hours of laboratory.
Prerequisite: Zoology 121.
Collection, preservation, identification, and biological study of the immature stages of the different insect orders. Course designed to meet the needs of students specializing in invertebrate zoology, agricultural and medical entomology, parasitology, and systematics.

125. Economic Entomology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50 or Botany 51.
Course designed for students of agriculture and horticulture. Emphasis is placed on determination and control of insects affecting plants. Quarantine measures are also studied.

126. Medical Entomology (3) I
Two lectures and three hours of laboratory.
Prerequisite: Zoology 50 or 51 or Microbiology 101.
The role of insects and other arthropods in transmission and causation of human diseases.

128. Parasitology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50 or Microbiology 101.
Study of animal parasites with special reference to those of man. Laboratory including identification of important parasites of man, and collection and preservation of local forms.

142. Comparative Animal Physiology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 101 or consent of instructor.
The functional and phylogenetic aspects of responses and nutrition throughout the animal kingdom.

164. Human Genetics (4)
Two lectures and six hours of laboratory.
Prerequisites: Biology 15 and either Zoology 51 or 100.
Principles of genetics as related to human biology with consideration of the applied fields of medical genetics, genetic counseling, and population studies. Premedical and predental students majoring in zoology may substitute this course for Biology 155 to satisfy the requirements for the major. Students with credit for Zoology 165 may enroll but will receive only two additional units of credit.

*** 165. Human Heredity (2) I, II**
Selected principles of human inheritance with emphasis on relationships to other fields of human studies. A general education course in the area of the life sciences. Not open for credit to students with credit for Biology 155 or Zoology 164.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in zoology with a grade of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced zoology. May be repeated with new content for additional credit.

298. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ADDENDA

LOANS
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LOANS

LOANS

Financial aid is available through the San Diego State College Foundation Loan Program to full-time students who have completed at least one semester at San Diego State and have demonstrated ability to do satisfactory college work. Applicants are considered on the basis of college-related need and ability to repay loans within a reasonable period of time.

Short-term or emergency loans may be secured for registration fees, books, and supplies in amounts up to $150 and are payable by the end of the semester in which they are borrowed.

Long-term loans are available in amounts up to $500 for students who show evidence of need for assistance to complete their college education. These loans may be repaid after graduation with approval of the Faculty Committee on Student Loans.

San Diego State participates in the loan program under title II of the National Defense Education Act of 1958. Loans up to $1000 per college year are available to qualified students who have been accepted for admission, or are currently enrolled, as full-time students. Repayment extends over a 10 year period beginning the year after the student graduates. Entering freshman and transfer students are eligible to apply under this program.

Individuals and organizations have established the following San Diego State College Foundation Loan Funds:

Alumni Athletic Fund
Associated Student Fund
USS Horace A. Bass Fund
Concordia Frauen Verein Fund
Will C. Crawford Memorial Fund
Anna L. Davis Memorial Fund
Delta Kappa Gamma Fund
Faculty Dames Fund
Martha Farnum Memorial Fund
Edward L. Hardy Memorial Fund
Hillcrest Lions Club Fund
Imperial Valley Campus Fund
Institute of Radio Engineers Fund
Joan Jennings Memorial Fund
La Mesa Womens Club (Evening Division) Fund
Lewis B. Lesley Memorial Emergency Fund
Lewis B. Lesley Emergency Fund
Harvey L. Lewis, Jr. Memorial Fund
Lions Club of San Diego Fund
Maude Holcomb Lydick Fund
Mission Beach Womens Club Fund
Edward J. and Edwena B. Moore Memorial Fund
W. L. Nida Fund
Dr. C. G. Osborn Memorial Fund
Dr. R. J. Pickard Fund
Rotary Club Vista Fund
San Diego State College Foundation Fund
Dr. Ralph J. Scanlan Memorial Fund
Scottish Rite Fund
Laura E. Settle C.R.T.A. Fund
Solar Aircraft Company Management Club Fund
Thursday Club Fund
Colver Waller Memorial Fund
Dewitt Bisbee Williams Memorial Fund
Womens Auxiliary San Diego County Medical Association Fund

APPLICATION DEADLINES

The National Defense Student Loan applications are available during the latter part of the spring semester and will be mailed upon request. Foundation Loan applications are available throughout the college year.

Applications and additional information regarding financial assistance may be secured through the office of the Assistant to the Dean of Students.

SCHOLARSHIPS AND AWARDS

SCHOLARSHIPS AND AWARDS

Selection of applicants is made on the basis of adequate scholarship, special skills and/or need. Request for an application form should be sent to the Office of the Dean of Activities, San Diego State College.

APPLICATION DEADLINES

Scholarship awards are announced in January and May of each year. New students planning to enter in the fall semester may file applications in the Office of the Dean of Activities until April 15, 1962.

Students currently enrolled in San Diego State may apply during March for scholarships to be used in the following fall semester. Applications may be made during October for Scholarships to be used in the following spring semester.

SCHOLARSHIPS AND AWARDS GRANTED BY THE FACULTY COMMITTEE ON SCHOLARSHIPS

SCHOLARSHIPS AVAILABLE TO FRESHMEN

Scholarships listed below, for which freshmen may apply, are specifically described under the name of the scholarship. They are as follows:

ATHLETIC SCHOLARSHIPS. A number of scholarships, varying in amounts to a maximum of $500 each, available each year to students participating in intercollegiate athletics. Scholarships are renewable annually for recipients who meet specified standards of scholarship and citizenship. Apply to Director of Athletics, San Diego State.

BURGENER, CLAIR W., SPEECH SCHOLARSHIP. A four-year scholarship of $50 per semester awarded to an entering freshman or advanced standing student who is outstanding in public speaking and general scholarship. Recommendations will be made by the Speech Arts Department with final selection by the Committee on Scholarships.

DEWITT BISBEE WILLIAMS MEMORIAL. One $100 scholarship made available to each secondary school in San Diego County having a chapter of the California Scholarship Federation. Selection is made by the high school faculty from students who have been members of CSF for at least two semesters and have qualifications for admission to San Diego State.

KAY JEWELERS SCHOLARSHIP. $30 a semester for eight semesters awarded an entering freshman. This scholarship is to be given alternating years to men and women students. In the fall semester, 1962, the scholarship will be awarded to a young man. Selection is made from applications received from high schools. Consult your senior counselor in high school.

LINKLETTER, ART. Four $50 scholarships made available each June to students graduating from San Diego City and County high schools: (1) one to a girl and one to a boy graduating from high schools with enrollment of 1,000 or over; and (2) one to a boy and one to a girl from high schools with enrollment under 1,000. Selection is based on scholarship, citizenship, and need. Applications should be made through the high school counselor.

MUSIC SCHOLARSHIPS. A limited number of Music Department scholarships covering the costs of tuition, books, and other supplies available to regular course music majors. The awards of these scholarships are based on financial need, scholarship, and performing talent as demonstrated in auditions before a scholarship committee of the Music Department. Application may be made directly to the Music Department, San Diego State.

SENN, PERCIE BELL, SCHOLARSHIP IN PUBLIC SPEAKING. An annual scholarship of $50 to $100 made possible by Admiral Elliott Senn for the purpose of assisting students in public speaking. This is awarded to an entering freshman or any qualified student in the field of debate.

SCHOLARSHIPS AVAILABLE TO ENROLLED STUDENTS AT SAN DIEGO STATE

ART

SPANISH VILLAGE ART ASSOCIATION, INC. A $75 scholarship each semester will be given an art major in senior year. Nominations are made by the Art Department.

ATHLETICS

ATHLETIC SCHOLARSHIPS. A number of scholarships, varying in amount to a maximum of $500 each, available each year to students participating in intercollegiate athletics. Scholarships are renewable annually for recipients who meet specified standards of scholarship and citizenship. Apply to Director of Athletics, San Diego State College.

BUSINESS ADMINISTRATION

EXECUTIVES' SECRETARIES, INC., SAN DIEGO CHAPTER. Two annual $200 scholarships for upper division women students majoring in business education. Must have a "B" average.

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 to a senior in the field of advertising, business and general executive training.

HASKINS AND SELLS FOUNDATION. $500 annual award given to a junior who is an outstanding student majoring in accounting. Nominations are made by the faculty of the Department of Accounting.

PALMER AND URNER PROFESSIONAL ACCOUNTING AWARD. $100 awarded each spring to an outstanding graduating senior with a major in accounting. Nominations are made by the faculty of the Department of Accounting.

EDUCATION

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN—SAN DIEGO BRANCH. A scholarship awarded annually by Mrs. W. O. Shackelford, a member of the San Diego Branch of the American Association of University Women, to encourage qualified and gifted women to enter the teaching profession. Sixty dollars a semester is given to an undergraduate woman student in her junior or senior year of college who is preparing for elementary or secondary school teaching. She must have a "B" average or better. The recipient is required to teach at least one year after graduation or repay the amount received from this award.

ANONYMOUS "E." Two $100 scholarships awarded each semester to male students majoring in education.

ART LINKLETTER (Scott Foundation). $500 awarded to a student in teacher education with preference given to an English major.

ASSOCIATION OF CHILD EDUCATION. A $75 scholarship given to a student in the Kindergarten-Primary program. The award is customarily made to an upper division student showing promise who is in need financially.

CAMPUS LABORATORY SCHOOL PARENTS ORGANIZATION. A $50 scholarship to a student admitted to Elementary Teacher Training, showing need.

HORACE MANN JUNIOR HIGH SCHOOL. One $100 scholarship awarded to an upper division student majoring in teacher education who graduated from Horace Mann Jr. High School.

KAPPA BETA NU. A $100 scholarship offered annually to a junior or senior woman student in elementary teacher education. Applicant must be a resident of San Diego County who is in financial need.

KAPPA DELTA PI. Two $25 scholarships awarded annually by Kappa Delta Pi of San Diego State College for students in teacher education.

LODGE, CATHERINE YUHAN. One $100 scholarship given annually to an upper division student majoring in elementary education. Apply at the Activities Office, San Diego State.

PACIFIC BEACH JUNIOR WOMEN'S CLUB. $150 will be awarded during the school year for person or persons preparing for credential to teach mentally retarded. Qualified applicants must have been admitted to the program for teacher education.

PHI EPSILON PHI—Alpha Chapter. One $50 scholarship awarded to a student majoring in education who is in need of financial assistance and who has sound scholastic standing.

PI LAMBDA THETA. One $50 scholarship awarded annually to a senior woman in field of education. Scholarship and need considered.

SAN DIEGO CITY TEACHERS ASSOCIATION. Two scholarships of $100 each presented each year to prospective teachers, with no restrictions as to college year.

SANTEE FACULTY CLUB. A $50 scholarship awarded annually to a senior in education who at some time has attended Santee Elementary School.

TEACHER EDUCATION SCHOLARSHIPS. $1,200 awarded by the California Congress of Parents and Teachers to three or more students. Selections are made upon the following conditions: (1) the recipient must have high qualifications and be in financial need; (2) the scholarship will be granted to students training to teach in the elementary public schools of California; and (3) the award shall be limited to students in the junior and senior years.

TEACHER EDUCATION SCHOLARSHIPS. $400 awarded by the California Congress of Parents and Teachers, Inc., to be granted only to fifth year students training to teach in the public secondary schools of California on a general secondary credential.

ENGINEERING

MAJOR FRANK H. PAGE ENGINEERING. Donated by San Diego Chapter of the American Society for Metals. Five $50 scholarships to upper division students with interest in metals; engineering majors with "B" average in major are preferred.

SAN DIEGO STATE COLLEGE ALUMNI ENGINEERS ORGANIZATION. A $50 scholarship given annually to a student majoring in engineering. He must have completed between 30 and 89 units when he applies. He must have a "C" grade average.

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 to a senior in the field of engineering.

WESTERN ELECTRONIC MANUFACTURERS ASSOCIATION. Several scholarships of $250 awarded to juniors and seniors without discrimination as to race, creed or color. Students selected must be interested in electronic engineering or allied branches and be preparing for a technical education.

FOREIGN LANGUAGES

LESLIE P. BROWN. $60 a semester awarded a student majoring in any foreign language.

HISTORY

PHI ALPHA THETA (BETA KAPPA CHAPTER). A $50 scholarship awarded to a history major. Applications should be made during the last semester of junior year to the Chairman of the History Department.

JOURNALISM

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 to a senior in the field of journalism.

