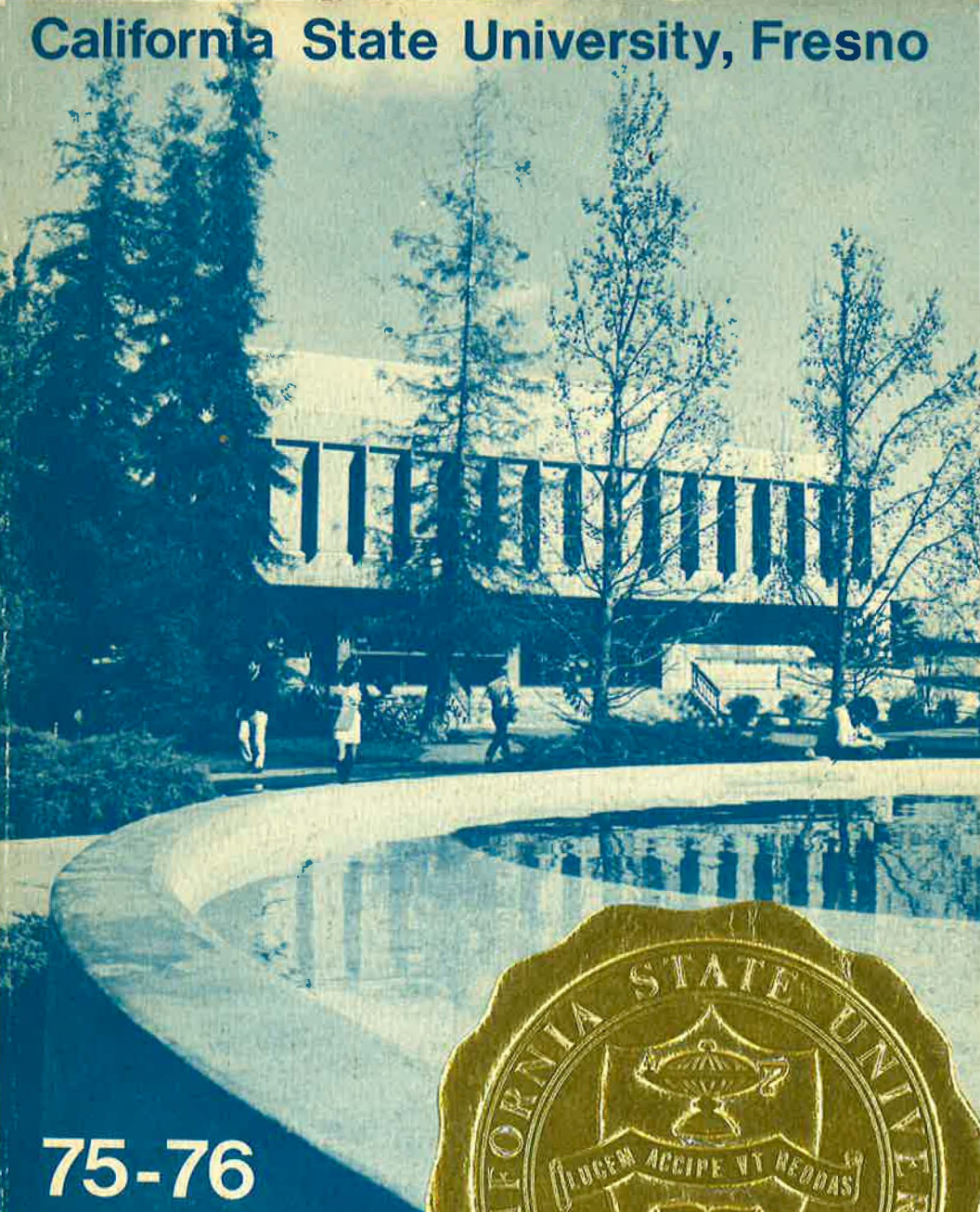


California State University, Fresno



75-76

General  
Catalog



## PREFACE

The CSUF *General Catalog* is designed to provide the prospective student with an overview of California State University, Fresno, as an institution within the CSUC system. The administrative organization, general services and facilities, counseling and enrollment procedures, degrees and credentials offered, and aids to program preparation and enrichment are described as an assist to the student in pursuing his educational goals.

Since the preparation cycle of the catalog occurs well ahead of the academic year which it covers, some adjustments in regulations, policies and curricula do occur. The student is referred to the *Schedule of Courses* as the current authority regarding courses offered, class instructors, and revisions in requirements.

Gerald Robert, of the Instructional Media Center, provided the graphic art, and handled the photography. Certain photographs appear through the courtesy of the Department of Public Affairs. This year's cover, designed around the central memorial fountain, was the work of the OSP art staff. Planning, assembling and editorial work was done under the direction of D. E. Clark, Associate Vice President for Academic Affairs, by Ruth Thornton, Editor, assisted by members of the staff.

∞

The Board of Trustees of the California State University and Colleges, in Section 43800 of Title 5 of the *California Administrative Code*, has reserved the right to add, amend, or repeal any of its regulations, rules, resolutions, standing orders, and rules of procedure, in whole or in part, at such time as it may choose. None shall be construed, operate as, or have the effect of an abridgement or limitation of any rights, powers, or privileges of the Trustees. The Chancellor reserves the right to add, amend or repeal any of his Executive Orders, at such time as he may choose, and the President of California State University, Fresno, reserves the right to

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# CALENDAR CSUF 1975-76

## 1975

**JUNE**

S	M	T	W	T	F	S
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**AUGUST**

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**SEPTEMBER**

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**NOVEMBER**

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## 1976

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**JULY**

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**AUGUST**

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21	22	23	24	25	26	27
28	29	30	31			

Classes

Holidays

## CALENDAR CSUF 1975-76

(Calendar dates subject to change)

Summer Session, 1975 ..... June 16-July 25, inclusive  
 Post Session, 1975 ..... July 28-August 15, inclusive

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**AUGUST 1975**

15 Friday ..... Final day to pay fees for Computer Registration Deadline for application for admission for registration on September 3.

**SEPTEMBER 1975**

1 Monday ..... Labor Day  
 2 Tuesday ..... SEMESTER BEGINS. Academic Assembly meets. Priority Add Day for CAR registrants.  
 3 Wednesday ..... POST-CAR REGISTRATION  
 4 Thursday ..... INSTRUCTION BEGINS. LATE REGISTRATION BEGINS. (\$5.00 late fee) Auditors-only may register. First day to apply for a degree to be granted January 1976. REGULAR ADD-DROP PERIOD STARTS.  
 17 Wednesday ..... LATE REGISTRATION ENDS. END OF REGULAR ADD PERIOD. Last day to file without fine, applications for degrees and credentials to be granted January 1976. Last day to file with fine, October 24.  
 18 Thursday ..... Last day to file for refunds by resident students. Non-residents see fee schedule (15 calendar days).

**OCTOBER 1975**

1 Wednesday ..... LAST DAY TO DROP A CLASS. Last day to drop a class without any notation on the permanent record. Last day for Credit, No-Credit decision to be made with the faculty. Last day to change from Audit registration to Credit registration or Credit registration to Audit registration. Last day to take examination for Credit by Examination.  
 1-15 ..... File application for Spring 1976 student teaching, elementary and secondary.  
 15 Wednesday ..... Last day for faculty to submit Credit by Examination grade.  
 24 Friday ..... Last day to file with fine, applications for degrees and credentials to be granted January 1976.

**NOVEMBER 1975**

14 Friday ..... Last day to file for Financial Aid for Spring 1976.  
 19 Wednesday ..... LAST DAY TO WITHDRAW FROM A COURSE EXCEPT BY COMPLETE WITHDRAWAL FROM THE UNIVERSITY.  
 27-30 ..... Thanksgiving Recess

**DECEMBER 1975**

1-12 ..... REGISTRATION FOR SPRING 1976  
 12 Friday ..... LAST DAY OF INSTRUCTION. Last day to file approved thesis with the Graduate Office for Masters Degree to be granted January 1976.  
 15-20 ..... SEMESTER EXAMINATIONS  
 21-January 4, 1976 ..... Winter Recess

**JANUARY 1976**

8 Thursday ..... Final grades due from faculty—4:00 p.m. Fall semester ends.  
 26 Monday ..... SEMESTER BEGINS  
 28 Wednesday ..... Priority Add Day for CAR registration.  
 29 Thursday ..... POST-CAR REGISTRATION

**FEBRUARY 1976**

- 2 Monday .....INSTRUCTION BEGINS. LATE REGISTRATION BEGINS (\$5.00 late fee). Auditors-only may register. First day to apply for a degree to be granted June 1976. REGULAR ADD-DROP PERIOD STARTS.
- 13 Friday .....LATE REGISTRATION ENDS. END OF REGULAR ADD PERIOD. Last day to file without fine, applications for degrees and credentials to be granted June 1976. Last day to file with fine, April 2.
- 16 Monday, President's Day  
All offices closed .....No classroom instruction
- 17 Tuesday .....Last day to file for refunds by resident students. Non-residents see fee schedule (15 calendar days).

**MARCH 1976**

- 1 Monday .....LAST DAY TO DROP A CLASS. Last day to drop a class without any notation on the permanent record. Last day for Credit, No-Credit decision to be made with the faculty. Last day to change from Audit registration to Credit registration or Credit registration to Audit registration. Last day to take examination for Credit by Examination. Last day to apply for Financial Aid for Fall 1976.
- 1-12 .....File applications for Fall 1976 student teaching, elementary and secondary.
- 12 Friday .....Last day for faculty to submit Credit by Examination grade.

**APRIL 1976**

- 2 Friday .....Last day to file with fine, applications for degrees and credentials to be granted June 1976.
- 10-18 .....Spring recess
- 30 Friday .....LAST DAY TO WITHDRAW FROM A COURSE EXCEPT BY COMPLETE WITHDRAWAL FROM THE UNIVERSITY.

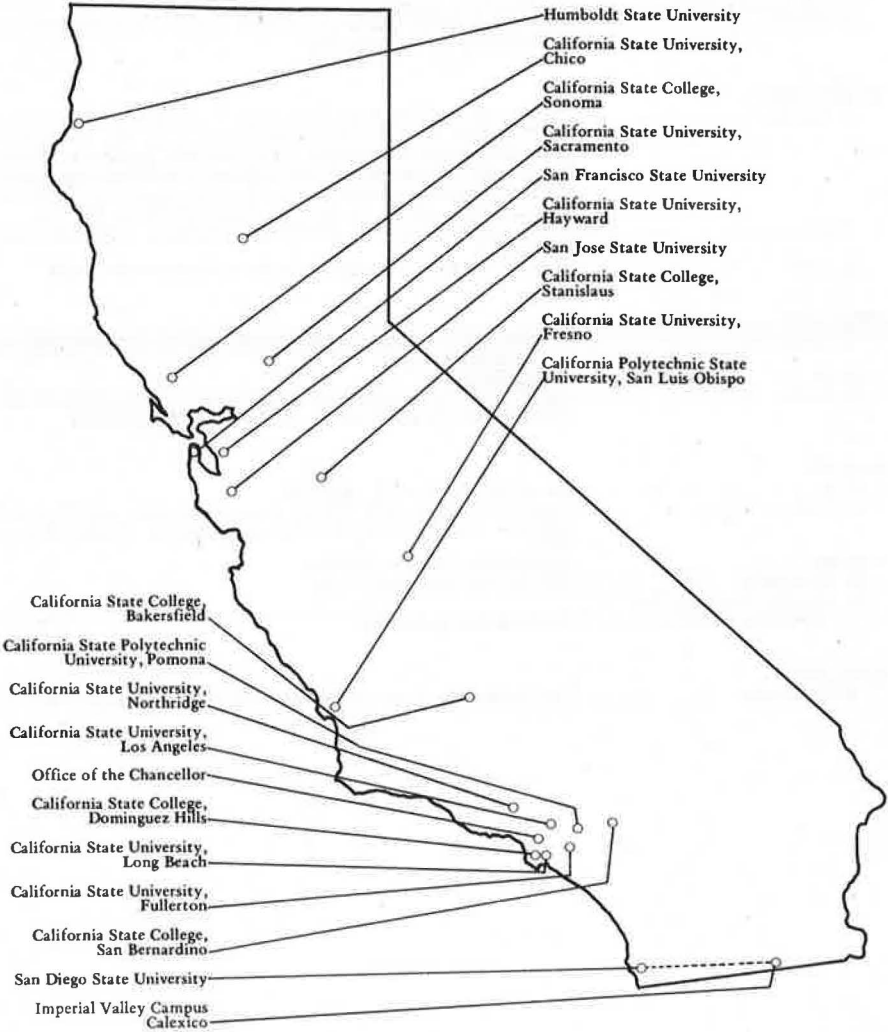
**MAY 1976**

- 10-21 .....REGISTRATION FOR FALL 1976
- 21 Friday .....LAST DAY OF INSTRUCTION. Last day to file approved thesis with the Graduate Office for Masters Degree to be granted June 1976.
- 24-29 .....SEMESTER EXAMINATIONS
- 26 Wednesday .....65th Annual Commencement
- 31 Monday, Memorial Day  
All offices closed .....No classroom instruction

**JUNE 1976**

- 2 Wednesday .....final grades due from faculty—4:00 p.m. Spring semester ends.

THE CALIFORNIA STATE UNIVERSITY AND COLLEGES







**ORGANIZATION AND ADMINISTRATION**

**The California State University and Colleges**

**Board of Trustees**

**Office of the Chancellor**

**California State University, Fresno**

**Administration**

**School Deans and Department Chairpersons**



## THE CALIFORNIA STATE UNIVERSITY AND COLLEGES

The individual California State Colleges were brought together as a system by the Donahoe Higher Education Act of 1960. In 1972 the system became The California State University and Colleges and fourteen of the nineteen campuses received the title *University*. The oldest campus—San Jose State University—was founded in 1857 and became the first institution of public higher education in California. The newest campus—California State College, Bakersfield—began instruction in 1970.

Responsibility for The California State University and Colleges is vested in the Board of Trustees, whose members are appointed by the Governor. The Trustees appoint the Chancellor, who is the chief executive officer of the system, and the Presidents, who are the chief executive officers on the respective campuses.

The Trustees, the Chancellor, and the Presidents develop systemwide policy, with actual implementation at the campus level taking place through broadly based consultative procedures. The Academic Senate of The California State University and Colleges, made up of elected representatives of the faculty from each campus, recommends academic policy to the Board of Trustees through the Chancellor.

Academic excellence has been achieved by The California State University and Colleges through a distinguished faculty, whose primary responsibility is superior teaching. While each campus in the system has its own unique geographic and curricular character, all campuses, as multipurpose institutions, offer undergraduate and graduate instruction for professional and occupational goals as well as broad liberal education. All of the campuses require for graduation a basic program of "General Education-Breadth Requirements" regardless of the type of bachelor's degree or major field selected by the student. A limited number of doctoral degrees are offered jointly with the University of California.

Presently, under the system's "New Approach to Higher Education," the campuses are implementing a wide variety of innovative programs to meet the changing needs of students and society. Among pilot programs under way are instructional television projects, self-paced learning programs, micourses, and credit-by-examination alternatives. *The Consortium of The California State University and Colleges* fosters and sponsors local, regional, and statewide external degree and certificate programs to meet the needs of individuals who find it difficult or impossible to attend classes on a campus.

Enrollments in fall 1974 totaled 292,000 students, who were taught by a faculty of 16,000. Last year the system awarded over 57 percent of the bachelor's degrees and 36 percent of the master's degrees granted in California. Almost 465,000 persons have been graduated from the nineteen campuses since 1960.

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<i>Lieutenant Governor of California</i>	
Hon. Leo McCarthy .....	State Capitol, Sacramento 95814
<i>Speaker of the Assembly</i>	
Hon. Wilson C. Riles .....	721 Capitol Mall, Sacramento 95814
<i>State Superintendent of Public Instruction</i>	
Dr. Glenn S. Dumke .....	5670 Wilshire Boulevard, Los Angeles 90036
<i>Chancellor of The California State University and Colleges</i>	

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

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- Daniel H. Ridder (1975)  
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- Karl L. Wente (1976)  
5565 Tesla Road, Livermore 94550
- William O. Weissich (1977)  
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- Robert A. Hornby (1978)  
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- Wendell W. Witter (1979)  
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- Mrs. Winifred H. Lancaster (1977)  
P.O. Drawer JJ, Santa Barbara 93102
- Gene M. Benedetti (1978)  
8990 Poplar Avenue, Cotati 94952
- Robert F. Beaver (1976)  
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- Roy T. Brophy (1980)  
2160 Royale Rd., Suite 20, Sacramento 95815
- Mrs. C. Stewart Ritchie (1980)  
1064 Creek Dr., Menlo Park 94025
- Frank P. Adams (1981)  
235 Montgomery St., San Francisco 94104
- Richard A. Garcia (1979)  
P.O. Box 2073, Glendale 91209
- Dean S. Leshner (1981)  
P.O. Box 5166, Walnut Creek 94596
- Dr. Claudia H. Hampton (1982)  
450 N. Grand, Room G353, Los Angeles 90012
- Mrs. Yvonne W. Larsen (1975)  
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Robert A. Hornby  
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William O. Weissich  
Vice Chairman  
Chancellor Glenn S. Dumke  
Secretary-Treasurer

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5670 Wilshire Boulevard, Los Angeles, California 90036

Area Code: 213 Phone: 938-2981

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H. E. Brakebill.....Executive Vice Chancellor  
Norman L. Epstein ..... Vice Chancellor and General Counsel  
D. Dale Hanner ..... Vice Chancellor, Business Affairs  
Harry Harmon..... Vice Chancellor, Physical Planning and Development  
C. Mansel Keene.....Vice Chancellor, Faculty and Staff Affairs  
W. B. Langsdorf ..... Vice Chancellor, Academic Affairs

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 Jacob P. Frankel, President  
 (805) 833-2011

**California State University, Chico**

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 Stanford Cazier, President  
 (916) 895-5011

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 Leo F. Cain, President  
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Fullerton, California 92634  
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**Humboldt State University**

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 Alister W. McCrone, President  
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 John A. Greenlee, President  
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**California State Polytechnic University, Pomona**

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 (714) 598-4592

**California State University, Sacramento**

6000 J Street, Sacramento, California 95819  
 James Bond, President  
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16 / ADMINISTRATIVE DIRECTORY

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John M. Pfau, President  
(714) 887-6311

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San Diego, California 92182  
Brage Golding, President  
(714) 286-5000

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Paul F. Romberg, President  
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(408) 277-2000

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San Luis Obispo, California 93407  
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800 Monte Vista Avenue, Turlock, California 95380  
Carl Gatlin, President  
(209) 633-2122

**CALIFORNIA STATE UNIVERSITY, FRESNO**

**CALIFORNIA STATE UNIVERSITY, FRESNO ADVISORY BOARD**

A group of twelve citizens of Fresno and vicinity appointed by the Trustees of the California State University and Colleges act as an advisory body to the administration of the Fresno campus.

- |                         |                              |
|-------------------------|------------------------------|
| James E. Aldredge       | Mrs. Jin Ishikawa            |
| Mrs. Willie Brown       | William N. Knudsen           |
| Michael Cardenas        | Mrs. John W. Pace            |
| Joseph C. Drilling      | Elmer L. Richter, Jr.        |
| Lowell W. Firstenberger | Hans C. Sumpf                |
| James D. Hallowell      | Harold V. Thompson, Chairman |
- Norman A. Baxter, Executive Secretary

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| Assistant Executive Vice President .....                                | James W. Whitehead   |
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| Director of Admissions and Records .....                                | Kent C. Davies   |
| Administrative Services Manager .....                                   | Ward Nelson  |
| Admissions Officer .....  | Carroll Cotten   |
| Coordinator of Relations with Schools .....                             | Richard J. Giese   |
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| Evaluations Supervisor .....  | Mirtie Nelson  |
| Director of Athletics .....   | J. Gene Bourdet  |
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| Director of Public Information .....                                    | James B. Miller  |
| Sports Information Director .....                                       | Tom Kane   |
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| Dean of the School of Graduate Studies .....                            | Phyllis W. Watts   |
| Assistant Dean .....  | Robert L. Shacklett  |

\* As of March 1975

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Coordinator of Overseas International Program .....	Paul F. Kinzel
Coordinator of Television.....	John P. Highlander
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Staff Personnel Officer .....	James E. Forden
Campus Safety Officer .....	Edward Roddy
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Assistant General Manager, Controller.....	Darrell Foletta
Administrator of Campus Food Services and Other Commercial Services.....	Richard Finlay
Bookstore Manager .....	Lawrence F. Taylor
Fresno State College Association, Inc. California State University, Fresno Foundation Agricultural Foundation of California State University, Fresno	

### SCHOOL DEANS AND DEPARTMENT CHAIRPERSONS \*

School of Agricultural Sciences .....	O. J. Burger
Agricultural Economics Department .....	Thomas Gunn
Agricultural Industry and Education Department .....	Fred S. Nury
Animal Science Department .....	Arthur S. Hoversland

\* As of March 1975

Plant Science Department.....	Harry P. Karle
<b>School of Business</b> .....	Irwin Weinstock
Accounting and Quantitative Studies Department.....	Clayton R. Tidyman
Finance and Industry Department .....	Robert A. Carr
Management and Marketing Department.....	John H. Kruger
Office Administration Department .....	(Acting, Fall) Dwayne Schramm (Spring) Berle Haggblade
<b>School of Education</b> .....	Ralph F. Evans
Advanced Studies Department.....	Orley W. Wilcox
Elementary Education Department .....	Arne J. Nixon
Secondary Education Department.....	Lester J. Roth
<b>School of Engineering</b> .....	James D. Matheny
<b>Division of Health Professions</b> .....	(Interim Director) Harold L. Best
Communicative Disorders Department .....	Susan J. Shanks
Health Science Department .....	Nathan E. Liskey
Nursing Department .....	Shirley R. Good
Physical Therapy Program.....	(Coordinator) Joan E. Turnquist
Rehabilitation Counseling Program.....	(Coordinator) Joseph L. Townsend
<b>School of Humanities</b> .....	Joseph Satin
Art Department .....	Frank B. Laury
English Department .....	Robert S. Billings
Foreign Language Department .....	Jose A. Elgorriaga
Linguistics Department .....	P. J. Mistry
Philosophy Department .....	Warren L. Kessler
<b>School of Natural Sciences</b> .....	Brandt Kehoe
Biology Department .....	Bert A. Tribbey
Chemistry Department.....	Stephen A. Rodemeyer
Geology Department.....	Bruce A. Blackerby
Mathematics Department .....	Burke Zane
Physics Department.....	Hugh Williamson
Psychology Department .....	Wayne B. Holder
<b>School of Professional Studies</b> .....	Arthur Margosian
Aerospace Studies Department .....	Lt. Col. Paul G. Logsdon, Jr.
Criminology Department.....	John R. Quinn
Home Economics Department .....	Gwen C. Cooke
Industrial Arts and Technology Department .....	Frank E. Schroeter
Journalism Department .....	Dayle H. Molen
Music Department .....	James H. Winter
Physical Education—Recreation Department.....	J. Gene Bourdet
Radio-Television Department .....	John P. Highlander
Theatre Arts Department .....	Gaylord O. Graham
<b>School of Social Sciences</b> .....	Charles F. Denton
Anthropology Department.....	Dirk van der Elst
Economics Department .....	Robert J. Allison
Ethnic Studies Program .....	
Black Studies .....	(Coordinator) Lester Riggins
Geography Department .....	Chester F. Cole
History Department .....	Stephen A. Benko
La Raza Studies Program.....	(Coordinator) Adolfo Ortega
Political Science Department .....	Don R. Broyles
Sociology Department.....	S. John Dackawich
Speech Communication Department .....	David F. Quadro
Urban and Regional Planning Department.....	Harold H. Tokmakian
<b>School of Social Work</b> .....	Richard D. Ford
Social Welfare Department .....	Wynn C. Tabbert
Graduate Department of Social Work .....	
<b>School of Graduate Studies</b> .....	Phyllis W. Watts

**LIBRARY**

University Librarian.....	Henry M. Madden
Associate University Librarian .....	Lillie S. Parker
Assistant University Librarian.....	Stephanie Hillman
Acquisitions Department .....	Sandra L. Cowling
Catalogue Department .....	Vincent J. Smith, Jr.
Circulation Department .....	A. Zane Clark
Government Publications Department .....	Erland L. Jacobsen
Music Library .....	Ronald J. Harlan
Periodicals Department .....	A. Gerald Gothe
Reference Department.....	William F. Heinlen
Department of Special Collections .....	Ronald J. Mahoney



### SCHEDULED EVENTS

DECEMBER 11, 1974

EVENT	ROOM	TIME
PERS OFF	312	11 AM
ADELTA & MECHA	309	12 PM
PSYCH DEPT	310	1 PM
GRAD SCH SOC WK STU	305	2 PM
NATL DEPT	304	3 PM
SOC WELF DEPT	311A	6 PM
YNG FARMERS	310	7 PM
TRABAJADORES	309	7 PM
SOC WK	304	7 PM
P.E. DEPT WOMEN'S	308	7 PM
BEH. DEV.	315	8:30 PM

SEVENTS RESERVING AVAILABLE ROOM 320  
 8:30-11:55 1:00-4:30  
 CU INFO DESK & ROOM RESERVATIO 3  
 8:30-4:30

← BARBER SHOP BASEMENT

## **GENERAL INFORMATION**

**California State University, Fresno**  
**Continuing Education and Summer Sessions**  
**Student Affairs**  
**Fees and Expenses**



## CALIFORNIA STATE UNIVERSITY, FRESNO

The California State University, Fresno is dedicated to academic excellence, integrity, and freedom. It is committed to developing competent students, citizens, and leaders and to serving the Fresno and Valley communities. The university offers programs of instruction through the master's degree in the liberal arts and sciences, in the professions, in applied fields, and in special and interdisciplinary areas. Innovative departmental programs provide unusual and interesting opportunities for enrichment of the university experience. Further educational opportunities are also offered to individuals, public agencies, school systems, private business, and agriculture through continuing education, in-service education, and research programs.

### HISTORY

CSU, Fresno is the sixth oldest in The California State University and College system. It began with the establishment of the first junior college in California in 1910 and a state normal school in 1911 which, under a single administration, offered two-year programs in general and vocational training and in teacher preparation. Between 1911 and 1921 a campus was built on University Avenue, then the northern border of Fresno. In 1921 the combined schools became Fresno State Teachers College, authorized to offer a four-year program and grant the bachelor of arts degree in teaching. In 1935, by act of the Legislature, the official designation became Fresno State College. A variety of degree programs in addition to those related to the teaching credential were authorized at that time. Following World War II, expansion was accelerated, both academically and physically. The first master's degree was offered in 1949; today it is offered in 37 fields of study.

Between 1953 and 1958 the college was moved from the old campus site, by then surrounded by the City of Fresno, to a 1410-acre site six miles to the northeast. In 1961, under the newly created California State College system, the administration and control of the state colleges was transferred from the State Board of Education to an independent board, the Trustees of the California State Colleges. By legislative action in 1972 the state college system became the California State University and Colleges. Between 1965 and 1968 an approximation of university organization was accomplished on the Fresno campus and the transition to official university status in the state system became effective on June 1, 1972. The university now comprises the Schools of Agricultural Sciences, Business, Education, Humanities, Natural Sciences, Professional Studies, Social Sciences, and Social Work and the Division of Engineering.

Fresno State College in 1911 had an enrollment of 150 students, most of whom were women. By 1940 the enrollment had increased to 2,000 students, by 1964, to 7,500. In the fall of 1972 more than 15,000 students registered and by 1980, it is expected that about 22,000 will be in attendance on the Fresno campus.

The Presidents, in order of tenure are: Charles L. McLane (1911-1927), Frank W. Thomas (1927-1948), Arnold E. Joyal (1948-1964), Frederic W. Ness (1964-1969), Karl L. Falk (Acting) (1969-1970), and Norman A. Baxter, who has served since 1970.

### ACCREDITATION

The California State University, Fresno is accredited by

- The California State Board of Education,
- The Western Association of Schools and Colleges,
- The National Council for Accreditation of Teacher Education.

The university is a member of

- The Western Association of Graduate Schools,
- The Council of Graduate Schools in the United States,
- The American Association of Colleges for Teacher Education.

Departmental and area accreditations, certificated memberships, and accrediting organizations include

Health Professions Program.....	American Society of Allied Health Professions
Business.....	American Association of Collegiate Schools of Business
Chemistry.....	American Chemical Society
Engineering (Civil, Electrical, Mechanical) .....	Engineering Council for Professional Development
Health Science (Sanitarian) .....	State Department of Public Health
Home Economics (Dietetics) .....	Approved for admission to internship program of the American Dietetic Association
Journalism (News-Editorial) .....	American Council of Education for Journalism
Music .....	National Association of Schools of Music
Nursing .....	National League for Nursing
Physical Therapist Program.....	AMA Council on Medical Education/American Physical Therapy Association
Social Work .....	Accreditation by the Council on Social Work Education; and undergraduate and graduate membership in the Council
Urban and Regional Planning, MCRP .....	American Institute of Planners

## FACILITIES

The University is located at Cedar and Shaw Avenues in the northeast section of the City of Fresno. Its 1410 acres provide for the expansion of facilities necessitated by a continually increasing enrollment. When the Shaw Avenue location was first occupied, during the 1953-54 academic year, there were only four completed buildings on what was then an 880-acre site. Ten years later, in 1963-64, major buildings on campus included administration, agricultural classroom, agricultural mechanics, home economics, bookstore, business, cafeteria, education-psychology, engineering, home management cottage, industrial arts, library, gymnasiums for men and women, music science, social science, speech arts, student health service and the first residence halls. Between 1964 and the fall of 1971, student administration, residence hall commons, classroom, and office buildings, a three-story college union, new bookstore, and a new art building of contemporary design were constructed. There are now more than 45 buildings in service. Completed during 1973-74 are a \$1,149,000 student health center; a \$1,804,500 residence hall cafeteria; a \$2,275,000 industrial arts building addition; and a \$2,044,400 engineering building addition. Future plans include an addition to the library, a new science building, and a new business building.

The buildings are in a setting of colorful trees, shrubbery, flowers, and lawns. A tree-lined amphitheater accommodates commencements, convocations, and other large assemblages and provides an outdoor setting for numerous programs and gatherings during the year. A centrally located memorial court, benches, and fountain are favorite spots for relaxation. The adjacent free speech area and college union are centers of student life and activity.

A farm operated by the School of Agricultural Sciences includes more than 34 structures and is considered one of the most modern and best equipped agricultural plants in the west.

## COMPUTER CENTER

The Computer Center is organized to serve all information processing and computation needs of the university including instruction, research, and administration. It provides a variety of direct and indirect free services to students. Consultants are available in the Instructional Laboratory to give assistance and training in the use of facilities and computer programming and the laboratory provides timesharing terminals, keypunches, and sorters for students. Approximately 25% of the students now make substantial use of the facilities. Use of the computers in the instructional program is increasing at the rate of 125% annually. The Center is located in the west wing of the School of Business Building with offices in San Ramon 4. The system supports most of the major computer languages and, via a teleprocessing circuit, has access to other larger computers and to a statewide interactive timesharing network.

Students planning to use the facilities should purchase a Computer Center User's Manual at the bookstore.

**LIBRARY**

The Library is housed in a building completed in 1965. Its resources include 460,000 catalogued volumes, 200,000 government publications, 26,000 pamphlets, 59,000 maps, 26,000 pictures and prints, and over 4,200 periodicals are received on subscription. Special collections include the Roy J. Woodward Memorial Library of Californiana and the Archives. The Music Library has 30,000 phonodiscs and tapes. The library building accommodates 600 readers. All students have free access to the resources of the Library. Professional librarians are available to assist students in their use of library materials. The Library is open eighty-three hours a week, during hours posted at the entrance to the building.

## CONTINUING EDUCATION AND SUMMER SESSIONS

Note: Students enrolling in summer session or extension are not required to be officially admitted to the university. Graduate students see also School of Graduate Studies.

### EXTENSION CLASSES

The university offers a wide variety of extension courses to assist in meeting the educational needs of the four-county service area. Courses are arranged in an area when the student demand is adequate to finance the instruction. Matriculation is not required for enrollment.

#### *Unit Restrictions*

**Baccalaureate degree:** Extension and correspondence credit limited to 24 units. Up to 24 semester units of extension credit may be transferred from accredited institutions, provided the credit would have been acceptable toward a baccalaureate degree had it been earned as residence credit, and provided it would be acceptable toward a degree offered by the institution where it was earned.

**Master's degree:** Extension, transfer, and correspondence credit limited to a maximum of 6 units of the 30 units required for the degree. (Consult the Graduate Office for information concerning the use of specific courses.)

The university permanent records will show extension work only at the request of the matriculated student. For information regarding courses, course fees, and instructional costs, write to the Dean of Continuing Education and Summer Sessions, California State University, Fresno.

### SUMMER SESSIONS

Summer sessions are conducted at CSUF and at the College of the Sequoias, Visalia, beginning shortly after the close of the spring semester. The second or post session is conducted on the Fresno campus. Classes may be scheduled at any time during the summer at various other valley locations. Completion of a maximum of nine weeks is possible in a single summer.

Students attending a combination of first and second sessions may earn a total of 12 units of credit during the summer. Students with proper justification and approval may earn units in excess of the allowable number with all units earned applicable to a degree or credential program.

The courses offered are planned to meet the requirements of baccalaureate and master's degree program, credential programs, the needs of in-service professional people, and to provide for intensive practical work in areas such as music, drama, and fields of education.

A Summer Session Bulletin is published each March. For information, write to the Dean of Continuing Education and Summer Sessions, California State University, Fresno.

### CONCURRENT ENROLLMENT—Extension

Extension students may enroll in regular session classes. Such concurrent enrollment is limited to upper division and graduate courses and to lower division courses not readily available at nearby community colleges, and it requires the approval of the instructor and the department. An extension student is expected to meet all course prerequisites, to participate fully in the class, to meet all class requirements and to pay the appropriate extension fee. The grade received is entered on the student's extension record. Concurrent enrollment does not constitute admission to CSUF.

For further information contact the Office of the Dean of Continuing Education.

## STUDENT AFFAIRS

Student Affairs provides an organized administration of educational services designed to support the instructional program. These services include student activities, counseling, advising services, testing, the Educational Opportunity Program, financial aids, foreign student assistance, housing, and placement services. The program also provides students with nonclassroom experiences which are primarily of an educational nature, such as general orientation to the university, cultural enrichment, and tutorial projects. The program and individual services are described in more detail in the following sections of this catalog. Administrative responsibility for these functions rests with the Dean of Student Affairs.

## STUDENT LIFE

A committee on student affairs composed of faculty and students evaluates the student life program and makes recommendations on policy and procedure. Regulations as to satisfactory scholarship, disqualification for unsatisfactory work and related questions bearing upon academic requirements are administered by appropriate bodies in accordance with university policies. A student court has authority to deal with cases involving interpretation of Association bylaws. University students are expected to assume responsibility for their personal conduct. Wide freedom is therefore granted by the university to students as individuals and as organized groups.

## STUDENT LEADERSHIP

Membership and active participation in a reasonable number of student organizations are strongly recommended. Student groups of this type are an excellent means of obtaining experience in leadership, group action and social competence. Participation in student government is also encouraged. Many opportunities exist for participation in student affairs through election to student body and class offices, appointment to student committees, and attendance at meetings of the Student Senate. Students are also offered an opportunity to serve on many faculty committees and on the boards of the Fresno State College Association, Inc. These groups play an active part in recommending university policies and in conducting the affairs of the Association.

## STUDENT ORGANIZATIONS

Over 100 student organizations representing various fields of social, academic, vocational, and professional interests have been granted recognition. Eight national social fraternities and six national social sororities exist on the campus and operate group-living units. Religious interests are served by religious centers adjacent to the campus. These many and varied types of organizations not only offer an opportunity for social life but also make a positive contribution to the development of student leadership. Information regarding existing organizations or the formation of new ones may be obtained from the Student Affairs Office.

### Recognition Societies

In addition to high standards of scholarship expected of all students, special recognition is given to superior scholarship. The honor society of Phi Kappa Phi, a national scholarship organization, was established at CSU, Fresno in 1953. Most departments of the university sponsor honor societies, many of them national in scope, in which membership is based upon superior scholarship. The Blue Key National Honor Fraternity for men and women offers membership to students who have good scholarship, are prominent in university activities, and who have demonstrated leadership in student affairs.

## STUDENT CONDUCT

Students are expected to observe university regulations and are held responsible for their personal behavior on the campus and in university-related activities. Sections 41301-41304 in Article 1, Subchapter 3, Chapter 1, Part V of *Title 5 of the California Administrative Code* and Section 22505 of the *California Education Code* delineate the types of conduct that are unacceptable. In addition, local rules and policies have been developed to cover certain situations such as the residence halls. University, Trustee, and State regulations governing student conduct are described in the student handbook, *Survival Kit*, the *Handbook for*

*Student Organizations*, and the *Student Rights and Responsibilities Manual*. A copy of the student handbook is made available at registration. Copies of the other documents are available in the Student Affairs Office.

### **STUDENT ABSENCES**

Students are expected to maintain regular attendance at classes. Extended absences (more than one week) due to illness, death in the immediate family, or other extraordinary emergencies, should be reported immediately to the Counseling Service which will notify the faculty concerned. When any absence occurs, however, the student should contact the instructors involved concerning the possibility of making up the work missed.

### **ADVISING SERVICES**

The Office of Advising Services provides a variety of services designed to aid the student in his academic pursuits—new student orientation, coordination of faculty advising, tutorials, Student Advisement Center, academic petitions, general education advising, undeclared major advising, change of major and academic problems of a general nature.

*Academic Advising.* Each student is assigned to a faculty adviser who is a member of the academic department of the student's chosen field. The student uncertain of his choice of an academic major is assigned to a general adviser until a definite goal is chosen. In addition, students wishing assistance with general education requirements should consult their faculty adviser or the Office of Advising Services. A faculty adviser assists a student in planning his program of classes and in planning for the achievement of his long-range educational goals. The student, however, is expected to assume final responsibility for meeting all specific degree and/or credential requirements.

*Orientation.* Professional staff and trained student volunteers are jointly involved in orienting new students to the University. The latter serve in the Student Advisement Center (SAC), a service designed to aid new students in making a smooth transition to University life. Staff are available on a daily basis throughout the year to answer questions about the Computer Assisted Registration (CAR) process and other concerns of new and continuing students. A special summer program is also offered to aid new students and their parents in understanding the workings of the University and how it relates to the community at large.

*Tutoring.* Tutoring is generally available in all courses. All students currently enrolled at California State University, Fresno, are eligible for tutoring at no cost. (Veterans are entitled to tutorial funds from the Veterans Administration.) Tutors are upper division and graduate students recommended by professors in the respective departments. The Advising Services office also provides assistance in improving study skills and time management.

*Academic Petitions.* The Student Academic Petitions Committee is chaired by the Coordinator of Advising Services. Students seeking an alteration in their academic requirements or records must use the petition process. Petitions and procedural information are available in the Office of Advising Services.

*Change of Major.* A student wishing to change his major must personally initiate the procedure in the Office of Advising Services.

*Admissions Advising.* The Admissions Office provides counseling to assist students in making application, in understanding admission requirements, and in utilizing the services of the University during the admissions process. Problems concerning evaluation of previous academic records should be directed to the Director of Admissions and Records.

### **CAREER PLANNING AND PLACEMENT SERVICES**

The university maintains a centralized service which is closely integrated with the various schools, divisions, and departments of the university. Services include a career development center staffed by a career information specialist and professional assistance to students and graduates seeking part-time, temporary and summer positions, and career positions upon graduation.

Every effort is made to seek efficient utilization of manpower by assisting students and graduates in obtaining positions which will best use their education, training, experience, and abilities. The placement service not only serves the needs of the university and its students but is vitally concerned with and directs its service toward the needs of the community, business, industry, government, the public school system, and the state generally.

The specific functions of the office are: to assist students in their career development, to collect and make available to prospective employers personal data and letters of reference on registrants, to maintain a current record of employment opportunities, to recommend candidates for positions at the request of employers, to arrange interviews between candidates and employers, to provide guidance to candidates seeking positions, and to bring the needs of the employer to those who design and implement educational programs.

Each student and qualified alumnus has the right to participate in accordance with established policies. This participation includes the opportunity to meet representatives of business, industry, social agencies, government, all branches of the military and of education. Employers must be engaged in a legal operation, have bona fide employment opportunities, agree to adhere to standards of ethical conduct, and to participate as stipulated by the Career Planning and Placement Center.

There is no charge to students or employers for this service. Alumni will be charged an annual fee for service rendered. Every effort is made to assist those who seek the service; however, placement cannot be guaranteed. The university reserves the right to recommend for placement only those applicants who are adequately qualified for positions they seek.

### **EDUCATIONAL PLACEMENT**

Participation in this program is open (1) to anyone who holds or will receive a regular teaching credential in the semester prior to date of employment provided a minimum of 24 semester units of work has been completed at CSU, Fresno; (2) to anyone who holds or will receive a master's degree in the semester prior to date of employment provided a minimum of 24 semester units has been completed at CSU, Fresno; (3) to students who have met the CSU, Fresno conditions for partial fulfillment of requirements for elementary and secondary teaching under the credential law, including student teaching; and (4) to those completing a university or district internship program providing they meet the minimum 24-unit requirement at CSU, Fresno.

### **BUSINESS, INDUSTRIAL, AND GOVERNMENTAL PLACEMENT**

Participation in this program is open to all graduating seniors and alumni who desire full-time positions in agriculture, business, industry, governmental agencies and other related fields, provided a minimum of 24 semester units have been completed at CSU, Fresno. Seniors are urged to complete and file a personal data sheet with the Placement Center early during the year in which they expect to graduate. Close cooperation is maintained with the various schools and departments in the placement of candidates in these fields.

### **STUDENT PLACEMENT**

Participation in this program is open to any enrolled student. Many students earn part of their university expenses. Entering freshmen, however, should be prepared to finance their first semester without working; all students should keep their outside employment to a minimum in order to avoid endangering either health or academic achievement.

Various types of employment are available including a number of hourly jobs in various work areas on campus for candidates with specific abilities. Other positions of a temporary nature are also available. Active immunization against tetanus (available through the Student Health Service) is required for any student employed on the University Farm. Off-campus positions range from short-term positions to those with scheduled hours for the full year. Students desiring work on or off campus should consult the Student Placement Center. Employed students are expected to reflect credit on the University. (See also *Work-Study Program* and *Graduate Assistantships*.)

## **THE COLLEGE UNION**

The College Union building was designed to serve the entire campus community. This structure was planned by students and is financed by student funds through the Fresno State College Association. The College Union is the campus community center for students, faculty, staff, and guests. It sponsors a wide variety of social, recreational and entertainment activities throughout the year. The building includes conference and meeting rooms, lounge areas, a coffee shop, a barber shop, art display areas, student government and committee offices, auxiliary organization offices, bowling and recreation areas, and numerous service facilities.

## COUNSELING SERVICES

The Student Counseling Service is staffed by full-time professional counselors and psychologists whose services are available, without charge, to all students desiring assistance. Matters discussed by the student and counselor are held in strict confidence.

*Educational Counseling.* The Counseling Service assists students who are having academic difficulties, those who are uncertain regarding their educational goals, and those who need information about educational requirements and programs.

*Vocational Counseling.* The Counseling Service assists students in self-appraisal of their unique interests and aptitudes and determining their vocational goals. Psychological and vocational tests are used as needed. A career information resource center is available; also, each academic department provides vocational advising pertinent to its field.

*Personal Counseling.* Counselors and psychologists help students who are concerned about personal matters. The emphasis is upon the student's personal growth and development.

*Group Counseling.* The Student Counseling Service provides opportunities to enter groups of from 8 to 12 students sharing the desire to grow and develop in self-awareness and sensitivity to other people's needs and feelings, and to find meaning and relevance for themselves in their relationship to others.

*Study Abroad Counseling.* International Student Counseling Office—In addition to coordinating counseling services for foreign students, this office assists American students seeking to study and travel overseas. A library of information is available and applicants for California State University and Colleges International Programs and for Fulbright Grants apply through the International Student Counseling Office.

## EDUCATIONAL OPPORTUNITY PROGRAM

The Educational Opportunity Program is designed to admit and retain students from minority and low income backgrounds who otherwise would be unable to obtain a college education due to socio-economic disadvantages. Criteria for evaluating applications include potential, motivation, and community involvement rather than past academic achievement alone. Supportive services include a readiness program for first semester students, tutorial services, academic and personal guidance, assistance in obtaining housing, job placement, graduate studies and career guidance. The program does not provide financial assistance but works closely with the Financial Aids Office in attempting to meet student needs in all matters concerning aid. (See *Financial Aids*.)

## FINANCIAL AIDS

### SCHOLARSHIPS AND GRANTS

About 300 scholarships and grants totaling approximately \$75,000 will be available for the 1975-1976 academic year. About half of these scholarships, ranging from \$50 to \$1,000, are open to new students. The average scholarship is for \$250 for the year and covers the cost of material and service fees, student body fees, and a partial cost of books. Generally, upper division and specialized scholarships are in larger amounts. The scholarship program is designed to provide deserving students with educational opportunities not otherwise possible. Scholarships are awarded on a competitive basis, consideration being given to scholastic attainment, academic potential, financial need, and character; some are available on the basis of outstanding accomplishment in specialized fields.

Scholarship awards are announced late in May of each year. Students, both entering and enrolled, must file applications with the Director of Financial Aids prior to March 1st. One application is sufficient for all available scholarships. A bulletin giving information on financial aids may be obtained from the Financial Aids Office. There are more scholarships available through various agencies and groups outside of the university. The student needs to apply directly to these organizations. There are resource books in libraries listing where to apply.

### COLLEGE ASSOCIATION AND FOUNDATION LOAN FUNDS

The university operates a Short Term Loan fund to assist students who need up to \$200 for educational expenses. These loans have to be repaid within 90 days. Loans are granted on the basis of the student's financial need, educational program and ability to repay. The funds for this program have been provided by gifts given to the university for this purpose.

Applications for loans are processed through the Director of Financial Aids, California State University, Fresno, Fresno, California 93740.

### NATIONAL DIRECT STUDENT LOAN PROGRAM

CSU, Fresno participates in the federal loan program which is provided for in Title IV, Part E, of the Higher Education Act of 1965. Under this program needy undergraduate students in any field of study may borrow up to a maximum of \$5,000, and needy graduate students may borrow up to a combined maximum of \$10,000. Students carrying at least a one-half academic workload are eligible to receive loans. Students entering the university for the first time as well as continuing students are eligible to apply for this type of loan.

No interest is charged until nine months after the borrower ceases to be at least a one-half time student. Interest at the rate of 3% of the remaining balance begins at the end of the nine-month grace period and the first payment is due one month later. Payments may extend for a period of not more than ten years, but will be at a rate of not less than \$30 per month.

*A borrower who becomes a teacher in a public or other nonprofit elementary or secondary school in which there is a high concentration of low income families as designated by the Commissioner or who becomes a teacher in special education (hard of hearing, mentally retarded, cerebral palsy, etc., classes) may have 15 percent of the loan cancelled for the first and second year of such service, 20 percent for the third and fourth year, and 30 percent for the fifth year. A borrower shall receive cancellation for service after June 30, 1972, as a member of the United States Armed Forces, at the rate of 12½ percent per year for each complete year of service in an area of hostilities for a total of 4 years.*

Inquiries should be directed to the Financial Aids Office, California State University, Fresno, Fresno, California 93740.

### LAW ENFORCEMENT ASSISTANCE LOANS AND GRANTS

Students working toward a degree in law enforcement or corrections or who are actively engaged in law enforcement or corrections and wish to return for further training, may apply for a Law Enforcement Assistance Loan sufficient to cover his direct educational costs (tuition, fees, and books). Loans will be made on the basis of the student's intent to pursue a career in Law Enforcement. A loan recipient may have 25% of the loan cancelled up to 100% of the loan for each year of full-time employment by a public, local, state, or federal law enforcement or corrections agency. Applications should be made to the Financial Aids Office.

Grants in the amount of the cost of registration and books may be made to assist full-time or part-time students in a graduate or undergraduate program who are full-time employees of any publicly funded law enforcement or corrections agency and who are in college for professional improvement. The recipient of a grant is obligated to remain in the employment of the agency which has certified his full-time employment for a period of two years after completion of the course or courses. Applications should be made to the Financial Aids Office.

### NURSING STUDENT LOANS AND SCHOLARSHIPS

Under this program, a student who can show that a loan is needed to enter or continue in the nursing program may borrow up to \$2500 an academic year or its equivalent, with an aggregate maximum of \$10,000. Preference will be given to licensed practical nurses in selecting loan recipients. No interest is charged while the borrower pursues at least a half-time course of study in a collegiate school of nursing leading to an associate degree in nursing, a baccalaureate degree in nursing or an equivalent degree, or a graduate degree in nursing, or for a period of 9 months after leaving school. Interest then starts at 3% simple interest and the loan is repaid at not less than \$15 per month. A borrower who enters full-time professional nursing in a public or nonprofit hospital is entitled to cancellation of a percentage of the loan for each full year worked. Interest and payments are deferred for a period of time while the borrower is a member of the uniformed service or is a volunteer under the Peace Corps Act. Applications for these loans should be made by March 1st for the following year.

### FEDERALLY INSURED STUDENT LOAN PROGRAM

The federally insured student loan program is authorized by the higher education act, and enables students to borrow from participating lending institutions (banks, credit unions, savings and loan associations, etc.) to help pay their educational costs. Under this program the loan maximum is \$2,500 per year. The total outstanding principal balance for undergraduates may not exceed \$7,500 at any time and \$10,000 for graduates. Simple interest at the rate of 7% per annum is charged on the outstanding balance. Under certain circumstances the federal government will pay this interest until the student borrower enters the loan repayment period. Determination of whether or not a borrower is eligible for these interest benefits is made by the Financial Aids Office on the basis of the student loan application and other supporting information as may be required.

### WORK-STUDY PROGRAM

CSU, Fresno participates in the federal Work-Study Program under the Higher Education Amendments of 1972. Students who qualify may be offered employment on or off campus. The student would normally work between ten to twenty hours per week. A standard financial aids application is required prior to March 1 of each year.

### ALAN PATTEE SCHOLARSHIP

Children of deceased public law enforcement or fire suppression employees, who were California residents and who were killed in the course of law enforcement or fire suppression duties, are not charged fees or tuition of any kind at any California State University or College, according to the Alan Pattee Scholarship Act, *Education Code* Section 23762. Students qualifying for these benefits are known as Alan Pattee scholars.

### SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANTS

CSU, Fresno, participates in the Supplemental Educational Opportunity Grant Program as provided by the Higher Education Amendment of 1972. These grants must be equally matched with other institutional aid. Undergraduate students who qualify will receive grants ranging from \$200 to \$1000. Applications for grants may be obtained from the Financial Aids Office, California State University, Fresno. The application deadline is March 1.

### AIR FORCE RESERVE OFFICER TRAINING CORPS (AFROTC) FINANCIAL AID AND SCHOLARSHIPS

Students enrolled in the 2-year AFROTC program receive \$100 per month non-taxable financial assistance up to a maximum of \$2,000.

Applicants attend a six-week field training prior to enrolling in AFROTC. They are paid approximately \$400, travel pay to and from the field training location, and are provided meals and housing while in attendance.

Applicants with prior military service attend a four-week field training for which they receive approximately \$260 plus travel, meals, and housing.

In addition to the \$100 per month financial assistance and field training pay, scholarships are available which provide full tuition, allowances for books, laboratory fees, and incidental fees for a maximum of four semesters.

Applications should be submitted to the Professor of Aerospace Studies during the sophomore year of the fall semester preceding anticipated enrollment in AFROTC. Detailed information concerning AFROTC can be obtained by calling the Department of Aerospace Studies. (Ext 2593) or by visiting the Air Science Building, Room 158.

### STATE AND FEDERAL AID TO VETERANS AND THEIR DEPENDENTS

The Veterans Office maintains liaison with the Veterans Administration and the State Department of Veterans Affairs. Veterans information may be obtained from the Veterans Office, Monday through Friday 8:00 a.m. to 5:00 p.m.

Veterans transferring to California State University, Fresno, from other institutions are strongly urged to contact and file V.A. Form 21-1995, or visit California State University, Fresno, Veterans Office at least one month prior to the start of the semester.

New applicants (never used G.I. Bill) should also contact the Veterans Office well in advance of school entrance. There are filing and processing periods that must be taken into account if benefits are to arrive in a timely manner.

Students planning to enroll and obtain benefits under Public Law 634 or 361 (War Orphans Education Act) should obtain a Certificate For A Program Of Education (VA Form 21E-1993) from the Veterans Administration and present it to the Veterans Office at the time of registration.

The university is also approved for the training of disabled veterans (Public Law 894 or 815). Veterans who plan to attend the university on this program should notify the Veterans Administration of their intentions to enter CSUF well in advance of the registration period.

Veterans' dependents planning to attend the university under benefits available from the State of California (Cal-Vet) must obtain the required authorization each semester from the State Department of Veterans Affairs, Box 1559, Sacramento, California 95807.

The Veterans Office is the information center for veterans benefits and problem solving. Counselors are available to assist students with answers to their questions or referral to the organizations that can best serve the student's inquiries.

#### **STATE AID TO THE HANDICAPPED**

The State of California, through its Vocational Rehabilitation Service, provides financial assistance to students, both civilian and military, who have physical or emotional disabilities. This assistance equals the necessary school expenses and may include an additional amount to help cover the cost of living. Students who may be entitled to this assistance should apply to the Vocational Rehabilitation Service, 2550 Mariposa, Fresno, California 93721.

#### **GRADUATE ASSISTANTSHIPS**

A limited number of graduate assistantships are available to students who are enrolled in the master's degree program and whose previous records show outstanding achievement in academic work, outstanding subject matter competence in the major field, and the special qualities necessary to the duties assigned. A beginning graduate assistant may receive a stipend of \$2790 for twenty hours per week of work during the academic year. Some assistantships may be for reduced time and carry prorated stipends. For information write to the Dean, School of Graduate Studies, specifying field of graduate study and any special abilities that might justify assignment as a graduate assistant.

#### **RESIDENT ADVISERS**

The university employs a number of students as advisers in its residence hall program. These positions are available to upper division students whose interest and background indicate competence in this type of work. The stipends vary, depending upon the work assignment. Generally they cover the cost of residence hall room and board. Applications and further information are available during the month of February from the Director of Housing.

#### **BASIC EDUCATION OPPORTUNITY GRANT**

The Basic Education Opportunity Grant Program, more commonly known as Basic Grants, is a new program of student financial aid which was authorized by Title IV, Part A, of the Education Amendments of 1972. This program provides for grants of \$1,400 less the expected family contribution for all eligible students to assist them in meeting educational costs. To be eligible for the Basic Education Opportunity Grant, the following criteria must be met: (1) enrollment for the first time in a post-high school program on or after April 1, 1973; (2) attendance on a full-time basis (12 or more credit hours per term); (3) United States citizenship or residence in the United States, for other than a temporary basis, and intention to become a resident. Program regulations change from year to year. Check with the Financial Aids Office for the regulations now in effect. Applications are available at post offices, high schools, community colleges, Financial Aids Office, etc.

#### **FULL-TIME/PART-TIME STUDENTS**

Students taking at least 75% of the normal academic load are considered full-time students. Since the normal academic load is 15 semester hours, students carrying 12 or more semester hours are full-time students. Graduate level courses are weighted for graduate students. Each graduate unit attempted by a graduate student is considered as 1.5 units.

Full-time	12 or more units
Three-quarter time	9 to 11½
Half-time	6 to 8½

## INTERNATIONAL (FOREIGN) STUDENTS

California State University, Fresno, regularly enrolls a significant number of students from abroad. The International Student Counseling Office staff, under the direction of the Student Counseling Service, assists foreign students with academic and personal problems, and housing (see *Student Housing*), as well as governmental and legal aspects of their stay. A special orientation program is planned and required of all foreign students prior to registration each semester. Students should notify the International Student Counseling Office of their arrival plans and consult them immediately upon arrival on campus for verification of enrollment, orientation, and assistance (See *General Information—Admission to the University*).

International students must have sufficient understanding and proficiency in use of the English language to be successful in their course work at the university (see *Entrance Examinations*). A special program of English language and American studies courses is available to assist students whose previous instruction has been in a language other than English. (See *International Studies—Campus Program*). Except for the few who are employed as graduate assistants, students must have sufficient funds so that they will not need employment during the first year at the university and should plan to register for the minimum legal number of courses each semester, which for undergraduate students on "F" or "J" type visas is 12 units and for graduate students is 6 units. These are the minimum-unit loads foreign students must carry in order to keep their student visas valid. They are also required to participate in the university health insurance program or demonstrate adequate health insurance coverage at the time of registration.

The International Student Counseling Office also coordinates campus and community activities for foreign students. These are designed to enhance their educational experiences in the United States. Students should consult the International Student Counseling Office for information pertaining to these activities. Foreign graduate students should refer to the *School of Graduate Studies* section of the catalog.

**Full-Time/Part-Time Student** (definition, unit load)

See *Financial Aids*

## STUDENT AFFAIRS OFFICE

The Student Affairs Office provides services invaluable to the student who wishes to use them. The office provides information about campus organizations or the formation of new organizations. Through the office, recognized student organizations may reserve facilities for meetings and other functions and obtain help in requisitioning audio-visual equipment when needed; students may obtain permits to distribute goods or literature on campus; information is available concerning the Child Day Care Center, student government, commencement ceremonies, legal advisement, handicapped student program, opportunities for involvement on and off campus, planning activities, and many other aspects of university life. Offices of the dean, assistant dean, and student affairs assistants are located within the Student Affairs Office.

## STUDENT HOUSING

### RESIDENCE HALLS

The university can accommodate 1,258 students in the residence halls on campus. Three types of rooms are available: single, double, and suite. A suite consists of three regular double rooms plus a living-study room and private bath. Rooms are attractively furnished and provide pleasant study and living facilities. The halls also have special lounge areas, recreation rooms, study rooms, and laundry facilities. Food service is provided by the university cafeteria. A choice of board plans is available, allowing the resident to choose the one which meets his needs and budget. The hall governments sponsor an extremely active and varied program of activities. In addition to the conveniences of location and services offered by the residence halls, the group living situation affords a unique opportunity for students to make new friends and to become involved in university and hall activities.

Residents must agree to live in the halls for the academic year. For information on residence hall costs, see *Fees and Expenses*. Further information and applications for reservations may be obtained by writing to the Housing Office. Application forms are available after April 1. Students who are applying for accommodations in the halls must also file an application for admission to CSUF unless already enrolled.

### **OFF-CAMPUS HOUSING**

Students are advised to make arrangements for housing as early as possible before registration. The Housing Office maintains a file of available off-campus living accommodations. A large number of apartments are available in the area adjacent to the campus. Accommodations are also provided by private homes in the area, with a limited number offering room and board. The Housing Office also receives a few listings on houses, duplexes, trailers, and other accommodations for rent, lease, or sale. Most of the nationally affiliated fraternity and sorority chapters at the university provide housing and meals for members at the chapter houses near the campus.

Some information on apartment rentals may be sent through the mail. Most listings and information available in the Housing Office are kept in loose-leaf binders because of rapid turnover; students must visit the office in person to consult these files. Students are also advised to inspect the premises in person before signing a lease. The university does not inspect or supervise any off-campus housing.

### **HOUSING FOR MARRIED STUDENTS**

The university does not maintain housing facilities for married students and their families. The Housing Office does maintain a file of privately owned rentals, some of which are near the campus. These private rentals range from \$85 to \$300 per month depending on size, furnishings, and location.

## **STUDENT HEALTH SERVICE**

The objective of the Student Health Service is to keep the student in a state of optimum health, both physically and mentally, so that he may realize to the fullest the opportunities afforded by the university. The health services are sponsored jointly by the university and the student body, the latter participating by means of a health fee each semester.

The Student Health Service is housed in its own building, with well-equipped doctors' offices and examination rooms, laboratory and X-ray facilities, pharmacy, nurses' treatment rooms, business office, and waiting rooms. It is open each school day during hours posted at the entrance to the building. At these times registered nurses are on duty and physicians are available for consultation. Many medical specialties are represented among the part-time and full-time physicians, affording a high standard of medical care.

In addition to the Student Health Services, students may purchase an insurance protection plan for emergency illness and accidental injury during hours that the Center is closed. This insurance program provides up to \$5,000 for hospital benefits, medical, surgical and related services for any one illness or accident. The program covers the student both on and off campus on a twenty-four-hour-a-day basis and includes periods of interim vacation and absences.

**Medical Examination:** Upon acceptance, a health history and physical examination form will be mailed to all new students by the Admissions Office. The health history should be completed by the student, the physical examination performed by a private physician, and this form mailed to the Student Health Service at least two weeks prior to registration. The completion of the physical examination is a requirement for registration at CSUF. Candidates for teaching credentials must secure approval of the Health Service at both the time of application for admission to credential programs and upon assignment to directed teaching. A credential may not be issued unless the candidate possesses satisfactory physical and mental health to meet fully the responsibilities of teaching.

### **LANGUAGE, HEARING, AND SPEECH CLINIC**

The Language, Hearing, and Speech Clinic is part of the program of communicative disorders within the Communicative Disorders Department. Any regular student needing diagnostic or therapeutic assistance with language, hearing, or speech problems may arrange to secure the service of the clinic without charge.

## TESTING SERVICES

The Office of Testing Services is staffed by a Coordinator and a Psychometrist, both having special educational backgrounds emphasizing tests and measurement, research, and computer applications. They work closely with other offices, Counseling Center staff, and faculty. Services include the following:

*Psychological Testing.* A variety of psychological tests designed to measure educational abilities, personality, and vocational/career interests are available. Usually such tests are administered at the request of a counselor or a member of the Office of Advising Services staff. In most cases, a student must see a counselor prior to the administration of psychological tests.

*Research Services.* Within the limits of staff time, the office assists students, faculty, or departments in designing and implementing research problems. The Office of Testing Services is often a link between the researcher and the campus Computer Center.

*Computer Assisted Test Construction.* This is a new service currently being developed and implemented throughout the CSUC system. The program, called *SOCRATES*, permits faculty members to request objective examinations to meet their requirements. Item banks currently in use include: Political Science, U.S. History, Tests and Measurements, Data Processing, Biology, Chemistry, Counseling and Guidance, Astronomy, Economics, Physics and Psychology.

*Entrance Examinations.* Twice during the academic year special institutional administrations of the Scholastic Aptitude Test (SAT) are scheduled for students applying for admission to CSUF who, for whatever reason, were unable to take the test at one of the regularly scheduled national administrations. Specific information is available in the Office of Testing Services.

*National Testing Programs.* The Office of Testing Services coordinates administration of several nationally administered testing programs, including the Admissions Testing Program (SAT), the Graduate Record Examination (GRE), the Admission Test for Graduate Study in Business (ATGSB), the National Teacher Examination (NTE), the Medical College Admission Test (MCAT), and the Test of English as a Foreign Language (TOEFL). A variety of certification examinations are also administered by this office. Applications and particulars are available upon request.

*College Level Examination Program (CLEP).* The Office of Testing Services is an "open" test center for this nation-wide program. Tests may be administered on Tuesdays and Thursdays of the third week of each month. Registration materials are available in the office.

*Departmental Challenge Exams.* Special arrangements may be made by contacting the Coordinator of Testing Services.

*Classroom Examination Scoring.* The Office of Testing Services has the capability to machine score objective classroom examinations. Questionnaires, surveys, and student evaluations of faculty instruction may also be processed.

## FRESNO STATE COLLEGE ASSOCIATION, INC.

All students enrolled at CSUF are members of the Fresno State College Association, Inc., a nonprofit corporation chartered by the State of California to operate campus auxiliary services and other association-financed activities. The membership fee, paid at the time of registration, is \$10 for all registered students. A nontransferable membership card is issued which permits participation in association activities and admission to all association programs either without charge or at a reduced fee. Faculty members are also eligible for membership. Association fees support athletic activities; publications; music, drama, and cultural programs; forensics, and student government activities. The Board of Directors, composed of faculty members and students, exerts budgetary control and determines management policy for all association operations, including the bookstore, the food service, the college union program, and other activities involving expenditure of association funds.

### STUDENT PUBLICATIONS

Membership in the Fresno State College Association, Inc., entitles the holder to copies of the three major student publications. The *Daily Collegian* is the official news publication. A directory, appearing soon after the fall semester opens, contains an address list of Fresno State students. The university literary magazine, *Backwash*, is available to students at a

nominal charge. These publications are under the general control of a nine-member board of publications composed of faculty and students.

### **ALUMNI ASSOCIATION**

The Alumni Association seeks to advance the welfare of the university, to promote common interests of its students and alumni, and to serve as a liaison with the university, alumni, and the community. The self-directed group sponsors numerous activities during the year, provides scholarship assistance to students, and supports the development of the university. Membership is open to graduates and to any student who has attended one or more semesters at CSU, Fresno. Annual dues are \$10; life memberships are \$150.

The University Alumni Trust Council is a charitable organization which receives contributions from alumni and friends of the college. Funds received by the Trust Council are used to support scholarships and programs of the Association, and to promote the welfare of the university.

# FEES AND EXPENSES

*Note: Fees are subject to change without advance notice by the Trustees of The California State University and Colleges. Tuition is not charged to legal residents of California. No fees of any kind shall be required of or collected from those individuals who qualify for exemption under the provisions of the Alan Pattee Scholarship Act. Auditors pay the same fees as students registered for credit. See Financial Aids—Waiver of Fees for exceptions to the fees listed below.*

Application fee (nonrefundable. Payable by check or money order at time of applying) .....	\$20.00
Student services fee,* per semester:	
1 to 3.9 units.....	51.00
4 to 7.9 units.....	57.00
8 to 11.9 units.....	63.00
12 and more units.....	72.00
Facilities fee, all students, per semester.....	3.00
Nonresident ** tuition fee (foreign and domestic), per semester <i>in addition to other fees:</i>	
Each nonresident student enrolled for 15 units or more.....	650.00
(Per academic year) .....	1,300.00
Each nonresident student enrolled for fewer than 15 units, per unit or fraction .....	43.00
Foreign visa student tuition fee—same as nonresident.	
Extension, per unit:	
Lecture or discussion course .....	28.00
Activity course.....	36.50
Science laboratory course.....	56.00
Summer session courses, per unit .....	30.00
Other fees:	
Identification card fee.....	1.00
Graduation fee .....	10.00
Diploma replacement, duplicate/reissue .....	6.50
Transcript of record.....	1.00
Thesis binding fee (not a state fee), per copy (includes 30¢ sales tax) .....	6.00
Foreign visa student health insurance fee (not a state fee) .....	21.50
Credential fee ( <i>collected for State Department of Education, each credential</i> ) .....	20.00
Health Service fee (not a state fee), optional, per semester .....	4.00
Student Body Association fee, all students *** (not a state fee), per semester.....	10.00
Student Body Center fee, all students (not a state fee), per semester .....	10.00
Penalties:	
Check returned for any cause.....	5.00
Late registration (in addition to student services fee) .....	5.00
Failure to meet administratively required appointment or time limit .....	2.00
Late filing of student programs .....	2.00
Late filing of application for degree or credential .....	2.00
Lost or broken items .....	cost or \$1.00 if cost is less than \$1.00
Lost library items .....	replacement cost plus \$5.85 service charge
Damaged library items .....	50¢ up to replacement cost, plus \$5.85 service charge
Residence Hall rates:	
Room and board, per semester each student .....	610-745
Parking fees: decal (subject to change):	
Fall and spring, per semester .....	15.00
First summer session .....	6.00
Post session.....	4.00

\* The Student Services Fee for 1975-76 was recently established by the Trustees of The California State University and Colleges *in lieu* of the Material and Services Fee; however, the fee level was maintained at \$144 (for 12 or more units for the Academic Year). It is intended that this new fee will provide financing for the following student services programs not covered by state funding:

1) Social and Cultural Development Activities: provides for the coordination of various student activities, student

- organizations, student government and cultural programs.
- 2) Counseling: includes the cost of counselor's salaries and clerical support plus operating expenses and equipment.
  - 3) Testing: covers the cost of test officers, psychometrists, clerical support, operating expenses and equipment.
  - 4) Placement: provides career information to students and faculty for academic program planning and employment information to graduates and students.
  - 5) Financial Aids Administration: includes the cost of the counseling and business services provided in connection with the financial aid programs.
  - 6) Health Services: provides health services to students and covers the cost of salaries of Medical Officers and Nurses plus related clerical and technical personnel as well as operating expenses and equipment.
  - 7) Housing: includes the cost of personnel providing housing information and monitoring housing services provided to students.
  - 8) Student Services Administration: covers 50% of the cost of the Dean of Students Office which has responsibility for the overall administration of student services.