MUSIC

BUDD BOYLE MEMORIAL SCHOLARSHIP. A $250 scholarship to be awarded annually to a male music major of sophomore, junior, or senior standing who has exhibited a fund of talent, a love of music, a good ear, and definite scholastic progress toward a teaching credential. The award is contributed by the San Diego Chapter of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America, Inc. (Recipient may apply for membership in the San Diego Chapter, annual dues to be paid by the Chapter during the tenure of the scholarship.) Apply directly to the Music Department, San Diego State.

JULIUS LEIB MEMORIAL MUSIC SCHOLARSHIP. $25 to student regularly enrolled with major in music, and interest in string instruments, cello, viola, violin.

KENT MANCHESTER MEMORIAL SCHOLARSHIP. A $250 scholarship to be awarded annually to a male music major of sophomore, junior, or senior standing who has exhibited a fund of talent, a love of music, a good ear, and definite scholastic progress toward a teaching credential. The award is contributed by the San Diego Chapter of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America, Inc. (Recipient may apply for membership in the San Diego Chapter, annual dues to be paid by the Chapter during the tenure of the scholarship.) Apply directly to the Music Department, San Diego State.

MUSIC DEPARTMENT SCHOLARSHIPS. A limited number of Music Department scholarships covering the costs of tuition, books, and other supplies available to regular course music majors. The awards of these scholarships are based upon financial need, scholarship, and performing talent as demonstrated in auditions before a scholarship committee of the Music Department. Application may be made directly to the Music Department, San Diego State College.

SIGMA ALPHA IOTA ALUMNAE MARGARET SWOPE SCOTT MEMORIAL SCHOLARSHIP. A $50 scholarship awarded a deserving woman student majoring in music. Special consideration will be given to one specially gifted in some phase of musical performance.

THEARLE MUSIC COMPANY SCHOLARSHIP. A $100 scholarship to be awarded to talented and needy music students selected on the basis of an interview and audition with the Music Department Scholarship Committee. Apply directly to the Music Department, San Diego State.

NURSING

CORONADO WOMANS CLUB. $175 per year awarded to a woman student in nursing. Must be recommended by the Nursing Department, San Diego State.

SAN DIEGO AND IMPERIAL COUNTIES SECTION CALIFORNIA SCHOOL NURSE ORGANIZATION. $100. $50 a semester to a sophomore, junior, or senior in the Nursing Program. Must be recommended by Chairman of Nursing Department.

SAN DIEGO COUNTY TUBERCULOSIS AND HEALTH ASSOCIATION. Two $100 scholarships awarded in field of nursing. Students must have completed at least one year in nursing education.

SAN DIEGO STATE COLLEGE DEPARTMENT OF NURSING ALUMNI. $75 in the spring semester to a student in San Diego State College Department of Nursing of junior or senior standing.

PHYSICS

SAN DIEGO UNION-TRIBUNE CHARITIES. $100 a year to a junior and $200 a year to a senior in the field of electronics.

WESTERN ELECTRONIC MANUFACTURERS ASSOCIATION. Several scholarships of $250 awarded to juniors and seniors without discrimination as to race, creed or color. Students selected must be interested in electronic engineering and may be physics majors.

PREPROFESSIONAL CURRICULA

WOMAN'S AUXILIARY TO THE SAN DIEGO COUNTY OPTOMETRIC SOCIETY. One $150 scholarship to a sophomore preoptometric student who has a 2.5 grade point average or better, is in financial need, and has qualities of character indicating high moral integrity.

PSYCHOLOGY

SAN DIEGO HUMAN ENGINEERING SOCIETY. $50 annual scholarship to psychology major in area of experimental or engineering psychology; graduate student. Final selection of the recipient is made by the San Diego Human Engineering Society.

SPEECH ARTS

ART LINKLETTER (Scott Foundation). $500 scholarship awarded to student majoring in Radio and T.V.

SIGMA ALPHA SORORITY—Gamma Upsilon Chapter. $50 a semester to a major in speech correction recommended by Speech Arts Department. Recipient must spend three hours per week in clinical work of the Speech Arts Department.

SIGMA ALPHA SORORITY—Zeta Theta Chapter. $50 a semester awarded to a student who is majoring in speech correction and is recommended by Speech Arts Department.

SOCIOLOGY

COUNTRY FRIENDS. One $1,050 scholarship for resident upper division sociology major.

GENERAL

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN. One $500 scholarship @ $250 per semester awarded to a junior or senior woman regardless of major. May be awarded in the junior year and continued through the senior year.

ARNOLD AIR SOCIETY SCHOLARSHIP. $50 awarded annually to any Air Science III student who is offered and accepts a contract in the semester in which the scholarship is offered. Qualifications: 1. Must be in top 20 percent of air science class; 2. Must have displayed outstanding leadership ability in the air program; 3. Must have desire to participate in the flight training program of Air Force; 4. Must have overall scholarship equal to or above all men's average.

BLUE KEY. A scholarship of $50 is given annually to a lower division male student preferably from San Diego County. Secure application forms from the Office of the Dean of Activities.

CAP AND GOWN. One $60 scholarship awarded each semester to an upper division woman student who has attended San Diego State College for at least one semester and who has maintained at least a "B" average in scholarship for her entire college career.

CHI OMEGA SORORITY. A $50 scholarship awarded annually to an outstanding student in the Sociology or Psychology Department.

DANCE CLUB OF SAN DIEGO STATE COLLEGE. A $50 scholarship awarded to an outstanding dancer from the club to be used for tuition at a recognized summer school of the dance. Application should be made to the Women's Physical Education Department, San Diego State College.

DAVID AND ANNA SILVERMAN. The interest from a fund of $5,000 awarded annually, preferably to a man interested in a career in medicine or teaching. Final selection will be made by a three-member board of trustees empowered to invest the sum.

DELTA DELTA DELTA ALUMNAE. Two $100 scholarships awarded to single women students having a B average. Applicants must have been admitted to the teacher education curriculum and have good recommendations.

DEWITT BISBEE WILLIAMS MEMORIAL SCHOLARSHIP. $100 or more will be awarded to a worthy student or students already enrolled in college. Application forms may be obtained from the Office of the Dean of Activities.

DRESSER, ELIZABETH. A $100 scholarship given annually to a member of the Christian Science Organization at San Diego State College, who is also a member of The Mother Church, The First Church of Christ, Scientist, in Boston.

FLEISCHNER, ANNA S., SCHOLARSHIP, given by Dr. and Mrs. Charles A. Fleischner. An award of $150 given annually to a needy, physically handicapped student, irrespective of race, color or creed.

KIWANI-ANNES (College Area). A $50 scholarship awarded annually.

LADIES AUXILIARY CALIF. STATE FIREMEN'S ASSOCIATION. One $300 scholarship available to son or daughter of fireman. B average required.

NATIONAL LEAGUE OF AMERICAN PEN WOMEN—SAN DIEGO BRANCH. A scholarship of $50 awarded annually to an outstanding woman student. Selection will be made from students in the fields of art, music, and creative writing.

PERRY, FAY V. "QUEEN OF BLUE BOOK BALL SCHOLARSHIP FUND". One $100 scholarship each year given to Freshman Queen of the Blue Book Ball.

PSI CHI. $50 awarded annually to a student with overall average of 2.5; must have completed six units in psychology at San Diego State College with a 3.5 grade average; must submit a one-page paper telling of interest in psychology. Applicants do not have to be psychology majors.

STEINMAN INTERFAITH AWARD. $50 awarded annually to a student at San Diego State who has promoted interfaith co-operation on the campus. Selection of the student is made by three faculty members who have served as advisers to the Interfaith Council. The award is contributed by Mr. Lou Steinman, member of the Henry Weinberger Lodge, B'nai B'rith, and by Mrs. Steinman.

UNION TRIBUNE CHARITIES. $100 a year scholarships each to most deserving junior who has attended (a) San Diego Junior College, (b) Palomar College, (c) Oceanside-Carslbad Junior College and (d) Imperial Valley College.

UNION TRIBUNE CHARITIES. $200 a year scholarships each to most deserving senior who has attended (a) San Diego Junior College, (b) Palomar College, (c) Oceanside-Carlsbad Junior College and (d) Imperial Valley College.

WEINBERGER, HENRY, MEMORIAL INTERFAITH AWARD. $100 awarded annually to a student at San Diego State who has promoted interfaith co-operation on the campus. Selection of the student is made by three faculty members who have served as advisers to the Interfaith Council. The award is contributed by Mrs. Rose Weinberger, widow of the late Henry Weinberger, past president of the Henry Weinberger Lodge, B'nai B'rith, and by his daughters, Mrs. Ted Rosenfeld and Mrs. Harry Epsten.

WILMIA TYLER-TROTT. Annual scholarships of from $50 to $100 made possible by Wilmia Tyler-Trott. These scholarships will be awarded to deserving students selected by the San Diego State College Committee on Scholarships.

SCHOLARSHIPS AVAILABLE TO GRADUATE STUDENTS

CALIFORNIA CONGRESS OF PARENTS AND TEACHERS, INC. Two Secondary Teacher Education Scholarships of $400 each to be granted only to fifth year students training to teach in the public secondary schools of California on a general secondary credential. These may be divided into $200 awards if, in the judgment of the Scholarships Committee, this would be a wise procedure.

STOTT, DOROTHY CRANSTON. A scholarship of $100 awarded each June to a student who has attended the San Diego State College for at least two years and who is being graduated or has been graduated from the San Diego State College with a major in English. The recipient must continue work in the San Diego State College or in any other accredited college or university, towards a higher degree or credential. The selection is made by the Department of English with approval by the Committee on Scholarships.

STOTT, K. W. A scholarship of $100 awarded each June to a student who has attended the San Diego State College for at least two years and who is being graduated or has been graduated by the San Diego State College with a major in history.

FACULTY DIRECTORY
FOR 1961-1962

LOVE, MALCOLM A. (1952) — President
A.B., Simpson College; M.A., Ph.D., University of Iowa; LL.D., Simpson College.

ABRAHAM, FREDERICK D. (1961) — Assistant Professor of Psychology
A.B., Dartmouth College; M.S., University of Michigan; doctoral candidate, Indiana University.

ACKLEY, JOHN W. (1947) — Professor of Speech Arts
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

ADAMS, EILEEN (Mrs. Bert) (1949) — Librarian II
A.B., Willamette University; B.S. in L.S., University of Denver.

ADAMS, JOHN R. (1928) — Chairman, Division of Humanities; Professor of English
A.B., A.M., University of Michigan; Ph.D., University of Southern California.

ADAMS, WILLIAM J. (1955) — Associate Professor of Speech Arts
B.S., McMurray College; M.A., Northwestern University; Ph.D., Stanford University.

ALCARAZ, ERNEST C. (1960) — Instructor in Physics
A.B., M.S., San Diego State College.

ALCORN, MARVIN D. (1941) — Professor of Education
A.B., Southwestern College; A.M., Teachers College, Columbia University; Ed.D., University of Southern California.

ALLISON, EDWIN C. (1960) — Assistant Professor of Geology
B.S., M.A., University of California.

ANDERSON, ARTHUR J. O. (1961) — Assistant Professor of Anthropology
B.A., San Diego State College; M.A., Claremont Colleges; Ph.D., University of Southern California.

ANDERSON, EVANS L. (1954) — Associate Professor of Education
B.A., Gustavus Adolphus College; M.A., University of Minnesota; Ed.D., University of Denver.

ANDERSON, GRAYDON K. (1949) — Professor of Economics
A.B., Willamette University; Ph.D., University of Wisconsin.

ANDERSON, MELVIN A. (1956) — Dean of Admissions and Records
B.Ed., Northern Illinois State College; M.A., Northwestern University; Ed.D., University of California at Los Angeles.

ANDERSON, PAUL S. (1955) — Associate Professor of Education
A.B., Colorado State College; M.S., Ph.D., University of Wisconsin.

ANDERSON, PAUL V. (1954) — Associate Professor of Music
B.M., North Texas State College; M.M., University of Wisconsin.

ANDERSON, W. CARLISLE (1955) — Associate Professor of Industrial Arts
B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.

APPLE, JOE A. (1947) — Professor of Education
A.B., Southeastern State College; M.A., University of Oklahoma; Ed.D., Teachers College, Columbia University.

ARCHER, ELLIS C. (1956) — Associate Professor of Business Education
B.S., Northwestern State College; M.S., University of Kansas; Ed.D., Stanford University.

ATKINSON, BEATRICE (1954) — Assistant Professor of Nursing
B.S., College of St. Scholastica; M.A., San Diego State College.