Prior to 1975-76 the Student Services fee was known as the Materials and Service fee and not only covered the above expenditures but covered the cost of Instructional and Audio Visual supplies and contractual services. A Task Force recommended that responsibility for financing these expenditures be transferred to the State and that the basis for this fee be more adequately communicated to students and campus staff. It should be noted that the 1975-76 Student Services fee is subject to change by future Board of Trustees action made necessary by budget actions of the Executive and Legislative branches of government.

- \*\* A nonresident student is any person who has not been a bona fide resident of the State of California for more than one year immediately preceding enrollment. The exact determination date may be ascertained by contacting the Admissions/Records Office.
- \*\* In certain instances students may work on campus to earn back the amount of this fee. Application for the work must be made to the Financial Aids Office at least two weeks prior to scheduled registration dates.

## REFUND OF FEES

### REGISTRATION FEES

After a student makes a formal withdrawal from the university through the Student Records Office, a refund of a portion of the *student services fee* may be made if a written application for refund is filed not later than fourteen calendar days after the first day of instruction. A student shall make the application personally; if in the opinion of the administration, he is unable to do so, the parents or guardian of the student who is a minor, or the duly authorized representative of the student who is of the age of majority may make the application. (See *California Administrative Code, Title 5, Section 41802*)

The amount of the refund will be determined by the Business Office by deducting \$10 for registration costs. A full refund may be made to a student who is unable to continue a course, because of a university regulation or compulsory military service, at any time prior to the date he receives any academic credit for any course or courses for which he is registered. The *late registration fee* is not refundable. *There is no refund for a reduction in the student's unit load.*

The same withdrawal and application for refund procedure applies for the *nonresident tuition fee* except that the time limit is different. There may be a refund for reduction in unit load. Within the first week of the session, a full refund may be made for units dropped. For each additional week, the refund diminishes as follows: 90 percent of the fee, the second week; 70 percent the third week; 50 percent, the fourth week; 30 percent, the fifth week; 20 percent, the sixth week; no refund, after the sixth week.

### PARKING FEES

A student is entitled to a refund of parking fees in the amount shown in the following schedule if on any one calendar day within the applicable period he files with the Business Office a written application for refund and returns all documents issued to him by the university which evidence his right to use the parking facility including any parking permit, stickers, and decal so issued. If the decal is attached to a vehicle and the vehicle is presented to the university for removal of the attached item by or under the direction of the State, such presentation and removal shall constitute return of the attached item.

Beginning with the first day of instruction, 75 percent of the parking space fee is refunded if application is made as indicated above within 1-30 calendar days; 50 percent, within 31-60 calendar days; 25 percent, within 61-90 calendar days; no refund, 91 days to end of semester.

(For refund of fees during summer sessions consult the Business Office.)

**OTHER FEES**

The schedule of refunds for *the health service fee, the Student Body Association and Center fees, and the facilities fee* is set annually. Refunds are dependent upon the length of time between the opening of the semester and application for refund. Application must be made and the student body and student identification cards must be turned in to the Student Records Office.

**ESTIMATE OF EXPENSES**

The basic expenses for attendance at CSUF for a year (two semesters) for full-time students who live away from home will range from approximately \$1,500 to \$2,000. These figures are exclusive of nonresident tuition fee, but include an estimate of such personal items as clothes, laundry, and incidental expenditures. Students who live at home or share apartments with other students and commute to the campus are able to reduce their expenses considerably below the estimated figure. The cost of board and room may also be reduced by cooperative living arrangements or part-time work in exchange for room and board.

Room and board .....	from \$1,200-\$1,500
Student services fee .....	144
Student Body Association fee and health service fee .....	28
Facilities fee .....	6
Student Body Center fee .....	20
Books and supplies .....	100 to 150

**AVERAGE ANNUAL COSTS AND SOURCES OF FUNDS  
PER FULL-TIME EQUIVALENT \* STUDENT  
IN THE CALIFORNIA STATE UNIVERSITY AND COLLEGES**

The 19 campuses of The California State University and Colleges are financed primarily through funding provided by the taxpayers of California. For the 1974-75 year, the total cost of operation is \$603 million, which provides continuing support for 231,295 full-time equivalent (FTE\*) students. This results in an average cost per FTE student of \$2,608 per year. Of this amount, the average student pays \$254. Included in this average student payment is the amount paid by nonresident students. The remaining \$2,354 in costs are funded by state and federal taxes.

Averages do not fit all students alike or even any specific student. To arrive at an average figure that is meaningful, the costs outlined above exclude "user fees" for living expenses, housing, and parking, as well as costs for extension and summer session work. Computations are based on full-time equivalent students, not individuals, and costs are prorated by system totals, not by campus. The average costs for a full-time equivalent student in the system are depicted in the following chart:

\* For budgetary purposes, full-time equivalent (FTE) translates total head count into total academic student load. The term assumes that a full-time student in The California State University and Colleges is enrolled for 15 units of academic credit. Some students enroll for more than 15 units; some students enroll for fewer than 15 units.

**1974-75 PROJECTION OF TOTAL COSTS OF CAMPUS OPERATION  
(Including Building Amortization)**

Enrollment: 231,295 FTE

<i>Amount</i>	<i>Amount</i>	<i>Average Cost Per Student (FTE) *</i>	<i>Percentage</i>
State Appropriation (Support) .....	\$488,163,528	\$2,111	81.0
State Funding (Capital Outlay)** .....	28,615,000	124	4.8
Student Charges .....	58,806,800	254***	9.7
Federal (Financial Aids) .....	27,456,316	119	4.5
Total .....	<u>\$603,041,644</u>	<u>\$2,608</u>	<u>100.0</u>

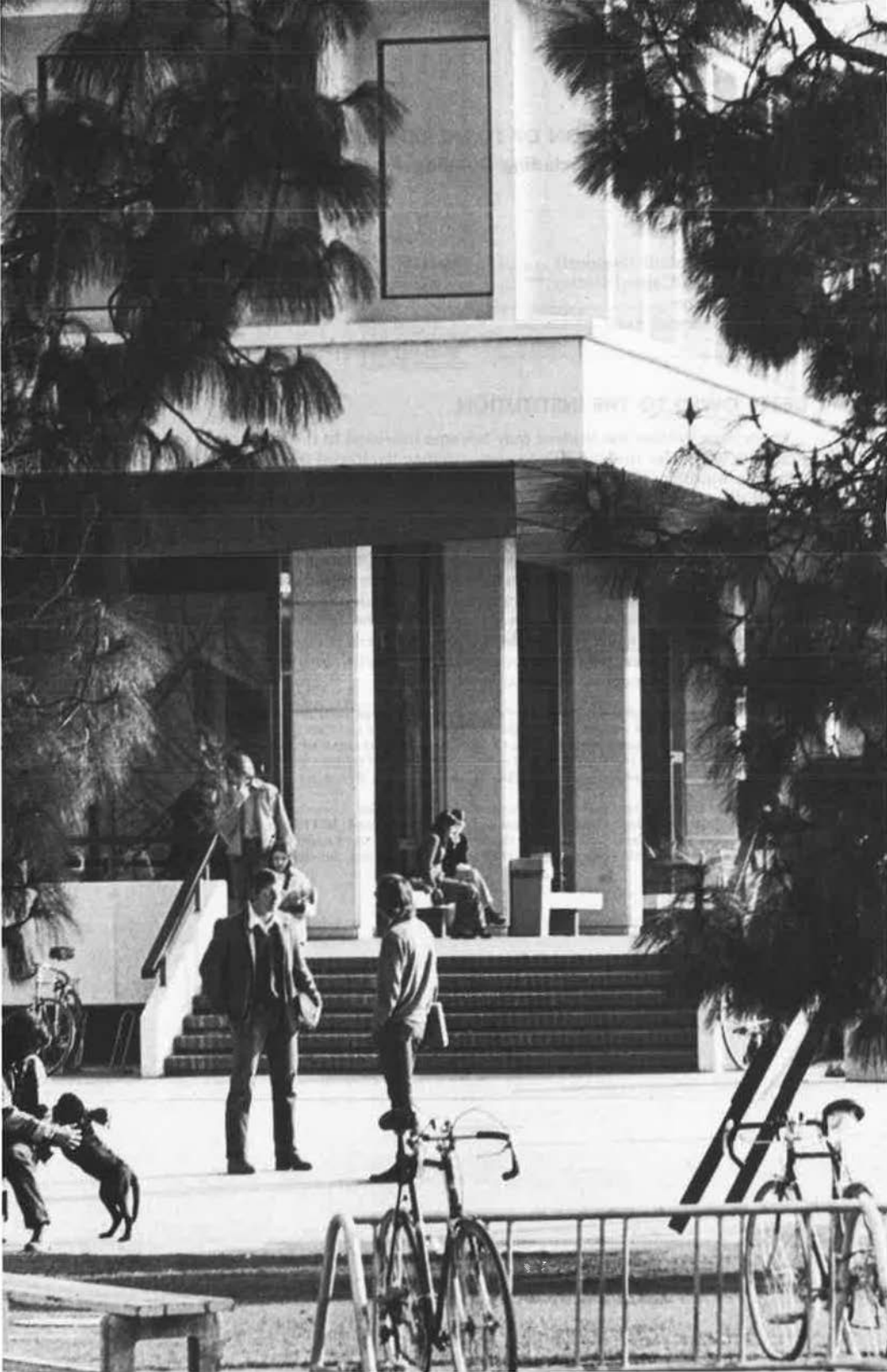
**DEBTS OWED TO THE INSTITUTION**

From time to time the student may become indebted to the institution. Debts occur, for example, when the student fails to repay money borrowed from the institution or he fails to pay dormitory or library fees or for other services provided by the institution at his request. Should this occur, Sections 42380 and 42381 of *Title 5 of the California Administrative Code* authorize the institution to withhold "permission to register, to use facilities for which a fee is authorized to be charged, to receive services, materials, food, or merchandise or any combination of the above from any person owing a debt" until the debt is paid. For example, under these provisions the institution may withhold permission to register and may withhold other services such as grades and transcripts. If a student feels that he does not owe all or part of a particular fee or charge, he should contact the campus business office. That office, or another office to which the student is referred, will review the pertinent information, including information the student may wish to present, and will advise the student of its conclusions with respect to the debt.

\* For budgetary purposes, full-time equivalent (FTE) translates total head count into total academic student load. The term assumes that a full-time student in The California State University and Colleges is enrolled for 15 units of academic credit. Some students enroll for more than 15 units; some students enroll for fewer than 15 units.

\*\* The system's more than 14,000 acres of land and the wide range of facilities and equipment on the 19 campuses are currently valued at approximately \$1.2 billion. Amortized over a 40-year period, they are valued at \$125 per FTE student.

\*\*\* The average costs paid by a student include the student services fee (formerly called the materials and service fee), health facilities fee, college union fee, student body fee, and the nonresident tuition. This amount is derived by taking the total of all student fees and dividing by the total full-time equivalent student enrollment. Individual students may pay more or less than \$254 depending on whether they are part-time, full-time, resident or nonresident students.



**ADMISSION PROCEDURES AND POLICIES**

**INSTRUCTIONALLY RELATED INFORMATION**

Program Planning and Registration

Academic Placement

Grades, Scholarship, Records

Degrees and Credentials

Courses of Instruction

Special and Interdisciplinary Programs



## ADMISSION PROCEDURES AND POLICIES

Requirements for admission to California State University, Fresno, are in accordance with *Title 5, Chapter 1, Subchapter 3 of the California Administrative Code*. A prospective applicant who is unsure of his status under these requirements is encouraged to consult a high school or college counselor or the Admissions Office. Applications may be obtained from the Admissions Office at any of the campuses of The California State University and Colleges or at any California high school or community college.

### UNDERGRADUATE APPLICATION PROCEDURES

Prospective undergraduates, whether applying for part-time or full-time programs of study, in day or evening classes, must file a complete application including all of the required forms and fees as described in the application booklet. The \$20.00 nonrefundable application fee should be in the form of a check or money order payable to The California State University and Colleges. Undergraduate applicants may file only at their first choice campus. Alternate choice campuses and majors may be indicated on the application, but *an applicant should list as alternate campuses only those campuses of The California State University and Colleges that he will attend if his first choice campus cannot accommodate him*. Generally, alternate degree majors will be considered at the first choice campus before an application is redirected to an alternate choice campus. Applicants will be considered automatically at the alternate choice campus if the first choice campus cannot accommodate them. *Transcripts and other supporting documents should not be submitted until requested by the campus.*

**For undergraduate admission to CSUF a student must:**

1. Submit a current application with the nonrefundable \$20.00 application fee to the Admissions Office.
2. Upon receipt of a space reservation, request institutions formerly attended to forward directly to the Admissions Office transcripts of credits from high school and colleges. College transcripts are required in duplicate. Failure to include all colleges attended may result in cancellation of the student's registration. All transcripts submitted by matriculated students are retained by CSUF.
3. Take the SAT or ACT and request official scores be sent to CSUF, if a lower division applicant. TOEFL required of all foreign applicants.
4. Take any additional proficiency or placement tests required.

In addition to the other documents required a veteran should file a photostatic copy of his *Notice of Separation (DD 214)* from the armed services with the Office of Admissions. He will be allowed credit for service time and service schools completed as recommended by *A Guide to the Evaluation of Educational Experiences in the Armed Services*. He may also be given consideration for special admission under conditions outlined on page 50.

Applications will not be accepted after admissions categories have closed. Eligibility for admission cannot be determined until *all* required documents have been received. Due to staff limitations, an evaluation of transfer credit will generally not be available until at least a month after admission.

Degree credit may be granted for work completed satisfactorily in another accredited institution of collegiate grade subject to the restrictions imposed on work taken at this institution. Questions concerning acceptability of a course from another institution should be addressed to the Evaluations Office.

A maximum of 70 semester units of credit is allowed toward the bachelor's degree for work completed in a community college. No upper division credit is given; however, community college credit in excess of 70 units may be used to satisfy subject requirements.

A maximum of 6 units will be allowed for "Agricultural Projects" courses and 4 units for "Work Experience" courses. Remedial English and mathematics courses are not accepted for degree credit.

For limitations on extension and correspondence credit, see *Extension Classes*.

Students desiring university housing or financial aid should file special applications with the appropriate offices concerned as soon as possible.

### CATEGORY QUOTAS AND SYSTEMWIDE IMPACTED PROGRAMS

Application category quotas have been established by some campuses, in some majors, where the number of applicants is expected to exceed campus resources. All applications received in the initial filing period will receive equal consideration for such categories. A small number of undergraduate programs are impacted throughout the 19-campus system, and applicants to such programs are expected to meet supplementary admission criteria for admission to these programs. These programs are identified and announced each fall. Applicants will receive from the campuses further information about the supplementary admission criteria to be used and how and when applicants can meet them. Applicants to impacted programs must apply during the initial filing period.

### POST-BACCALAUREATE APPLICATION PROCEDURES

All applicants for any type of post-baccalaureate status (e.g., master's degree applicants, those seeking credentials, and those interested in taking courses for professional growth, etc.) must file a complete application within the appropriate filing period. *Second baccalaureate degree aspirants should apply as undergraduate degree applicants.* A complete application for post-baccalaureate status includes all of the materials required for undergraduate applicants plus the supplementary graduate admissions application. Post-baccalaureate applicants who completed undergraduate degree requirements and graduated the preceding term are also required to complete and submit an application and the \$20.00 nonrefundable application fee. Since applicants for post-baccalaureate programs may be limited to the choice of a single campus on each application, redirection to alternative campuses or later changes of campus choice will be minimal. In the event that a post-baccalaureate applicant wishes to be assured of initial consideration by more than one campus, it will be necessary to submit a separate application (including fee) to each. Applications may be obtained from the Graduate Studies Office of any California State University or College campus in addition to the sources noted for undergraduate applicants. For additional information, see the *School of Graduate Studies*.

### APPLICATION FILING PERIODS

<u>Term</u>	<u>Initial Filing Period</u>	<u>Extended Filing Period</u>
Summer	the previous February	March until filled
Fall	the previous November	December until filled
Winter	the previous June	July until filled
Spring	the previous August	September until filled

All applications postmarked or received during the initial filing period will be given equal consideration within established enrollment categories and quotas. There is no advantage in filing before the initial filing period. Applications received before the initial filing period may be returned, causing a delay in processing. With the exception of the impacted undergraduate program areas (architecture, natural resources, nursing, and physical therapy), most campuses will be accepting applications well into the extended filing periods until quotas are filled.

### SPACE RESERVATIONS

Applicants who apply during the initial filing period and who can be accommodated will receive a space reservation notice. A space reservation notice is not a statement of admission but is a commitment by California State University, Fresno, to admit the student once eligibility has been established. The space reservation directs the applicant to arrange to have appropriate records forwarded promptly to the Office of Admissions. Applicants should not request that any records be forwarded until they have received a space reservation notice.

### HARDSHIP PETITIONS

There are established procedures for consideration of qualified applicants who would be faced with extreme hardship if not admitted. Prospective hardship petitioners should contact the Admissions Office regarding specific policies governing hardship admission.

## UNDERGRADUATE ADMISSION REQUIREMENTS

First-time freshman eligibility is governed by an eligibility index. The index is computed using the high school grade-point average on all course work completed in the last three years of high school, exclusive of physical education and military science; and the ACT composite, or the SAT total score. The full table of grade-point averages, with corresponding test scores and the equation by which the index is computed, is reproduced on page 39. Test results of either the CEEB Scholastic Aptitude Test (SAT) or the American College Testing Program examination (ACT) are acceptable in establishing eligibility.

Registration forms and test dates for either test may be obtained from school or college counselors, from the addresses below, or from the campus testing offices. For either test, submit the registration form and fee at least one month prior to the test date.

### ACT Address

American College Testing Program, Inc.  
Registration Unit, P.O. Box 168  
Iowa City, Iowa 52240

### SAT Address

College Entrance Examination Board  
P.O. Box 1025  
Berkeley, California 94770

### First-Time Freshmen (California high school graduates and residents)

An applicant who is a graduate of a California high school or a legal resident for tuition purposes must have an eligibility index which places him among the upper *one-third* of California high school graduates. The minimum acceptable index for applicants using the SAT score is 3072; using the ACT score, 741.

### First-Time Freshmen (high school graduates from other states and U.S. possessions)

The admissions requirements for non-resident applicants are more restrictive than those for California residents. An applicant who is a non-resident for tuition purposes and is a graduate of a high school outside California must have an eligibility index which places him among the upper *one-sixth* of the California high school graduates. The minimum acceptable index for non-resident applicants using the SAT score is 3402; using the ACT score, 826.

### First-Time Freshmen (graduates of secondary schools, etc., in foreign countries)

An applicant who is a graduate of a secondary school in a foreign country or who has equivalent preparation in a foreign country, may be admitted as a first-time freshman if his preparation and ability are such that in the judgment of the appropriate campus authority, the probability of his academic success at the campus is equivalent to that of eligible California high school graduates.

### First-Time Freshmen (high school non-graduates)

An applicant who is over 18 years of age, but who has not graduated from high school will be considered for admission only when preparation in all other ways is such that the campus believes promise of academic success is equivalent to that of eligible California high school graduates.

### Undergraduate Transfers (resident and non-resident)

Beginning fall term 1974, transfer eligibility is based on *transferable* college units attempted, rather than on *all* college units attempted. The California Community College transfer student should consult his college counselor for information on transferability of courses. An applicant in good standing at the last college attended may be admitted as an undergraduate transfer if he meets either of the following requirements:

1. He was eligible for admission in freshmen standing (see First-Time Freshman requirements) and has earned an average grade of "C" (2.0 on a scale where A = 4.0) or better in all transferable college units attempted.
2. He has completed at least 56 transferable semester units or 84 transferable quarter units with an average grade of "C" (2.0 on a scale where A = 4.0) or better if a California resident. Non-residents must have a G.P.A. of 2.40 or better.

### High School Students

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

## ELIGIBILITY INDEX

The following chart is used in determining the eligibility of graduates of California high schools (or California legal residents) for admission to a state university or college as a freshman or as a lower division (fewer than 56 transferable semester units) transfer student. Grade-point averages are based on work completed in the last three years of high school, exclusive of physical education and military science. Scores shown are the SAT total and the ACT composite. Students with a given GPA must present the corresponding test score. Conversely, students with a given ACT or SAT score must present the corresponding GPA in order to be eligible.

**ADMISSIONS TABLE FOR CALIFORNIA HIGH SCHOOL GRADUATES  
OR CALIFORNIA LEGAL RESIDENTS**

GPA	ACT Score	SAT Score	GPA	ACT Score	SAT Score	GPA	ACT Score	SAT Score
(—)*			2.80	19	832	2.39	27	1160
3.20	11	512	2.79	19	840	2.38	27	1168
3.19	11	520	2.78	19	848	2.37	27	1176
3.18	11	528	2.77	19	856	2.36	27	1184
3.17	11	536	2.76	19	864	2.35	28	1192
3.16	11	544	2.75	20	872	2.34	28	1200
3.15	12	552	2.74	20	880	2.33	28	1208
3.14	12	560	2.73	20	888	2.32	28	1216
3.13	12	568	2.72	20	896	2.31	28	1224
3.12	12	576	2.71	20	904	2.30	29	1232
3.11	12	584	2.70	21	912	2.29	29	1240
3.10	13	592	2.69	21	920	2.28	29	1248
3.09	13	600	2.68	21	928	2.27	29	1256
3.08	13	608	2.67	21	936	2.26	29	1264
3.07	13	616	2.66	21	944	2.25	30	1272
3.06	13	624	2.65	22	952	2.24	30	1280
3.05	14	632	2.64	22	960	2.23	30	1288
3.04	14	640	2.63	22	968	2.22	30	1296
3.03	14	648	2.62	22	976	2.21	30	1304
3.02	14	656	2.61	22	984	2.20	31	1312
3.01	14	664	2.60	23	992	2.19	31	1320
3.00	15	672	2.59	23	1000	2.18	31	1328
2.99	15	680	2.58	23	1008	2.17	31	1336
2.98	15	688	2.57	23	1016	2.16	31	1344
2.97	15	696	2.56	23	1024	2.15	32	1352
2.96	15	704	2.55	24	1032	2.14	32	1360
2.95	16	712	2.54	24	1040	2.13	32	1368
2.94	16	720	2.53	24	1048	2.12	32	1376
2.93	16	728	2.52	24	1056	2.11	32	1384
2.92	16	736	2.51	24	1064	2.10	33	1392
2.91	16	744	2.50	25	1072	2.09	33	1400
2.90	17	752	2.49	25	1080	2.08	33	1408
2.89	17	760	2.48	25	1088	2.07	33	1416
2.88	17	768	2.47	25	1096	2.06	33	1424
2.87	17	776	2.46	25	1104	2.05	34	1432
2.86	17	784	2.45	26	1112	2.04	34	1440
2.85	18	792	2.44	26	1120	2.03	34	1448
2.84	18	800	2.43	26	1128	2.02	34	1456
2.83	18	808	2.42	26	1136	2.01	34	1464
2.82	18	816	2.41	26	1144	2.00	35	1472
2.81	18	824	2.40	27	1152	(—)†		

\* Students earning grade-point averages above 3.20 are eligible for admission.

† Students earning grade-point averages below 2.0 are not eligible for admission.

The minimum eligibility index is SAT, 3072 and ACT, 741. The index is computed either by multiplying the grade-point average by 800 and adding it to the total SAT score, or multiplying the grade-point average by 200 and adding it to 10 times the composite ACT score. Nonresident students must have a minimum eligibility index of 3402, using SAT; and 826, using ACT.

### International (foreign) Students

At CSUF admissions decisions are made on the basis of complete academic records from all secondary and college level schools, demonstrated English proficiency on the Test of English as a Foreign Language (TOEFL) and certified financial support.

Information on TOEFL testing dates and centers may be obtained by writing, TOEFL, Educational Testing Service, Princeton, New Jersey 08540 or from the CSU, Fresno, Testing Center.

Applicants should take TOEFL at least six months before the beginning of the semester to which they are seeking admission to allow time for evaluation and receipt of test scores.

### Returning Students

Applicants who seek readmission after an absence of one semester or more must file an application for admission. Applicants absent one semester only are exempt from the \$20.00 application fee *providing* no academic work was taken in the interim at any other institution. Students absent on an approved planned educational leave are not required to file an application for admission and are exempt from the \$20.00 application fee. See Planned Educational Leave.

### Veterans

Veterans who are California residents are exempt from the above admission requirements. Admission may be granted if applicant is judged likely to succeed academically. Standard admission procedures should be followed.

## ADMISSION OF POST-BACCALAUREATE AND GRADUATE STUDENTS

### Post-Baccalaureate Standing. Unclassified.

For admission to unclassified post-baccalaureate standing, a student must: (a) hold an acceptable baccalaureate degree from an institution accredited by a regional accrediting association or have completed equivalent academic preparation as determined by an appropriate campus authority; (b) have attained a grade point of at least 2.5 (on a five-point scale) in the last 60 semester (90 quarter) units attempted; and, (c) have been in good standing at the last college attended. Admission to a State University or College with post-baccalaureate unclassified standing does not constitute admission to graduate degree curricula.

### Post-Baccalaureate Standing. Classified.

A student who is eligible for admission to a State University or College in Unclassified standing may be admitted to Classified post-baccalaureate standing for the purpose of enrolling in a particular post-baccalaureate credential or certificate program; provided, that such additional professional, personal, scholastic, and other standards, including qualifying examinations, as may be prescribed for the particular program by the appropriate campus authority are satisfied.

### Graduate Standing. Conditionally Classified.

A student who is eligible for admission to a State University or College under Unclassified post-baccalaureate standard above, but who has deficiencies in prerequisite preparation which in the opinion of the appropriate campus authority can be met by specified additional preparation, including qualifying examinations, may be admitted to an authorized graduate degree curriculum with Conditionally Classified Graduate Standing.

### Graduate Standing. Classified.

A student who is eligible for admission to a State University or College in Unclassified or Conditionally Classified Standing may be admitted to an authorized graduate degree curriculum of the campus as a classified graduate student if s/he satisfactorily meets the professional, personal, scholastic, or other standards for admission to the graduate degree curriculum, including qualifying examinations, as the appropriate campus authority 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 shall be eligible to proceed in such curricula.

## GRADUATE ADMISSION REQUIREMENTS

See *School of Graduate Studies*.

## DETERMINATION OF RESIDENCE FOR NONRESIDENT TUITION PURPOSES

New and returning students of The California State University and Colleges are classified for the purpose of determining the residence of each student for nonresident tuition purposes. The Residence Questionnaire and, if necessary, other evidence furnished by the student is used in making these determinations. A student may not register and enroll in classes until his Residence Questionnaire has been received by the Admissions Office.

The following statement of the rules regarding residency determination for nonresident tuition purposes is not a complete discussion of the law, but a summary of the principal rules and their exceptions. The law governing residence determination for tuition purposes by The California State University and Colleges is found in *Education Code* Sections 22800-22865, 23763.1, 23754-23754.4, 23758.2, 23752 and in Title 5 of the *California Administrative Code*, Article 4 (commencing with Section 41901) of Subchapter 5 of Chapter 1, Part V. A copy of the statutes and regulations is available for inspection at the campus Admissions Office.

Legal residence may be established by an adult who is physically present in the state while, at the same time, intending to make California his permanent home. Steps must be taken at least one year prior to residence determination date to evidence the intent to make California the permanent home with concurrent relinquishment of the prior legal residence. Some of the relevant indicia of an intention to establish and maintain California residence are registering to vote and voting in elections in California; satisfying resident California state income tax obligations on total income; ownership of residential property or continuous occupancy or letting of an apartment on a lease basis where one's permanent belongings are kept; maintaining active resident memberships in California professional or social organizations; maintaining California vehicle plates and operator's license; maintaining active savings and checking accounts in California banks; maintaining permanent military address and home of record in California if one is in the military service, etc.

The student who is within the state for educational purposes only does not gain the status of resident regardless of the length of his stay in California.

In general, the unmarried minor (a person under 18 years of age) derives legal residence from his parents, or, in the case of permanent separation of the parents, from the parent with whom the minor maintains his place of abode. The residence of a minor cannot be changed by act of the minor or that of the minor's guardian, so long as the minor's parents are living.

A man or a woman may establish his or her residence; marriage is not a governing factor.

The general rule is that a student must have been a California resident for at least one year immediately preceding the residence determination date in order to qualify as a "resident student" for tuition purposes. A residence determination date is set for each academic term and is the date from which residence is determined for that term. The residence determination dates for the 1975-1976 academic year are Fall Semester, 1975: September 20, 1975; Spring Semester, 1976: January 25, 1976. If you have any questions respecting the applicable date, the campus Admissions Office can give you the residence determination date for the term for which you are registering.

There are several exceptions for nonresident tuition. Some of the exceptions provide for:

1. Persons below the age of 19 whose parents were residents of California but who left the state while the student who remained was still a minor. When the minor reaches age 18, the exception continues for one year to enable the student to qualify as a resident student.
2. Persons below the age of 19 who have been present in California for more than a year before the residence determination date, and entirely self-supporting for that period of time.
3. Persons below the age of 19 who have lived with and been under the continuous direct care and control of an adult, not a parent, for the two years immediately preceding the residence determination date. Such adult must have been a California resident for the most recent year.
4. Dependent children and spouses of persons in active military service stationed in California on the residence determination date. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for the year. The exception, once attained, is not affected by transfer of the military person directly to a post outside the 50 states and District of Columbia.

5. Military personnel in active service stationed in California on the residence determination date for purposes other than education at state-supported institutions of higher education. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year.
6. A student who is an adult alien is entitled to residence classification if the student has been lawfully admitted to the United States for permanent residence in accordance with all applicable provisions of the laws of the United States; provided, however, that the student has had residence in California for more than one year after such admission prior to the residence determination date. A student who is a minor alien shall be entitled to residence classification if both the student and the parent from whom residence is derived have been lawfully admitted to the United States for permanent residence in accordance with all applicable laws of the United States, provided that the parent has had residence in California for more than one year after acquiring such permanent residence prior to the residence determination date of the term for which the student proposes to attend the University.
7. Certain credentialed, full-time employees of school districts.
8. Full-time State University and Colleges employees and their children and spouses. This exception applies only for the minimum time required for the student to obtain California residence and maintain that residence for a year.
9. Certain exchange students.
10. Children of deceased public law enforcement or fire suppression employees, who were California residents, and who were killed in the course of law enforcement or fire suppression duties.
11. A person in continuous full-time attendance at an institution who had resident classification on May 1, 1973, shall not lose such classification as a result of adoption of the uniform student residency law on which this statement is based, until the attainment of the degree for which currently enrolled.

Any student, following a final decision on campus on his residence classification, may make written appeal to:

Office of General Counsel  
The California State University and Colleges  
5670 Wilshire Boulevard  
Suite 1260  
Los Angeles, California 90036

within 120 calendar days of notification of the final decision on campus of his classification. The Office of General Counsel may make a decision on the issue, or it may send the matter back to the institution with instructions for a further review on campus. Students classified incorrectly as residents or incorrectly granted an exception from nonresident tuition are subject to reclassification as nonresidents and payment of nonresident tuition in arrears. If incorrect classification results from false or concealed facts, the student is subject to discipline pursuant to Section 41301 of Title 5 of the *California Administrative Code*. Resident students who become nonresidents, and nonresident students qualifying for exceptions whose basis for so qualifying changes, must immediately notify the Admissions Office. Applications for a change in classification with respect to a previous term are not accepted.

The student is cautioned that this summation of rules regarding residency determination is by no means a complete explanation of their meaning. The student should also note that changes may have been made in the rate of nonresident tuition, in the statutes, and in the regulations between the time this catalog is published and the relevant residence determination date.

## PROGRAM PLANNING AND REGISTRATION

Freshman students should plan their programs as early as possible beginning, when practical, with the selection of a major. Degree requirements in each major are listed under the appropriate department. For general information see *Degrees and Credentials*.

Students will be assisted in planning their programs by academic advisers, but the primary responsibility for meeting requirements is the student's. Academic advisers will be assigned to each student before the orientation period. The current *Schedule of Courses* must be followed when planning a particular semester's program.

### RECOMMENDED PREPARATION

#### Freshman Students

Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at CSUF. While no high school course pattern is required, the applicant is strongly encouraged to include the following subjects as minimal.

College preparatory English.

Foreign language.

College preparatory mathematics.

College preparatory laboratory science.

College preparatory history and/or social science.

Study in speech, music, art, and other subjects contributing to general academic background.

Since certain fields of study require high school preparation in definite subjects, the student should consult the requirements indicated in the field of his choice.

In university fields such as engineering, natural science, mathematics, social science, and humanities a maximum number of high school credits should be obtained in appropriate subjects in English, mathematics, science, and foreign languages.

#### Transfer Students

Students intending to transfer to CSUF should plan their programs while attending other colleges to meet CSUF curriculum requirements. The general education and major requirements should be studied to determine the appropriate sequences of courses necessary for the degree.