BABILOT, GEORGE (1956) — Associate Professor of Economics
A.B., Hastings College; M.A., University of Nebraska; Ph.D., University of Oregon.

BACON, GUINIVERE KOTTER (Mrs. George) (1928) — Associate Professor of Education
B.S., Utah Agricultural College; M.A., Stanford University; additional graduate study.

BAKER, CLIFFORD H. (1937) — Associate Professor of Spanish
A.B., San Diego State College; M.A., University of California; Ph.D., University of Southern California.

BAKER, DOUGLAS L. (1954) — Associate Professor of Education
A.B., Lynchburg College; M.S., Ed.D., University of Southern California.

BALLANTINE, FRANCIS A. (1949) — Professor of Education
A.B., Michigan State Normal College; A.M., Ph.D., University of Michigan.

BARBER, WILLIAM F. (1959) — Assistant Professor of Marketing
B.B.A., M.B.A., D.B.A., University of Washington.

BARCKLEY, ROBERT E. (1955) — Associate Professor of Economics
B.S., University of North Dakota; M.A., Columbia University; Ph.D., University of Illinois.

BARHAM, ERIC G. (1956) — Assistant Professor of Zoology
B.A., San Diego State College; Ph.D., Stanford University.

BARNHART, KENNETH EDWIN (1939) — Professor of Sociology
A.B., Southwestern University; B.D., Southern Methodist University; Ph.D., University of Chicago.

BARONE, JOAN F. (1960) — Assistant Professor of Physical Education
B.S., Sargent College, Boston University; M.S., Springfield College, Massachusetts.

BASSETT, ALLEN M. (1961) — Assistant Professor of Geology
B.A., Amherst College; M.A., Ph.D., Columbia University.

BATES, WILLIAM M. (1960) — Assistant Professor of Sociology
A.B., Gonzaga University; M.A., College of the Pacific; Ph.D., Washington University.

BAUER, EDWARD G. (1956) — Associate Professor of Engineering
B.S., U. S. Naval Academy; M.S., University of California.

BAUER, FRANCIS H. (1961) — Assistant Professor of Geography
A.B., M.A., University of California; Ph.D., Australian National University.

BEAUCHAMP, I. L. (1962) — Assistant Professor of Physics
B.S., M.P.H., and additional graduate study, University of California.

BECKER, CALLIE D. (Mrs. E. J.) (1946) — Assistant Librarian
A.B., Shorter College; A.B. in L.S., Emory University.

BECKER, GERALD A. (1958) — Assistant Professor of Mathematics
B.A., M.S., Ph.D., State University of Iowa.

BEDORE, ROBERT L. (1959) — Assistant Professor of Engineering
B.S.M.E., M.S.M.E., Purdue University. Registered Professional Mechanical Engineer.

BELCHER, DAVID W. (1957) — Professor of Management
B.B.A., M.A., Ph.D., University of Minnesota.

BELL, CHARLES B., JR. (1958) — Associate Professor of Mathematics
B.S., Xavier University; M.S., Ph.D., University of Notre Dame.

BENJAMIN, ROBERT L. (1953) — Associate Professor of Speech Arts
A.B., M.S., University of California; Ph.D., University of Wisconsin.

BENTON, CARL W. (1948) — Associate Professor of Physical Education
B.S., University of California at Los Angeles; M.S., Ed.D., University of Southern California.

BERRY, RICHARD W. (1961) — Assistant Professor of Geology
B.S.E.M., Lafayette College; M.A., and doctoral candidate, Washington University.

BIGELOW, MARYBELLE S. (Mrs. K. G.) (1956) — Assistant Professor of Art
A.B., M.A., University of California at Los Angeles.

BIGGER, W. RICHARD (1952) — Professor of Political Science
B.A., M.A., University of Wisconsin; Ph.D., University of California at Los Angeles.

BIGGS, MILLARD R. (1958) — Assistant Professor of Music
B.M., Youngstown University; M.F.A., Ohio University; Ph.D., University of Iowa.

BILTERMAN, HENRY L. (1956) — Instructor in Engineering
B.S.E.E., University of Iowa; graduate study at San Diego State College.

BIRCH, AILEEN J. (Mrs. C. E.) (1949) — Assistant Professor of Education
A.B., M.A., San Diego State College.

BLOCK, EDWARD A. (1946) — Professor of English
A.B., M.A., Ph.D., University of California.

BLYTH, JOHN D. (1957) — Associate Professor of Music
B.M., M.M., Illinois Wesleyan University; additional graduate study at Teachers College, Columbia University, and the University of Nebraska.

BOHNSACK, KURT K. (1956) — Associate Professor of Zoology
B.S., Ohio University; M.S., Ph.D., University of Michigan.

BONSIGNORE, DOROTHE (Mrs. R.) (1960) — Assistant Placement Officer
A.B., M.A., San Diego State College.

BOWNE, WILLIAM F. (1959) — Assistant Professor of Art
B.E., M.A., University of California at Los Angeles.

BRADLEY, WALLACE W. (1961) — Instructor in Education
B.S., University of Maryland; M.A., San Diego State College.

BRANDT, CHARLES L. (1957) — Associate Professor of Zoology
B.A., Ph.D., Stanford University.

BRANSTETTER, R. DEANE (1955) — Professor of Mathematics
B.S., B.A., Northeast Missouri State Teachers College; M.S., State University of Iowa; Ph.D., Iowa State College.

BRENDT, ELIZABETH A. (1961) — Assistant Professor of Education
B.A., Eastern Washington College of Education; M.A., Reed College.

BRIDENSTINE, DON C. (1956) — Associate Professor of Finance
B.S., University of Oregon; A.M., Ph.D., University of Southern California.

BRIGGS, ROBERT M. (1957) — Assistant Professor of Education
A.B., Colorado State College of Education; M.A., Stanford University; Ed.D., Colorado State College of Education.

BROADBENT, HARRY H. (1949) — Associate Professor of Physical Education
A.B., University of Oklahoma; M.S. University of Pennsylvania.

BRODSHATZER, ARTHUR (1956) — Associate Professor of Accounting
B.B.A., City College of New York; M.B.A., New York University. Certified Public Accountant.

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BROOKS, BAYLOR (1931)—Associate Professor of Geology
B.A., Stanford University; additional graduate study at University of Arizona and Stanford University.

BROWN, ANDREAS LE (1961)—Instructor in Speech Arts
A.B., San Diego State College; graduate study, Stanford University.

BROWN, ELIZABETH McPIKE (Mrs. L. P.) (1926)—Professor of French
Ph.B., M.A., Ph.D., University of Chicago; additional graduate study at the Sorbonne, Paris, France; Certificat d'Etudes Francaises; Diplôme de l'Association Générale de Phonétique, Paris, France; Officier d'Académie.

BROWN, EUGENE P. (1947)—Professor of Accounting
B.S., Southeastern Teachers College; B.A., M.A., University of Oklahoma; additional graduate study at University of Chicago, University of Southern California, University of Mexico, and University of Vermont. Public Accountant.

BRUCE, PAUL (1957)—Assistant Professor of Education
A.B., Antioch College; M.A., Claremont Graduate School; Ph.D., State University of Iowa.

BRYDEGAARD, MARGUERITE A. (Mrs. H.) (1936)—Professor of Education
A.B., San Diego State College; M.A., Ph.D., Claremont Graduate School.

BURGESS, WILLIAM C. (1961)—Assistant Professor of Health Education
A.B., M.A., University of North Carolina; Ed.D., Teachers College, Columbia University.

BURNETT, GAIL A. (1947, execpt 1951-52)—Professor of English
A.B., Randolph-Macon Woman's College; M.A., University of California at Los Angeles; Ph.D., University of Southern California.

BURNS, GENE A. (1961)—Assistant Professor of Physics
B.S., San Diego State College; M.S., University of Washington.

BURTON, CHARLES R. (1959)—Assistant Professor of Mathematics
B.A., M.A., University of Kansas; M.A., Ph.D., University of California.

CAMERON, ROY ERNEST (1929)—Professor of Economics
A.B., Ph.D., University of California.

CAMPBELL, LOIS B. (1947)—Associate Professor of Education
A.B., University of California; M.A., Teachers College, Columbia University.

CANNON, NONA P. (Mrs. R. C.) (1959)—Associate Professor of Home Economics
B.S., Harding College; M.S., University of California; Ed.D., Teachers College, Columbia University.

CAPP, MARTIN P. (1953)—Chairman, Division of Engineering; Professor of Engineering
B.S., M.S., University of Colorado. Registered Professional Engineer and Land Surveyor.

CAREY, CHARLOTTE C. (1961)—Assistant Professor of Education
B.S., Wisconsin State College; M.S., Ph.D., University of Wisconsin.

CARLSON, HILDING B. (1948)—Professor of Psychology
Ph.B., M.S., Ph.D., University of Chicago.

CASE, THOMAS E. (1961)—Assistant Professor of Spanish
B.A., St. Thomas College; M.A., and doctoral candidate, State University of Iowa.

CAVE, MARY F. (1946)—Assistant Professor of Physical Education
B.S., University of North Dakota; M.A., San Diego State College.

CHADWICK, LEONARD E. (1949)—Assistant Professor of Economics
B.S. and additional graduate study at the University of California.

CHARLES, CAROL M. (1961)—Assistant Professor of Education
B.A., M.A., Eastern New Mexico University; Ph.D., University of New Mexico.

CLARK, HELEN S. (Mrs. J. G.) (1952)—Assistant Professor of Mathematics
B.A., Macalester College.

CLARK, ORRIN H. (1960)—Assistant Professor of Physics
A.B., Columbia College; M.A., Columbia University; Ph.D., New York University.

COAKLEY, RUTH M. (1961)—Assistant Professor of Nursing
B.S., Hunter College of the City of New York; A.M., Teachers College, Columbia University.

COLLIER, GERALD (1961)—Assistant Professor of Zoology
B.A., M.A., and doctoral candidate, University of California at Los Angeles.

COMBS, MARGARET E. (1961)—Librarian II
A.B., Florida State University; A.B. in L.S., University of North Carolina; M.A., Northwestern University.

COMIN, NORITA N. (1949)—Associate Professor of Home Economics
B.S., University of Minnesota; M.A., San Diego State College.

CORYELL, DONALD D. (1961)—Associate Professor of Physical Education
B.A., M.S., University of Washington.

COVENY, CECELIA T. (1957)—Associate Professor of Nursing
B.S., University of Minnesota; M.P.H., University of North Carolina.

COVER, CLARENCE B. (1959)—Building Program Assistant
B.S., M.A., Ohio State University.

COX, MARJORIE S. (1961)—Assistant Professor of French
A.B., University of Kansas; M.A., University of Colorado; doctoral candidate, University of California.

CRAIG, ROBERT L. (1960)—Assistant Professor of Physics
A.B., Doane College; M.S., University of Nebraska; additional graduate study at Universities of Minnesota and Idaho.

CRAIN, MELVIN (1959)—Assistant Professor of Political Science
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

CRAWFORD, MAURICE L. (1954)—Associate Professor of Business Education
B.S., M.S., University of Utah; additional graduate study at University of California at Los Angeles.

CRAWFORD, PATRICIA A. (1961)—Assistant Professor of Psychology
B.A., M.A., University of Rochester; Ph.D., University of Minnesota.

CRAWFORD, RONALD W. (1953)—Associate Professor of Zoology
A.B., San Diego State College; Ph.D., Cornell University.

CREECH, ELIZABETH R. (Mrs. R.) (1961)—Assistant Professor of Education
B.A., M.Ed., Whitworth College, Washington.

*CROUCH, JAMES ENSIGN (1932)—Professor of Zoology
B.S., M.S., Cornell University; Ph.D., University of Southern California.

CROW, WAYMAN J. (1957)—Associate Professor of Psychology
B.A., M.A., Ph.D., University of Colorado.

CRUM, CLYDE E. (1955)—Associate Professor of Education
B.S., M.S., Kansas State Teachers College; Ed.D., University of Colorado.

CRUTTENDEN, CHARLES H. (1960)—Assistant Professor of Geography
A.B., University of California; M.A., Ph.D., Syracuse University.

DAHLKE, HANS J. (1961)—Assistant Professor of Engineering
B.S., San Diego State College; M.S., and doctoral candidate, Stanford University.

DANDLIKER, JOHN D. (1960)—Assistant Professor of Foreign Languages
B.S., M.A., University of Wisconsin; additional graduate study at Universidad de Madrid, Institut de Touraine, and Universities of California and Oregon.

DANIEL, LARK O., III (1955)—Associate Professor of Psychology
B.A., M.A., Southern Methodist University; Ph.D., Purdue University.

DANIELS, MORRIS J. (1956)—Associate Professor of Sociology
B.A., Southern Methodist University; M.A., Ph.D., University of Texas.

DARLEY, RICHARD D. (1961)—Assistant Professor of Marketing
B.S., Cornell University; M.S., University of Missouri; Ph.D., Purdue University.

DAUGHERTY, JACK V. (1959)—Activities Adviser
B.S., San Diego State College.

DAVIS, ALYCE L. (Mrs. M. H.) (1959)—Librarian II
B.S., Alabama State College; M.A., Columbia University; additional graduate study, Simmons College.

DAY, DENNIS G. (1961)—Assistant Professor of Speech Arts
A.B., College of the Pacific; A.M., Ph.D., University of Illinois.

DEATON, EDMUND I. (1960)—Assistant Professor of Mathematics
B.A., Hardin-Simmons University; M.A., Ph.D., University of Texas.

DELORA, JACK R. (1955)—Assistant Professor of Sociology
B.S., Bowling Green State University; M.A., Western Reserve University; Ph.D., Michigan State University.

DE MALIGNON, WILLIAM E. (1960)—Assistant Professor of Mathematics
B.A., M.A., University of Wisconsin.

DESSEL, NORMAN F. (1961)—Assistant Professor of Physics
B.A., M.A., Ph.D., State University of Iowa.

DHARMARAJAN, SANGIAH (1960)—Assistant Professor of Engineering
B.Eng., College of Engineering, Madras, India; M.S., Ph.D., University of Illinois.

DIRKS, JOHN H. (1947)—Associate Professor of Art
A.B., San Diego State College; M.F.A., Claremont Graduate School.

DODDS, LOWELL J. (1957)—Assistant Professor of Accounting
A.B., University of Redlands; M.B.A., University of Denver. Certified Public Accountant.

DORRIS, HELEN L. (1952)—Associate Professor of Home Economics
B.S., Southern Illinois University; M.S., and additional graduate study, University of Illinois.

DU BOIS, EDWIN A., JR. (1960)—Assistant Professor of Education
A.B., B.S., Southwest Missouri State College; M.Ed., Ed.D., University of Missouri.

DUKAS, VYTAS (1959)—Assistant Professor of Foreign Languages
A.B., M.A. (Russian), M.A. (German), and additional graduate study, University of Michigan.

EAGLE, JOHN E. (1946)—Professor of Mathematics
B.S., Montana State College; M.A., Ed.D., Stanford University.

EARNEST, SUE W. (Mrs. L. E.) (1947)—Professor of Speech Arts
A.B., San Diego State College; M.A., Ph.D., University of Southern California.

EASON, ROBERT G. (1960)—Assistant Professor of Psychology
A.B., M.A., Ph.D., University of Missouri.

ECKEL, CLARENCE L. (1960)—Visiting Professor of Engineering
B.S.C.E. and additional graduate study, University of Colorado.

EIDEMILLER, DONALD I. (1956)—Associate Professor of Geography
B.A., San Diego State College; M.A., University of California; Ph.D., Indiana University.

ELLIOTT, DELBERT S. (1961)—Assistant Professor of Sociology
B.A., Pomona College; M.A., Ph.D., University of Washington.

* On leave Semester II.

EMERSON, ARTHUR T. (1952)—Assistant Professor of Mathematics
B.S., U. S. Naval Academy; additional graduate study at Naval War College.

EPLER, MILDRED R. (Mrs. E. E.) (1961)—Instructor in Education
A.B., M.A., San Diego State College.

ETHERIDGE, RICHARD E. (1961)—Assistant Professor of Zoology
B.S., Tulane University; M.S., Ph.D., University of Michigan.

EZELL, PAUL H. (1956)—Associate Professor of Anthropology
B.A., M.A., Ph.D., University of Arizona.

FALK, CHARLES J. (1957)—Assistant Professor of Education
S.T.B., S.T.L., S.T.D., Urban University, Rome, Italy; additional graduate study at Claremont Graduate School.

FARRIS, DAVID A. (1960)—Assistant Professor of Zoology
A.B., Indiana University; Ph.D., Stanford University.

FEIERABEND, IVO K. (1959)—Assistant Professor of Political Science
B.A., M.A., University of Southern California; Ph.D., Yale University.

FERREL, DALE B. (1957)—Associate Professor of Accounting
B.S., M.B.A., University of Denver. Certified Public Accountant.

FINCH, WILLIAM A., JR. (1961)—Assistant Professor of Geography
B.A., East Carolina College; M.A., University of Oklahoma; additional graduate study, University of Illinois.

FISCH, ARLINE M. (1961)—Assistant Professor of Art
B.S., Skidmore College; M.A., University of Illinois.

FISHBURN, CLARENCE E. (1955)—Associate Professor of Education
A.B., Arizona State College, Tempe; M.A., Arizona State College, Flagstaff; Ed.D., Stanford University.

FISHER, J. SHERRICK (1953)—Associate Professor of Education
B.S., Bethany College; M.A., Teachers College, Columbia University; Ph.D., University of Pittsburgh.

FITZ, RICHARD A. (1959)—Assistant Professor of Engineering
B.S., Baldwin-Wallace College; M.S. (Ch.E.), Ph.D., Ohio State University.

FLAGG, DENIS A. (1955)—Associate Professor of Economics
B.A., Harvard College; Ph.D., University of California.

FLYE, RICHARD C. (1950)—Assistant Professor of Music
B.A., University of Virginia; M.A., and Professional Diploma, Columbia University.

FORD, WALTER B. (1953)—Assistant Professor of Industrial Arts
B.E., Santa Barbara State College; graduate study at Claremont Graduate School.

FOUNTAIN, LEONARD D. (1960)—Assistant Professor of Mathematics
A.B., S.M., University of Chicago; Ph.D., University of Nebraska.

FREITAS, WILLIAM J. (1959)—Assistant Professor of Foreign Languages
A.B., San Jose State College; M.A., Ph.D., Stanford University.

FREY, LEONARD H. (1956)—Assistant Professor of English
A.B., Dartmouth College; M.A., Ph.D., University of Oregon.

*FRIEDRICH, KURT (1949)—Professor of Education
A.B., Columbia College; M.A., Columbia University; Ed.D., Columbia Teachers College.

FULKERSON, E. GLEN (1954)—Professor of Education
B.E., Southern Illinois University; M.A., Ed.D., University of California at Los Angeles.

GALBRAITH, OLIVER, III (1955)—Assistant Professor of Management
B.S., M.B.A., Northwestern University; additional graduate study at University of California at Los Angeles.

GALLUP, AVERY H. (1952)—Professor of Botany
A.B., San Diego State College; M.A., Claremont Graduate School; Ph.D., University of Michigan.

GANONG, CONSTANCE L. (1954)—Assistant Professor of Nursing
B.S., University of Minnesota; M.A., San Diego State College.

GARRISON, JOHN D. (1956)—Associate Professor of Physics
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

GASTIL, RUSSELL G. (1959)—Assistant Professor of Geology
A.B., Ph.D., University of California.

GATES, GERALD F. (1955)—Associate Professor of Education
B.F.A., Syracuse University; M.F.A., University of Colorado; M.A., Ed.D., University of Denver.

GEGA, PETER C. (1955)—Associate Professor of Education
A.B., M.S., Ed.D., University of Southern California.

GEITGEY, DORIS A. (1957)—Assistant Professor of Nursing
B.A., University of Toledo; R.N., Los Angeles County Hospital School of Nursing; M.S., Immaculate Heart College, Los Angeles.

GELLENS, JAY H. (1961)—Assistant Professor of English
B.A., Kenyon College; M.A., Ph.D., Yale University.

GENERALES, MINOS D. (1949)—Professor of Political Science
Degree in Law and Political Science, University of Athens; additional graduate study at the University of Paris Law School and Institute of International Studies, Paris and Geneva.

* On leave Semester II.

GENZLINGER, CLEVE K. (1957)—Associate Professor of Music
B.M., M.M., University of Nebraska; additional graduate study at Teachers College, Columbia University.

GIBSON, ERNEST DANA (1947)—Professor of Business Education
B.S., University of Minnesota; M.A., Colorado State College of Education; Ed.D., New York University.

GIFFORD, ADAM (1954)—Associate Professor of Economics
B.A., Portland University; M.A., Stanford University; Ph.D., University of Washington.

GILBERT, MARGARET L. (Mrs. A. V.) (1958)—Registrar
A.B., San Diego State College.

GILCHRIST, SARAH E. (1960)—Assistant Professor of Nursing
Diploma, Evangelical Hospital School of Nursing; B.S., Indiana University; M.P.H., University of Michigan.

GILLETTE, THOMAS L. (1961)—Assistant Professor of Sociology
A.B., University of Missouri; M.A., University of Kansas City; Ph.D., University of North Carolina.

GINDLER, HERBERT A. (1960)—Assistant Professor of Mathematics
B.B.A., University of Minnesota; Ph.D., University of California at Los Angeles.

GJERDE, CLAYTON M. (1948)—Professor of Education
A.B., Augsburg College; M.A., Ph.D., University of Minnesota.

GOLDKIND, VICTOR (1961)—Assistant Professor of Anthropology
B.S., George Washington University; M.A., and doctoral candidate, Michigan State University.

GOVERNALI, PAUL (1956)—Professor of Physical Education
B.A., Columbia College; M.A., Ed.D., Teachers College, Columbia University.

GRANRUD, CAROLYN A. (1960)—Librarian II
B.A., St. Olaf College; B.S. in L.S., University of Minnesota.

GRAWUNDER, RALPH M. (1955)—Associate Professor of Health Education
B.S., The Rice Institute; M.A., Ed.D., Teachers College, Columbia University.

GRAY, ROBERT T. (1956)—Professor of Education
A.B., M.Ed., Ed.D., University of Kansas.

GREEN, EUGENE (1961)—Assistant Professor of English
B.A., M.A., Ohio State University; Ph.D., University of Michigan.

GREGOR, HAROLD L. (1960)—Assistant Professor of Art
B.S., Wayne State University; M.A., Michigan State University; Ph.D., Ohio State University.

GRIFFIN, BARBARA A. (1961)—Librarian I
B.A., Memphis State College.

GRIFFIN, ELIZABETH (Mrs. D.) (1960)—Assistant Professor of Physical Education
B.S., State Teachers College, Brockport, New York; M.S., Indiana University.

GRIPP, RICHARD C. (1958)—Assistant Professor of Political Science
A.B., Whittier College; A.M., Ph.D., University of Southern California.

GRISIER, DONALD W. (1951)—Professor of Education
B.S., Bowling Green State University; M.A., Ed. D., Teachers College, Columbia University.

GROFF, PATRICK J. (1955)—Associate Professor of Education
B.S., M.S., University of Oregon; Ed.D., University of California.

GROSS, GEORGE C. (1961)—Assistant Professor of English
A.B., M.A., San Diego State College; doctoral candidate, University of Southern California.

GRUBBS, EDWARD J. (1961)—Assistant Professor of Chemistry
A.B., Occidental College; Ph.D., Massachusetts Institute of Technology.

GULICK, SIDNEY L. (1945)—Dean of Arts and Sciences; Professor of English
B.A., M.A., Oberlin College; Ph.D., Yale University.

HALE, E. ALAN (1957)—Associate Professor of Marketing
B.A., Gustavus Adolphus College; M.A., Ph.D., University of Illinois.

HAMILTON, OWEN S. (1962)—Assistant Professor of Sociology
B.S., M.A., West Virginia University; doctoral candidate, Pennsylvania State University.

HANCHETT, WILLIAM F., JR. (1956)—Associate Professor of History
A.B., Southern Methodist University; M.A., Ph.D., University of California.

HARDER, DONALD F. (1960)—Dean of Counseling and Testing
B.S., M.S., Ed.D., University of Kansas.

HARMON, JAMES E. (1961)—Instructor in Political Science
B.A. and graduate study, San Diego State College.

HARPER, LEROY A. (1959)—Assistant Professor of Health Education
B.S., M.S., Emporia State Teachers College; Ed.D., Teachers College, Columbia University.

HARRINGTON, AWONA W. (1949)—Librarian II
A.B. and additional graduate study at San Diego State College; M.S. in L.S., University of Southern California.