Students transferring from a California community college should complete the general education requirements of that college for state university and college transfers and request that their general education program be certified to CSUF.

After admission to CSUF, the student will receive a copy of his advanced standing evaluation indicating how previous college credits have been applied toward requirements at CSUF.

Each student should maintain a personal folder in which he keeps his own copies of transcripts, grade reports, advanced standing evaluation, departmental check sheets, and other information pertaining to his progress toward meeting various requirements for his degree or credential. Faculty advisers are available for assistance; it is the responsibility of the student, however, to be sure that all requirements have been met.

### REGISTRATION

Registration is open to new and returning students who have been formally admitted and to continuing students in good standing. Former CSUF students returning after an absence of one semester or more must apply for readmission, subject to university enrollment limitations and filing deadlines. Students who are returning after an absence of two semesters or more, and those who have been absent one semester and who have attended another institution since last registered at CSUF will be required to pay the \$20 application fee when applying. The *Academic Calendar* lists dates of registration. Late registrants are assessed a fine of \$5. A late filing fee of \$2 is also assessed if registration is not completed within 5 days or the end of late registration. *Registration is complete only when all required forms are completed and filed and all fees are paid. See Academic Calendar for all deadline dates.*

Registration priority for all students, new and returning, is determined by the number of

academic units completed with limited exceptions. After a priority group, determined by the faculty-student Registration Committee, first-time freshmen register, followed by students with the highest number of completed units.

### **SCHEDULE OF COURSES**

An official *Schedule of Courses* is published each semester listing registration procedures, courses offered, class hours and locations and other important deadlines. The schedule is available prior to registration and may be purchased at the Bookstore for a nominal cost.

### **CONCURRENT REGISTRATION AT ANOTHER COLLEGE OR UNIVERSITY**

Approval of the Registrar must be obtained in advance of registration before transfer credit may be earned at another college concurrently with registration at CSUF. Normally permission for concurrent registration will not be granted for a class which is offered at CSUF.

### **PROGRAM RESTRICTIONS**

Students are cautioned against registering for more than 18 units without consulting an adviser, since more than 18 units is generally considered to be an academic overload. See *Schedule of Courses*.

To register for 19 units, a student must have an overall grade-point average of 2.50; for 20 to 22 units, a student must have an overall grade-point average of 3.00. Exceptions to these limits must be approved by the chairman of the student's major department. An absolute limit of 22 units (excluding credit by examination units) is enforced which may be waived only with the approval of the Dean of the School of the student's major.

Enrollment in upper division courses is restricted to students with junior, senior or graduate standing, or who have the necessary prerequisites. Exceptions are subject to the approval of the instructor and department chairman. Upper division credit may not be granted until students have completed a minimum of 45 semester units. Only students who have been fully approved for admission to credential programs may enroll in certain education courses and qualify for a school service credential on the basis of the university's recommendation.

Credit in any course is also subject to all restrictions which may appear in the *General Catalog*. For restrictions on graduate study, see *School of Graduate Studies—Master's Degrees*.

### **CHANGE OF MAJOR**

Each undergraduate student who wishes to change his major must report to the Office of Advising Services to initiate the procedure; graduate students should report to the Graduate Office. The Office of Advising Services will notify the department concerned so that records may be transferred to the new department and a new adviser assigned.

### **WITHDRAWAL FROM COURSES**

A student is held responsible for the program of courses in which he is officially registered. After registration no changes will be made or recorded until add or drop cards provided by the faculty have been completed and filed at the Admissions-Records Office by the student. A student is urged to consult his adviser before making a program change. If the drop card is filed before the end of the fourth week of classes, the course will not be recorded on the permanent record. The end of the fourth week is defined as the end of the twentieth instructional day of the semester. After the fourth week, a student may drop a course only for serious and compelling reasons which must be stated in writing with the drop form. If the drop is approved, a W grade will be assigned (see current *Schedule of Courses*).

Withdrawals are not permitted during the final three weeks of instruction except in cases such as accident or serious illness where the cause of withdrawal is due to circumstances beyond the student's control. Normally, withdrawal from courses during the final three weeks of instruction involves a total withdrawal from the university.

## PREPROFESSIONAL PREPARATION

Preprofessional programs are available for students who plan to transfer to another institution for the completion of professional curricula in such fields as dentistry, forestry, law, librarianship, medicine, optometry, occupational therapy, pharmacy, theology, and veterinary medicine. Certain of these programs are described below. Students planning to complete a preprofessional program and degree at CSUF must complete a major offered at this university. They should include their preprofessional area plus their university major on all registration forms; for example, premedical-chemistry, premedical-biology, prelaw-history, prelaw-political science. They should consult an adviser and the catalog of the school of their choice.

### PREDEDENTAL

The minimum training for dentistry is a six-year course—the first two years (predental training) in a liberal arts college and the remaining four years (dental training) at a school of dentistry.

The minimum predental program required by accredited dental schools is one year each of English, inorganic chemistry, physics, and zoology; one semester of organic chemistry; and additional courses (usually elective in general education, but specified by some dental schools) for a total of 60 units. Each science course must include laboratory. The present trend among dental schools is to require more than two years of predental training including a broad liberal arts background. Since 1971, three years have been required by the University of California, San Francisco, and some other dental schools. Additional organic chemistry, quantitative chemical analysis, elementary physical chemistry, other zoology courses, and in some cases a foreign language are recommended or required. Several schools require a bachelor's degree for entrance. The American Dental Association aptitude test and evidence of physical fitness and good moral character are usually required. Many dental schools also require a personal interview and some administer additional tests. For other information, see the predental adviser and dental school catalogs.

### PRELEGAL

Most fully accredited law schools require a bachelor's degree for admission. Since a prelegal program providing a broad cultural background is recommended by the law schools, any baccalaureate major, depending on the student's interest, may be chosen from the university offerings (See *Degree Majors and Minors*). Law schools suggest courses, but not necessarily a major, in the following: written and oral English, American and English constitutional history, world history, accounting, elementary logic, mathematics, economics, political science, philosophy, science, and foreign language. For further information consult an adviser and law school catalogs.

### PRELIBRARIANSHIP

Accredited graduate schools of librarianship require a bachelor's degree for admission. A major in any subject is acceptable. A reading knowledge of at least one modern foreign language is a requirement for admission to most graduate schools of librarianship; this requirement is normally satisfied by the successful completion of two college years of the language. Students considering librarianship as a career should consult the prelibrary program adviser in the Library.

### PREMEDICAL

A student interested in preparing for medical school should declare his intent at the time he applies for admission to CSUF. To do this, it is necessary that he use a term such as premedical-sociology, premedical-zoology, premedical-chemistry or premedical-general on all application, admittance and registration papers. In case premedical-general is chosen, a specific subject major should be selected as soon as possible and not later than the sophomore year from the list of approved CSUF majors in the catalog. This part of the premedical program also constitutes the major that is required for a bachelor's degree. (See *Degree Programs, Majors, and Minors*.) Each interested student will be assigned to a member of the premedical advisory committee who will assist him in planning his program of courses and will advise him concerning preparatory procedures for application to medical school.

Requirements for admission to medical school vary considerably from one medical school

to another and change from time to time, but a well-balanced liberal education is usually specified. Some aptitude and university training in science and English are essential in medicine. The minimum requirements in these subjects specified by most medical schools can be satisfied by the following: biology, 13 units; chemistry, 19 units; physics, 8 units; and English, 6 units. Calculus is now required by some medical schools and a reading knowledge of a modern foreign language is required by a few. Because of competition for admission to medical schools, a grade average of above 3.4 grade points is highly desirable. The Medical College Aptitude Test (MCAT) is required before a student can be accepted into medical school. It is recommended that the MCAT be taken and application for medical school be made at the end of the Junior year.

Freshman, transfer, and all other students who are entering the program are advised to attend the premedical student orientation meeting scheduled prior to registration. (See the new-student orientation calendars.)

#### **PREOPTOMETRY**

California State University, Fresno provides courses for the completion of the first two years of a six-year optometry program. Most professional schools require that these two years include one year of biology, chemistry, mathematics, physics, English, and psychology or one semester of statistics with above average scholarship. Calculus and microbiology are also required by many professional schools. Consult optometry school catalogs and the preoptometry adviser, Department of Physics, for further information.

The Optometry College Admission Test is required before application can be made to optometry school. Application should be made one year in advance of enrollment.

#### **PREPHARMACY**

The first two years (prepharmacy) of a six-year pharmacy program may be completed at CSUF. All new and transfer students should indicate on application, admittance and registration papers an interest in prepharmacy-biology. Most professional schools require a C average or better for a minimum of 60 semester units, including one year each of inorganic chemistry, physics, calculus, zoology, English composition, and literature; one semester of organic chemistry or quantitative analysis; and additional elective courses which are specified in certain areas by some schools. Students may elect to complete more than 60 semester units before applying to pharmacy school. A personal interview may be required of applicants by some schools. For other information see pharmacy school catalogs and consult the prepharmacy adviser in the Department of Biology.

#### **PREVETERINARY**

Students preparing for the veterinary profession can satisfy their preveterinary curriculum requirements at CSUF. Preveterinary students should plan to complete a BS Degree prior to application to a school of veterinary medicine. Recommended preveterinary courses are Animal Science 10, 110, 120, and 155; Biology 120; Botany 10; Chemistry 1A, 1B, 8, 105, and 109; Physics 1A and 1B; Microbiology 20 and 21; Zoology 1 and 160. The School of Agricultural Sciences is equipped to provide valuable experience with large animals through the student project program. Students desiring further information regarding the preveterinary curriculum should consult the Chairman of the Animal Science Department.

## ACADEMIC PLACEMENT

### CLASSIFICATION OF STUDENTS

Student class levels are determined as follows:

*Freshmen*—Students who have earned a total of fewer than 30 semester units.

*Sophomores*—Students who have earned a total of 30 to 59 semester units inclusive.

*Juniors*—Students who have earned a total of 60 to 89 semester units inclusive.

*Seniors*—Students who have earned 90 semester units or more.

*Graduates*—Students who have at least a bachelor's degree from an accredited institution.

### ADVANCED PLACEMENT

The Advanced Placement Program of the College Entrance Examination Board permits able high school students to take college-equivalent courses in the senior year of high school and, based upon comprehensive qualifying examinations, receive advanced placement and credit at participating universities and colleges. CSUF grants credit toward its undergraduate degrees for successful completion of examinations of the Advanced Placement Program of the College Entrance Examination Board. Students who present scores of three or better will be granted six semester units of college credit for each examination. A score of "two" may receive credit, only if recommended by the department. A score of "one" will receive neither credit nor advanced placement.

### CREDIT BY EXAMINATION

Credit by examination is designed to encourage a regularly enrolled student to seek college credit in courses in which he has competence but for which he has not earned credit by the usual academic processes, thereby permitting him to accelerate his progress and provide an opportunity for wider selection of course work. The following procedures should be followed:

1. A student may qualify for credit by examination in any course in the current CSUF catalog for which he appears to be reasonably qualified by training or experience and for which he has not been allowed previous high school or college credit. Credit by examination will not be allowed in a course in which the student has been permitted to register as an auditor during the same semester, in which he has received a failing grade, or in which he has unsuccessfully sought credit by examination.

2. The student will enroll for credit by examination at any time during the first two weeks of classes. He must be regularly enrolled in other courses before he will be granted permission to earn credit by examination. Units of credit by examination are counted as part of the total units registered for a given semester or term. Applications for credit by examination should be completed by the student and approved by the department.

3. The examination must be administered by the end of the fourth week of instruction and the instructor must report the grade prior to the close of the sixth week.

4. The course in which the student requests credit by examination will be so designated on his record. If passed, the student will receive a credit (CR) grade. If he is unsuccessful, no grade will be reported. Units earned will count toward all appropriate requirements but will not be used in computing his grade-point average.

5. The number of units earned by credit by examination in any semester or term may not exceed the number of units completed in regular enrollment. A maximum of 30 units earned by examination may be counted toward a bachelor's degree.

For further information consult the department concerned. See also *Advanced Placement*.

### INDEPENDENT STUDY

Independent study is offered to give the student experience in planning and outlining a course of study on his own initiative under departmental supervision. Independent study should deal with a special interest not covered in a regular course or with the exploration in greater depth of a subject presented in a regular course. Each department has an independent study upper division course (190), and some departments have a graduate level course (290). In some departments a 190 or 290 course may be desirable preparation for the thesis or other advanced study.

To be eligible for independent study, a student should have an over-all grade-point average of 3.0 or higher; this requirement may be waived in exceptional cases, when approved by the chairman of the department. Maximum credit of six units is allowed toward the bachelor's degree in 190 courses, and maximum credit of six units is allowed in 190 and 290 courses toward the master's degree. Credit is limited to a maximum of three units per semester. Under extraordinary circumstances more than three units per semester may be allowed on petition to the department chairman.

An eligible student desiring to register for a 190 or a 290 course must first obtain the consent of an instructor who will guide project and the chairman of the department in which the course is given. The student must register for 190 and 290 courses during the regular registration period in the same manner as he registers for any other course at the time of registration.

An independent study course normally includes an oral examination by a committee set up by the supervising instructor, a formal report which is filed in the department office, and an abstract of the study which is filed with the department chairman. Approval forms and copies of the current regulations may be obtained at department or school offices. The entry on the permanent record will show the discipline and course number only; the title will not appear.

Certain special regulations concerning enrollment in 190 and 290 courses during a summer session will be found in the *Summer Session Bulletin*.

### **CREDIT FOR MILITARY SERVICE COURSE WORK**

Six semester units of lower division elective credit is given if the student was on active military duty for at least one year. An applicant for credit must submit a copy of his *Notice of Separation* (DD214).

College courses given by the United States Air Force Institute (USAFI) that are comparable with CSUF courses will be given degree credit, provided they are satisfactorily completed with an end-of-course examination.

USAFI correspondence credit is combined with other extension or correspondence course work to a maximum of 24 semester units.

Additional credit is granted for military courses and experiences as recommended in "A Guide to the Evaluation of Educational Experiences in the Armed Services," Turner 1968. The applicant for such credit must submit official documents giving all details such as location, length.

### **COLLEGE LEVEL EXAMINATION PROGRAM**

The College Level Examination Program (CLEP) is designed to be a means through which recognition, academic credit, and placement may be given for less conventional forms of educational experience. Those who may have reached a college level of education through home or correspondence study, on-the-job training, television courses or by other means may take the CLEP examinations which are offered by the College Entrance Examination Board.

The CLEP examinations are of two types and credit will be granted as follows:

1. General Examinations: Credit is awarded and applied to the appropriate general education area in keeping with currently established policy.
2. Subject Examinations: Credit is awarded in keeping with systemwide policy and upon the recommendation of the appropriate department. Course equivalency is also determined by the department concerned.

For additional information, contact the Test Office.

### **ENGLISH EQUIVALENCY EXAMINATION**

The English Equivalency Examination is an examination offered by the CSUC system. It is administered each spring on the various campuses to prospective freshman. Students passing both the objective and essay portions of the examination will be granted six units of freshman English credit.

## GRADES, SCHOLARSHIP, RECORDS

### UNITS

A credit or semester unit represents one hour of class work per week for one semester. It is assumed that two hours of preparation are required for each hour in class. Three hours of laboratory per week are the equivalent of one unit. In a limited number of courses two hours of laboratory per week are the equivalent of one unit.

### GRADES

A—Exceptionally good.

B—Above average.

C—Average.

D—Below average.

F—Failure.

I—Semester requirements less than one-third incomplete, work of passing grade.

CR—Credit for units completed, work of A, B, or C quality in undergraduate courses and A or B quality in 200-level courses. Not included in grade-point average.

NC—No credit for units attempted, work of D or F quality in undergraduate courses and C, D, or F quality in 200-level courses. Replaces I grade in courses where CR-NC grading is used if required work is not completed within required time. Not included in grade-point average.

W—Withdrawal after the fourth week of instruction.

AU—Audit.

RD—Report delayed.

SP—Continuing work in progress, satisfactory progress.

### INCOMPLETE

The I grade of incomplete signifies that a portion of required course work has not been completed and evaluated in the prescribed time period due to unforeseen, but fully justified, reasons and that there is still a possibility of earning credit. It is the responsibility of the student to bring pertinent information to the instructor and to reach agreement on the means by which the remaining course requirements will be satisfied. A final grade is assigned when the work agreed upon has been completed and evaluated.

Incomplete grades must be made up during the next regular semester in which the student is enrolled (normally during the semester immediately following the semesters in which the I is recorded). An I grade not made up within one calendar year will be changed to an F (or an NC if CR-NC grading was approved). Any incomplete grades must be cleared before a degree is awarded. In the absence of the instructor who has assigned the Incomplete, a student seeking to make up this grade should consult the department chairman. No student may be required to repeat a course in which he has received an I grade unless he wishes to receive credit and the time for making up the grade has passed.

Failure to complete the assigned work will result in an "incomplete" being counted as equivalent to an F (or NC—see above) for grade-point average and progress-point computation.

### CREDIT

The CR grade may be assigned in connection with any credit-no credit enrollment (See regulations and procedures for *Credit-No-Credit Grading*).

### PLANNED EDUCATIONAL LEAVE OF ABSENCE

A planned educational leave of absence is defined as a planned interruption or pause in a student's regular education during which he temporarily ceases his formal studies at California State University, Fresno, while pursuing other activities that may assist in clarifying his educational goals, provide job opportunities and practical experiences away from the campus, allow time for the solution of personal problems, and enhance the prospect of successful completion of his academic program. The intent of the policy is to make it

possible for a student to suspend his academic work, leave the campus without jeopardizing the rights and privileges normally associated with continuous attendance, and later resume his studies with a minimum of procedural difficulty. A student who is approved for a planned leave will be considered as maintaining his status as a continuing CSUF student. He may, therefore, enroll for classes at the end of his approved leave without reapplying for admission and may continue at CSUF without change in graduation requirements.

Planned educational leaves may be granted for a variety of reasons or projects, but certain characteristics must be contained in any request for a leave:

1. The student must have a definite objective, which in the judgment of the Admissions Committee, will contribute to his educational goals and objectives.
2. The request must be for a specific period of time which shall not exceed one academic year.
3. The student must plan to return to CSUF at the conclusion of his leave.

The following regulations will apply to the planned educational leave:

1. A student who has been admitted to a fully matriculated session may be considered for a planned educational leave.
2. A student may be granted only one leave as an undergraduate and one leave as a graduate student.
3. Planned educational leaves will be granted for up to one academic year.
4. Leaves must be recommended by a faculty member or by a member of the counseling staff.
5. Petitions for planned educational leaves must be filed (with the appropriate recommendation) with the Admissions Officer two weeks before the first day of classes for the semester during which the leave is to begin.
6. Leaves will not be approved for students in disqualified status or on contract to remove academic deficiencies.
7. It is expected that a student will devote his leave primarily to nonclassroom activities. While on leave, however, a student may enroll at another educational institution if the course work he seeks is not available at CSUF. Any academic credit earned while on a planned educational leave will be accredited by CSUF only if permission is granted for that credit in advance by the Admissions Committee.
8. Students who do not return to the University at the conclusion of their planned educational leave and those who enroll elsewhere without permission of the Admissions Committee, will be considered to have withdrawn from the University at the end of their last semester of regular enrollment at CSUF.

Students wishing to apply for a planned educational leave should follow these procedures:

1. Obtain a petition for a planned educational leave from the Admissions Office.
2. Complete the petition and obtain the appropriate recommendations and return them to the Admissions Office.
3. The request will be considered by the Admissions Committee and the student will be notified of the decision.

### **WITHDRAWAL**

The **W** grade indicates that the student was permitted to drop the course after the fourth week of instruction with the approval of the instructor and appropriate campus officials. It carries no connotation of quality of student performance and is not used in computation of grade-point average or progress points.

### **AUDIT STATUS**

Persons wishing to attend classes without matriculating or receiving college credit may register as auditors. Auditors must register during the late registration period in the usual way and pay the same fees as would be charged if the courses were taken for credit. (Nonresident students will be charged nonresident tuition.) Credit for courses audited will not subsequently be granted on the basis of the audit. Students enrolled in audit status only may not transfer to credit status without completing admission procedures. This must be done within the first two weeks of instruction.

Matriculated students may audit courses in addition to those in which they are registered for credit. No students enrolled for credit in any class may transfer from credit status to audit status or from audit status to credit status after the first four weeks of classes. A student

enrolled only as an auditor may not change to credit status after the first two weeks.

Enrollment as an auditor is subject to the permission of the instructor and is permissible only after students desiring to enroll in the course for credit have been permitted to do so. Regular class attendance and participation are expected. (See current *Schedule of Courses*.)

### **SATISFACTORY PROGRESS**

The SP symbol is used in connection with courses that extend beyond one academic term. It indicates that work is in progress and has been evaluated and found to be satisfactory to date, but that assignment of a precise grade must await completion of additional work. It may be used only in courses designated on the approved SP grade course list published by the Office of the Vice President for Academic Affairs. Cumulative enrollment in units attempted may not exceed the total number applicable to the student's educational objective. Work is to be completed within a stipulated time period, which may not exceed one year except for graduate degree theses for which the time may be up to two years, but may not exceed the overall time limit for completion of all Master's degree requirements. Any extension of time limit must receive prior authorization by the Office of the Vice President for Academic Affairs.

### **CREDIT-NO CREDIT GRADING**

In order to encourage academic exploration by students and to reduce somewhat the pressure to secure the traditional grades, a student may, within the limitations below, enroll in courses for credit-no-credit (CR-NC) grading. Neither the CR nor NC grade is included in the calculation of the grade-point average. However, in the determination of academic eligibility, the CR grade in an undergraduate course will count two progress points per unit and in a 200-level course three progress points per unit and the NC grade will not count for any progress points. The grade of CR will be assigned if the student's work is judged to be equivalent to an A, B, or C grade as applicable to regular enrollment in an undergraduate course or equivalent to an A or B grade in a 200-level course. The grade of NC will be assigned if his work is not equivalent to these standards. Other conditions concerning CR-NC grading are as follows:

1. Not all courses will be available for this type of enrollment. In courses for which CR-NC grading is permitted, the student must inform the instructor of his desire for CR-NC grading no later than the end of the fourth week of instruction. Generally, the CR-NC grade is not applicable to the major requirements for a baccalaureate degree; however, if the major department approves, a maximum of six units of courses taken for CR-NC grading may be applied to the major. The applicability of CR-NC graded courses to a specific master's degree program is subject to the approval of the department(s).
2. An undergraduate student may enroll in a maximum of two courses in a semester on a CR-NC basis. A maximum of 24 units of such courses may apply to the total units required for the baccalaureate degree.
3. With the approval of the major department, a graduate student may apply a maximum of 6 units of CR-NC graded courses for a 30-unit program and a maximum of 12 units of such courses for a 60-unit program toward the requirements of a master's degree. Additional units taken in such work as group research, internship, field work, independent study or thesis, which is specifically limited to CR-NC grading, may be included on a master's degree program to the extent that the total maximum credit of CR-NC work does not normally exceed 10 units for 30-unit programs and 20 units for 60-unit programs.

See the current *Schedule of Courses* for further information.

### **GRADE POINTS**

For each unit of credit the student receives grade points as follows:

- A—Four grade points and four progress points per unit of credit.
- B—Three grade points and three progress points per unit of credit.
- C—Two grade points and two progress points per unit of credit.
- D—One grade point and one progress point per unit of credit.
- F—No grade points; units counted. No progress points.
- I—Not included in computations until grade is assigned.
- CR—No grade points; units counted. Two progress points for an undergraduate

- course, three progress points for a graduate course.
- NC—No grade points; no units counted. No progress points.
- W—No units allowed. Not included in progress point computation.
- AU—No grade points or units allowed. Not included in progress point computation.
- RD—Not included in computation until grade assigned.
- SP—No units allowed and not included in progress point computation until grade is assigned.

**REPEATING COURSES**

A student may repeat any course in which a mark lower than C was received. Degree credit will be allowed only once for any course. A repeated course is counted as units attempted and is credited with the appropriate grade points and progress points earned by the repetition. Although not recommended, a student may also wish to repeat a course in which he earns a C. Such repetition is recorded on the transcript but is not figured in unit or grade-point totals.

**SCHOLARSHIP STATUS**

**SATISFACTORY SCHOLARSHIP**

Satisfactory scholarship means at least a C average (2.0 grade-point average or twice as many grade points as units attempted) and satisfactory progress toward a degree (twice as many progress points as units attempted).

**PROBATION**

A student will be placed on probation if either his grade-point average based on total units attempted at all colleges is below a 2.0 (C average) or his grade-point average based on all units attempted at CSUF is below a 2.0 average or if he fails to earn at least twice as many progress points as all units attempted during that semester. A student will be continued on probation until both his over-all and his CSUF grade-point average are 2.0 or better, or until he is disqualified under one of the provisions of the disqualification regulations.

A student may be placed on Administrative-Academic probation for withdrawal from a substantial portion of a program in two successive terms or in any three terms; for repeated failure to progress toward a degree; or for failure to comply with an academic requirement or regulation which is routine for all students or for a defined group of students.

**DISQUALIFICATION**

A student will be disqualified under the following provisions: (a) if he fails to earn at least twice as many progress points as all units attempted during a semester while on probation; (b) if he is admitted on probation and fails to meet the conditions established at the time of his admission; (c) if he has a cumulative deficiency on either his overall or CSUF record equal to or greater than that indicated below.

<i>Freshmen, Sophomores</i> (0-59 units completed):	15 grade-point deficiency
<i>Juniors</i> (60-89 units completed):	9 grade-point deficiency
<i>Seniors</i> (90 or more units completed):	6 grade-point deficiency
<i>Graduates</i> (all students):	6 grade-point deficiency

on post-baccalaureate units

A student who has been placed on Administrative-Academic probation may be disqualified if he fails to meet the conditions for removal of the probation; becomes subject to academic probation while on Administrative-Academic probation; or again becomes subject to Administrative-Academic probation for the same or similar reasons.

See also *School of Graduate Studies*.

**READMISSION OF DISQUALIFIED STUDENTS**

A student disqualified from CSUF may be readmitted for a regular semester only by special action and if the facts in the case seem in the opinion of the appropriate university authorities to warrant such action. A disqualified student may enroll for summer session or extension classes without readmission.

Disqualified students wishing readmission must submit a Readmission Petition. Upper division students must also schedule an interview with their departmental adviser and request that an "Upper Division Student Readmission Recommendation" form be forwarded

to the admissions office. A student wishing to change his major or a student returning to the campus after an absence of more than one semester must schedule an interview with the Admissions Officer.

Former CSUF students returning to the campus must submit an application for readmission in addition to the appropriate petitions and recommendations.

A disqualified student should schedule his readmission interview with the Admissions Officer or his academic department no later than two weeks before registration for the semester he wishes to return to CSUF.

## TRANSCRIPTS AND REPORTS

**Transcript of Record.** Students may request transcripts of their academic records at CSUF with the payment in advance of a \$1.00 fee. CSUF Extension transcripts must be requested separately. Because of the large number of transcripts requested at the end of each semester and summer session, three weeks should be allowed for requests to be filled during those periods. After the Records Office has been notified of overdue student accounts, transcripts will not be provided without clearance from the Business Office. Transcripts of record from other institutions submitted to this institution will not be returned to the student.

**Reports to Students.** An enrollment report is made available to the students by the Student Records Office and at the end of the semester final grade reports are mailed to the students at the address given at registration.

## FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974

*Family Educational Rights and Privacy Act of 1974 Public Law 93-380*, section 438(a) (1) (2), (b) (1) (2); all student records of The California State University and Colleges including California State University, Fresno are kept in accordance with the provisions of the *Family Educational Rights and Privacy Act of 1974*.

Students may request access to those campus records which personally identify the student; the student may challenge the accuracy of the record or the appropriateness of its retention in the campus records. Student consent is needed for the release of records covered by the Act to outside parties (*e.g.*, prospective employers) except for those agencies entitled to access under the provisions of the Act (*e.g.*, campus officials, other schools, federal officers, and requests in connection with the application or receipt of financial aid). These provisions apply to records received and used on this campus after November 19, 1974.

A student may request a copy of the record which the student has requested or consented to be released. Copies of the full text of the *Family Educational Rights and Privacy Act of 1974* are available at the Office of the Dean of Student Affairs or the University Library (particular questions with respect to a student's prerogative under the *Family Educational Rights and Privacy Act of 1974* should be directed to the Dean of Student Affairs or the Director of Admissions and Records).

## DEGREES AND CREDENTIALS

California State University, Fresno is authorized to grant the bachelor of arts, bachelor of science, bachelor of vocational education, master of arts, master of science, master of business administration, master of city and regional planning, and master of social work degrees. See *School of Education* for public school credentials for which the university is authorized to recommend candidates.

It is contrary to university policy to grant to a student two bachelor's degrees or to grant a second bachelor's degree after the student has earned a comparable degree from an accredited institution. A student may, however, complete the requirements for a second major and have this fact noted on his transcript.

### GRADUATION AND COMMENCEMENT

Commencement is held annually at the end of the spring semester. Students who have completed degree requirements in the summer or in the fall semester immediately preceding commencement are eligible to participate with those who complete their work in the spring semester. Students looking forward to meeting degree requirements should complete the following steps:

1. Obtain and file a completed application for a degree (with the \$10.00 graduation fee) in the Evaluations Office at the beginning of the semester or summer session term during which requirements will be completed. See *Academic Calendar* for filing dates and deadlines (\$2.00 fine for late filing). See also *Election of Regulations*. Failure to apply before the final deadline will delay the granting of the degree.

2. Request the Records Office to transfer any work completed or to be completed in Extension to the permanent record.

The Evaluations Office, considering his prior and current work, will check the student's application for a bachelor's degree against requirements and will report to the student regarding his eligibility for the degree. In the case of graduate degrees, this clearance is given by the Graduate Office.

Students receiving I or SP grades during the final year, which have not been completed within two calendar weeks of the end of the semester or summer session, will not be considered for graduation that semester and must reapply for the degree.

In order to be eligible for graduation and participate in Commencement exercises, the student must (1) submit an application for the degree and pay the graduation fee, (2) have been approved for graduation by the faculty, (3) have met all financial obligations to the university, and (4) have completed with appropriate scholastic standing all courses required for the degree. Graduates will receive their official diplomas by mail.

### POST-BACCALAUREATE CREDIT

Upper division units earned at CSUF in the semester or summer session in which the bachelor's degree is granted, provided they are not needed for such a degree and provided the student is in good academic standing at the beginning of the final semester and remains continuously in good academic standing, will be listed on the student's record as *post-baccalaureate credit*. I or SP credits completed after the graduation date will not be counted as post-baccalaureate credit, but will be assigned to the semester in which the student first registered for the course. Only credit for courses in which grades A, B, C, or CR are earned may be counted. No course may have its credit divided between the baccalaureate and post-baccalaureate programs. Use of such credit for graduate degrees at CSUF requires special approval (consult Office of the School of Graduate Studies). Use of such credit for other purposes is to be determined by the appropriate authority.

### BACHELOR'S DEGREES

#### EVALUATIONS

Transfer students are provided with an advanced standing evaluation as part of the admissions process. Upon completion of approximately 90 semester units, each student should request a degree evaluation from the Evaluations Office which will show all requirements completed and any remaining degree requirements. Due to staff limitations

only one degree evaluation can be made for each student. Each student should keep his personal copy current.

After evaluation, all transcripts become the property of the Records Office and are not returnable, even on loan. It is suggested that the student obtain duplicate copies of his record from his former schools for his personal file.

### ELECTION OF REGULATIONS

A student by remaining in continuous attendance in regular sessions and continuing in the same curriculum in any state university or college campus, in any of the California community colleges or in any combination of California community and state university or college campus, may, for purposes of meeting graduation requirements, elect to meet the graduation requirements of such campus from which he will graduate in effect either at the time of his entering a curriculum or at the time of his graduation therefrom except that substitutions for discontinued courses may be authorized or required by the proper campus authorities. Any break in attendance (failure to register for a regular semester) will break a student's status as a continuing student. The *General Catalog* lists the official graduation requirements for each year.

Active military duty will maintain a student's continuous attendance status providing he enters the military from CSUF and returns at the first registration for a regular session following his release. The dates of military service must account for all of the time not in attendance at CSUF.

An approved planned educational leave will maintain a student's continuous attendance status.

### RESIDENCE REQUIREMENTS

For the bachelor of arts, bachelor of science, and bachelor of vocational education degrees a minimum of 24 semester units must be earned in residence at CSUF; at least one-half of these units (12) must be completed among the last 20 semester units counted toward the degree. Summer session credit and credit earned in the California State University and Colleges International Programs may be applied on this requirement on a unit for unit basis.

For special residence requirements see *Public School Credentials* and *School of Graduate Studies*. For interpretation and definitions see *Admissions—Determination of Residence*.

Extension credit and credit by examination may not be used to fulfill the minimum residence requirement. (*California Administrative Code, Title 5, Chapter 5, Section 4043*.)

### SCHOLARSHIP REQUIREMENTS

To qualify for any bachelor's degree a student must have at least a C average (2.0 on a four grade-point system) on his total college record, must have maintained at least a C average at CSUF, and must have at least a C average in his approved major.

See also *School of Education—Application for Admission to Credential Programs*, *School of Graduate Studies*, and *Scholarship Status* in the preceding section of this catalog.

### SPECIAL COURSE REQUIREMENTS

Entering undergraduate students should note the following specific requirements:

*United States Constitution and American History*. In accordance with Title 5 of the *Administrative Code*, Section 40404, a student, in order to graduate, must demonstrate his competence with respect to the Constitution of the United States, American History, and in the principles of state and local government of California. This may be done by passing examinations or by completing appropriate courses. (See *History Department—American History Requirement* and *Political Science Department—United States Constitution Requirement*.)

### FOREIGN LANGUAGE REQUIREMENT

Foreign language is not a general college requirement for admission to or graduation from CSUF. However, some schools and departments require the study of a foreign language as part of the preparation for specified undergraduate and graduate programs. In general, upper division and graduate courses in these fields require the use of foreign language. See school and department statements of majors for details and suggestions for appropriate languages.