HARRINGTON, NEIL J. (1948)—Assistant Professor of Chemistry
B.S., Monmouth College; M.A., San Diego State College; Ed.D., Colorado State College of Education.

HARRIS, BRICE, JR. (1961)—Assistant Professor of History
B.A., Swarthmore College; M.A., Ph.D., Harvard University.

HARRIS, MARY B. (Mrs. H. P.) (1959) — Librarian II
B.S., San Diego State College; B.A. in L.S., University of Oklahoma; M.S. in L.S., University of Southern California.

HARRIS, RICHARD A. (1959) — Assistant Professor of Speech Arts
B.A., College of Wooster; M.A., Indiana University.

HARRIS, VINCENT C. (1950) — Professor of Mathematics
B.A., M.A., Ph.D., Northwestern University.

HARRISON, ROBERT C. (1953) — Associate Professor of Psychology
B.S., M.S., Ph.D., University of Washington.

HARTIGAN, SELWYN C. (1946) — Business Manager
A.B., San Diego State College.

HARVEY, A. R. (1949) — Professor of Mathematics
B.S., Bates College; A.M., Ph.D., Harvard University.

HARWOOD, ROBERT D. (1928) — Chairman, Division of Life Sciences; Professor of Zoology
A.B., Pomona College; Ph.D., Cornell University.

HASKELL, HARRIET (1940, except 1943-45) — Professor of English
A.B., Mills College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

HELLBERG, LARS H. (1956) — Associate Professor of Chemistry
B.S., Northwestern University; Ph.D., University of California at Los Angeles.

HERRING, JAMES H. (1961) — Assistant Professor of Journalism
B.A., Marshall University; M.A., State University of Iowa; doctoral candidate, University of Minnesota.

HESS, EDWARD J. (1957) — Supervising Librarian, Public Services
B.A., Nebraska State Teachers College; M.A., M.S., University of Southern California.

HILL, WAYNE O. (1955) — Associate Professor of Education
B.A., M.Ed., Eastern Washington College of Education; Ed.D., Stanford University.

HINKLE, JAMES C. (1961) — Assistant Professor of English
B.A., Denison University; M.A., and doctoral candidate, Harvard University.

HIPPAKA, WILLIAM H. (1957) — Associate Professor of Business Law and Real Estate
B.S.C., Jur.D., State University of Iowa.

HODGE, GLENN L. (1953) — Professor of Management
B.S., Kansas State Teachers College; M.S., University of Denver; Ph.D., Louisiana State University.

HOLMES, CALVIN V. (1956) — Associate Professor of Mathematics
B.A., M.A., University of Mississippi; M.S., University of Illinois; Ph.D., University of Kansas.

HOLMES, DARRELL (1952) — Executive Dean; Professor of Education
B.A., M.A., Ph.D., Ohio State University.

HOLOWACH, FRANK S. (1960) — Assistant Professor of Journalism
B.S., Edinboro State Teachers College, Pennsylvania; M.A., State University of Iowa.

HOLT, HOWARD B. (1961) — Assistant Professor of Education
B.S., Ed.M., Oregon State College; D.Ed., University of Oregon.

HOOVER, GRACE V. (1956) — Librarian II
A.B., University of Nebraska; B.S. in L.S., University of Denver.

HOPKINS, JACK R. (1961) — Assistant Professor of Art
B.A., California College of Arts and Crafts; M.F.A., Claremont Graduate School.

HOROWITZ, MIRIAM J. (1961) — Assistant Professor of Psychology
B.A., M.A., Ph.D., University of California at Los Angeles.

HOUSEMAN, RICHARD A. (1948) — Professor of Education
B.S., Central Michigan College of Education; M.A., Ed.D., Teachers College, Columbia University.

HUFFER, CHARLES M. (1961) — Professor of Astronomy
A.B., Albion College; A.M., University of Illinois; Ph.D., University of Wisconsin.

HUFFMAN, EDWARD W. (1955) — Associate Professor of Zoology
B.S., M.S., University of Illinois; Ph.D., Ohio State University.

HULS, HARRY E. (1961) — Assistant Professor of Education
B.S., St. Cloud State Teachers College; M.A., Ph.D., University of Minnesota.

HUNGATE, ROBERT P. (1961) — Assistant Professor of Finance
B.A., University of Washington; Ph.D., University of California at Los Angeles.

HUNRICHS, WILLIAM A. (1957) — Associate Professor of Psychology
B.A., M.A., Ph.D., Stanford University.

HUNSAKER, DON II (1960) — Assistant Professor of Zoology
B.A., M.S., Texas Technological College; Ph.D., University of Texas.

HUNTER, JAMES J., JR. (1946) — Professor of Education
A.B., Cornell University; M.S., Ph.D., Syracuse University.

HURD, LYMAN C., III (1958) — Assistant Professor of Music
A.B., M.M., Syracuse University.

IKEDA, HITOSHI (1960) — Assistant Professor of Education
B.A., University of Hawaii; M.A., Iowa State Teachers College; Ed.D., University of New Mexico.

INSKEEP, JAMES E., JR. (1960) — Assistant Professor of Education
B.S., U.S. Naval Academy; M.A., San Diego State College; Ph.D., University of Minnesota

IRGANG, FRANK J. (1956) — Associate Professor of Industrial Arts
B.S., Central Michigan College; M.A., Ph.D., University of Michigan.

ISENSEE, ROBERT W. (1948) — Professor of Chemistry
A.B., Reed College; M.A., Ph.D., Oregon State College.

JACKSON, EVERETT GEE (1930) — Professor of Art
A.B., San Diego State College; M.A., University of Southern California; additional special study in Mexico.

JAMESON, DAVID L. (1957) — Associate Professor of Zoology
B.S., Southern Methodist University; M.A., Ph.D., University of Texas.

JANSSEN, HENRY L. (1953) — Professor of Political Science
B.A., M.A., University of Oklahoma; Ph.D., University of California.

JENKINS, FREDERIC M. (1961) — Assistant Professor of French
B.A., Swarthmore College; M.A., and doctoral candidate, University of California.

JENSEN, REILLY C. (1958) — Assistant Professor of Chemistry
B.S., M.S., University of Nevada; Ph.D., University of Washington.

JOHNSON, ARVID T. (1957) — Professor of History
B.A., Greenville College; M.A., and additional graduate study at the University of Michigan.

JOHNSON, DORIS M. W. (Mrs. M.) (1960) — Assistant Professor of Education
A.B., M.Ed., and additional graduate study, University of California at Los Angeles.

JOHNSON, FRANK LOUIS (1939) — Professor of English
A.B., M.A., University of Minnesota; Ph.D., University of Wisconsin.

JOHNSON, PHILIP E. (1958) — Assistant Professor of Engineering
B.S.C.E., University of Idaho; M.S.C.E., University of California. Registered Civil Engineer.

JONES, KENNETH K., JR. (1948) — Professor of Speech Arts
BS., Northwestern University; M.A., Stanford University.

JOSEPH, LIONEL (1947) — Professor of Chemistry
B.S., St. Louis University; M.S., Ph.D., Washington University.

JOY, NED V. (1953) — Professor of Political Science
A.B., Ph.D., University of California.

JULIAN, JAMES L. (1951) — Professor of Journalism
B.S., B.A., University of Houston; M.A., University of Texas; Ph.D., State University of Iowa.

KAPLAN, OSCAR J. (1946) — Professor of Psychology
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

KASCH, FREDERICK W. (1948) — Professor of Physical Education
B.S., M.S., University of Illinois; Ed.D., New York University.

KASS, NORMAN (1961) — Assistant Professor of Psychology
B.A., M.A., Ph.D., Western Reserve University.

KATZ, ELI (1961) — Assistant Professor of German
B.SS., College of the City of New York; M.A., and doctoral candidate, University of California at Los Angeles.

KEENEY, JOSEPH SUMNER (1933) — Professor of English
A.B., Yale University; M.A., Ph.D., University of California.

KENDALL, WILLIS L. (1961) — Assistant Professor of Education
B.S., Wayne State University; M.A., Miami University, Ohio; Ed.D., University of Maryland.

*KENNEDY, CHESTER B. (1937) — Professor of English
A.B., Chico State College; M.A., Ph.D., Stanford University.

KENNEY, LOUIS A. (1961) — College Librarian
A.B., Nebraska State Teachers College; B.S. in L.S., M.S. in L.S., University of Illinois; graduate study, University of Zurich; Ph.D., University of Maryland.

KIDWELL, WILLIAM M. (1949) — Placement Officer; Professor of Psychology
B.A., M.S., University of Oregon; Ed.D., Stanford University.

KILLGROVE, RAYMOND B. (1960) — Assistant Professor of Mathematics
B.A., M.A., and additional graduate study, University of California at Los Angeles.

KILLION, JOHN J. (1955) — Physician and Surgeon
B.A., University of Minnesota; M.D., University of Tennessee School of Medicine.

KINDER, JAMES S. (1953) — Co-ordinator of Audio-visual Services; Professor of Education
B.S., Southeast Missouri College; M.A., Ph.D., Teachers College, Columbia University.

KINNON, WILLIAM D. (1956) — Assistant Professor of Psychology
B.S., Boston University; M.Ed., Trinity University; M.A., Ph.D., University of Denver.

KIRBY, BERNARD C. (1954) — Associate Professor of Sociology
A.B., Denison University; M.A., Ph.D., University of Washington.

KIRKPATRICK, KIM A. (1961) — Instructor in Physics
A.B., M.S., San Diego State College.

KITCHEN, JAMES D. (1957) — Assistant Professor of Political Science
B.A., M.A., Ph.D., University of California at Los Angeles.

*KITZINGER, ANGELA M. (1945) — Professor of Health Education
A.B., Bernard College, Columbia University; M.A., Teachers College, Columbia University; Ph.D., University of Southern California.

* On leave Semester II.

KLANN, CORINNE F. (1962) — Assistant Professor of Education
B.A., Western Washington College; M.A., Teachers College, Columbia University.

KLAPP, ORRIN E. (1948) — Professor of Sociology
M.A., Ph.D., University of Chicago.

KLEMER, ELIZABETH J. (1953) — Associate Professor of Education
B.E., National College of Education; M.A. George Peabody College; graduate study at Teachers College, Columbia University, and Stanford University.

KOEHN, EDNA B. (1958) — Assistant Professor of Education
B.S., Moorhead State Teachers College; M.A., Ph.D., University of Minnesota.

KOESTER, GEORGE A. (1950) — Professor of Education
B.S., Midland College; M.A., University of Colorado; Ph.D., University of Minnesota.

KOEVENIG, JAMES L. (1961) — Assistant Professor of Zoology
B.A., State University of Iowa; M.A., Iowa State Teachers College; Ph.D., State University of Iowa.

KUBANIS, IVAN J. (1960) — Assistant Professor of Political Science
B.A., Ph.D. in progress, University of Minnesota.

LAMBERT, ARTHUR A. (1960) — Assistant Professor of Music
B.S., M.A., M.F.A., Ph.D., State University of Iowa.

LAMDEN, CHARLES W. (1946) — Chairman, Division of Business Administration; Professor of Accounting
A.B., M.A., University of California at Los Angeles; Ph.D., University of California. Certified Public Accountant.

LANDIS, VINCENT J. (1954) — Associate Professor of Chemistry
B.S., Washington State College; Ph.D., University of Minnesota.

LANE, SYLVIA (Mrs. B.) (1961) — Lecturer in Economics
A.B., M.A., University of California; Ph.D., University of Southern California.

LANGENBACH, ROBERT G. (1959) — Assistant Professor of Business Education
B.A., M.A., Montana State University; Ed.D., University of California at Los Angeles.

LA PRAY, MARGARET H. (1959) — Assistant Professor of Education
B.S., M.A., University of Minnesota; Ph.D., Cornell University.

LAURITSEN, WILLIAM H. (1947) — Professor of Health Education
A.B., M.A., University of Nebraska; Ph.D., Ohio State University.

LAWSON, DONALD F. (1956) — Associate Professor of Marketing
B.A., Occidental College; M.S., University of Colorado; additional graduate study at Ohio State University.

LAWSON, RICHARD H. (1957) — Assistant Professor of German
B.A., M.A., University of Oregon; Ph.D., University of California at Los Angeles.

LeBARRON, EVANGELINE O. (Mrs. H. E.) (1946, except 1948-49) — Associate Professor of Business Education
B.A., B.S., University of Iowa; B.A., Sioux Falls College; additional graduate study at Claremont Colleges, Universities of Southern California, Minnesota and Hawaii.