Students following majors which require the study of a foreign language ordinarily meet

the requirement in one of the following ways:

1. Students who have no foreign language credit from high school complete two years of satisfactory collegiate study in one foreign language.
2. Students who have high school credit or other experience in a foreign language and who wish to continue in the same language should see an adviser in the Foreign Language Department. Normally students beginning a new language will enroll in the 1A course. College credit may be earned in the class in which the student is placed. (See *Credit Allowance in Foreign Language*.)
3. Students who do not have the prescribed high school or college credit may elect to meet the foreign language requirement by passing a competence examination. Usually only lower division courses in foreign language may be passed by examination. Credit by examination will be granted in foreign language only prior to the completion of the first upper division course in the same foreign language and may be obtained only in languages taught at the university. See the chairman of the Foreign Language Department.
4. Students seeking a second bachelor's degree major or a master's degree will be held for any foreign language requirement in the field.
5. Unless the major specifies the language to be used, a foreign student may offer English to meet the requirement, provided his native language is not English and provided he has come to this country primarily to pursue academic work and expects to return to his home after completing his course of study.

## GENERAL EDUCATION

Through its general education program, CSUF attempts to ensure to each student an opportunity to enlarge his awareness of areas which he may be unable to explore in depth but which are likely to enhance his appreciation of life experiences and his contributions to society.

The *California Administrative Code, Title 5*, provides for 40 units of general education-breadth requirements with a minimum of 32 in four specified areas (natural sciences, social sciences, humanities, and basic subject) and 8 in electives determined by the university, CSUF interprets the requirements as outlined below. They are applicable to all undergraduate degree programs. See *College Level Examination Program* for application of credit earned by examination to the general education areas.

### Transfer Students

*Title 5* provides that general education-breadth requirements completed at an accredited college by a student who transfers to CSUF shall be accepted to the extent stated in the certification provided by that college. Transfer students who change their majors after being admitted to the university are advised that general education courses in addition to those certified as being complete may be required for graduation due to the fact that major requirements and general education requirements are exclusive of each other.

### Selection of Courses

The student is expected to exercise responsibility in the selection of general education courses which will complement his major, be compatible with his educational objectives, and provide an introduction to other areas and disciplines. He is urged to consult his adviser in constructing his program. General education requirements are *in addition* to specified unit requirements of the major. *No units used to satisfy requirements of the degree major may also be used to satisfy any part of the 40 units of general education-breadth requirement.* However, appropriate general education courses may be used toward completion of a minor or toward any "additional requirements" for the degree major. *Courses used to satisfy state history and government requirements and courses used to meet the graduation requirement in physical education may not also be used for general education.* (See *Special Course Requirements*.) Courses which meet general education requirements are listed in the appropriate departmental sections.

**REQUIREMENTS**

A minimum total of 32 units shall include at least 2 courses and a minimum of 6 units selected from each of the first 4 areas. The additional 8 units to meet the state requirement of 40 units minimum may be selected from any of the 5 areas.

**Area I. NATURAL SCIENCES**

Anthropology	Anth 1
Biology	Biol 10, 20
Botany	Bot 1, 10
Chemistry	Chem 1, 1A-B, 2A-B, 2C, 4A, 4B, 8
Geography	Geog 5, 7, 106, 108, 146
Geology	Geol 1, 1L, 2, 10, 12, 189, 189L
Physical Science	P Sci 10, 21
Physics	Phys 1A-B, 2A-B, 4A, 4B, 22A-B, 55
Plant Science	Plant 130
Psychology	Psych 10, 36
Zoology	Zool 1, 10

**Area II. SOCIAL SCIENCES**

Agricultural Economics	Ag Ec 31
Agricultural Sciences	Agri 161
Anthropology	Anth 2, 3, 4, 102, 103, 104, 120, 126, 127
Asian-American Studies	As Am 15, 30, 110
Black Studies	Bl S 36, 38, 42, 132, 135, 140
Criminology	Crim 1
Economics	Econ 1A-B, 10, 15, 101, 180
Geography	Geog 2, 3, 4, 103, 116, 120, 177
History	Hist 3, 6, 8, 167, 176, 177
Journalism	Jour 182
La Raza Studies	La R 3, 5, 6, 8, 124
Linguistics	Ling 131, 145, 147
Management	Mgt 110A-B
Native American Studies	N A S 50, 103
Philosophy	Phil 115T
Political Science	Pl Si 1, 10T, 120, 121, 122, 151
Psychology	Psych 61, 134, 164, 166, 172
Social Welfare	S Wel 20
Sociology	Soc 1, 2, 111, 130, 131, 143, 145, 151, 162, 163
Speech Communication	Spch 7, 8, 160
Urban and Regional Planning	U R P 100
Women's Studies	W S 105, 131, 172

**Area III. HUMANITIES**

*Note: In Engl 20, and Phil 1 three units will be applied in this area; one unit of each course will be applied in Area IV.*

Art	Art 1, 5, 6, 12, 15, 16, 20T, 25, 30, 41, 46, 51, 56, 65, 70, 105T, 171, 174, 175, 176, 177, 178, 179
Black Studies	Bl S 20, 25, 27, 35
English	Engl 20 (3 units), 50T, 112, 113, 114, 146, 147, 150, 151, 152, 153, 154, 155, 156, 168T, 169T, 183T
Foreign Language	F L 170T
French	Fren 109A-B, 140, 141, 142, 143, 144, 145, 146, 148T, 160T
German	Germ 112, 114, 116, 118A-B, 146T
Greek	Grk 148
History	Hist 1, 2, 110, 111, 112, 121, 131, 132
Industrial Arts	Ind A 133, 162, 178
La Raza Studies	La R 7, 9, 103, 121A-B, 132
Latin	Latin 131T, 132, 148
Linguistics	Ling 134, 135, 137, 138

Music	Music 9,3-103 through 27-127 (except 119T), 31-131 through 39-139, 40, 76T-176T, 100T, 163
Native American Studies	N A S 100
Philosophy	Phil 1 (3 units), 101, 102, 103, 104, 105, 106T
Physical Education	CPE 11A, 14A, 16, 50, 55, 58
Plant Science	Plant 65
Radio-Television	R-TV 40, 128
Russian	Russ 103T, 118A-B, 127T, 148A-B
Spanish	Span 135, 140, 142, 143, 144, 163T, 164, 173, 175, 176T, 177T, 180T
Speech Communication	Spch 146, 148
Theatre Arts	Drama 15, 22, 33, 34, 62, 115, 122, 137, 138, 139, 145, 184, 185, 186, 187
Women's Studies	W S 145, 163, 168T, 170T

#### Area IV. BASIC SUBJECT

*Note: In Engl 20 and Phil 1 one unit will be applied in this area; three units will be applied in Area III.*

Agriculture	Agri 100
Armenian	Arm 1A-B, 2A-B
Chinese	Chin 1A-B, 2A-B
Communicative Disorders	C D 101
Engineering	Engr 70
English	Engl 1, 20 (1 unit), 41, 43, 44
French	Fren 1A-B, 2A-I, 50
German	Germ 1A-B, 2A-B, 50A-B
Greek	Grk 1A-B
Hebrew	Hebr 1A-B
International Studies	I S C 1, 2, 10
Italian	Ital 1A-B, 2A-B
Japanese	Japn 1A-B, 2A-B
La Raza Studies	La R 10B, 40A-B
Latin	Latin 1A-B, 2A-B
Linguistics	Ling 141, 142, 143, 144
Mathematics	Math 29, 30, 40, 41, 51, 71, 72, 75, 76, 103, 141
Office Administration	O Ad 105
Philosophy	Phil 1 (1 unit), 25
Portuguese	Port 1A-B
Psychology	Psych 25, 142
Quantitative Methods	Q M 60, 65
Russian	Russ 1A-B, 2A-B, 50
Spanish	Span 1A-B, 20A-B, 40A-B, 50A-B
Speech Communication	Spch 3

#### Area V. ELECTIVES

Animal Science	A Sci 10, 70
Art	Art 60, 160
Biology	Biol 105
Black Studies	Bl S 146, 178
Business Administration	B A 8, 10, 101
Communicative Disorders	C D 100
Engineering	Engr 100
English	Engl 115, 116, 175T
Finance	Fin 34
Food Science	F Sci 1
Health Science	H S 90
History	Hist 118, 136, 141, 142A-B, 145, 146, 147B, 178, 183
Home Economics	H Ec 10, 39, 54
International Studies	I S C 93
Journalism	Jour 1, 2

## 70 / DEGREES AND CREDENTIALS

La Raza Studies	La R 116
Linguistics	Ling 140T
Philosophy	Phil 125T, 130T, 132T, 133, 134, 135T
Physical Education	WPE 28, PE 31
Physical Science	P Sci 106, 108
Plant Science	Plant 10, 21, 40, 55
Psychology	Psych 66, 132, 170T, 171
Radio-Television	R-TV 140, 188T
Recreation	Rec 60, 80
Theatre Arts	Drama 188T
Women's Studies	W S 10, 110, 118

*Note: Up to 4 units of physical education activities courses may be allowed for general education credit in Area V. Only one course from any single activity may be elected for such credit.*

### BACHELOR OF ARTS DEGREE

The bachelor of arts degree requires 124 semester units, of which at least 40 must be upper division. Upper division courses taken before the student has earned 45 units may not be applied on this 40-unit requirement.

General degree requirements, general education requirements, and one major must be satisfactorily completed. Units used to meet the general education requirements may not apply on the degree major. If a second concurrent major is desired, general education courses accepted for the first major may be used to satisfy requirements of the second major. Electives may be used to fulfill or to apply on requirements for a credential or for one or more minors, or they may be free electives selected with help of an adviser. A minor is not required for graduation, but students are encouraged to study departmental offerings and consult their advisers concerning the advisability of using one or more minors to complement their university programs. A graduating senior may request that the completion of any approved minor be recorded on his transcript.

### BACHELOR OF SCIENCE DEGREE

Depending on the major field, the bachelor of science degree requires from 124 to 132 semester units except in engineering, which requires from 128 to 136 semester units. The general degree requirements, general education requirements, and one major must be satisfactorily completed. Courses used to meet the general education requirement may not apply on the major. If a second major is taken concurrently or consecutively, general education courses accepted for the first major may be used to satisfy requirements of the second major.

### BACHELOR OF VOCATIONAL EDUCATION DEGREE

The bachelor of vocational education degree is a special degree limited to vocational teachers who qualify for a Swan Bill evaluation through the State Board of Vocational Examiners. The qualifications required for such an evaluation are outlined in the *State Education Code*. Among these qualifications is the stipulation that the candidate shall have had a minimum of 1,620 hours of teaching experience in an approved vocational class or 1,000 hours teaching experience in an approved trade extension class. Additional information regarding this degree program may be obtained from the Chairman of the Department of Industrial Arts and Technology.

### HONORS AT GRADUATION

Honors at the time of graduation from CSUF will be awarded to students with a 3.25 average on all work attempted and on at least 45 units at CSUF.

Summa Cum Laude (highest honors)	3.76 to 4.00
Magna Cum Laude (high honors)	3.56 to 3.75
Cum Laude (honors)	3.25 to 3.55

## DEGREES AND CREDENTIALS

## DEGREE PROGRAMS, MAJORS AND MINORS

The California State University, Fresno, offers majors for the baccalaureate degrees, minors, and master's degree programs as indicated below. Options are indented under the programs. Requirements for approved undergraduate majors and minors are listed in the appropriate school and department sections of the catalog. For master's degree program requirements, see *Graduate Bulletin*.

	Baccalaureate Degrees			Minor	Master's Degrees		
	BA	BS	Other		MA	MS	Other
Aerospace Studies.....				x			
Agricultural Business.....		x					
Agricultural Education.....		x					
Agricultural Science.....		x					
Options I and II							
Agriculture.....				x		x	
(MS) Agricultural Chemistry							
Anthropology.....	x			x			
Armenian.....				x			
Art.....	x			x	x		
Asian Studies.....				x			
Biology.....	x			x	x		
Biological Science, Botany, Environmental Biology, Functional Biology, Microbiology, Zoology							
Black Studies.....				x			
Business.....				x		x	
Business Administration.....		x					MBA
(BS) Accounting, Agribusiness, Business Economics, Finance, General Administra- tion, Insurance, Legal Environment of Business, Marketing, Office Administra- tion, Personnel and Industrial Relations, Quantitative Analysis, Real Estate and Urban Land Economics, Transportation and Physical Distribution Management							
Chemistry.....	x	x		x	x		
Child Development.....		x					
City and Regional Planning.....							MCRP
Classical Studies.....				x			
Communicative Disorders.....	x			x	x		
Counseling.....					x		
Criminology.....		x				x	
(BS) Corrections, Law Enforcement							
Economics.....	x			x	x		
Education.....					x		
Engineering, Civil.....		x					
Engineering, Electrical.....		x					
Engineering, Industrial.....		x					
Engineering, Mechanical.....		x					
English.....	x				x		
(MA) Creative Writing							
Ethnic Studies.....				x			
French.....	x			x			
Geography.....	x			x	x		
Geology.....	x			x	x		
German.....	x			x			
Health Science.....	x			x		x	
(BA) School and Community Health, En- vironmental Health Science, Occupational Safety and Health							
History.....	x			x	x		

## DEGREES AND CREDENTIALS

	Baccalaureate Degrees			Minor	Master's Degrees		
	BA	BS	Other		MA	MS	Other
Home Economics.....	x			x		x	
(BA) Dietetics and Food Administration							
Industrial Arts.....	x	x		x	x		
Industrial Technology.....		x					
(BS) Manufacturing Industries, Construction							
Journalism.....	x			x			
Advertising, News-Editorial, Public Relations, R-TV News Communication, Magazine Journalism, Photocommunication (see Mass Communication MA)							
La Raza Studies.....				x			
Latin.....				x			
Latin American Studies.....	x			x			
Liberal Studies.....	x						
Linguistics.....	x			x	x		
(MA) Bilingual Studies, French, German							
Mass Communication.....					x		
Print Media, Electronic Media							
Mathematics.....	x			x	x	x	
Microbiology.....		x			x		
(see Biology MA)							
Music.....	x			x	x		
(BA) Options I, II, III							
Nursing.....		x				x	
Office Administration.....				x			
Performing Arts Administration.....				x			
Philosophy.....	x			x			
(BA) Religious Studies							
Physical Education—Men.....	x			x	x		
Physical Education—Women.....	x			x	x		
(BA) General, Dance							
Physical Science.....				x			
Physical Therapy.....		x					
Physics.....	x	x		x	x	x	
Political Science.....	x			x	x		
Psychology.....	x			x	x	x	
Public Administration.....	x			x			
(see Political Science MA)							
Radio-Television Broadcasting.....	x			x			
(see Mass Communication MA degrees)							
Recreation Administration.....		x		x			
(MA) Option under Physical Education							
(BS) General, Therapeutic							
Rehabilitation Counseling.....					x		
Russian.....	x			x			
Social Science.....	x						
Social Welfare.....	x						
Social Work.....							MSW
Sociology.....	x			x			
Spanish.....	x			x	x		
Special.....	x				x		
Special Education.....					x		
Speech.....	x			x	x		
Surveying and Photogrammetry.....		x					
Theatre Arts.....	x			x			
(see Speech MA)							
Vocational Education.....			BVEd				
Women's Studies.....				x			

### **SPECIAL MAJOR FOR THE BACHELOR OF ARTS DEGREE**

The special major for a bachelor of arts degree provides an opportunity for students to engage in an individualized course of study leading to a degree when legitimate academic and professional goals are not accommodated by standard degree majors. The special major consists of correlated studies in two or more fields. It is not intended as a means of bypassing normal graduation requirements or a means by which students may graduate who fail to complete the degree major in which they are enrolled.

The special major must be approved in the office of the Vice President for Academic Affairs, with approval based upon a case-by-case justification. The candidate must have one full year of academic work (at least 31 units) still to be completed to meet minimum degree requirements. The minimum requirement for the special major is an approved program of at least 24 semester units of upper division work. Units applied to satisfy general education requirements may not be counted.

A student requesting a special major must obtain application forms from the Office of Student Advising. On these forms he must: 1) Prepare a statement giving his reasons for desiring a special major in terms of his academic and professional goals and why he cannot meet these goals through a standard major; 2) Develop a specific list of courses which would, in his opinion, lead to the academic and professional goals stated above; 3) Secure the signed approval of the department chairman in the areas from which the special major courses are drawn. The student must submit the foregoing material to the Office of the Vice President for Academic Affairs for final approval.

### **PUBLIC SCHOOL CREDENTIALS**

California State University, Fresno is authorized by the Commission for Teacher Preparation and Licensing to recommend candidates for public school service credentials authorizing single and multiple subject teaching and specialist credentials in the areas of reading and special education. Courses leading to specializations in pupil personnel services, early childhood education, health services, and librarianship are also offered.

All students must meet certain minimum requirements prior to admission to a credential program. The requirements are listed in the *School of Education*. Holders of bachelor's degrees must complete a minimum of 15 semester units of post-baccalaureate work in residence at CSUF to qualify for a university recommended teaching credential.

Admission to CSUF does not in itself include admission to credential programs, nor does it determine the catalog by which admission and program requirements shall be evaluated. Students planning to prepare for school service credentials, see *School of Education*.

## COURSES OF INSTRUCTION

Courses of instruction are offered in the areas indicated below; titles, designations, descriptions, and unit values appear in the school and department sections of the Catalog. For innovative course groupings see *Special and Interdisciplinary Programs*.

### *School of Agricultural Sciences*

Agricultural Economics Department  
(Ag Ec)

Agricultural Industry and Education  
Department

Agricultural Education (Ag Ed)

Agriculture (Agri)

Dairy Industry (D Ind)

Enology (Enol)

Food Science (F Sci)

Mechanized Agriculture (Ag Me)

Animal Science Department (A Sci)

Plant Science Department (Plant)

### *School of Business (Bus)*

Accounting and Quantitative Studies  
Department (Acct, Q M)

Finance and Industry  
Department (B A, Fin)

Management and Marketing  
Department (Ind R, Mgt, Mktg)

Office Administration Department  
(O Ad)

### *School of Education*

Elementary Education Department  
(E Ed)

Secondary Education Department  
(S Ed)

Advanced Studies Department  
(A S)

### *School of Engineering (Engr)*

(C E, E E, I E, M E)

### *School of Graduate Studies*

(See departmental graduate areas)

### *Division of Health Professions*

Communicative Disorders Department  
(C D)

Health Science Department (H S)

Nursing Department (Nurs)

Physical Therapy Program (Ph Th)

Rehabilitation Counseling Program (R C)

### *School of Humanities*

Art Department (Art)

English (Engl)

Foreign Language Department (FL)

Armenian (Arm)

French (Fren)

German (Germ)

Greek (Grk)

Italian (Ital)

Latin (Latin)

Portuguese (Port)

Russian (Russ)

Spanish (Span)

Linguistics Department (Ling)

Chinese (Chin)

Hebrew (Hebr)

Japanese (Japn)

Philosophy Department (Phil)

### *School of Natural Sciences (N Sci)*

Biology Department

Biology (Biol)

Botany (Bot)

Entomology (Ent)

Microbiology (Micro)

Physiology (Phy)

Zoology (Zool)

Chemistry Department (Chem)

Geology Department (Geol)

Mathematics Department (Math)

Physical Science (P Sci)

Physics Department (Phys)

Psychology Department (Psych)

### *School of Professional Studies*

Aerospace Studies Department (A Sp)

Criminology Department (Crim)

Home Economics Department

(H Ec)

Industrial Arts and Technology

Department (Ind A)

Journalism Department (Jour)

Music Department (Music)

Physical Education and Recreation  
Department

Physical Education (P E, MPE, WPE,  
CPE, MPES, WPES)

Recreation (Rec)

Radio-Television Department

(R TV)

Theatre Arts Department (Drama)

**School of Social Sciences**

Anthropology Department (Anth)  
 Economics Department (Econ)  
 Ethnic Studies Program (Eth S)  
 Asian American Studies (As Am)  
 Black Studies (Bl S)  
 Native American Studies (N A S)  
 Geography Department (Geog)  
 History Department (Hist)  
 La Raza Studies Program (La R)  
 Political Science Department (Pl Si)  
 Sociology Department (Soc)  
 Speech Communication Department  
 (Spch)  
 Urban and Regional Planning  
 Department (U R P)

**School of Social Work**

Social Welfare Department (S Wel)  
 Graduate Department of Social  
 Work (S Wrk)

**Special and Interdisciplinary Programs**

Computer Sciences (C S C)  
 Honors, University (HU)  
 Honors, School (HS)  
 Honors, Departmental (HD)  
 International Studies—Campus  
 (I S C)  
 International Studies—Abroad  
 (I S A)  
 Latin American Studies (L A S)  
 Mass Communication (M Com)  
 Moss Landing Marine Laboratories  
 (M Sci)  
 Women's Studies (W S)

See following section, *Special and Interdisciplinary Programs*, for innovative course groupings of traditional courses.

**COURSE NUMBERING SYSTEM****DEFINITIONS AND ELIGIBILITY****Numbers**

- 1-99 *Lower division* (ld) courses designed for first- and second-year students, but open to others.
- 100-199 *Upper division* (ud) courses designed for third-, fourth-, and fifth-year students; enrollment permitted by second-semester sophomores with adequate preparation who have completed a minimum of 45 units. Counted as graduate work for students with graduate status; permitted for use on a master's degree program only with departmental approval.
- 190 Independent study, undergraduate.
- 100G-199G For *graduate* students only; designed for use in the first year of two-year master's degree programs; intensive combination of material normally offered at the undergraduate level.
- 200-299 *Graduate courses* open to holders of baccalaureate degrees and, with prior approval of the instructor, to second-semester seniors with superior preparation and ability; designed for use on master's degree programs; when taught by extension, count as upper division in master's degree programs.
- 290 Independent study, graduate.
- 299 Master's degree thesis or project.
- 300-399 Designed to meet professional needs which cannot be served by regular established course offerings. *These courses are offered only through extension and summer sessions.* They assume completion of the bachelor's degree and/or appropriate professional service and are focused upon the problems that enrolled students encounter in their professional service. Although these courses are designed primarily for purposes other than the partial fulfillment of degree and credential requirements, they may, with approval by the department, be applied toward the major. They may be used as part of the forty-unit upper division requirement for the BA degree and as electives in the fulfillment of the total requirements for a baccalaureate degree and/or credential. They may not be used to meet the requirements of a master's degree.

**Symbols**

- A-B Two-semester course normally taken in sequence.  
 A,B Listed as separate courses, may be taken independently.

- F Field course.
- L Laboratory associated with another course.
- T Topics course, varied area subject matter, repeatable for credit.

Courses are listed by number, title, units and maximum total credit. Each unit generally represents one hour per week in class and two hours of preparation; courses involving laboratory, activity, or other application normally require additional hours of class attendance. Lecture-laboratory hours indicate deviation from the usual one class hour per week for one unit of credit. Prerequisites are listed at the beginning of the course description. Course offerings are listed each semester in the *Schedule of Courses*.

**Course Prerequisites**

Course prerequisites are designed to protect the student by insuring that he or she has the necessary background and preparation for success in the course. Transfer courses with equivalent content will be accepted in lieu of stated prerequisites. Students should check the prerequisites carefully before registering in a course to be sure that they have been met. The instructor can deny admission to a course to a student who has not met the prerequisites.

## **SPECIAL AND INTERDISCIPLINARY PROGRAMS**

Armenian Studies Courses

Asian Studies Program

Child Development Major

Classical Studies Courses

Computer Science Courses

Experimental College

Graduate Studies

Honors Program

International Programs

Latin American Studies

Liberal Studies Major

Mass Communication Master of Arts Degree

Moss Landing Marine Laboratories

Women's Studies Program



## SPECIAL AND INTERDISCIPLINARY PROGRAMS

The university has certain programs and course groupings whose organization or administration does not fall within a single department. These programs and courses are described or referred to in this section. Successful completion of courses in these programs, with minor exceptions, will lead to credit which may be applicable to certain departmental or university requirements. Interested students should consult the appropriate advisers.

### ARMENIAN STUDIES COURSES

California State University, Fresno offers courses in various disciplines that are concerned with Armenian Studies. Although the university does not offer a bachelor's degree program in Armenian Studies, by careful selection of electives and of requirements in various majors, a student can secure a useful background for the understanding of the Armenian language, Armenian history and culture, and Armenian contributions to American culture. This background can prepare a student for graduate work in Armenian Studies in such institutions as the Near Eastern Center at UCLA, the Center for Middle Eastern Studies at Harvard University and Columbia University.

The following list includes the current courses most directly concerned. For further information consult the Coordinator of Armenian Studies.

- English 50T. William Saroyan  
 167. Studies in Folklore and Folk Song (4)  
 169T. Armenian Literature
- Foreign Language  
 Armenian 1A-B. Elementary Armenian (4-4)  
 2A-B. Intermediate Armenian (4-4)  
 111. Composition and Conversation (3)  
 112. Advanced Composition and Conversation (3)  
 148T. Topics in Armenian Literature in Translation (4; max total 8 if no topic repeated)
- Geography 118. Minority Peoples (3)  
 124. Geography of the USSR (3)  
 125. Geography of the Middle East (3)
- History 109T. Studies in Oriental, Armenian and African Studies  
 113A. History of Early Christianity (3)  
 113B. History of Medieval Christianity (3)  
 120. Byzantine History (3)  
 133A. Armenian History (3)  
 133B. Soviet Armenia (3)  
 194HD. Oriental, Armenian and African History Honors Seminar  
 290. Independent Study
- Linguistics 165. Armenian Linguistics (2)
- Political Science 144T. Area Studies in Africa and Middle East  
 Nationalist Movements in the Middle East (1-3)  
 Constitutional Movements in the Middle East and Armenian Contributions (1-3)  
 Independent Study (190) in Art, Journalism, and all departments listed above.

### ASIAN STUDIES PROGRAM

CSUF offers courses in many disciplines which are concerned with South, Southeast, and East Asia. Although there is no degree program in Asian Studies at this time, an interdisciplinary undergraduate minor is available for students who desire a knowledge of Asia as a complement to their chosen academic discipline or profession. For further information and for aid in planning such a course of study, consult the Coordinator of Asian Studies, Dr. Raymond S. Weitzman, Department of Linguistics.

**MINOR**

A minor in Asian Studies consists of 21 units, including a minimum of nine upper division units. Specific Requirements: (1) 6-9 units in one of the areas subsumed under Section I or II below; (2) a total of four courses, two (at least 6 units) from Section I and two (at least 6 units) from Section II, but none in the area chosen in Requirement (1); (3) up to three units of electives from Sections I, II, or III. Independent Study (190) courses in any department may be applied toward the minor as long as they cover some aspect of Asian Studies and are approved by the Coordinator. Unspecified topics courses and seminar courses listed below must cover some aspect of Asia to be counted toward the minor.

**COURSES****Section I. Humanities**

- Art 105T Topics in Art History (3)  
 177 Indian-Asian Art History (3)  
 178 Chinese Art History (3)  
 179 Japanese Art History (3)

**Language**

- Chinese 1A-1B Elementary Chinese (4-4)  
 2A-2B Intermediate Chinese (4-4)  
 101 Advanced Chinese I (3)  
 102 Advanced Chinese II (3)  
 Japanese 1A-1B Elementary Japanese (4-4)  
 2A-2B Intermediate Japanese (4-4)  
 101 Advanced Japanese I (3)  
 102 Advanced Japanese II (3)

**Philosophy and Religion**

- Philosophy 132T Literature of the Great Non-Western Religions (3; maximum 6, if no topic repeated)  
 175T Seminar in Religious Issues (4; maximum total 12, if no topic repeated)

**Section II. Social Sciences**

- Anthropology 123 Peoples and Cultures of Southeast Asia (3)  
 124 Peoples and Cultures of East Asia (3)  
 Economics 114 Economics of Underdeveloped Areas (3)  
 188T Special Topics (1-3; maximum total 6)  
 Geography 128T Asian Regions (3; maximum total 9, if no area repeated)  
 History 6 East Asian Civilization (3)  
 104 Recent China (3)  
 107 Southeast Asia and the Modern World (3)  
 109T Studies in Oriental and African History  
 (3; maximum total 6, if no area repeated)  
 194HD Oriental and African History Honors Seminar  
 (3; maximum 6, if no area repeated)  
 Political Science 183 Comparative Administration (3)

**Section III. Courses Partially Related to Asia**

- Asian-American Studies 10 Asians in America (3)  
 115 The Asian American Family (3)  
 Agriculture 161 International Agriculture (3)  
 170 Seminar in International Agriculture (3)  
 Home Economics 165 Cultural Foods (3)  
 Marketing 176 International Marketing (3)  
 Radio-Television 188T Topics in Broadcasting:  
 International Broadcasting (3)

**MAJOR IN CHILD DEVELOPMENT**

The university offers an interdisciplinary major leading to the Bachelor of Science Degree in Child Development. The major is appropriate for students interested in vocational opportunities based on children. It may lead to employment in the areas of preschool, child

center, private nursery, early childhood and elementary teaching, special programs for disadvantaged children, special education, adult education programs, and other child-related vocations. The program includes a behavioral science base from psychology, sociology, and anthropology; home economics and human development courses in child study, family relationships, and nutrition; and courses on young children which are offered in the departments of art, communicative disorders, drama, health science, linguistics, music, physical education, social work, and speech.

The major consists of nine basic areas with alternates to be selected according to career objectives.

	<i>Units</i>
H Ec 39 .....	3
H Ec 131, Soc 165, or H Ec 134 .....	3
H Ec 139 .....	3
Psych 101 .....	3
Anth 113, Psych 134, Soc 162, Spch 108 or 162 .....	3
Psych 142, 149, 168, 170T (Social Implications of Child Development), 178; A S 174; Soc 111, 143, 151, 163 .....	6
CD 100, 102, Ling 131 or 134, Spch 114 or 164 .....	3
H Ec 54, 161; S Wel 122T (Child Welfare), H S 120 .....	6
Art 164, Music 155, 176T (Children's Music); PE 152, or Drama 137 .....	8-9

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Under the restrictions of the major, students may make approved adaptations in their programs to fulfill specific needs and career objectives. Students interested in this interdisciplinary major should consult the Coordinator of the Child Development Major, in the School of Education for assistance in program planning and assignment of advisers. (See brochure on *Child Development*, Elementary Education Department, for additional information.)

## CLASSICAL STUDIES COURSES

Although the university does not offer a bachelor's degree program in classical studies, many courses in several disciplines are concerned with this subject. By appropriate selection from these courses as electives or within the requirements of various majors, a student can secure a useful background of study as preparation either for graduate study or for his vocation.

### MINOR

An interdisciplinary minor is now available, the purpose of which is to instruct students in the history, languages, literature, art and culture of the Classical Mediterranean, especially Greece and Rome. The minor is designed for students who are interested in classical civilization and for those who wish to have a chance to teach classical languages and culture or who wish to enter a graduate school where such a minor would give a sound foundation for further work in any of the areas mentioned above.

The minor in Classical Studies consists of 20 units; the student's program of study is arranged from the courses listed below with the approval of the Coordinator of Classical Studies.

Requirements are as follows:

Required courses:	History 111 Ancient Greece .....	3 units
	History 112 Ancient Rome .....	3 units
	Latin I, A & B .....	6 units
	or	
	Greek I, A & B .....	6 units
	or	
	Latin IA & Greek IA .....	6 units
	Total required .....	12 units
Electives:	Total required .....	8 units
	Total .....	20 units

**HISTORY MAJOR (Classical Studies)**

The History Major requirements can be fulfilled by taking a substantial number of courses directly related to the classics. For details consult the chairman of the Department of History or the Coordinator of Classical Studies.

The following list includes the courses most directly concerned. For further information consult the Coordinator of Classical Studies, Dr. Stephen Benko, Department of History.

- Art 5. History of Art (3)
- 105T. Topics in Art History (3): The Ancient World
- Drama 185. Seminar: History of the Theatre and Drama (3)
- English 112. World Literature: Ancient (4)
- 113. World Literature: Medieval (4)
- 115. Literature of the New Testament (See Phil 133)
- 116. Literature of the Old Testament (See Phil 134)
- 169T. Forms of Literature, (4): Comedy, Mythology
- 191T. Independent Reading (1-4): World Literature, Ancient-Medieval
- Foreign Language
- Greek 1A-B. Elementary Greek (3-3)
- 148. Greek Literature in English Translation (3)
- Hebrew 1A-B. Basic Hebrew (3-3)
- Latin 1A-B. Elementary Latin (3-3)
- 2A-B. Intermediate Latin (3-3)
- 131T. Classical, Medieval, Renaissance Latin (3; max total 9)
- 132. Classical Mythology (3)
- 148. Roman Literature in Translation (3)
- 190. Independent Study (1-3)
- History 1. Western Civilization to 1650 (3)
- 108. History of Ancient Israel (3)
- 110. Ancient Fertile Crescent (3)
- 111. Ancient Greece (3)
- 112. Ancient Rome (3)
- 113A. History of Early Christianity (3)
- 113B. History of Medieval Christianity (3)
- 114. The Ancient Mediterranean (3)
- 119T. Studies in Ancient and Medieval History (3)
- 120. Byzantine History (3)
- 133A. Armenian History (3)
- 190. Independent Study (1-3)
- 201. Reading Seminar: Ancient Historians (3)
- 210. Seminar in Ancient History (3; max total 6)
- Philosophy 101. Ancient Philosophy (3)
- 116. History of Ethics (3)
- 133. Literature of the New Testament (3) (Same as Engl 115)
- 134. Literature of the Old Testament (3) (Same as Engl 116)
- 160T. Seminar in Historical Problems: Plato, Aristotle (3-4)
- 190. Independent Study (1-3)
- Physical Science 106. History and Philosophy of Physical Science (3)
- Political Science 110. History of Political Thought to Macchiavelli (3)
- Speech 145. History of Public Address: Ancient (3)

**COMPUTER SCIENCE COURSES**

Computer related courses are offered in several departments of the university. They are grouped here for the convenience of students who are interested in the study of computer science or computer applications in specific fields. See appropriate department for non-C S C course descriptions.

**COMPUTER SCIENCE (C S C)**

**180T. Programming in Specialized Computer Languages (2-3)**

Prerequisite: permission of instructor. Programming and usage of an application oriented language selected from the areas of string and list processing, simulation, CAI, formal algebraic manipulation, query, text editing and processing (e.g. GPSS, SNOBOL, LISP, CSMP).

**RELATED COURSES****Business**

- Q M 60. Computer Concepts (3)
- 63. Automation and Computer Languages—FORTRAN (3)
- 64. Automation and Computer Languages—COBOL (3)
- 162. Advanced Computer Programming (3)
- 166. Applied Computer Systems (3)
- 168. Data Processing Management (3)
- 169. Machine Language Programming (3)
- 173. Computer Configuration (3)
- 262. Seminar in Programming (3)
- 266. Data Processing, Management, and Computer Selection (3)

**Engineering**

- C E 4. Machine Computing and Computer Programming (3)
- E E 106. Introduction to Switching Theory (3)
- 107. Digital Data Handling (3)
- 175. Design of Digital Systems (3)
- Engr 70. FORTRAN IV Programming (2)
- 173. Analog Computations (2)

**Industrial Arts**

- Ind A 151. Elements of Digital Computers (3)

**Mathematics**

- Math 20. Introductory Computer Programming (2)

**Speech Communication**

- Spch 165. Computer Application in Communications (3)

**EXPERIMENTAL COLLEGE**

Within the university the Experimental College is designed to facilitate educational experimentation. It encourages the development of kinds of learning which may involve departures from current methods of instruction and scheduling, unit allocations, discipline boundaries, and relations between students and instructors.

The program is under the supervision of the Experimental College Committee which is composed of both students and faculty. Courses instituted under it may not continue longer than three years. On the basis of an evaluation within that time, for which the committee and relevant departments are responsible, a course must either be accepted for catalog listing by regular procedures or be dropped.

Proposals for the program may be initiated by faculty members, by departments, by members of the administration, and by students. The committee gives priority to those proposals which appear to have the greatest merit as potential contributions to the total program of the college and which show some special need for immediate implementation or preliminary testing.

Experimental College courses count toward the unit requirement for graduation. Applicability to major and general education requirements is determined by the appropriate agency in each case.

Courses in the Experimental College appear in the *Schedule of Courses* with an EXP prefix. Normally, a special bulletin published each semester will provide course descriptions and other information concerning the program since they do not appear in the *General Catalog* until they are accepted as regular course offerings.

**GRADUATE STUDIES**

It is the policy of the School of Graduate Studies that a graduate student who makes use of university resources while completing a thesis under an SP grade must be enrolled at the

enrollment possible when the student is not registered in any regular course. The course carries zero units and is to be used only to maintain enrollment at the university. The alternative for a student who must suspend work on the thesis is an academic leave of absence.

### GRADUATE STUDIES (GS)

#### 299. Thesis or Project Continuation (0)

Prerequisite: Prior registration in a departmental thesis 299 course with an assigned grade of SP. Registration is required in any semester in which the student expects to use the facilities and resources of the university after receiving the grade of SP in Course 299.

### HONORS PROGRAM

The Honors Program is designed to serve superior undergraduate students by encouraging intensive scholarship and creative abilities. Particular stress is given to developing the student's capacity for independent pursuit of knowledge and dedicated commitment to scholarship.

Participation in the program is based on outstanding academic performance as indicated by faculty recommendations, scholastic record, and entrance test scores. However, grade-point average is not the only criterion for selection: indications of motivation, leadership, and individual responsibility are among basic factors considered in developing the Honors Program. Interdepartmental and school offerings provide opportunity for enrichment and personal development. Permission to enroll in individual courses is normally given by the instructors.

Students who complete 15 units of upper-division honors courses will have "With University Honors" recorded on their diplomas and also on their transcripts. Students who take a minimum of 15 units of honors courses in one department may have that information recorded, e.g., "With Honors in History." Such notations are not dependent upon grade-point averages. See the *Bulletin of the Honors Program* for further information regarding graduation with honors. In all cases, whether a student takes one or many honors courses, such courses will be so designated, along with an appropriate explanation, on the transcript. Three units of any 170HU course may apply toward the General Education Area V requirement.

The subject matter and course titles of departmental honors courses and general university honors colloquia vary from semester to semester. Typical courses are "Arts of the Baroque Era," "World Population and Food Production," "Perspectives in Asian Civilization," "Shakespeare and the Renaissance," and "Colonial Mexico and the Southwest." For the offering of any particular semester, see the *Schedule of Courses*; for specific information about admission to the program and course prerequisites, see the *Bulletin of the Honors Program*. As School and Departmental honors requirements vary from department to department, consult the *Bulletin* for further information. Honors courses are designated by HU or HD preceding the course number. HU indicates a general university honors colloquium; HD indicates a departmental honors course. Most honors courses are indicated by a 170 number. The Coordinator of the Honors Program is available for advising at any time.

The following departments and study areas will participate in the Program:

Accounting and Quantitative Studies	Linguistics
Agricultural Industry and Education	Management and Marketing
Anthropology	Mathematics
Art	Men's Physical Education
Biology	Music
Chemistry	Nursing
Criminology	Philosophy
Economics	Plant Science
English	Political Science
Experimental College	Psychology
Finance	Radio-Television
Foreign Language	Sociology
Geography	Speech Communication
History	Theatre Arts
Home Economics	Women's Physical Education
La Raza Studies	Women's Studies

## INTERNATIONAL PROGRAMS

The university offers two programs under this heading. A campus program is intended for students who are admitted to CSUF from foreign countries but who had their education in some other language than English. The California State University and Colleges offer an overseas program which provides an opportunity for American students to study abroad.

### CAMPUS PROGRAM

The International Program (Campus) provides courses intended to help the foreign student gain adequate skill in the use of the English language and sufficient familiarity with American customs and tradition to obtain maximum benefit from his experience at an American college. The following program is required of all entering foreign students, unless excused from part or all of it by the Admissions Committee on the advice of the persons concerned with the instruction and administration of the program. This decision will be based on a consideration of test scores and other data supplied by the student with his application. (See *Admission to the College—Entrance Examinations*). After arrival on campus, examinations and an interview may lead to the student's being excused from certain courses.

**First Semester Program:** Most students will be required to enroll in I S C 10, 21, and 93 in the first semester of residence. In addition, students with less skill in English will be required to take I S C 1 and 2. With permission of his adviser, a student may enroll in other regular courses.

**Other Undergraduate Courses:** A course in English, I S C 110, will be taken during the second semester of residence unless the foreign student is advised that it is unnecessary for him.

**Courses Taken in Graduate Standing:** An entering graduate student whose previous education has been in a language other than English is held to the same standards of English proficiency as are undergraduate students and may be required to enroll in the above-listed undergraduate courses when considered necessary by his advisers. Graduate students will be required to enroll in I S C 293 and 295.

### COURSES (I S C)

#### 1. Oral English: Pronunciation (2)

The sound patterns of American English. Sound contrasts and stress, rhythm and intonation drills.

#### 2. English Sentence Patterns (3)

Practice in the use of intermediate and advanced grammatical patterns. Reading comprehension and vocabulary building.

#### 10. English Composition for Foreign Students (3)

Practice in writing paragraphs, short essays and other types of writing. Mechanics of term papers. Brief review of certain grammar problems and punctuation.

#### 21. Advanced Oral Practice in American English (3)

Advanced drills in articulation, intonation, rhythm, and word and sentence stress. Speech composition including organization, delivery, and support.

#### 93. Problems in Contemporary American Society (3)

Examination of problems in contemporary American society designed to familiarize the foreign student with political and social ideas and ideological conflicts he will encounter in his new environment. Individual student projects.

**110. Advanced Composition for Foreign Students (3)**

Review of selected points of English usage. Conventions of writing formal research reports. Writing of short essays. Practice in paraphrasing and summarizing. Writing complex sentences in concise form. Stylistic variation and degree of formality.

**GRADUATE COURSES (I S C)****293. Contemporary America (3)**

Open only to students from abroad. Prerequisite: graduate standing and permission of instructor. Seminar including studies from areas of anthropology, economics, history, literature, political science, psychology, sociology, and related fields. (See *School of Graduate Studies*.)

**295. Interpretation and Analysis (3)**

Open only to graduate students from abroad. Prerequisite: permission of instructor. Individual analysis of the knowledge and skills of the student's field of study; application to problems in the country in which the knowledge and skills are to be applied. Scholarly paper. (See *School of Graduate Studies*.)

**INTERNATIONAL PROGRAM (OVERSEAS)**

A study abroad program of global scope is offered by the California State University and Colleges International Programs under which students may enroll for a full academic year simultaneously at their home campus, where they earn academic credit and maintain campus residency, and at a distinguished foreign university or a special program center.

Cooperating universities abroad include the University of Provence, France; the University of Heidelberg, Germany; the University of Florence, Italy; the Universidad Ibero-Americana, Mexico; the University of Uppsala, Sweden; the University of Madrid and the University of Granada, Spain; Waseda University, Japan. In the United Kingdom, cooperating universities, which may vary from year to year, include Dundee, Leicester, London, Oxford, and Sheffield. In addition, California State University and Colleges students may attend a special program in Taiwan, Republic of China, or an architectural program in Copenhagen, Denmark. Students in Agriculture may attend programs at Massey University and Lincoln College in New Zealand. Owing to the reversal of seasons in the Southern Hemisphere, the New Zealand program begins in early February and runs through October.

Eligibility is limited to students who will have upper division or graduate standing during their year of participation, who have a B (3.0) average or better in at least 30 semester or 45 quarter units in any two previous consecutive years; show ability to adapt to a new environment; and, in the case of France, Germany, Mexico, and Spain, are proficient in the language of instruction at the foreign university. Selection is made by a faculty committee on the student's home campus and by a statewide faculty committee.

The International Programs are supported by state funds to the extent that such funds would have been expended had the student concerned continued to study in California. Students assume costs for predeparture orientation, insurance, transportation, housing and meals. Home campus registration fees, tuition on the home campus for out-of-state students (if the student is not a California resident) and personal incidental expenses or vacation travel costs while abroad are also paid for by the student. The Office of International Programs collects and administers funds for those items which the program must arrange or can negotiate more effectively: typical are home campus fees, orientation costs, insurance, outbound transportation, and housing in some centers. Students accepted in the International Programs may apply for any financial aid available at their home campus.

Application for the 1976-77 academic year must be submitted before February 13, 1976 (except for United Kingdom applicants who must submit applications by January 9, 1976, and New Zealand applicants who must submit applications by May 16, 1975). Applicants are notified of acceptance by April 1, 1975; New Zealand applicants are notified by June 1, 1975. Detailed information may be obtained from the International Students Office or by writing to The California State University and Colleges International Programs, 5670 Wilshire Boulevard, Los Angeles, California 90036.

Average expenses for the entire year—including round-trip transportation between California and the study centers, room and board, health and accident insurance, home campus fees, moderate vacation traveling, textbooks, and personal expenses—range from \$2,500 to \$4,000. Students ordinarily remain eligible for any financial aids for which they otherwise would qualify on their home campus.

### **COURSES (I S A)**

California State University, Fresno students under The California State University and Colleges International Programs register concurrently on campus and at the host institution abroad, with credit assigned in terms of CSUF courses. Undergraduate students who find appropriate study opportunities at the host institution but no local counterpart course may use Independent Study (190), and International Study Abroad 92 or 192. Graduate students may use Independent Study (290), and International Study 292.

#### **92. Projects in Study Abroad: (Subject) (Units variable; max total 18)**

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

#### **192. Projects in Study Abroad: (Subject) (Units variable; max total 18)**

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

#### **292. Projects in Study Abroad: (Subject) (Units variable; max total 18)**

One- to three-unit registrations. Prerequisite: admission to master's degree program; written plan approved by the Fresno State instructor, department chairman, and the Dean of the School of Graduate Studies. May require one or more papers and oral or written examination on the student's return before the recording of the final grade.

### **LATIN AMERICAN STUDIES**

The Latin American Studies major is designed to meet the needs of students interested in an interdisciplinary major, those who wish to broaden their studies in a given discipline with a background in the Latin American area, and those who are interested in obtaining a teaching credential. Consult the Coordinator of the Latin American Studies Program, Dr. Michael J. Biechler, Department of Geography, for further information and for names of faculty advisers for the program.

#### **MAJOR**

A major in Latin American Studies consists of 30 units of upper division courses in the area. The program must be approved by the Coordinator of Latin American Studies and one other Latin American Studies adviser. Students must demonstrate a proficiency in Spanish or Portuguese by taking two years of lower division Spanish or Portuguese or by examination.

#### **MINOR**

A minor in Latin American Studies is recommended for a student who is completing a recognized major in another discipline but, because of a special interest, wishes to indicate on his transcript a background in Latin American Studies.

The minor consists of 21 units of upper division courses in the area. The program must be approved by the Coordinator of Latin American Studies and one other Latin American Studies adviser. One year of lower division Spanish or Portuguese is recommended.

## COURSES

## LATIN AMERICAN STUDIES (L A S)

**100. Latin American Bibliography and Methodology (3) (Same as Hist 102)**

Required for the Latin American Studies major. Designed to acquaint students with the bibliography and methodology of the Latin American area.

**110T. Latin American Topics (3; max total 6) (Same as Hist 169T)**

Special topics in Latin American Studies with an interdisciplinary approach; participation in instruction by two or more departments.

## AGRICULTURAL SCIENCES (Agri)

- 161. International Agriculture (3)
- 170. Seminar in Foreign Agriculture (3)

## ANTHROPOLOGY (Anth)

- 120. Peoples and Cultures of North America and Meso-America (3)
- 121. Peoples and Cultures of South America (3)
- 127. Cultural Adaptations of the New World Negro (3)
- 130. Meso-American Prehistory (3)
- 132. South American Prehistory (3)

## ART

- 105T. Topics in Art History (3; max total 3 per area)  
Meso-America (Nahua and Maya areas)  
Andean Area

## BUSINESS—Business Administration (B A), Marketing (Mktg)

- Bus 271. International Business (3)
- 272. Seminar in International Finance (3)
- 275. Seminar in International Business (3)
- Mktg 176. International Marketing (3)

## ECONOMICS (Econ)

- 114. Economics of Underdeveloped Areas (3)
- 178. International Economics (3)
- 179. Imperialism (3)
- 188T. Special Topics (1-3; max total 6) Political Economy

## FOREIGN LANGUAGE (Span)

- 126. Spanish-American Culture (3)
- 129. Mexican Culture (3)
- 143. Introduction to Spanish-American Literature (3)
- 173. Mexican Literature (3)
- 176T. Twentieth Century Spanish-American Literature (3; max total 6)
- 177T. Hispanic Literature in Translation (3; max total 6)
- 180T. Major Figures in Hispanic Literature (3; max total 6)
- 240. Spanish-American Literature (3; max total 9)

## GEOGRAPHY (Geog)

- 100T. Topics in Geography (3)
- 142. South America (3)
- 143T. Topics in Mexico, Central America, and West Indies (1-3; max total 6)
- 180. Field Geography (1-6; max total 6)
- 280T. Advanced Field Studies in Selected Regions (1-3; max total 6)

## HISTORY (Hist)

- 160. Spain and Portugal (3)
- 161. Colonial Latin America (3)
- 162. Platine Countries and Brazil (3)

- 163. Caribbean America (3)
- 164. Western South America (3)
- 165A. 19th Century Mexico (3)
- 165B. 20th Century Mexico (3)
- 169T. Studies in Latin American History (3; max total 6)
- 183. The Hispanic Southwest (3)
- 193HD. Latin American History Honors Seminar (3; max total 6)
- 260. Seminar in Latin America (3; max total 6)

#### **POLITICAL SCIENCE (PI Si)**

- 126. International Organizations (3)
- 128T. Topics in International Relations (1-4; max total 8)
- 146T. Area Studies in Latin America (1-4); max total 8)

Departmental Independent Studies (190 and 290) and Directed Readings (191, 192, and 292) may be applied to the major and minor requirements with adviser approval.

#### **LIBERAL STUDIES MAJOR**

The Liberal Studies Major, which leads to the bachelor of arts degree, is an 84-unit program which utilizes courses from twenty-one departments of the university to provide an interdisciplinary course of study involving the areas of English; Humanities and the Fine Arts (including Foreign Language); Mathematics and the Physical or Life Sciences; and Social Science. The major incorporates within its structure the general education requirements for the degree.

The major is designed to meet the needs of: (1) students wishing to qualify for a teaching credential authorizing multiple subject teaching, and (2) students desiring a liberal arts foundation for professional training in medicine, law, journalism, and various fields of public service.

Since the major utilizes 84 units of the 124 units required for the degree, careful planning by the student is essential if all requirements for the degree, or requirements for the degree and credential, are to be satisfied within a four-year time space.

#### **LIBERAL STUDIES MAJOR (Credential)**

Students completing the Liberal Studies Major and requirements for a teaching credential authorizing multiple subjects teaching shall:

1. complete the major as a prerequisite to, or concurrently with, the final student teaching assignment for the credential, and
2. complete the following specific courses in satisfying the area requirements.

##### *Area I English*

###### A. Required:

1. Engl 1 or 50T
2. Engl 20
3. Ling 10 or 134 or Engl 134 or Spch 134
4. Spch 3 or 8

###### B. Select 6-12 units in upper division courses in one of the following disciplines: English, Linguistics, Speech

##### *Area II Humanities and Fine Arts*

###### A. Required:

1. One course from Art 15, 25, 65
2. One course from Music 9, 60T, 76T
3. One course from Drama 22, 33, 34
4. Three units from: Art 5, 6, 12, 41, 46; Eth S 2; Music 3, 4, 5, 6, 7, 8, 11, 12, 13, 15, 16, 18, 20, 21, 22, 23, 25, 27; CPE 11A, B, 16, 50.
5. Six units in one foreign language may be substituted for 3 and 4 above.

###### B. Select 6-12 units in upper division courses from one of the following disciplines: Art, Drama, one Foreign Language, Music, Philosophy

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### Area III *Mathematics and Sciences*

- A. Required
  1. Math 41
  2. Math 29 or 40 or 71
  3. P Sci 10 or 21, or Chem 1, or Geol 1, 2, or Geog 5, 7
  4. Biol 10 or Bot 10 or Zool 10
- B. Select 6–12 units in upper division courses from one of the following disciplines: Biology, Chemistry, Geology, Mathematics, Physical Geography (select from 105, 106, 108, 109, 110, 114, 117, 144, 146, 148, 171), Physics

### Area IV *Social Sciences*

- A. Required:
  1. Hist 2
  2. Hist 12
  3. Geog 2 or 4
  4. Anth 2 or Soc 1 or Psych 10 or Eth S 1
- B. Select 6–12 units in upper division courses from one of the following disciplines: Anthropology, Economics, Geography (excluding Geog 105, 106, 108, 109, 110, 114, 117, 144, 146, 148, 171), History, Political Science, Psychology, Sociology

## LIBERAL STUDIES MAJOR (NoncredentiaI)

### Area I *English*

- A. Select 12 units from:
  1. Engl 1 or 50T
  2. Engl 20
  3. Ling 10 or 134; or Engl 134; or Spch 134
  4. Spch 3 or 8
- B. Select 6–12 units in upper division courses in one of the following disciplines: English, Linguistics, Speech

### Area II *Humanities and Fine Arts*

- A. Select 12 units in lower division courses from three of the following disciplines: Art, Drama, one Foreign Language, Music, Philosophy (Note: Eth S 2 may be selected, thereby reducing the required number of units to 9 and the number of disciplines to 2.)
- B. Select 6–12 units in upper division courses from one of the following disciplines: Art, Drama, one Foreign Language, Music, Philosophy

### Area III *Mathematics and Sciences*

- A. Select 6 units from: Math 29, 30, 40, 41, 51, 71, 72, 75, 76, 103, 141
- B. Select 6 units from: Anth 1, Biol 10, 20; Bot 1, 10; Chem 1, 1A-B, 2A-B, 2C, 4A, 4B, 8; Geog 5, 7, 106, 108, 146; Geol 1, IL, 2, 10, 12, 189, 189L; P Sci 10, 21; Phys 1A-B, 2A-B, 4A, 4B, 22A-B, 55; Plant 130; Psych 36; Zool 1, 10
- C. Select 6–12 units in upper division courses from one of the following disciplines: Biology, Chemistry, Geology, Mathematics, Physical Geography (select from 105, 106, 108, 109, 110, 114, 117, 144, 146, 148, 171), Physics

### Area IV *Social Sciences*

- A. Select 12 units from: Eth S 1; Hist 1, 12; Geog 2, 4; Anth 2; Soc 1; Psych 10; Pl Si 1 or 3, 2; Econ 1A or 1B
- B. Select 6–12 units in upper division courses from one of the following disciplines: Anthropology, Economics, Geography (excluding 105, 106, 108, 109, 110, 114, 117, 144, 146, 148, 171), History, Political Science, Psychology, Sociology

## MASS COMMUNICATION

The School of Graduate Studies provides administrative coordination for graduate interdisciplinary programs and courses.

The interdisciplinary master of arts degree in mass communication is based on the equivalent of an undergraduate major in journalism or radio-television broadcasting. Supervised by a joint committee of representatives from the Departments of Journalism and Radio-Television, the program has options in print media and electronic media administered by the two respective departments. Fifteen of the 30 required units for the degree must be in graduate mass communication courses; 12 units must be core courses. For specific requirements, consult the departmental graduate advisers or see the *Graduate Bulletin*.

**COURSES (M Com)**

(See *Course Numbering System—Definitions and Eligibility*)

**201. Seminar in Theory and Research (3)**

(Core) Theory of the mass media, its development and application; basic research methodologies applicable in the various areas of the mass media.

**202. Seminar in Literature of Mass Communications (3; max total 6)**

(Core) Critical examination of the literature in the field of mass communication. Exploration of the concepts in various areas through a study of primary, secondary, and tertiary literary resources.

**204T. Seminar in Journalism (3; max total 9)**

Seminar in a print media topic: government information policy, news media and urban affairs, social responsibility in public relations, magazine influence in America.

**205T. Seminar in Radio-Television-Film (3; max total 9)**

Seminar in an electronic media topic: current regulatory issues, quantitative research, ETV/ITV problems, film as social comment.

**230. Criticism of Broadcasting and Film (3)**

Development of ethical, artistic, and critical standards for broadcast and motion picture evaluation. Principles of criticism are traced from an historical to a contemporary context. Research papers and reports required.

**250. Comparative and International Broadcasting (3)**

Formal study of national systems of broadcasting and the social, geographic, and political forces that have shaped national roles in international communications. Research papers required.

**290. Independent Study (1-3; max total 6)**

(See *General Information-Independent Study*.)

**299. Thesis (2-6)**

(Core) Prerequisite: see *Master's Degrees-Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the Master's degree.

**MOSS LANDING MARINE LABORATORIES**

The California State University and Colleges began operation of the Moss Landing Marine Laboratories, Moss Landing, California, in the fall semester 1966. This facility functions as a seaside extension of the campuses of six cooperating state universities (Fresno, Hayward, Sacramento, San Francisco, San Jose, and Stanislaus). It offers full-time course work in marine biology, oceanography, and other marine sciences for majors in either the biological (botany, biology, zoology) or physical sciences whose objectives include further graduate study, teaching the sciences, or research in the marine sciences. Properly qualified upper division and graduate students may enroll on the CSU, Fresno campus for a term of instruction at Moss Landing and earn resident credit for such course work. See *Geology Department* for on-campus course work in general oceanography and geology courses related to marine science.

Space reservation is required for attending Moss Landing Marine Laboratories. Forms for this purpose are available from the Biology Department or Moss Landing Marine Laboratories, P.O. Box 223, Moss Landing, CA 95039. Priority is determined based upon the date space reservation form is received at Moss Landing Marine Laboratories. Since enrollment is limited, interested students should make early application.

**COURSES (M Sci)**

*Note: The following courses are taught at the Monterey Bay location of the Moss Landing Marine Laboratories. For course descriptions see Biology Department.*

101. General Oceanography (4)
102. Marine Science Techniques (3)
103. Marine Ecology (4)
104. Quantitative Marine Science (3)

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- 105. Marine Science Diving (3)
- 106. Scuba Marine Research (3)
- 111. Zoology of Marine Vertebrates (4)
- 112. Marine Birds and Mammals (4)
- 113. Marine Ichthyology (4)
- 121. Marine Invertebrate Zoology (4)
- 122. Marine Invertebrate Embryology (4)
- 123. Marine Invertebrate Physiology (4)
- 131. Marine Phycology (4)
- 132. Introduction to Marine Plankton (4)
- 141. Geological Oceanography (3)
- 142. Marine Biogenic Sedimentation (3)
- 143. Coastal Geomorphology (3)
- 151. Marine Meteorology (3)
- 171. Oceanographic Summer Cruise (4)
- 172. Marine Environmental Group Research (3)
- 175T. Topics in Marine Sciences (1-6)
- 180. Independent Study (1-4)
- 201. Advanced Studies in the Marine Sciences (3)
- 202. Marine Instrumental Analysis (4)
- 203. Advanced Marine Ecology (3)
- 211. Behavior of Marine Animals (3)
- 212T. Topics in Marine Vertebrates (4)
- 221T. Topics in Marine Invertebrates (4)
- 222. Biology of the Mollusca (4)
- 231. Advanced Marine Phycology (4)
- 232. Advanced Marine Plankton (4)
- 241. Marine Micropaleontology (3)
- 242. Continental Drift (3)
- 251. Marine Geochemistry (4)
- 252T. Topics in Marine Chemistry (4)
- 261. Descriptive Physical Oceanography (4)
- 271. Population Biology of Marine Organisms (3)
- 273. Environmental Studies of Monterey Bay (3)
- 275T. Advanced Topics in Marine Sciences (1-6)
- 277. Human Ecology of Monterey Bay (3)
- 282T. Seminar in the Marine Sciences (2)
- 285T. Seminar in Marine Biology (2)
- 286T. Seminar in Marine Geology (2)
- 287T. Seminar in Oceanography (2)
- 298. Research in the Marine Sciences (1-4)
- 299. Thesis (1-4; max total 4)

## WOMEN'S STUDIES COURSES

The Women's Studies Program is an interdisciplinary program offering courses in several disciplines. These are designed to develop awareness of the contributions of women throughout history and the roles in which they have been cast as well as to help women discover what is pertinent to themselves and their abilities.

### MINOR

An interdisciplinary minor is available, the purpose of which is to give students interested in pursuing this area an opportunity to make a systematic study of women—their roles, their problems, and their contributions.

The minor in Women's Studies requires a minimum of 20 units, including W S 10 and W S 175. The other 14 units shall be selected from at least two of the following groups of courses:

*Humanities:* W S 50T, 124, 145, 150T, 163, 168T, 170T, 194T

*Social Sciences:* W S 105, 118, 119, 126, 131, 137, 156T, 171, 172

*Electives:* W S 110, 122T, 136T, 150T or EXP 150 (Electives also may be chosen from special topics courses on women offered periodically by certain departments.)

**COURSES (W S)****10. Introduction to Changing Women (3) (Former W S 100)**

Introductory interdisciplinary course designed to provide a foundation for Women's Studies; focus on women in the areas of sociology, psychology, history, economics, and the arts.

**20. Women in Science (2)**

Women scientists' contributions to scientific advancement; effect of recognition and life styles on their careers.

**50T. Studies in Literature (4) (See Engl 50T section)**

*Women in Novels section.*

**105. Education and Sex Role Stereotypes (3)**

Materials, policies, and procedures of the education of women; historical review and consideration of contemporary thought regarding sex role identification and reinforcement.

**110. Female Image in Sports (3) (See PE 110)****118. Women in History (3) (See Hist 118)****119. La Familia (3) (See La R 118)****122T. Topics in Social Welfare (3) (See S Wel 122T)**

*Women in the Social Welfare System section.*

**124. Feminist Art (3) (See Art 124)****126. Legal Rights of Women (3) (Former W S 121) (See Crim 126)****127. Female Sexuality (3) (See H S 126)****131. Sociology of Sex Roles (3) (See Soc 131)****136T. Topics in Criminology (3) (See Crim 136T)**

*Women in Corrections section.*

**137. Black Women (3) (See BI S 137)****145. Women in the Theatre (3) (See Drama 145)****150T. Topics in Women's Studies (2-4; max total 12)**

Selected topics including counseling for women, women in film, women in publications, etc.

**156T. Topics in Political Behavior (1-4; max total 8) (Former W S 157T) (See PI Si 156T)**

*Women in politics section.*

**163. Women in Music (3) (See Music 163)****168T. Women and Literature (4; repeatable with different topics) (Former Engl 169T section. See Engl 168T)****170T. European Women in Literature (3; max total 12) (See F L 170T)****171. Jung and the Consciousness of Women (3)**

Overview of Jungian thought related to women; readings and discussion designed to increase self-knowledge.

**172. Psychology of Women (3) (See Psych 172)****175. Seminar in Women's Studies (3)**

A "capstone" course in which students will pursue an in-depth research project in Women's Studies. Prerequisites: 9 units in Women's Studies, including W S 10 or permission of instructor.

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**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*

**194T. Seminar in Women and Literature (4; repeatable with different topics) (Former Engl 193T section. See Engl 194T)**





**SCHOOL OF GRADUATE STUDIES**

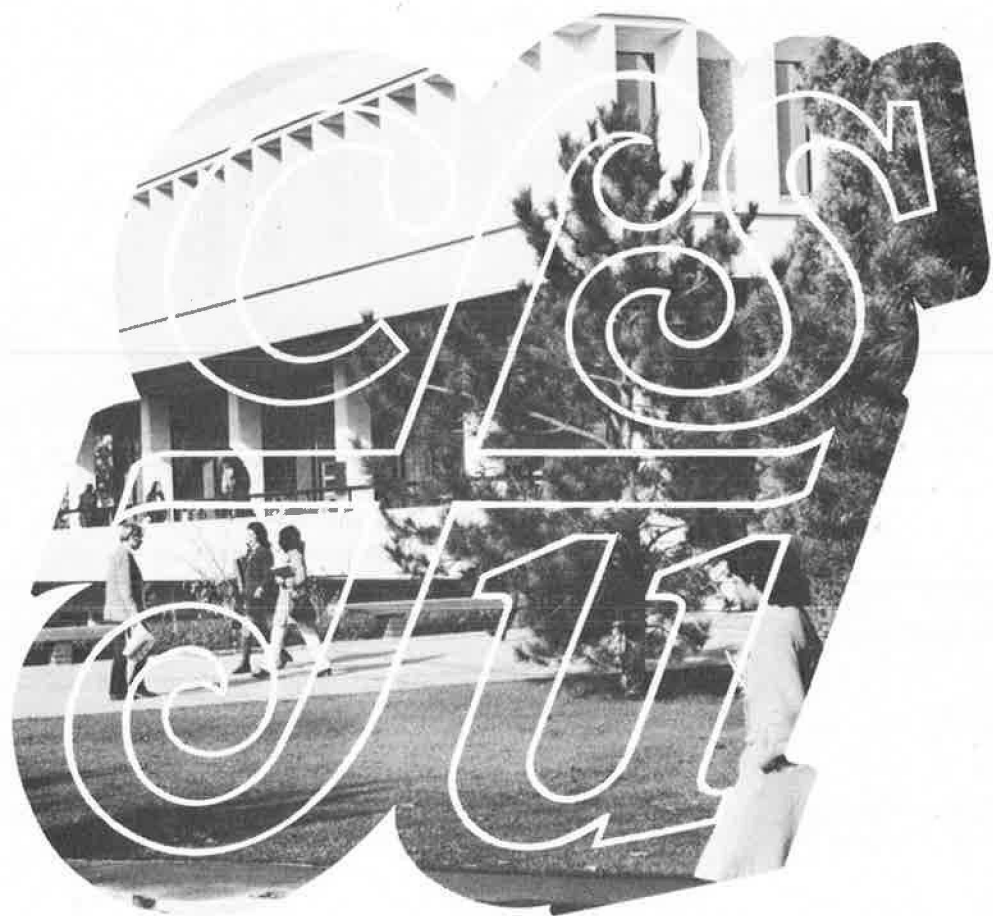
Master's Degrees

Admission to Graduate Standing

Advancement to Candidacy

Thesis

International Graduate Students



# SCHOOL OF GRADUATE STUDIES

Phyllis Welch Watts, Dean

Assistant Dean ..... Robert L. Shacklett

The School of Graduate Studies embraces all graduate programs and activities in the university, including programs leading to the master of arts degree in 25 fields, the master of science degree in 10 fields, the master of business administration, the master of social work, and the master of city and regional planning. Graduate degree curricula are designed both as the first graduate degree for students contemplating doctoral study and as terminal degrees for persons engaged in business administration, public school teaching including community college, social work, employment in government agencies, and other fields in which the master's degree is ordinarily the highest degree earned.

The Office of the Dean of the School of Graduate Studies is responsible for the general administration of graduate degree programs in accordance with the policies developed by the Graduate Council. Curricula and requirements are detailed in the *Graduate Bulletin*. Inquiries should be directed to the School of Graduate Studies, California State University, Fresno.

Student advisement and the instructional program in specific master's degree curricula are generally the responsibility of the department or school graduate committees, and are administered by the chairman of the graduate committee in each area.

The university is authorized to grant the master's degrees listed below. Additional authorized options or concentrations are listed under the basic degree program.