LEE, GORDON F. (1958) — Publications and Public Relations Officer
A.B., Drew University; M.S., Columbia University.

LEE, PHOEBE J. (1960) — Assistant Professor of Nursing
Diploma, B.S., Stanford University School of Nursing; M.S., University of California at Los Angeles.

LEE, ROBERT E. (1956) — Assistant Professor of Speech Arts
B.A., M.A., University of Nebraska.

*LEIFFER, DONALD B. (1948) — Professor of Political Science
A.B., University of California at Los Angeles; M.A., Ph.D., Harvard University.

LEMME, MAURICE M. (1948) — Dean of the Graduate Division; Professor of Mathematics
A.B., Oakland College; M.A., Indiana University; Ph.D., Purdue University.

LEMUS, GEORGE (1960) — Assistant Professor of Foreign Languages
B.A., M.A., and additional graduate study, University of Texas.

LEONARD, CAROLYN M. (Mrs. L.) (1961) — Librarian II
B.A., Hastings College; M.A., University of Denver.

LEUKEL, FRANCIS P. (1956) — Associate Professor of Psychology
B.S., University of Florida; M.S., Northwestern University; Ph.D., University of Washington.

LIENERT, CHARLES (1954) — Associate Professor of Education
B.E., Southern Illinois University; M.S., University of Illinois; Ed.D., Colorado State College of Education.

LINGREN, PAUL A. (1957) — Assistant Professor of Art
B.A., University of California, Santa Barbara College; M.A., University of California at Los Angeles.

†LINLEY, JAMES M. (1945) — Professor of Education
Ph.B., University of Chicago; M.S., Ph.D., University of Southern California.

LOCKMAN, EVELYN (1948) — Associate Professor of Physical Education
B.A., Vanderbilt University; M.A., George Peabody College; graduate study at New York University, and University of Wisconsin; additional special study in dance.

* On leave 1961-62.
† On leave Semester I.

LODGE, CHESTER R. (1954) — Associate Professor of Engineering
B.S.E.E., M.S., Ph.D., State University of Iowa.

*LONGENECKER, MARTHA W. (Mrs. J. I.) (1955) — Associate Professor of Art
B.A., University of California at Los Angeles; M.F.A., Claremont Graduate School.

LOOMIS, DAVID M. (1961) — Assistant Professor of Music
B.M., Westminster Choir College; M.M., and additional graduate study, Indiana University.

LOPEZ, GENOVEVO C. (1961) — Assistant Professor of Mathematics
B.A., Ph.D., University of California at Los Angeles.

LOSCHEN, LESLIE R. (1960) — Assistant Professor of Accounting
A.B., Whitman College; M.B.A., Harvard University; additional graduate study, University of Washington. Certified Public Accountant.

LUCE, LAWRENCE W. (1949) — Associate Professor of Industrial Arts
B.S., Illinois Wesleyan University; M.S., Iowa State College; Ed.D., University of California at Los Angeles.

LYON, JAMES R. (1960) — Assistant Professor of Engineering
B.S.M.E., Iowa State College; M.S.I.E., University of Southern California.

MacDONALD, KENNETH A. (1959) — Instructor in Mathematics
B.A., University of Arizona; M.A., University of Vermont.

MALCOLM, DAVID D. (1953) — Professor of Education
A.B., Harvard College; Ed.M., Boston University; Ph.D., Northwestern University.

MALIK, JIM G. (1957) — Associate Professor of Chemistry
A.B., Wabash College; Ph.D., Michigan State University.

MARCHAND, ERNEST L. (1946) — Professor of English
A.B., M.A., University of Washington; Ph.D., University of Wisconsin.

MARTIN, MARY F. (1958) — Assistant Professor of Home Economics
B.S., University of Idaho; M.S., Oregon State College.

MASTIN, ROBERT L. (1959) — Assistant Professor of Engineering
B.S.E.E., U. S. Naval Academy; Ae.E., California Institute of Technology. Registered Professional Engineer.

MATHES, JOHN C. (1961) — Instructor in English
A.B., A.M., and additional graduate study, University of Michigan.

McBLAIR, WILLIAM (1948) — Assistant Professor of Zoology
A.B., San Diego State College; Ph.D., University of California.

McCLINTIC, JOSEPH O. (1946) — Professor of Economics
A.B., Central College; A.M., University of Missouri; Ph.D., University of Wisconsin.

McCOLLOM, IVAN N. (1946) — Professor of Psychology
A.B., Central Washington College of Education; B.S., M.S., University of Oregon; Ed.D., Colorado State College of Education.

McCOY, CHARLES R. (1960) — Instructor in English
B.A., M.A., Drake University.

McJUNKINS, THOMAS O. (1959) — Assistant Professor of Sociology
B.S., Arkansas Baptist College; A.B., Morehouse College; M.A., Atlanta University; additional graduate study at Indiana University.

McLONEY, WIRT L. (1949) — Assistant Professor of Industrial Arts
A.B., Western State College; M.A., Colorado State College of Education; additional graduate study at University of Southern California.

McMULLEN, JAMES D. (1958) — Assistant Professor of Industrial Arts
B.S., M.S., Oregon State College; Ed.D., University of Southern California.

McVAY, BETTE B. (1957) — Assistant Professor of Education
B.S., Wisconsin State College; M.A., University of Minnesota.

MENDENHALL, MARY (1939) — Professor of Philosophy
B.A., University of Colorado; M.A., University of Southern California; Ph.D., Yale University.

MERRILL, JOHN E. (1946) — Associate Professor of History
A.B., Stanford University; A.M., Harvard University; Ph.D., Stanford University.

MERZBACHER, CLAUDE FELL (1947) — Assistant Professor of Physical Science
B.S., University of Pennsylvania; M.A., Claremont Graduate School; Ed.D., University of California at Los Angeles. Certificat d'Etudes Francaises. Licensed Professional Chemical Engineer.

MESSIER, LEONARD N. (1946) — Professor of French
A.B., San Diego State College; M.A., Ph.D., University of California. Officier d'Académie.

MICKELSEN, NOEL K. (1961) — Instructor in Physical Education
A.B., San Diego State College.

MILEFF, EDWARD (1960) — Assistant Professor of Health Education
B.S., University of Oklahoma; M.S., Florida State University; Ed.D., Boston University.

MILLS, JACK (1957) — Associate Professor of Speech Arts
A.B., M.A., University of Florida; Ph.D., University of Illinois.

MILNE, DAVID S. (1946) — Chairman, Division of Social Sciences; Professor of Sociology
A.B., University of California at Los Angeles; M. A., University of Southern California; Ph.D., University of Chicago.

MILOW, E. DEAN (1957) — Assistant Professor of Geology
B.S., San Diego State College; graduate study at Stanford University.

* On leave, semester II.

MISHNE, ALAN S. (1956) — Administrative Assistant
A.B., San Diego State College.

MOE, CHESNEY R. (1931) — Professor of Physics
A.B., M.A., Stanford University; Ph.D., University of Southern California, Registered Electrical Engineer.

MOLEK, MARY (Mrs. J.) (1962) — Assistant Professor of Education
B.S., Kansas State Teachers College; M.A., and doctoral candidate, University of Chicago.

MONTEVERDE, JOHN P. (1954) — Associate Professor of English
B.A., M.A., Ph.D., University of California at Los Angeles.

MOORE, HAROLD B. (1960) — Assistant Professor of Microbiology
A.B., San Diego State College; M.A., Ph.D., University of California at Los Angeles.

MORGAN, CHARLES (1949) — Professor of Engineering
M.E., Stevens Institute of Technology; M.S., University of California. Registered Professional Mechanical Engineer.

MORRIS, RICHARD H. (1957) — Associate Professor of Physics
A.B., Ph.D., University of California.

MOSER, JOSEPH M. (1959) — Assistant Professor of Mathematics
B.A., St. John's University, Minnesota; M.A., Ph.D., St. Louis University.

MOSES, DOROTHY V. (1958) — Associate Professor of Nursing
B.S., P.H.N., M.S., University of California at Los Angeles.

MOURATIDES, NICOS N. (1960) — Assistant Professor of Sociology
B.A., Cornell College; M.A., and additional graduate study, University of Minnesota.

MURDOCK, DORIS G. (Mrs. G.) (1960) — Librarian III
A.B., University of Redlands; B.S. in L.S., University of Illinois.

MURPHY, MARGARET L. (Mrs. S. U.) (1955) — Associate Professor of Physical Education
B.A., University of California; M.S., Ed.D., University of Oregon

MYERS, MABEL A. (1946) — Professor of Microbiology
A.B., M.A., Pomona College; Ph.D., Cornell University.

NARDELLI, ROBERT R. (1953) — Associate Professor of Education
B.A., M.A., Arizona State College; Ph.D., University of California.

NASATIR, ABRAHAM PHINEAS (1928) — Professor of History
A.B., M.A., Ph.D., University of California.

NELSON, BURT (1957) — Assistant Professor of Physical Science
B.S., M.S. (Astronomy), M.S. (Philosophy), Ph.D., University of Wisconsin.

NELSON, MYRTHEL S. (1961) — Assistant Professor of Nursing
B.A., College of Education, Montana; M.A., Gallaudet College; M.A., Teachers College, Columbia University; M.N., R.N., Yale University School of Nursing.

NELSON, SHERWOOD M. (1956) — Associate Professor of Philosophy
A.B., Phillips University; M.A., Ph.D., University of California.

NEUNER, EDWARD J., JR. (1957) — Associate Professor of Economics
A.M., Brooklyn College; A.M., University of Wisconsin; Ph.D., Columbia University.

NEYNDORFF, HANS (1962) — Librarian II
B.S., University of Indonesia; M.A., University of Leyden; Library Diploma, The Netherlands Institute for Documentation and Registration.

NIGRO, FELIX A. (1961) — Professor of Political Science
B.A., M.A., Ph.D., University of Wisconsin.

NORLAND, CALVERT E. (1947) — Assistant Professor of Zoology
A.B., Pomona College; M.S., University of California; graduate study at Claremont Colleges.

NORMAN, NELSON F. (1960) — Assistant Professor of History
B.A., Stanford University; M.A., Harvard University; M.A., Fresno State College; Ph.D., University of Illinois.

NORWOOD, FRANK W. (1957) — Associate Professor of Speech Arts
B.A., M.A., Queens College; additional graduate study at University of Missouri and Ohio State University.

NOWLIN, OWEN W. E. (1957) — Physician and Surgeon
B.S., University of Illinois; M.D., University of Illinois College of Medicine.

NYE, NEVA E. (1953) — Professor of Nursing
B.A., University of Michigan; M.Litt., University of Pittsburgh.

O'BYRNE, ERNEST B. (1954) — Vice President
A.B., A.M., Colorado State College of Education; Ph.D., Stanford University.

O'DAY, EDWARD F., JR. (1957) — Assistant Professor of Psychology
B.S., M.A., Ph.D., University of Florida.

O'DELL, ROBERT D. (1957) — Assistant Professor of Industrial Arts
A.B., M.A., San Diego State College.

ODMARK, VERN E. (1952) — Professor of Accounting
B.S., St. Cloud State Teachers College; M.A., University of Minnesota; Ph.D., University of Missouri, Public Accountant.

OLSEN, ALBERT W. (1957) — Director of Athletics; Assistant Professor of Physical Education
A.B., M.A., San Diego State College; additional graduate study at University of California at Los Angeles and University of Oregon.

OLSEN, LYLE I. (1961) — Assistant Professor of Physical Education
A.B., M.A., Chico State College; Ed.D., Teachers College, Columbia University.

OLSON, ANDREW C., JR. (1946) — Professor of Zoology
A.B., San Diego State College; M.S., University of Idaho; Ph.D., Oregon State College.

O'NEAL, HARRY E. (1961) — Assistant Professor of Chemistry
B.A., Harvard College; Ph.D., University of Washington.

OUELLETTE, EUGENE G. (1960) — Assistant Professor of Speech Arts
B.A., M.A., University of Redlands; Ph.D., University of Washington.

PADGETT, L. VINCENT (1956) — Associate Professor of Political Science
B.S., Ph.D., Northwestern University.

PARKER, MARION L. (Mrs. D. G.) (1951) — Administrative Analyst
A.B., San Diego State College; M.A., University of Southern California.

PEIFFER, HERBERT C., JR. (1937) — Dean of Students; Professor of Psychology
A.B., University of California at Los Angeles; M.A., Ph.D., Stanford University.