## Agriculture, MS

Agricultural Chemistry, Animal  
Science, Plant Science

## Art, MA

Art History and Theory, Ceramics, Design,  
Drawing and Painting, Sculpture

## Biology, MA

## Business, MBA, MS

Accounting, Finance, Management,  
Marketing, Office Administration,  
Quantitative Studies

## Chemistry, MS

## City and Regional Planning, MCRP

## Communicative Disorders, MA

Audiology, Speech Pathology,  
Education of the Deaf

## Counseling, MA

## Criminology, MS

Corrections, Law Enforcement

## Economics, MA

## Education, MA

Administration and Supervision, Educational  
Theory, Elementary, Secondary Education

## English, MA

Creative Writing

## Geography, MA

## Geology, MA

## Health Science, MS

Environmental Health, Administration  
and Supervision, Teaching

## History, MA

## Home Economics, MS

Dietetics and Nutrition, Teaching

## Industrial Arts, MA

## Linguistics, MA

Bilingual Studies, French, German

## Mass Communication, MA

Electronic Media, Print Media

## Mathematics, MA, MS

## Microbiology, MA

## Music, MA

Music Education, History and Literature, Theory  
and Composition, Performance

## Nursing, MS

Administration-Supervision, Clinical, Teaching

## Physical Education, MA

Recreation Administration

## Physics, MA, MS

## Political Science, MA

Government

Public Administration

## Psychology, MA, MS

## Rehabilitation Counseling, MA

## Social Work, MSW

## Spanish, MA

## Special Education, MA

## Special Major, MA

## Speech, MA

Theatre Arts, Speech Communication

## ADMISSION TO POST-BACCALAUREATE AND GRADUATE STANDING

Admission standards are stated in the *California Administrative Code*, Title 5, which provides uniform admission regulations for all California State University and Colleges. Two main admission categories are defined in terms of the student's educational objectives at the time of planned enrollment. These are *post-baccalaureate standing* and *graduate standing*.

### Post-Baccalaureate Standing. Unclassified.

For admission to unclassified post-baccalaureate standing, a student must: (a) hold an acceptable baccalaureate degree from an institution accredited by a regional accrediting association or have completed equivalent academic preparation as determined by an appropriate campus authority (see *unvalidated standing*, below); (b) have attained a grade-point average of at least 2.5 (on a five-point scale) in the last 60 semester units attempted; and, (c) have been in good standing at the last college attended. Students in unclassified standing may pursue objectives such as course work for professional growth or the completion of the requirements for a second major at the baccalaureate level.

It is contrary to university policy to grant a second bachelor's degree after the student has earned a comparable degree from an accredited institution (see *Degrees and Credentials*). However, in those few exceptional cases where this policy is waived for cause, the student completes the requirements for the second degree in unclassified post-baccalaureate standing. Waivers of the policy are granted by the Committee on Student Academic Petitions upon recommendation of the Dean, School of Graduate Studies, and only when there is clear indication that the student's professional goals cannot be attained without the possession of a specified second bachelor's degree. An example would be when state licensing regulations for certain professions require the licensee to hold a certain type of bachelor's degree. For further information, consult the Dean, School of Graduate Studies.

A graduate of a nonaccredited college may be granted admission with *unvalidated post-baccalaureate standing* (unclassified), upon the filing of the application and two copies of official transcripts of all college work. Such a student may be eligible for placement in regular post-baccalaureate or graduate standing when he or she has cleared all undergraduate deficiencies and has maintained, in residence at CSU, Fresno, a grade-point average of 3.0 on 12 units of approved upper division work or an average of 2.5 on 24 units of approved upper division work. (Prospective applicants to master's degree programs, see also *Master's Degrees—Grade Requirements*.) When a student with unvalidated post-baccalaureate standing has met the above requirements, it is his or her responsibility to request a new statement of standing from the Admissions Office.

It should be noted that a post-baccalaureate student who has been admitted to the university will receive notice of such admission in *unclassified standing* by the Office of Admissions, regardless of his or her application to pursue a credential or a master's degree program. Admission to classified standing involves the additional step of an evaluation of the student's record and other documents in accordance with the admission criteria of the program in question. Notification of admission to classified standing is the responsibility of the School of Education Admissions Office in the case of applicants to credential programs and the Office of the School of Graduate Studies for master's degree programs.

### Post-Baccalaureate Standing. Classified.

A student who meets the criteria for admission to the university in unclassified standing and who wishes to work toward the completion of requirements for a public school credential may be admitted to classified post-baccalaureate standing. In addition to the application for admission to the university, an application for admission to the credential program must be filed with the School of Education. (See *School of Education—Application for Admission to Credential Programs*.)

## MASTER'S DEGREES

Applicants to all master's degree programs gain admission in either classified or conditionally classified graduate standing under standard universitywide policies. Many programs impose additional requirements beyond the criteria stated here. To be eligible to receive the master's degree at CSU, Fresno, a student must be advanced to candidacy and complete all other requirements specified by the School of Graduate Studies and the specific program, thereby demonstrating a command of the field of specialization and a competence

in independent investigation, analysis, and synthesis beyond the scope of individual courses. Additional information about specific program requirements may be found in the *Graduate Bulletin*.

#### **Graduate Standing. Conditionally Classified.**

A student who indicates on the application for admission that he or she wishes to pursue a master's degree objective is considered for classified graduate standing. An applicant who does not meet all the specified criteria for admission to a master's degree program with full classified standing may be placed in conditionally classified standing upon the recommendation of the graduate committee of the program in question. Such a recommendation is accompanied by a statement of the additional requirements which must be met before full classified standing is granted. This information is communicated to the student by the Office of the School of Graduate Studies. It is the student's responsibility to request a change in classification status as soon as the specified conditions have been met. Forms for this purpose may be obtained in the Office of the School of Graduate Studies.

A student who expresses an interest in a master's degree program but who has a substantial amount of undergraduate work to complete such that the program graduate committee cannot properly recommend conditionally classified standing, may be placed in declared status. While technically equivalent to unclassified standing, declared status indicates that the student is working toward meeting the requirements for admission to a master's degree program and that the department concerned acknowledges this objective and is willing to provide advising assistance to the student. When sufficient progress has been made toward meeting these requirements, it is the student's responsibility to request a change in classification status in the Office of the School of Graduate Studies.

#### **Graduate Standing. Classified.**

A graduate student who satisfactorily meets the professional, personal, scholastic or other standards for admission to a master's degree curriculum as determined by the graduate committee for the program, may be admitted in classified graduate standing. Only those applicants who show promise of success and fitness will be admitted to master's degree curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence and fitness shall be eligible to proceed in such curricula. (See also, *Grade Requirements*, below.)

Minimum criteria for classified graduate standing include satisfactory undergraduate scholarship, including demonstrated potential for graduate work in the major field, satisfactory scores on the Graduate Record Examination Aptitude Test (or the Admission Test for Graduate Study in Business), and other criteria which the graduate committee for the program may prescribe. For specific minimum acceptable test scores consult the Office of the School of Graduate Studies. Information concerning prerequisites to specific master's degree programs may be found in the *Graduate Bulletin*.

Not more than 10 units (including transfer and post-baccalaureate credit) completed before achieving full classified standing at CSU, Fresno, may be applied to the master's degree program. Work taken during the semester of classification is considered to be completed in classified standing. In 60-unit programs the above limitation applies only to the last 30 units.

#### **ADVANCEMENT TO CANDIDACY**

Classified graduate standing gives a student permission to work toward qualifying for candidacy. Advancement to candidacy gives a student permission to proceed toward qualifying for the degree. Requirements for advancement to candidacy include the following:

1. Classified graduate standing.
2. Completion of any additional prerequisites which the adviser specifies in writing.
3. Satisfactory completion of the Graduate Record Examination Advanced Test or departmental qualifying examination.
4. A minimum grade point average of 3.0 (both overall and at CSU, Fresno) on all upper division and graduate course work from the date of embarking on the first course of the proposed master's degree program. (See also, *Grade Requirements*, below)
5. Satisfactory completion of the foreign language requirement for those programs having such a requirement. (See departmental Foreign Language Requirement.)

6. Departmental recommendation for advancement to candidacy on a petition form available in the Office of the School of Graduate Studies. In making this recommendation, the department takes into account professional and personal standards as well as scholastic achievement as revealed by grades and performance on examinations. The student is responsible for ensuring that the adviser has sufficient information other than grades and scores on which to make this recommendation. On this petition form the student, in consultation with his adviser, lists the coherent set of courses which, when approved, will constitute his degree program.
7. Completion at CSU, Fresno, of at least 9 units of the proposed program with a 3.0 average on all completed work appearing on the program.
8. Submission to the Office of the Dean, School of Graduate Studies, of the properly signed petition for advancement to candidacy.

### PROGRAM REQUIREMENTS

The program requirements for the master of arts and master of science degrees assume substantial undergraduate preparation in the field. See school and department statements in this catalog or in the *Graduate Bulletin* for particulars. A student lacking this preparation will find it necessary to exceed the minimum requirements indicated below. (Consult departments for MBA, MSW, and MCRP minima.)

The approved degree program for the master's degree is a coherent pattern of (1) specific requirements for the program as listed in the *Graduate Bulletin* and (2) additional courses selected to meet the student's particular needs. It consists of at least 30 units completed after the bachelor's degree and within five years just preceding the granting of the master's degree. Only graduate courses (200 series) and such upper division courses (100 series) as are recommended by the schools or departments and approved by the Graduate Council are acceptable on the unit requirement. Other courses are counted in calculating the student's study load, but cannot be counted toward the unit requirement for the master's degree. The total approved program must include the following:

1. At least 21 units of the program must be CSU, Fresno, residence credit.
2. Transfer credit may be used toward a master's degree only if the institution offering the work would use it on a comparable master's degree program and if it is judged by appropriate university authorities to be particularly relevant to the individual student's program. Extension credit is not regularly used on master's degree programs. In the event that the extension course is offered under conditions similar to those for a course normally usable on a master's program, a student may request special permission to use such an extension course on his program. Student teaching credit is not ordinarily used on master's degree programs. In unusual circumstances, if student teaching is demonstrably appropriate to a program, up to 3 units of such work may be approved by the Graduate Council. Credit by examination may be used to fulfill prerequisites, but may not apply toward the 30 units.
3. With approval of departmental graduate adviser, post-baccalaureate credit allowed for work taken in the semester or summer in which the baccalaureate degree is granted may be applied toward a master's degree, if it meets master's degree criteria in all respects. See *Post-Baccalaureate Credit*.
4. At least 15 units must be in courses designed primarily for master's degrees (numbered in the 200 series). Most programs require more than 15 units of 200 series course work.
5. At least 9 units must be completed after advancement to candidacy. Work taken during the semester or summer of advancement may apply on this requirement.
6. Appropriate course work from a field other than the major may be required at the discretion of the major department.
7. Appropriate provision must be made for a thesis, a project, or, when permitted, an alternative to the thesis, unless the department offers "Plan B" (nonthesis), in which case provisions must be made to conform to departmental requirements. Comprehensive examinations are required in all "Plan B" programs.
8. Students having a special interest that cannot be met within the stated requirements of a given master's degree program may, with written permission of appropriate university authorities, make further program adjustments to meet their needs. Consult the Dean, School of Graduate Studies.

It is the student's responsibility to complete the specific courses listed on his approved program. Once a program has been approved by the Graduate Council, it may be changed

only on the written request of the student and his department or school adviser and with the approval of the Dean, School of Graduate Studies. Forms for requesting such program adjustment are available in the Office of the School of Graduate Studies.

### THESIS, PROJECT, AND THESIS ALTERNATIVE

Most master's degree curricula at CSU, Fresno require the preparation of a thesis or a project. Some departments permit thesis alternatives. (See *Graduate Bulletin* for definition and standards of thesis, project, and thesis alternative and instructions for microfilming.)

1. To be eligible to enroll for thesis or project (299), a student must have
  - (a) been advanced to candidacy for the master's degree.
  - (b) maintained a B (3.0) average on his approved program.
  - (c) completed at least six units of his approved program on the Fresno campus.
  - (d) completed any course in research techniques required by his major department.
  - (e) secured a thesis committee, consisting of a chairman and at least two other members.
  - (f) secured approval of his thesis plan from the division or department graduate committee and filed in the Office of the School of Graduate Studies, an official thesis committee assignment.

If it is impossible to meet one or more of these requirements before the semester or summer session of thesis registration, the student must submit to the Office of the School of Graduate Studies, prior to the close of late registration, a recommendation from the department that special permission to register for thesis be granted.

2. Registration for thesis may be processed during either the regular or late registration periods of any semester after the requirements listed in (a) through (f) above have been met or special permission for exceptions has been granted. If, however, a student fails to enroll within one semester (excluding summer sessions) after his official acceptance by a thesis committee, the committee chairman has the option of dissolving the committee, in which case a new committee must be appointed before registration can be processed. A student planning to register for thesis after a break in regular session attendance must be readmitted to the university. (See *General Information—Registration*.)
3. A student whose thesis work is planned to extend over more than the semester in which he first enrolls may select one of the following options (with the approval of his graduate advisor): (a) he may register in 299 each term he is working on the thesis with the number of units for each registration reduced so that the total number of units accumulated in 299 does not exceed the limit set by the department; (b) he may register for the total number of units of 299 in one semester and complete his work in subsequent semesters under Graduate Studies 299, a zero-unit course required for enrollment purposes; (c) option (a) supplemented by GS 299 when the maximum number of units is attained with the thesis still incomplete. (See *Special Programs—Graduate Studies*.)
4. If work in 299 is not completed at the end of the term of registration, but is progressing satisfactorily, an SP (Satisfactory Progress) grade is recorded. Such a grade must be replaced within two years by a letter grade or a CR-NC grade. Exceptions to the two-year limit may be made by appropriate campus authorities only upon evidence of extenuating circumstances.
5. The student and his thesis chairman should set a deadline for the completion of the semifinal draft, no later than seven weeks before the last day of scheduled final examinations. This date should be early enough so that the chairman and the other members of the committee can clear the draft before the student must meet the deadline for clearance by the Dean of the School of Graduate Studies.
6. Before a thesis is officially accepted by the graduate school, it must meet Graduate School criteria on matters of format, documentation, and quality of writing. The semifinal draft, initialed by the thesis chairman as acceptable and ready for final typing should be submitted to the Office of the School of Graduate Studies at least six weeks before the last day of scheduled final examinations. This deadline has been set as late as possible in the semester to accommodate the student; late manuscripts will be accepted, but the student runs the risk of a delay in the granting of the degree. Students are urged to follow meticulously Specifications and Instructions for the Master's Thesis or Project; copies are available in the Office of the School of Graduate Studies.

7. The final thesis (an original plus three photocopies) signed by the thesis committee and ready for binding, together with the school or departmental clearance and a receipt for the binding fee (payable in the Fresno State College Association office) must be submitted to the Office of the School of Graduate Studies, no later than one week before the last day of scheduled final examinations. A student who wishes to retain more than one bound copy may arrange for the extra binding by paying an additional fee.
8. A student may arrange to have his thesis published in microfilm form, with an abstract of the thesis published in the quarterly periodical, *Masters Abstracts*. This form of publication is encouraged by the university. Further details of the microfilming and copyright procedure may be obtained from the Office of the School of Graduate Studies.

#### **REQUEST THAT MASTER'S DEGREE BE GRANTED**

A request that the master's degree be granted (which includes the graduation fee payable in the Business Office) must be filed in the first two weeks of a semester or first week of a summer session in which the work is to be completed. (See *Academic Calendar, Schedule of Courses, and Fees and Expenses*.) Application forms are available in the Student Records and Graduate Studies Offices. Diplomas for those completing degree requirements during summer sessions and at midyear will be awarded approximately two months after the end of the term.

Failure to complete requirements for the degree during the semester of the application necessitates the filing of a new application for the semester of actual completion. Such reapplication is subject to the same time schedule as is the original application.

#### **FOREIGN LANGUAGE REQUIREMENT**

The University does not have a general foreign language requirement for the master's degree. Some master's degree majors do, however, require competence in an appropriate foreign language as a consideration for advancement to candidacy. (See departmental *Foreign Language Requirement* and department requirements.) Students who contemplate study beyond the master's degree are urged also to investigate foreign language requirements in the institutions in which they anticipate advanced graduate study.

#### **MAXIMUM STUDY LOAD**

Graduate courses require substantially more concentrated study than do undergraduate courses. A normal load is from 9 to 12 units and the maximum allowable load is 16 units for full-time master's degree students when one or more courses in the 200 series are included. Students employed full time may take a maximum of 6 units. For maximum units for summer session see the *Summer Session Bulletin*.

#### **GRADE REQUIREMENTS**

All graduate students will be held to the scholarship standards listed under *General Information*. The following provisions also apply to master's degree programs.

A student admitted to a master's degree program in conditional classified or classified standing is required to maintain a B average on all work taken subsequent to admission to the program.

No course with a grade below C may apply on a master's degree approved program.

To be eligible for advancement to candidacy, a student must have earned a B average (both overall and at CSU, Fresno) on all upper division and graduate course work completed after the date of embarking on the first course to be included in the master's degree program.

To be eligible for enrollment in the thesis or project or in an alternative to the thesis, a student must have been advanced to candidacy and must have maintained a B average on his approved program.

To be eligible for the granting of the degree, a student must have maintained a B average on his complete approved program. Any grade earned in a course on the approved program continues to figure in the grade-point average, even if that course is for any reason later dropped from the program.

To be eligible to receive the master's degree *with distinction* a student must be nominated by his department and must have earned at least a 3.9 grade-point average on the master's degree program and on all courses taken after and including the first semester's work on the program.

## EXAMINATIONS

The Graduate Record Examination Aptitude Test (or the Admission Test for Graduate Study in Business) is required for classified standing. Some programs also require the GRE Advanced Test. The appropriate test should be taken early enough for scores to reach the CSU, Fresno, Test Office in time for inclusion in documents used to determine admissibility to a program. The School of Business will not consider a student whose ATGSB scores are not in hand. Other fields will occasionally permit admission in conditional classified standing for students who have not taken the aptitude test. Such students should plan on taking the test during the first semester in the program.

Advancement to candidacy for the master's degree requires a satisfactory score in the Graduate Record Examination Advanced Test in the student's major field (or a departmental qualifying examination). In addition to the qualifying examination, all departments reserve the right to require written and/or oral comprehensive examinations when circumstances demand. A few departments require final comprehensive examinations of all their students. In particular, all "Plan B" (nonthesis) programs require final oral and/or written comprehensive examination. Candidates are urged to consult the chairman of the department or school graduate committee or the Dean, School of Graduate Studies, about examination requirements.

## EXTENSION OF TIME

A period of five years is allowed for the completion of all requirements for the degree. A student whose program has been interrupted by military service should consult the Dean of the School of Graduate Studies about provisions for military extensions. Otherwise, time may be extended only by the substitution of recent courses for outdated ones or by appropriate validation procedures. Consult the Dean of the School of Graduate Studies.

## FINANCIAL ASSISTANCE

A limited number of graduate assistantships and other types of financial assistance are available to graduate students. Write to the School of Graduate Studies, for information and application forms. (See also Financial Aids)

## INTERNATIONAL (FOREIGN) GRADUATE STUDENTS

Fully qualified graduate students coming to CSU, Fresno, with the ultimate goal of a master's degree should allow approximately two years for accomplishing a 30-unit program, more for a two-year professional degree. Graduate students regularly devote most of their time to studies in their major field; however during the first semester at CSU, Fresno, foreign students whose native language is not English and who are studying in this country for the first time, are required to enroll in International Studies-Campus 293 and appropriate work in English as a foreign language. International Studies-Campus 295 is required during the last semester or at any time after half the work of the master's degree has been completed. Both courses apply toward degrees. For further information, see *International Programs—Graduate Courses*.

Depending on the quality of his work in the first semester and his ultimate purpose, the foreign graduate student may at the end of the first semester continue in one of the following directions: (1) If he has chosen a new field or if his undergraduate work was not equivalent to a CSU, Fresno, bachelor's degree, he may petition to complete requirements for a second bachelor's degree requirements. (2) If he wishes to select only those courses which have greatest value for him, regardless of degree requirements, he may follow an individually planned and approved sequence of courses leading to a Certificate of Attendance. (3) If his first semester's work gives evidence of probable success in master's degree study, he may be considered for full classified standing in a master's degree program. Whichever alternative the student from abroad selects, appropriate course work taken during the first semester may be accepted for credit toward this goal.

## ADMISSION

Graduate students from abroad follow the same procedures as do all other graduate students, except that the Test of English as a Foreign Language (TOEFL) is required of all students whose native language is not English. Exception may be made for students transferring from American colleges and universities with grades that demonstrate full

competence in English. TOEFL scores, applications, and academic documents should reach the CSU, Fresno, Admissions Office at least six months before the semester for which admission is desired. For further information, write to the School of Graduate Studies.

Graduate students with a total score of less than 500 on TOEFL will not ordinarily be admitted to graduate study at CSU, Fresno. Exception may be made for students who are otherwise admissible and who satisfactorily complete an approved program in English as a foreign language. In this circumstance, the university may grant provisional admission subject to satisfactory completion of the work and submission of acceptable TOEFL scores.





**SCHOOL OF AGRICULTURAL SCIENCES**

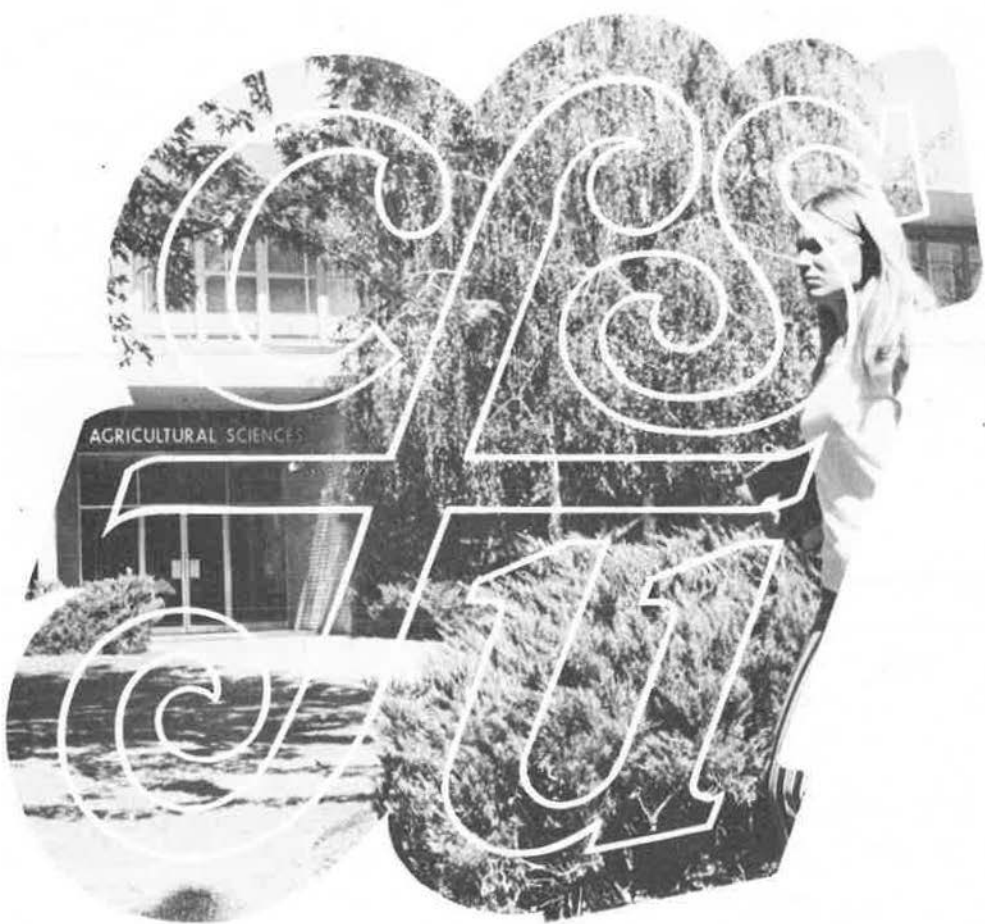
Agricultural Economics Department

Agricultural Industry and Education Department

Animal Science Department

Plant Science Department

Graduate Courses



AGRICULTURAL SCIENCES

# SCHOOL OF AGRICULTURAL SCIENCES

O. J. Burger, Dean

Assistant Dean..... George F. Ilg

<i>Department</i>	<i>Chairman</i>
Agricultural Economics.....	Thomas I. Gunn
Agricultural Industry and Education.....	Fred S. Nury
Animal Science .....	Arthur S. Hoversland
Plant Science .....	Harry P. Karle

The School of Agricultural Sciences provides degree curricula preparatory to professions and occupations in agriculturally related industries. The university farm is organized and operated to provide experience and practical training. Eleven hundred and ninety acres serve as a laboratory and production unit where students carry on supervised farming programs in animal and plant science. In addition, livestock, vineyards, orchards, and crop land are maintained for laboratory use. For information on supervised projects see *Animal and Plant Science Departments*.

The school offers programs leading to the bachelor of science degree in three specialized majors: Agricultural Business, Agricultural Education, and Agricultural Science; an agriculture minor; short courses for those not enrolled in the university program but engaged in farming or allied occupations.

Students desiring to qualify for teaching credentials should consult the Dean of the School of Agricultural Sciences or credential advisers. For credential structure, see *School of Education*.

The master of science degree in agriculture with concentrations in animal science and plant science was authorized on May 5, 1967. See the *Graduate Bulletin*.

## CAREER PLANNING

Listed below are a few of the many fields of study in which a student may be interested. He should consult the appropriate department to select an adviser for his field of interest, who will assist him in the preparation of his program of study under one of the three majors for the bachelor of science degree. (See *Individual Counseling*.)

<i>Field of Interest</i>	<i>Department</i>
Farm Labor	Agricultural Economics
Agricultural economics	
Farm management	
Agribusiness	
Marketing and sales	
Dairy industry, manufacturing	Agricultural Industry and Education
Mechanized agriculture	
Enology, wine technology	
Food science, food processing	
Agricultural education	
Animal husbandry	Animal Science
Dairy husbandry	
Poultry husbandry	
Horse husbandry	
Animal nutrition	
Preveterinarian	
Meat technology, meat science	
Agronomy, field crops	Plant Science
Horticulture	
Ornamental horticulture	
Natural resources	
Agricultural inspection and services	
Viticulture	
Floriculture	
Plant protection	
Soil science	
Vegetable crops	
Environmental sciences	All Departments
General agriculture, diversified farming	
Agricultural science	
Agricultural journalism	All Departments except Agricultural
Agricultural chemistry	Economics

**INDIVIDUAL COUNSELING**

The School of Agricultural Sciences offers, within the framework of one of the three major programs, an individually designed program of study to prepare the student for his specific career objective. Flexibility is an important characteristic of the programs. Advisers will assist the students in evaluating the alternatives this flexibility allows. They can and do play a significant role in planning the educational programs because of their close personal contact with students and with potential employers.

Departmental advisers are competent in guiding the selection of courses necessary to prepare a student for his individual career objective. Each student possesses specific and unique characteristics and objectives which will be taken into consideration in program planning.

Each student must consult his adviser at least once a semester. Prior to completion of 90 units, each student shall, in consultation with his adviser, develop an official *Program of Study*. This official program, when approved by the adviser, department chairman, and school dean, must be filed with the registrar upon completion of 90 units.

**BACHELOR OF SCIENCE DEGREE**

The bachelor of science degree in agricultural sciences is granted upon completion of a four-year curriculum consisting of 128 semester units, *including 40 units upper division*, selected within the framework of one of the three major programs. An official *Program of Study* must be filed with the registrar to complete major requirements for the degree. No more than 15 upper division units from any combination of internships, independent study, and undergraduate research may be applied toward the degree. The general requirements for the bachelor of science degree must be completed (*see Degrees and Credentials*).

**HIGH SCHOOL AND COMMUNITY COLLEGE PREPARATION**

To assure the most rapid progress through a major program, high school and community college preparation should include the following:

- Fundamental courses in agricultural sciences.
- Biological sciences, such as botany and zoology.
- Physical sciences, such as chemistry through organic chemistry.
- American history and government.
- Communication skills.
- Mathematics through college algebra.

**AGRICULTURAL BUSINESS MAJOR FOR THE BS DEGREE**

The agricultural business major prepares students for employment in management positions in farming or businesses related to agriculture. Programs of study are available for students seeking careers in agribusiness (management of businesses related to agriculture), marketing of agriculture products, farm management, and agricultural economics. Under this major a student may elect various routes through a combination of subject matter in agricultural economics, plant science, animal science, mechanized agriculture, food science, and other specialized agricultural fields.

	<i>Units</i>
General education (may include additional requirements) .....	40
Special course requirements (US History, US Constitution) .....	(6)
Major requirements (including 20 units upper division) .....	60
Select one course in four of the following six disciplines (12 units):	
Plant science, animal science, food science, soil science, mechanized agriculture, agricultural economics.	
Approved electives in agricultural sciences, business, economics, and/or mathematics (48 units)	
Electives and additional requirements .....	22-28

(At least 40 units upper division) 128

*Additional Requirements:* Each student is required to complete certain courses in biological and physical sciences, mathematics, and related subject matter. Consult departmental adviser; file official *Program of Study* with the registrar.

**AGRICULTURAL SCIENCE MAJOR FOR THE BS DEGREE**

The Agricultural Science major, with its flexible design, will afford the student an opportunity to acquire the necessary background for a wide variety of career objectives in agricultural industry and professional or graduate study.

Option I provides an opportunity for the students to pursue careers in, but not limited to, dairy industry, food science, enology, animal science, dairy science, poultry science, plant science, agronomy, horticulture, ornamental horticulture, viticulture, or mechanized agriculture.

Option II provides the necessary background in mathematics, chemistry, physics, and modern concepts of biology in preparation for professional or graduate study, including veterinary medicine.

	<i>Units</i>
General education (may include additional requirements) .....	40
Special course requirements (US History, US Constitution) .....	(6)
Major: Option I (including 20 units upper division) .....	45
Select one course in four of the following six disciplines (12 units):	
Animal science, plant science, food science, soil science, mechanized agriculture, agricultural economics.	
Approved electives in agricultural sciences or related disciplines (33 units)	
Major: Option II (including 20 units upper division) .....	60
Approved electives in agricultural sciences or related disciplines (30 units)	
Approved electives in biological and physical sciences, mathematics through elementary analysis (calculus) (30 units)	
Electives and additional requirements .....	22-43

(At least 40 units upper division) 128

*Additional Requirements:* Each student is required to complete certain courses in biological and physical sciences, mathematics, and related subject matter. Consult departmental adviser; file official *Program of Study* with the registrar.

**AGRICULTURAL EDUCATION MAJOR FOR THE BS DEGREE**

The Agricultural Education major is designed to assist students who wish to pursue a teaching credential. The program provides students with the opportunity to become qualified to teach in the broad field of vocational agriculture. They may become especially prepared to teach in agricultural production, mechanized agriculture, and areas of both plant and animal sciences as well as food science. Moreover this program will help prepare the graduate for a wide spectrum of career opportunities in the industry of agriculture. Within the major the student may pursue areas of concentration such as animal husbandry, agronomy, general agriculture, mechanized agriculture, dairy science, horticulture, viticulture, enology, food science, and agricultural inspection and services.

	<i>Units</i>
General education (may include additional requirements) .....	40
Special course requirements (US History, US Constitution) .....	(6)
Major (including 20 units upper division) .....	49
Electives in: animal science (15 units), plant science (15 units), soil science (3 units), mechanized agriculture (10 units), agricultural economics (6 units)	
Electives and additional requirements .....	33-39

(At least 40 units upper division) 128

*Additional Requirements:* Each student is required to complete certain courses in biological and physical sciences, mathematics, and related subject matter. Consult departmental adviser; file official *Program of Study* with the registrar.

**MINOR**

A minor in agricultural sciences is available to degree students in other departments and may be selected in consultation with departmental advisers. The minor consists of 20 units of which 12 are upper division.

**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

**PREVETERINARY PREPARATION**

Students planning to attend a school of veterinary medicine may satisfy the first two years of the program at CSU, Fresno. The School of Agricultural Sciences is equipped to provide valuable experience with large animals through the student project program. Students desiring further information regarding the preveterinary curriculum should consult the Chairman of the Animal Science Department.

**MASTER OF SCIENCE DEGREE**

The master of science degree in agriculture is designed to extend competence for agricultural research, agricultural field work, and the teaching of agriculture, and to provide the first graduate degree for students anticipating advanced graduate study in animal or plant sciences, or with additional course work and research emphasis an option is available in agricultural chemistry. For detailed information about the graduate program at CSU, Fresno, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**INTERDISCIPLINARY STUDY**

The school offers the opportunity for interdisciplinary study designed to meet student interest in subject areas compatible but not limited to specific career objectives.

**COURSES**

*Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.*

**AGRICULTURE (Agri)****10. Dimensions in Agriculture (1)**

Survey of current social and economic developments and employment opportunities in modern agriculture and related agribusiness areas. Individual career planning.

**100. Applied Statistics (3) (Former Plant 170T section)**

Application of experimental methods and statistical procedures in agricultural research. Emphasis on use of standard design and analysis techniques as used in plant and animal science. (2 lecture, 3 lab hours)

**150. Resource Material (2) (Former A Sci 160T section)**

Prerequisite: junior standing. Development and application of techniques for obtaining and using resource material including government documents, university and experiment station reports; educational material and services available from governmental agencies, allied industries and professional organizations. Emphasis on material for agriculture and allied fields.

**161. International Agriculture (3)**

Prerequisite: junior or senior standing or permission of instructor. Social, economic and technological aspects of agricultural production and distribution in developing countries.

**170. Seminar in International Agriculture (3)**

Prerequisite: Ag Ec 31, Agri 161 or permission of instructor. Written and oral presentation of researched topics on recent developments in international agriculture.

**173. Agricultural Internship (1-8; max total 8)**

Prerequisite: junior or senior standing and approval of internship committee. Emphasis on development of decision-making ability through industrial experience integrated with basic principles acquired in the classroom.

**AGRICULTURAL ECONOMICS DEPARTMENT**

**FACULTY**

Thomas I. Gunn, *Department Chairman*

Robert J. Glim ■ John W. Hagen ■ Carl L. Pherson

The Department of Agricultural Economics offers programs of study in, *but not limited to*, agricultural business, farm management, and agricultural economics within the framework of the agricultural business major. Students may prepare for positions in agricultural marketing, farm management and the management of businesses related to agriculture.

Students majoring in agricultural business may follow various educational routes in pursuing their areas of interest (plant science, animal science, mechanized agriculture, food science, enology, and other specialized fields) or they may prepare for a career as professional agricultural economist.