PEISNER, EARL F. (1961) — Coordinator of Counseling; Assistant Professor of Education
B.A., Grinnell College; M.A., State University of Iowa; Ed.D., Oregon State College.

PEMBERTON, LEROY A. (1955) — Assistant Professor of Business Education
A.B., A.M., Colorado State College; additional graduate study at University of California at Los Angeles.

PENN, ROBERT (1960) — Assistant Professor of Psychology
B.A., M.A., San Diego State College; Ph.D., Carnegie Institute of Technology.

PERKINS, WILLIAM A. (1955) — Associate Professor of English
A.B., Ph.D., Stanford University.

PERSON, GERALD A. (1957) — Associate Professor of Education
B.A., Augsburg College; M.Ed., Ph.D., University of Minnesota.

PETERS, LYNN H. (1959) — Assistant Professor of Management
B.A., L.L.B., M.B.A., Ph.D., University of Wisconsin.

PETTEYS, MANVILLE R. (1957) — Co-ordinator of Extended Services; Assistant Professor of Education
B.A., Willamette University; M.A., Ed.D., Stanford University.

PFAFF, PAUL LEWIS (1931) — Professor of Speech Arts
A.B., Stanford University; M.A., Ph.D., University of Southern California.

PHILLIPS, GEORGE L. (1947) — Professsor of English
A.B., Dartmouth College; M.A., Harvard University; Ph.D., Boston University.

PHILLIPS, KENNETH (1950) — Professor of Industrial Arts
B.S., State College for Teachers (Buffalo); M.A., Ph.D., Ohio State University.

PIERSON, ALBERT C. (1954) — Assistant Professor of Management
B.L.A.S., University of Illinois; M.B.S., Harvard University; additional graduate study at Columbia University.

PIETSCHMANN, DORLE (1961) — Instructor in German
A.B., College of the City of New York; M.A., and additional graduate study, Stanford University.

PIFFARD, GUERARD (1956) — Associate Professor of Foreign Languages
B.A., M.A., Colorado College; Ph.D., Stanford University.

PINCETL, STANLEY J., JR. (1955) — Associate Professor of History
B.A., M.A., Ph.D., University of California; Doctor of University, University of Paris (Sorbonne), France.

PLATTE, CATHERINE B. (Mrs. D.) (1961) — Instructor in Education
A.B., Drury College.

PLATZ, MARVIN H. (1955) — Associate Professor of Education
B.S., Northeast Missouri State Teachers College; M.Ed., Ed. D., University of Missouri.

PLAZAK, JANE E. (Mrs. W.) (1958) — Assistant Professor of Education
A.B., M.A., San Diego State College.

POMEROY, RICHARD W. (1960) — Assistant Placement Officer
B.A., San Diego State College.

POST, LAUREN CHESTER (1937) — Professor of Geography
A.B., M.A., Ph.D., University of California.

POVENMIRE, E. KINGSLEY (1946) — Professor of Speech Arts
B.S., Ohio State University; M.F.A., Yale University.

POWELL, DON W. (1953) — Associate Professor of Speech Arts
B.S., Kirksville State Teachers College; M.F.A., State University of Iowa.

PRAY, KATHLEEN C. (Mrs. D. L.) (1961) — Lecturer in Philosophy
B.A. and graduate study, San Diego State College.

PRESTON DUDLEY A. (1948) — Associate Professor of Botany
B.S., Washington State College; M.S., Ph.D., University of Minnesota.

PROUTY, HELEN L. (1950) — Professor of Education
B.S., University of Nebraska; M.A., Ph.D., University of California.

PSOMAS, THEMISTOCLES (1957) — Assistant Professor of Psychology
B.A., University of Southern California; Ph.D., University of California.

QUIETT, FREDERICK T. (1957) — Associate Professor of Engineering
Geol.E., M.S., Colorado School of Mines. Registered Professional Engineer (Mining).

RADER, DANIEL L. (1954) — Associate Professor of History
A.B., M.A., Ph.D., University of California.

RAGEN, KATHERINE M. (1947) — Professor of History
A.B., Penn College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

RAMBACK, CLIFFORD P. (1961) — Instructor in Industrial Arts
B.A., San Diego State College.

RAO, M. V. RAMA (1957) — Associate Professor of Engineering
B.S.M.E., University of Madras, India; Diploma in Aeronautics, Indian Institute of Science; Postgraduate Diploma in M.E., Imperial College of Science and Technology, London; M.S.M.E., Ph.D., University of Illinois.

RAO, VASANT D. (1961) — Visiting Professor of Political Science
B.A., M.A., Elphinistone College, Bombay; LL.B., Government Law College, Bombay; Ph.D., University of Bombay.

RATTY, FRANK J. (1954) — Associate Professor of Zoology
B.A., San Diego State College; M.S., Ph.D., University of Utah.

RAY, ROBERT C. (1961) — Physician and Surgeon
B.S. (Medical), University of North Dakota; M.D., Northwestern University.

RECHTSCHAFFEN, EVALYN F. (Mrs. A.) (1960) — Assistant Professor of Psychology
A.B., University of Chicago; B.A., Ph.D., University of Minnesota.

REID, RANDALL C. (1961) — Instructor in English
A.B., San Francisco State College; M.A., Stanford University.

RESSEGUIE, LAURENCE J. (1961) — Assistant Professor of Zoology
A.B., Ph.D., University of California.

REZNIKOFF, SIMON (1956) — Associate Professor of Business Law
B.A., University of Missouri; L.L.B., Columbia University.

RICHARDSON, ROBERT W. (1939, except 1946-48) — Professor of Geography
A.B., Ph.D., University of California.

RICOIS, MICHELINE M. (1961) — Visiting Professor of French
Licence es Lettres, D.E.S., C.A.P.E.S, Agregation, LaSorbonne, Paris.

RIDGE, MARTIN (1955) — Associate Professor of History
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RIDOUT, LIONEL U. (1946, except 1949-50) — Professor of History
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*RIGGS, LESTER G. (1950, except 1951-52) — Professor of Mathematics
B.S., University of Illinois; M.S., Syracuse University; Ph.D., Northwestern University.

RIXMAN, EUNICE E. (1960) — Assistant Professor of Education
B.M., Illinois Wesleyan University; M.M., University of Michigan.

ROBERTS, ELLIS E. (1949) — Professor of Geology
B.S., Michigan College of Mining and Technology; M.S., California Institute of Technology; Ph.D., Stanford University.

ROBERTSON, FRANK O. (1953) — Director of Health Services
B.S., M.S., B.S., (Medicine), University of North Dakota; M.D., University of Oregon Medical School.

ROBINSON, DUDLEY HUGH (1928) — Chairman, Division of Physical Sciences; Professor of Chemistry
B.S., Louisiana State University; M.S., State University of Iowa; Ph.D., University of Southern California. Registered Chemical Engineer.

ROBINSON, LAURIE R. (1960) — Librarian II
B.A., Texas Western College; M.A., University of Denver.

ROBINSON, WILLIAM R., III (1959) — Assistant Professor of Finance
B.B.A., M.B.A., and additional graduate study, University of Washington.

RODNEY, JOSEPH A. (1957) — Assistant Professor of Education
A.B., M.A., San Diego State College; Ed.M., Ed.D., University of Southern California.

ROEMMICH, HERMAN (1958) — Test Officer; Associate Professor of Education
B.A., Jamestown College; M.A., University of Colorado; M.A., Teachers College, Columbia University; Ph.D., University of Washington.

ROGERS, PHYLLIS N. (Mrs. R. E.) (1958) — Assistant Professor of Speech Arts
B.A., M.A., University of Michigan.

ROGERS, SPENCER LEE (1930) — Professor of Anthropology
A.B., San Diego State College; M.A., Claremont College; Ph.D., University of Southern California.

ROHFLEISCH, KRAMER J. (1947) — Professor of History
A.B., M.A., Ph.D., University of California.

ROSS, RAMON R. (1961) — Assistant Professor of Education
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ROST, NORMAN (1951) — Associate Professor of Music
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ROUEN, EDWARD (1959) — Librarian II
B.S., M.S., in L.S., University of Southern California.

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ROWAN, HERMAN T. (1962) — Assistant Professor of Art
B.S., Kansas State Teachers College; M.A., M.F.A., State University of Iowa.

ROWE, ROBERT D. (1946) — Professor of Chemistry
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ROWLAND, MONROE K. (1960) — Assistant Professor of Education
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RUETTEN, RICHARD T. (1960) — Assistant Professor of History
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*RUJA, HARRY (1947) — Professor of Philosophy
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RUMBAUGH, DUANE M. (1954) — Associate Professor of Psychology
A.B., University of Dubuque; M.A., Kent State University; Ph.D., University of Colorado.

RUOCCO, ILSE H. (Mrs. L.) (1934) — Professor of Art
B.E., University of California at Los Angeles; M. A., Columbia University.

RYAN, FREDERICK L. (1946) — Professor of Economics
B.S., Tufts College; Ph.D., University of California.

SAIGH, WILLIAM K. (1961) — Assistant Professor of Marketing
B.S., M.S., Washington University; Ph.D., St. Louis University.

SALTZ, DANIEL (1959) — Assistant Professor of Mathematics
B.A., B.S., University of Chicago; M.S., Ph.D., Northwestern University.

SAMPLES, HOWELL GORDON, JR. (1950) — Librarian II
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SANDERLIN, GEORGE W. (1955) — Associate Professor of English
B.A., American University; Ph.D., Johns Hopkins University.

SANDSTROM, GLENN A. (1956) — Associate Professor of English
B.A., M.A., Washington State College; Ph.D., University of Illinois.

SAVAGE, EDITH J. (Mrs. P.) (1960) — Assistant Professor of Music
B.S., University of Missouri; M.S., Texas College of Arts and Industries; Ed.D., University of Colorado.

SCHALLES, FRANCES IRENE (1950) — Librarian III
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SCHMIDT, JOHN L. (1957) — Associate Professor of Education
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SCHRUPP, MANFRED H. (1948) — Dean of Education Division; Professor of Education
B.S., M.Ed., Ph.D., University of Minnesota.

SCHUNERT, JIM R. (1948) — Professor of Education
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SCHUTTE, WILLIAM H. (1947) — Associate Professor of Physical Education
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SCHWARZMAN, MARGUERITE E. (1961) — Librarian I
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SCOTT, FRANK L. (1947) — Professor of Recreation
A.B., Grinnell College; M.A., Ph.D., University of Michigan.

SEARLES, HERBERT L. (1957) — Professor of Philosophy
B.A., Dartmouth College; B.D., Union Theological Seminary; M.A., Ph.D., State University of Iowa.

†SELLMAN, HUNTON D. (1946) — Professor of Speech Arts
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SERVEY, RICHARD E. (1961) — Assistant Professor of Education
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SHARKEY, GERALD K. (1956) — Associate Professor of Marketing
A.B., St. John's University; M.S., Georgetown University; Ph.D., University of Southern California.

SHAW, PETER W. (1955) — Associate Professor of Mathematics
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SHEPARD, DAVID C. (1956) — Associate Professor of Zoology
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SHOUSE, CLAUDE F. (1946) — Professor of English
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SHUTTS, WILLIAM H. (1958) — Professor of Engineering
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SIDOWSKI, JOSEPH B. (1956) — Associate Professor of Psychology
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SILVERNAIL, CHESTER J. (1949) — Assistant Professor of Astronomy
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SINGER, ARTHUR, JR. (1959) — Assistant Professor of Education
B.S., Milwaukee State Teachers College; M.S., Ph.D., University of Wisconsin.

SINSHEIMER, ALLEN, JR. (1961) — Assistant Professor of Business Law
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SKAAR, DONALD L. (1960) — Assistant Professor of Engineering
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SKINNER, THOMAS D. (1961) — Assistant Professor of Speech Arts
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SKOLIL, LESTER L. (1951) — Professor of Physics
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SLOAN, WILLIAM C. (1961) — Assistant Professor of Zoology
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SMITH, CHARLES ROBERTS (1933) — Associate Professor of Physical Education
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SMITH, CLIFFORD EDWARD (1937) — Professor of Astronomy
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SMITH, DEANE FRANKLIN (1939) — Associate Professor of Music
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SMITH, HAYDEN R. (1957) — Assistant Professor of Education
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A.B., B.M., St. Olaf College; M.M., University of Nebraska; additional graduate study at Florida State University.

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SMITH, LOUIS E., JR. (1946) — Professor of Physics
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SMITH, NEWTON B. (1954) — Professor of Mathematics
B.A., Reed College; M.A., Oregon State College; Ph.D., Iowa State College.

SNIDER, MERVIN S. (1953) — Associate Professor of Music
B.A., Pomona College; M.A., Eastman School of Music; additional graduate study at Northwestern University and Claremont Graduate School.

SNUDDEN, LESLIE W. (1959) — Assistant Professor of Accounting
B.S., Northwestern University; M.B.A., University of Southern California. Certified Public Accountant.

SNYDER, WILLIAM S. (1960) — Assistant Professor of Philosophy
B.A., Temple University; Ph.D., Princeton University.

SOGO, POWER B. (1959) — Assistant Professor of Physics
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SORENSON, GEORGE N. (1946) — Chairman, Division of Fine Arts; Professor of Art
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SPANGLER, CHARLES B. (1961) — Assistant Professor of Mathematics
A.B., Berea College; M.S., University of Pittsburgh.

SPANGLER, JOHN A. (1946) — Professor of Chemistry
A.B., Ph.D., West Virginia University.

SPORTSMAN, CHARLES C. (1947) — Associate Professor of Physical Education
B.S., North Texas State College; M.S., and additional graduate study at the University of Southern California.

SPRINGSTON, CHRISTINE (1930) — Professor of Music
B.A., B.M., University of Redlands; M.A., University of Washington, Diplomée d'execution, Conservatoire Americain, Fontainebleau, France.

SRBICH, ALEXANDER L. (1959) — Assistant Professor of Management
B.S., Officers Technical College, Yugoslavia; M.A., University of Cologne, Germany; B.S.E., M.B.A., University of Michigan; Ph.D., University of Minnesota.

STEVENS, WALTER R. (1956) — Associate Professor of Psychology
A.B., Park College; M.A., Ph.D., Michigan State University.

STEWART, CHARLES J. (1955) — Associate Professor of Chemistry
B.A., San Diego State College; M.S., Ph.D., Oregon State College.

*STEWART, PAUL E. (1953) — Professor of Physical Science
A.B., College of Wooster; Ph.D., Stanford University.

STONE, HAMILTON L. (1947) — Associate Professor of Engineering
B.S., U. S. Naval Academy; graduate study at U. S. Naval Postgraduate School. Registered Mechanical Engineer.

STONE, JOHN PAUL (1930) — Professor of Library Science
B.S., Northwest Missouri State Teachers College; B.S., M.S., University of Illinois; Ph.D., University of Chicago.

STONE, SANFORD H. (1956) — Professor of Engineering
B.S.E., M.S.E., University of Michigan; M.S., University of Illinois. Registered Professional Civil Engineer.

STORM, ALVENA (Mrs. Eugene) (1926) — Professor of Geography
A.B., M.A., University of California.

*STOUGH, MORROW F. (1950) — Professor of Education
A.B., Wittenberg College; M.A., University of Pennsylvania; Ph.D., University of California.

STRAND, MARGUERITE R. (Mrs. R. L.) (1955) — Associate Professor of Education
A.B., M.A., Florida State College for Women; Ph.D., University of Washington.

STRAUB, LURA LYNN (1948) — Associate Professor of Business Education
A.B., Jamestown College; M.C.S., Indiana University; additional graduate study at University of Wyoming and University of Denver.

STROM, LEONARD E. (1959) — Assistant Professor of Education
A.B., San Jose State College; M.S., University of Southern California; Ed.D., Teachers College, Columbia University.

SWIGGETT, JEAN D. (1946) — Professor of Art
A.B., San Diego State College; M.F.A., University of Southern California; additional graduate study at Claremont Colleges.

SZABO, ANDREW (1955) — Librarian II
M.S. in L.S., Drexel Institute of Technology; Ph.D., University of Pecs, Hungary.

TALBOY, RUTH A. (1947) — Associate Professor of Home Economics
B.S., Iowa State College; M.A., Stanford University; additional graduate study at Universities of Minnesota, Iowa, and California.

TANZER, JOANN L. (Mrs. J. L.) (1956) — Assistant Professor of Art
B.A., M.A., Michigan State University.

TAYLOR, JAMES W. (1950) — Professor of Geography
A.B., Northwestern State College; M.A., Ph.D., Louisiana State University.

TAYLOR, KENNETH M. (1949) — Professor of Zoology
A.B., M.A., Ph.D., University of California at Los Angeles.

TAYLOR, MERREL A. (1946) — Assistant Professor of Zoology
A.B., Indiana University; B.S.F., M.S., University of Michigan; additional graduate study at Scripps Institution of Oceanography.

TEASDALE, JOHN G. (1956) — Associate Professor of Physics
A.B., Ph.D., University of California at Los Angeles.

TEBOR, IRVING B. (1957) — Assistant Professor of Sociology
B.S., Northern Illinois State Teachers College; M.A., University of Chicago; Ph.D., Oregon State College.

TERHUNE, JOHN A. (1947) — Assistant Professor of Physics
B.S., U. S. Naval Academy; M.S., Harvard University.

TERRY, WILLIAM L. (1946) — Chairman, Division of Health Education, Physical Education and Recreation; Professor of Physical Education
A.B., Western Kentucky Teachers College; M.S., Indiana University; Ed.D., Columbia University.

THEOBALD, JOHN R. (1946) — Professor of English
B.A., St. Catherine's College, Oxford University; M.A., Mansfield College, Oxford University; Ph.D., University of Iowa.

THIEL, DONALD W. (1957) — Associate Professor of Industrial Arts
B.S., University of Nebraska; M.A., Stout State College; Ph.D., Ohio State University.

THOMAS, ALICE E. (Mrs. H.) (1955) — Associate Professor of Home Economics
B.S., Bethany College, Kansas; M.A., Columbia University; additional graduate study at Universities of California and Washington.

THOMAS, BLAKEMORE E. (1956) — Associate Professor of Geology
A.B., University of California; M.S., Ph.D., California Institute of Technology.

TIDWELL, JAMES N. (1947) — Professor of English
A.B., Simmons University; M.A., University of Oklahoma; Ph.D., Ohio State University.

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THREET, RICHARD L. (1961) — Assistant Professor of Geology
B.S., B.A., M.A., University of Illinois; Ph.D., University of Washington.

TOLLEFSEN, DOROTHY J. (1946) — Associate Professor of Physical Education
A.B., M.A., University of California.

TORBERT, FRANCES B. (Mrs. H.) (1937) — Professor of Management
A.B., Stanford University; M.A., University of Southern California; additional graduate study at Stanford University.

TOSSAS DE IRIZARRY, LEILA V. (1961) — Assistant Professor of Education
B.S., M.A., Ed.D., Teachers College, Columbia University.

TOZER, LOWELL (1954) — Associate Professor of English
A.B., University of Chicago; M.A., De Paul University; Ph.D., University of Minnesota.

TRAIL, MABEL COY (1935) — Professor of English
A.B., Parsons College; M.A., State University of Iowa; Ph.D., University of Southern California.

TREAT, WOLCOTT C. (1950) — Professor of Psychology
A.B., Harvard College; A.M., Harvard University; Ph.D., Stanford University.

TRIMMER, RUSSELL L. (1955) — Associate Professor of Education
A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.

TUCKER, GORDON H. (1945) — Professor of Zoology
B.S., M.S., University of South Carolina; Ph.D., University of North Carolina.

TURNER, MARJORIE S. (Mrs. M. B.) (1954) — Associate Professor of Economics
B.A., M.A., Ph.D., University of Texas.

TURNER, MERLE B. (1950) — Professor of Psychology
A.B., Williamette University; M.A., Stanford University; Ph.D., University of Colorado.

VAN DE WETERING, R. LEE (1960) — Assistant Professor of Mathematics
B.S., University of Washington; Ed.M., Western Washington College of Education; Ph.D., Stanford University.

VANCE, ROBERT W. (1954) — Physician and Surgeon
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VOEKS, VIRGINIA W. (1949) — Professor of Psychology
B.S., M.S., University of Washington; Ph.D., Yale University.

VOGEL, HARVEY (1960) — Assistant Professor of Geography
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WADSWORTH, EARL P., JR. (1956) — Assistant Professor of Chemistry
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WALBA, HAROLD (1949) — Professor of Chemistry
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WALCH, HENRY A., JR. (1955) — Associate Professor of Microbiology
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WALLACE, MARJORIE E. (1957) — Activities Adviser
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WALLACE, ROBERT D. (1957) — Assistant Professor of Art
B.A., M.A., Stanford University; D.Litt., University of Geneva.

WALLING, CURTIS R. (1931) — Professor of Engineering
A.B., E.E., Stanford University; additional graduate study at Stanford University and the University of Southern California. Registered Electrical Engineer.

WALSH, MARY A. (Mrs. W. E.) (1955) — Assistant Professor of Education
B.S., Northwestern University; M.A., Teachers College, Columbia University.

WALT, MARY V. (Mrs. T. E.) (1958) — Lecturer in Education
A.B., San Diego State College.

WALTHALL, ELIZABETH M. (Mrs. F. E.) (1959) — Librarian II
A.B., Alabama College; A.B. in L.S., Emory University.

WANLASS, DOROTHY C. (1955) — Assistant Professor of English
B.S., Utah State University; M A., Ph.D., Columbia University.

WARD-STEINMAN, DAVID (1961) — Assistant Professor of Music
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WARMER, MARGERY ANN (Mrs. J. C.) (1956) — Dean of Activities
A.B., M.S., and additional graduate study at the University of Southern California.

WARREN, E. JUNE (1957) — Admissions Counselor
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WARREN, JACK (1961) — Physician and Surgeon
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WARREN, LEROY J. (1955) — Associate Professor of Mathematics
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WATSON, DONALD R. (1939) — Dean of the College; Professor of Physical Science
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WEBB, CHARLES R., JR. (1949) — Professor of History
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WEDBERG, HALE L. (1959) — Assistant Professor of Botany
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WELLS, RICHARD W. (1961) — Instructor in Physical Education
B.A., Occidental College; graduate study, San Diego State College.

WENDLING, AUBREY (1954) — Associate Professor of Sociology
A.B., San Francisco State College; M.A., Ph.D., University of Washington.

WENZEL, RICHARD F. W. (1961) — Instructor in Physics
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WETHERILL, WILLIAM H. (1957) — Associate Professor of Education
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WICK, ARNE N. (1958) — Professor of Chemistry
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WIDMER, KINGSLEY (1956) — Assistant Professor of English
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WILCOX, ROBERT F. (1950) — Professor of Political Science
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WILDING, JOHN H. (1960) — Assistant Professor of Education
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WILHELM, BETTY J. (1961) — Assistant Professor of Physical Education
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WILLERDING, MARGARET F. (1956) — Associate Professor of Mathematics
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WILLIAMSON, GLORIA R. (Mrs. C.) (1961) — Assistant Professor of Physical Education
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WIMER, ARTHUR C. (1950) — Professor of Journalism
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WINEMAN, WALTER R. (1956) — Associate Professor of History
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WOLF, ERNEST M. (1947) — Professor of German and Romance Languages
Study at the Universities of Berlin, Paris, Muenster, Cambridge and Bonn. Ph.D., University of Bonn.

WOLTER, GERHARD H. (1957) — Associate Professor of Physics
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WOOD, JOHN B. (1956) — Librarian III
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WOODSON, JOHN H. (1961) — Assistant Professor of Chemistry
B.A., Wesleyan University, Connecticut; Ph.D., Northwestern University.

WRIGHT, WILLIAM H. (1921) — Professor of Accounting
B.S., M.A., University of California; Ph.D., University of Southern California. Public Accountant.

YAHR, CHARLES C. (1955) — Associate Professor of Geography
B.S., M.S., Illinois State Normal University; Ph.D., University of Illinois.

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ZIEGENFUSS, GEORGE (1948) — Professor of Physical Education
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BACK, GILBERT A. (1950) — Lecturer in Music
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M.S., Bank Street College of Education.

BERNARD, JAMES F. (1961) — Lecturer in Home Economics
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BEEKLEY, H. DEL (1960) — Lecturer in Physical Education
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BERGESON, ARNOLD V. (1961) — Lecturer in Marketing
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BLACK, NATHALIA C. (Mrs. V. G.) (1958) — Lecturer in English
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BRISTER, WOODROW W. (1961) — Lecturer in Education
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CHATER, ELIZABETH E. (Mrs. M.) (1961) — Lecturer in English
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BAIRD, OSCAR (1951) — Professor of Physics

BLAKE, DEAN (1952) — Lecturer in Meteorology

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