**Programs of Study:** The department provides competent advisers for students pursuing career objectives in, *but not limited to*, the following areas:

<i>Career Objective</i>	<i>Suggested Major</i>
Farm management: animal science, plant science	Agricultural business
Agricultural economics	Agricultural business or agricultural science
Agribusiness management	Agricultural business
Production economics: animal sci- ence, plant science	Agricultural business
Agricultural law	Agricultural business or agricultural science
Agricultural marketing	Agricultural business
Agricultural sales: animal science, plant science	Agricultural business
Agricultural sales: mechanized agri- culture, food science, agricultural chemicals, animal pharmaceuticals	Agricultural business or agricultural science

**Suggested Courses:** The following core of courses is recommended for all students majoring in agricultural business: Ag Ec 41, 112, 167, 170, 172, 179, upper division elective; B A 18, QM 60; Acct 3 or 4A. Students planning for graduate study in this area are encouraged to select additional electives in economic theory, statistics, and mathematics.

**COURSES**

*Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.*

**AGRICULTURAL ECONOMICS (Ag Ec)**

**31. Agricultural Economics (3)**

Agricultural and nonagricultural economic development; nature of production, marketing, and consumption of food; basic tools of economic analysis.

**41. Agricultural Business Statistics (3)**

Prerequisite: Math 29. Measures of central tendencies and dispersion, time series analysis, index numbers, seasonal variation, data collection and presentation, introduction to probability theory, and discrete and continuous probability distributions.

**80. Undergraduate Research (1-4; max total 4)**

Open to freshmen or sophomores with permission of instructor. Directed study or research on particular problems in the field of agricultural economics.

**112. Farm Management (3)**

Prerequisite: Ag Ec 31. Basic economic principles relating to farm management; organizing the farm, managing crop and livestock enterprises; farm business administration. (2 lecture, 3 lab hours)

**151. Farm Accounting (3)**

Prerequisite: Ag Ec 31. Farm accounting systems, farm records, budgets, income tax returns. (2 lecture, 3 lab hours)

**160. Marketing Institutions (2)**

Business and economic functions performed by various specialized marketing agencies with emphasis on physical operating patterns. Local field trips to marketing firms and workshops with agribusiness managers. (1 lecture, 2 lab hours)

**165. Agricultural Labor Management (3)**

Prerequisite: Ag Ec 31. Farm labor laws, procedures and practices in managing farm labor; collective bargaining activities; labor relations; solving labor-management disputes.

**167. Agribusiness Management (3)**

Prerequisite: Ag Ec 31. Management of businesses related to agriculture, including, for example, farmer cooperatives, feed-seed-fertilizer suppliers, food processors, equipment dealers, and marketing firms; application of management principles and problem solving in agribusiness firms.

**170. Agricultural Economics Analysis (3)**

Prerequisite: Econ 1A-B. Development of analytical tools for use in solving agricultural economic problems; research methods in agricultural business.

**171. Natural Resources Economics (3)**

Prerequisite: Ag Ec 31. Problems of our natural resources—land, water, minerals; policies and programs relating to natural resource development; population influences.

**172. Marketing of Agricultural Products (3)**

Prerequisite: Ag Ec 31; concurrent enrollment in Ag Ec 160 recommended for students desiring marketing field trips. Basic marketing functions, policies, and problems involved in handling agricultural products; economic concepts, business decisions, and practical applications.

**174. Advanced Farm Management (3)**

Prerequisite: Ag Ec 112. Economic principles and modern decision-making techniques applied to farm management.

**175. Agricultural Sales and Communications (3) (Former Ag Ec 185T section)**

Selling agricultural products, public relations in agriculture, agricultural journalism, promotion and advertising of agricultural products; written and oral presentations.

**177. Agricultural Finance (3)**

Prerequisite: Ag Ec 31. Analysis of agricultural credit problems; acquisition and management of capital; financing the farm business enterprise; farm appraisal.

**179. Agricultural Policy (3)**

Prerequisite: Econ 1A-B. Governmental policies and programs affecting the economic position of agriculture; evaluation of specific programs which influence agricultural production, marketing, prices, income, and financial aids.

**180. Undergraduate Research (1-4; max total 4)**

Open to juniors or seniors with permission of instructor. Directed study or research on particular problems in the field of agricultural economics.

**185T. Current Topics in Agricultural Business (1-4; max total 6)**

Prerequisite: junior standing. Agricultural economics, marketing, sales and communication, policy, agribusiness, and farm management.

**200 series. Graduate courses are listed under *Agriculture*, following *Plant Science Department*.**

**AGRICULTURAL INDUSTRY AND EDUCATION DEPARTMENT**

**FACULTY**

Fred S. Nury, *Department Chairman*

Wilbur P. Ball ■ Lloyd Dowler ■ Bendt A. From ■ George F. Ilg ■ Joo I. Kim ■ Howard J. Martin ■ Clayton C. Pflueger ■ Sigmund H. Schanderl

The Department of Agricultural Industry and Education offers a wide variety of educational opportunities including programs of study in agricultural education, mechanized agriculture, food science, dairy industry, and enology.

The department provides faculty to counsel students who wish to pursue programs emphasizing teacher education, food science and technology, dairy manufacturing, mechanized agriculture, and wine making. The courses offered in the disciplinary areas listed below provide the necessary background to prepare students for career objectives.

*Mechanized Agriculture (Ag Me)* prepares students for positions in farm equipment development, sales and service, rural electrification, farm building construction, and general farming. The courses deal with the ever-changing field of agricultural processes and mechanization.

*Agricultural Education (Ag Ed)* prepares students as teachers of agriculture for the public school grades 7 through 14.

*Dairy Industry (D Ind)* prepares students for positions in the dairy and food processing industry with in-depth subject matter in production, marketing, government inspection, and food technology.

*Food Science (F Sci)* prepares students for employment opportunities with governmental agencies engaged in regulatory work; food industry including food processing, canning, freezing, and packaging plants; and research.

*Enology (Enol)* prepares students for positions in the California wine industry. Typical positions include laboratory technologist, plant sanitarian, wine chemist, processing department supervisor, and production manager.

**Programs of Study:** The Department of Agricultural Industry and Education provides competent advisers for students pursuing career objectives in, *but not limited to*, the following areas:

<i>Career Objective</i>	<i>Suggested Major</i>
Farm equipment sales and service	Agricultural business
Agricultural engineering	Agricultural science
Dairy industry technology	Agricultural science
Teaching: vocational agriculture, junior high school, community college, college or university	Agricultural education
Food technology, food processing	Agricultural science
Enology, wine technology	Agricultural science
Wine chemistry, food chemistry	Agricultural science
Food plant management	Agricultural business
Agricultural sales: food products, farm equipment	Agricultural business
General farming or ranching	Agricultural education or agricultural science
Food and dairy sanitation	Agricultural science
Agricultural research: food products, agricultural by-products	Agricultural science

**Laboratory Units:** Theoretical instruction is enhanced through practical application at the various laboratory units. These units include the Dairy Processing Laboratory, Enology Laboratory, and Agricultural Mechanization Laboratory.

**COURSES**

*Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.*

**AGRICULTURE (Agri)****80. Undergraduate Research (1-4; max total 4)**

Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in agricultural education, agricultural mechanics, dairy industry, enology, or food science.

**160T. Topics in Agriculture (1-4; max total 6 per discipline if no topic repeated)**

Prerequisite: junior standing, permission of instructor. Agricultural education, mechanized agriculture, food science, dairy industry, enology.

**180. Undergraduate Research (1-4; max total 4)**

Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in agricultural education, agricultural mechanics, dairy industry, enology, or food science.

**190. Independent Study (1-3; max see reference)**

See *General Information*—Independent Study.

**200 series.** Graduate courses are listed under *Agriculture* following *Plant Science Department*.

**AGRICULTURAL EDUCATION (Ag Ed)****135. Introduction to Agricultural Education (3)**

Survey of agricultural education; vocational surveys; occupational analysis; relationship of agriculture to occupational opportunities; qualifications for teaching agriculture. Includes field trips to high school vocational agriculture departments.

**MECHANIZED AGRICULTURE (Ag Me)****15. Agricultural Mechanics (3)**

Mechanical skills in field of agriculture; selection, care and use of common farm tools; projects of wood and metal in farm appliances. (2 lecture, 2 lab hours)

**17. Farm Tractors (3)**

Operation and maintenance of farm tractors; operation of farm tractor under field conditions; service, maintenance and minor repair of gas, diesel, and butane type engines of wheel and crawler type. (2 lecture, 2 lab hours; 5 hours field operation.)

**18. Agricultural Welding (3)**

Prerequisite: Ag Me 15 or permission of instructor. Metallurgy of mechanized agriculture. Arc and oxyacetylene welding, cutting and brazing process as tools of construction, maintenance and repair of the machines of modern agriculture. (2 lecture, 2 lab hours)

**25. Agricultural Drafting (3)**

May be taken concurrently with Ag Me 15. Use of drafting instruments, lettering, dimensioning, scale drawings and working drawings of projects in agricultural mechanics; elementary plan and perspective drawings of small buildings. (2 lecture, 2 lab hours)

**81. Farm Structures and Equipment (3)**

Prerequisite: Ag Me 15. Construction and repair of farm structures and equipment; farm carpentry and construction principles: engineering principles, codes; farmstead layouts and basic requirements of farm structures. (2 lecture, 2 lab hours)

**91. Farm Surveying (3)**

Prerequisite: sophomore standing or permission of instructor. Use of the steel tape, level, transit and compass; field problems in chaining distances, laying out building lines, profile leveling for irrigation ditches and drains, land leveling, and measuring land areas. (2 lecture, 2 lab hours)

**111. Rural Electrification (2)**

Prerequisite: junior standing. Fundamentals of alternating current, wiring practices, circuit layouts and problems, motor and branch circuit protection; safe use of electricity; wiring of farmstead.

**111L. Rural Electrification Laboratory (1)**

Laboratory experiments to accompany Ag Me 111. (3 lab hours)

**115. Farm Machinery (3)**

Prerequisite: Ag Me 15. Study and operation of tillage tools, interaction of the soil and tool; cotton, grain, and specialized harvesting machinery and equipment. (2 lecture, 3 lab hours)

**116. Farm Machinery (3)**

Prerequisite: Ag Me 15. A study of farm machinery used in spring and summer operations. Orchard and field spraying equipment, field and row crop planters, cultivating tools, and haying machinery. (2 lecture, 3 lab hours)

**121. Advanced Agricultural Welding (3)**

Prerequisite: Ag Me 18. Arc and gas welding processes in construction and repair of farm equipment; inert arc welding; radiograph and shape burning; aluminum and stainless steels; welding tests and design of welded structures. (2 lecture, 3 lab hours)

**131. Agricultural Fluid Power (3)**

Prerequisite: junior standing or permission of instructor. Theory and practice in the operation, service, adjustment, and function of the component parts of fluid power systems. Design application of systems to farm machines. (2 lecture, 3 lab hours)

**140. Agricultural Processing Technology I (3) (Former Ag Me 158A)**

Prerequisite: junior or senior standing or permission of instructor. Principles of plant operations in the food and fiber industries. Basic theory of heat transfer, fluid mechanics, refrigeration, dehydration, cleaning and sorting, cost analysis, and plant layout. (2 lecture, 3 lab hours)

**141. Agricultural Processing Technology II (3) (Former Ag Me 158B)**

Prerequisite: junior or senior standing or permission of instructor. Processing techniques including heat exchange equipment, distillation, process condition, pumps in food industry, fluid flow measurement. (2 lecture, 3 lab hours)

**151A-B Farm Power (3-3)**

Prerequisite: Ag Me 15. (A) Principles of the internal combustion engine; adjusting, servicing, and minor repairs practical in farming operations. (B) Overhauling and repairing of gasoline and diesel farm tractors and engines; field servicing and repairing of auxiliary power plants on farm machinery. (2 lecture, 3 lab hours)

**153. Small Engines (3)**

Prerequisite: junior or senior standing or permission of instructor. Theory of operation, maintenance and repair of small gasoline internal combustion engines, both 2-cycle and 4-cycle. (2 lecture, 3 lab hours)

**159. Pumps and Motors (3)**

Prerequisite: Ag Me 15, Plant 50. Operation and study of centrifugal and deep well turbines; testing of pumps and motors under operating conditions to determine efficiency; installation, protective devices, maintenance and proper selection of single and three-phase motors used on the farm. (2 lecture, 3 lab hours)

**DAIRY INDUSTRY (D Ind)**

**23. Dairy Foods and Man (3)**

The history and geography, processes and processing of dairy products; their description, composition, and nutritive values; current role of the dairy industry and dairy foods.

**103. Manufacturing Dairy Products (3)**

Prerequisite: junior standing or permission of instructor. Making common varieties of cheese, mix making and freezing desserts, churning butter, and culturing dairy products. (1 lecture, 6 lab hours)

**113. Manufactured Dairy Products (3)**

Chemistry, physics, and mathematics applicable to the production of butter, concentrated products, cheese, and ice cream.

**143. Market Milk Products (3)**

Market milk production, marketing, processing and distribution; common laboratory practices and processing methods. (2 lecture, 3 lab hours)

**153. Dairy Inspection (3)**

Application of the California Agricultural and the United States Public Health Codes to the inspection of dairies, dairy plants, and dairy products.

**163. Dairy Chemistry and Testing (3)**

Prerequisite: Chem 2A-B. Milk constituents and application of chemical laboratory tests as used in food plants. (2 lecture, 3 lab hours)

**ENOLOGY (Enol)**

**15. Wine and the Consumer (3)**

History and development of the wine industry; mechanics of various processes and factors affecting wine quality and consumer acceptance.

**15L. Enology Laboratory (1)**

Techniques in analyzing and evaluating wines; methods by which sound wines can be made and kept. Field trips to local wineries.

**115. Wine Analysis and Production (5)**

Prerequisite: Chem 109, Enol 15, Micro 20 or 104, Plant 127. Principles and practices of preparation and analysis of dessert and table wines; operation of plant equipment; controlled tests. (3 lecture, 6 lab hours)

**135. Field Studies (1)**

Prerequisite: permission of instructor. A six-day field trip, during the Easter recess, covering the north coast wineries to study the techniques and handling methods employed by the many vintners.

**165. Wine Technology (3)**

Prerequisite: permission of instructor. Technological study of winery equipment; evaluation, location, and operation; sanitation procedures. (2 lecture, 3 lab hours; 3- or 4-day field trip)

**175. Winery Management (3)**

Prerequisite: permission of instructor. Physical properties of a winery; administrative organizational set-up; personnel; purchasing, packaging, and shipping; local, state, and federal regulatory statutes.

**FOOD SCIENCE (F Sci)**

**1. Food Science and World Food Problems (3)**

Modern food processing; world food problems; basic characteristics of processed foods.

**100. Food Appraisal and Evaluation (3)**

Prerequisite: Math 29, F Sci 1 or permission of instructor. Analysis, measurement, and methods used in evaluation of organoleptic, kinesthetic, and other quality factors in foods. (2 lecture, 3 lab hours)

**110. Food Chemistry (3)**

Prerequisite: Chem 8 (or concurrent), or permission of instructor. Composition, structure, and properties of food; chemistry of changes occurring during processing and utilization.

**120A-B. Food Engineering (3-3)**

Prerequisite: Phys 2A-B, physical chemistry, or permission of instructor. (A) Laws of thermodynamics, closed and open (control volume) systems; thermodynamic properties; thermodynamic cycles, phase, and chemical equilibria; gas dynamics. (B) Fluid flow, heat transfer, connection, radiation, heat exchangers. (2 lecture, 3 lab hours)

**130. Food Analysis (3)**

Prerequisite: 1 year of general chemistry, qualitative analysis. Principles of food analysis; sampling, separation, physical measurements, chemical and biochemical techniques. (2 lecture, 3 lab hours)

**140A-B. Food Processing (3-3)**

Prerequisite: F Sci 110; Chem 8 (or concurrent), or permission of instructor. (A) Food preservation by heat, low temperature, dehydration, fermentation, and radiation. (B) Sanitation and control of microbiological problems involved in processing and storing foods; case studies. (B: 2 lecture, 3 lab hours)

**170. Food Microbiology I (3)**

Prerequisite: Micro 20. Control of microorganisms in production and handling of foods; microbiological methods of examining foods.

**171. Food Microbiology II (2)**

Food spoilage organisms and microbiological methods of examining foods. (1 lecture, 3 lab hours)

**191. Food Science Literature (1)**

Prerequisite: senior standing. Review of recent literature.

## ANIMAL SCIENCE DEPARTMENT

## FACULTY

Arthur S. Hoversland, *Department Chairman*

Jesse T. Bell ■ Floyd M. Hixson ■ William J. McCulloch ■ Darren M. Nelson ■ Donald D. Nelson ■ Edwin J. Rousek ■ Robert J. Selkirk, Jr.

The Department of Animal Science offers programs of study in the animal sciences including beef, swine, sheep, horse, dairy, and poultry husbandry. The courses offered deal with the application of various principles of biological and physical sciences to animals. This includes management and production factors as related to environmental interrelationships, cultural modifications and adaptation, protection against pests and diseases, utilization, marketing, and research and development pertaining to the future. Students specializing in animal science may prepare for careers in business, government, foreign service, or the livestock industry where they may be engaged in consultation, management, production, research, teaching, advanced degrees, and other related professional services including veterinary medicine.

The courses offered in the disciplinary areas listed below provide the necessary background to prepare students for career objectives.

*Animal Science (A Sci)* provides in-depth study in subject areas designed to complement the livestock and poultry disciplines in preparing students for work opportunities in nutrition, reproduction, health, and related areas.

*Animal Husbandry (A Sci)* prepares students for positions in livestock production, management, and agricultural businesses where beef cattle, sheep, swine, and horse enterprises are an important part of the industry.

*Dairy Husbandry (A Sci)* trains students for commercial dairy farming enterprises, dairy herd management, milk quality control, field work for breeding associations, dairy sanitation, artificial breeding, and other agribusiness occupations.

*Poultry Husbandry (A Sci)* prepares students for occupations in commercial egg production, fryer operations, breeder flock management, hatchery management, processing, and sales positions with companies supplying the poultry industry. Graduates may operate their own turkey and poultry farms.

In addition, a selected variety of animal science and agricultural economics courses will provide the necessary background for the following career objective.

*Animal Science-Agricultural Business.* A combination of courses designed to train students in the important features of animal science and business.

**Programs of Study:** the Department of Animal Science provides competent advisers for students pursuing career objectives in, *but not limited to*, the following areas:

<i>Career Objective</i>	<i>Suggested Major</i>
Ranching	Agricultural science
Feed lot management	Agricultural business
Animal research	Agricultural science
Veterinary medicine	Agricultural science
Agricultural sales: feed, pharmaceuticals	Agricultural business or agricultural science
Dairy herd management	Agricultural business or agricultural science
Breeder, or field work with breed associations	Agricultural business or agricultural science
Foreign service in animal sciences	Agricultural science
Poultry management	Agricultural science or agricultural business
Animal nutrition: feed processing, research	Agricultural science
Meat technology: consumer products	Agricultural science or agricultural business
Artificial insemination: breeder, research	Agricultural science
Livestock judging, fair associations	Agricultural science or agricultural business

**Animal Science Laboratory Units:** Theoretical instruction in animal sciences is enhanced through practical application at the various laboratory units. These units include the Beef Husbandry Laboratory, Horse Husbandry Laboratory, Sheep Husbandry Laboratory, Swine Husbandry Laboratory, Dairy Husbandry Laboratory, Poultry Husbandry Laboratory, Meats Laboratory, Veterinary and Physiology Laboratory, and Feed Mill Laboratory.

### **SUPERVISED PROJECTS**

The agricultural sciences program is unique in that it provides opportunity for students to gain both theoretical training and practical experience in farming while pursuing their university programs. The supervised project experience is designed to supplement the lecture and laboratory assignments, giving students greater opportunity to develop the practical side of farming. The university owns all of the necessary equipment for student projects. A rental fee is charged for use of equipment. Proficiency in operating equipment must be demonstrated before projects may be undertaken. Students sign contracts wherein they agree to perform the labor required in caring for their projects. The Agricultural Foundation serves as a banking agency in providing the money a student will or may need for project materials. Students must submit records on each enterprise to the Agricultural Foundation and share the profit or loss with the Foundation according to established percentages.

In the Animal Science Department, students may feed out steers, lambs, pigs, fryers or turkeys, or have commercial egg production projects. Animal science students may, with prior approval of the department, engage in self-financed projects.

### **COURSES**

*Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.*

### **ANIMAL SCIENCE (A Sci)**

#### **10. Animal Science (3)**

Types and breeds of farm animals and poultry in the United States; world distribution, adaptation, production methods; foods and products produced by farm animals, their use by humans. (2 lecture, 3 lab hours)

#### **70. Comparative Nutrition (3)**

Prerequisite: Chem 2A or concurrent. Principles of nutrition; nutrients and their metabolism; comparison of qualitative nutrient requirements of monogastric and ruminant animals and man; role of animal food products in human nutrition.

#### **80. Undergraduate Research (1-4; max total 4)**

Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in animal science.

#### **105. Animal Science Laboratory (2) (Former A Sci 20)**

Prerequisite: A Sci 10 or permission of instructor. Development of skills in applying animal science principles and practices; discussion, demonstration, participation. (2 2-hour lecture-labs; field trips)

#### **106. Animal Enterprise Management: Beef and Sheep (1; max total 4) (Former A Sci 160T)**

Theory and field application of principles in beef cattle and sheep enterprise management. Participants in beef/sheep project programs must be concurrently registered in this course.

#### **110. Anatomy and Physiology of Farm Animals (3)**

Prerequisite: Zool 1, Chem 8. General structures of farm animals and physiological functions of organs of the animal body. (2 lecture, 3 lab hours)

#### **116. Animal Enterprise Management: Swine (1; max total 4) (former A Sci 160T)**

Theory and field application of research principles in swine science. Participants in swine project program must be concurrently registered in this course.

**120. Livestock Sanitation and Diseases (3)**

Prerequisite: A Sci 110 or permission of instructor. Sanitation practices and use of disinfectants; cause, symptoms, prevention, and treatment of common diseases of livestock. (2 lecture, 3 lab hours)

**125. Principles of Animal Breeding (3)**

Prerequisite: A Sci 10 or permission of instructor. Principles of genetics as applied to domestic animals. Practices and problems commonly encountered in animal breeding.

**130. Feed Mill Management (3)**

Prerequisite: A Sci 70. Planning, operating and maintaining feed mills; mixing, buying and selling feeds; participation in management and operation of university feed mill; field trips. (2 lecture, 3 lab hours)

**140. Behavior of Domestic Animals (3)**

Not open to students with credit in this section of A Sci 160T. Prerequisite: A Sci 10 or permission of instructor. Man's understanding and utilization of the principles of behavior in confined and free-ranging domestic animals. (2 lecture, 3 lab hours)

**145. Horses for Pleasure (3) (Former A Sci 160T section)**

Not open to students with credit in A Sci 51, 151. Intended for nonanimal science majors who desire a general knowledge of the modern light horse industry: evaluation and selection, horsemanship principles, training techniques, diseases, and unsoundness, nutrition, breeding, buildings and equipment. (2 1½-hour lecture-demonstration)

**150. Animal Science Seminar (1; max total 2)**

Open to seniors majoring in animal science. Latest developments in research; assigned papers in animal science to be presented in both oral and written form.

**155. Animal Reproduction (3) (Former A Sci 100)**

Prerequisite: A Sci 10 or 12; A Sci 125 or Biol 120 or concurrent. Principles of reproductive physiology and their application to domestic animals.

**160T. Topics in Animal Science (1-4; max total 6 per discipline if no topic repeated)**

Prerequisite: junior standing, permission of instructor. Anatomy, physiology, pathology, nutrition, genetics, economics.

**170. Applied Animal Nutrition (3)**

Prerequisite: A Sci 70 or permission of instructor. Quantitative nutrient requirements and allowances for domestic animals; feedstuffs and methods of processing; feeding systems and ration formulation for profitable livestock production.

**180. Undergraduate Research (1-4; max total 4)**

Open to juniors and seniors. Exploratory work on a suitable agricultural problem in animal science.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 Series.** Graduate courses are listed under *Agriculture* following *Plant Science Department*.

**ANIMAL HUSBANDRY (A Sci)****11. Livestock Selection and Evaluation (3)**

Basic factors involved in selection and evaluation of beef cattle, horses, sheep, and swine; relationships of live market animal traits to carcass desirability. (2 lecture, 3 lab hours)

**21. Beef Husbandry (3)**

Prerequisite: A Sci 10. Management of purebred and commercial beef herds; selection of breeding stock; management practices in fattening cattle; marketing slaughter and purebred cattle. (2 lecture, 3 lab hours)

**31. Swine Husbandry (3)**

Prerequisite: A Sci 10. Principles and practices of purebred and commercial swine husbandry; breeding, feeding, and management program. (2 lecture, 3 lab hours)

**41. Sheep Husbandry (3)**

Prerequisite: A Sci 10. Breeding, feeding management, and marketing of commercial and purebred sheep; breeds, setting up a program of breeding, housing, and equipment requirements; feeding and care of ewes and lambs; docking, castrating, shearing, tying, sacking, storing wool. (2 lecture, 3 lab hours)

**51. Horse Husbandry (3)**

Not open to students with credit in A Sci 145. Prerequisite: A Sci 11. Breeds, selection, care, and feeding of light horses; their use and place in California agriculture. (2 lecture, 3 lab hours)

**101. Livestock Evaluation (2; max total 4)**

Prerequisite: A Sci 10, 11, or permission of instructor. Detailed analysis of various visual and physical methods of appraising animal body types as related to functional and economic value of livestock. Written and oral summaries of evaluations. (1 lecture, 3 lab hours; field trips)

**111. Advanced Beef Husbandry (3)**

Prerequisite: A Sci 21. Management techniques and principles as applied to beef cattle industry; breeding, nutrition, animal health, and records of performance. (2 lecture, 3 lab hours)

**121. Meats (3)**

Prerequisite: A Sci 10. Evaluation of live animals and carcasses; selection and preparation of meats and meat products; survey of the meat industry in the United States. (2 lectures, 3 lab hours)

**131. Meats and the Consumer (3)**

Study of meats; quality and price selection, identification, nutritive value, preparation, storage, and government standards. (2 lecture, 2 lab hours)

**141. Meat Evaluation (3)**

Prerequisite: A Sci 10 or permission of instructor. Evaluation of live animals and carcasses with emphasis on current grading and evaluation concepts as applied to carcasses, meat products, and live animals. (2 lecture, 3 lab hours)

**151. Advanced Horse Husbandry (3)**

Prerequisite: A Sci 51. Advanced principles of horse husbandry; management of horse breeding farms, breeding systems, training and selling horses, western equitation. (1 lecture, 6 lab hours)

**161. Animal Science Technology (3)**

Prerequisite: A Sci 10, or junior standing or permission of instructor. Techniques used in applying theories and principles of the disciplines encountered in the animal sciences.

**171. Marketing Livestock and Meat (3)**

Prerequisite: junior standing and permission of instructor. Economic principles in marketing livestock and livestock products; demand, supply, distribution; markets and marketing procedures; classifying, grading, evaluating livestock for marketing.

**DAIRY HUSBANDRY (A Sci)****12. Dairying (3)**

Survey of all important branches of the dairy industry; principles and practices in milk production; basic principles of processing market products. (2 lecture, 3 lab hours)

**112. Dairy Cattle Management (3)**

Prerequisite: A Sci 12, Econ 1A. Basic ideas, costs, and concepts necessary for the successful operation of a modern dairy production unit.

**122. Dairy Cattle Evaluation (2; max total 4)**

Prerequisite: A Sci 12. Functional anatomy in dairy cattle; detailed analysis of selection, classification, and scoring systems and their application to breeding programs. (1 lecture, 3 lab hours; field trips)

**152. Artificial Insemination (3)**

Prerequisite: A Sci 10 or 12, 110. Basic principles of artificial insemination in all species of domesticated animals including beef, dairy cattle, horses, sheep and swine; semen collection, processing, evaluation and use. (2 lecture, 3 lab hours)

## PLANT SCIENCE DEPARTMENT

### FACULTY

Harry P. Karle, *Department Chairman*

Sayed A. Badr ■ Wayne E. Biehler ■ James R. Brownell ■ O. J. Burger ■ Robert D. Harrison ■ Allan A. Hewitt ■ T. Tom Ishimoto ■ Gary M. Koch ■ Arthur J. Olney ■ Herbert A. Paul ■ Vincent E. Petrucci ■ Gary L. Ritenour ■ Marinus Van Elswyk, Jr. ■ Julian W. Whaley

The Department of Plant Science offers programs of study in the plant sciences, including all aspects of agriculture and applied biology related to the fields of agronomy, horticulture, ornamental horticulture, and viticulture. These include management and production factors as related to environment (soil, water and atmospheric effects, air pollution), cultural modifications and adaptations, protection against pests and diseases, storage and handling practices, utilization, marketing, and mechanization. Careers in modern scientific agriculture include positions in management, sales and service, research, teaching, and government agencies.

The courses offered in the disciplinary areas listed below provide the necessary background to prepare students for career objectives.

*Plant Science (Plant)* provides study in subject areas designed to complement the production disciplines in preparing students for work opportunities in soils, irrigation, propagation, breeding, and related areas.

*Plant Protection (Plant)* provides a broad selection of courses for training in physical and biological sciences, plant diseases, insects, weeds, agricultural inspection of food crops, and laws regulating food production. They are designed to prepare students for careers in agricultural chemical industries and private or governmental agencies dealing in crop care and crop protection. In addition, these courses provide a foundation for advanced study in preparation for careers as college teachers, extension specialists, and research scientists in experimentation stations and industry.

*Agronomy (Plant)*, including field crops and soil science, prepares students for specific crop production and general farming involving combinations of crops and livestock. They may also prepare students to qualify for employment opportunities in service and sales in seeds, pesticides, and fertilizers; agronomic research; gin management; farm management; and field work or research for county, state, and federal government agencies.

*Horticulture (Plant)* prepares students for general fruit farming, as managers of orchards, as inspectors in fruit processing plants, for supervisory positions in fruit packing plants, and for careers with county, state, and federal agencies.

*Ornamental Horticulture (Plant)* prepares students for the nursery industry, landscaping and grounds work, floral industry, and a variety of sales positions. The subject matter serves to enhance participation in farm and home landscape gardening and floral design as an avocation.

*Vegetable Crops (Plant)* prepares students for specialized farming in vegetable crops, processing and marketing, and regulatory inspection. The growth of the industry in the San Joaquin Valley offers a wide variety of employment opportunities. A vegetable garden is maintained with both fall and spring crops grown for student observation. Land is also available for vegetable projects.

*Viticulture (Plant)* is one of two instructional programs of its kind in the United States that prepare students for employment as viticulturists in such capacities as vineyard farmers, managers, and developers and positions in related fields of research, inspection, teaching, and packinghouse management for both fresh and dried grapes.

In addition, a selected variety of plant science courses will provide the necessary background for the following career objectives:

*Natural Resources.* Provides education in physical and biological sciences as they apply to the management of the renewable natural resources (soils, water, forests) designed for the student interested in an understanding of those parts of the environment managed by man or preparation for employment in soil conservation service, land use planning, waste disposal management, or graduate study.

*Postharvest Physiology.* Provides an education to prepare students for research work in the area of handling fresh fruits and vegetables for domestic as well as foreign markets.

**Soil and Water Science.** Provides an education in physical and biological sciences applied to soil-water-plant relationships designed for the student interested in farm management, irrigation system design, employment as fertilizer or sprinkler equipment salesman; preparation for governmental and industrial research, irrigation district management and planning, and graduate study.

**Plant Science—Agricultural Business.** A combination of courses designed to train students in the important features of plant science and agricultural economics.

**Programs of Study:** The Department of Plant Science provides competent advisers for students pursuing career objectives in, *but not limited to*, the following areas:

<i>Career Objective</i>	<i>Suggested Major</i>
Research agronomy	Agricultural science
Farming: field crops, vegetable crops	Agricultural science
Fruit production, citrus farming	Agricultural science
Vineyard management	Agricultural business
Ornamental horticulture: landscape design, nursery management, turf management	Agricultural science or agricultural business
Viticulture	Agricultural science
Pomology: production, research	Agricultural science
Diversified farming	Agricultural education
Vegetable processing: frozen, fresh	Agricultural science or agricultural business
Irrigation	Agricultural science
Soil science	Agricultural science
Agricultural sales: plant nutrients, weedicides, insecticides, fertilizers	Agricultural business
Plant pathology	Agricultural science
Agricultural entomology	Agricultural science
Range or pasture management	Agricultural science
Research and development: plant by-products, mechanization, plant breeding	Agricultural science

**Suggested Courses:** The following core of courses is recommended for all students preparing for a career in one of the plant science disciplines: Chem 2A, 2B, 8; Bot 1 or 10, 104; Biol 120; Zool 1 or 10; Plant 50, 130, 131, 171, and 170T Pest Management.

**Plant Science Laboratory Units:** Theoretical instruction in plant sciences is enhanced through practical application at the various laboratory units. These units include the Orchard Laboratory (65 acres), Vineyard Laboratory (160 acres), Raisin Processing Laboratory, Post-Harvest Physiology Laboratory, Seed Processing Laboratory, Ornamental Horticulture Laboratory, Pasture and Field Crop Laboratory (950 acres), and Sprinkler Irrigation Test Laboratory.

### **SUPERVISED PROJECTS**

The agricultural sciences program is unique in that it provides opportunity for students to gain both theoretical training and practical experience in farming while pursuing their university programs. The supervised project experience is designed to supplement the lecture and laboratory assignments, giving students greater opportunity to develop the practical side of farming. The university owns all of the necessary equipment for student projects. A rental fee is charged for use of equipment. Proficiency in operating equipment must be demonstrated before projects may be undertaken. Students sign contracts wherein they agree to perform the labor required in caring for their projects. The Agricultural Foundation serves as a banking agency in providing the money students may need for the project materials. Students must submit records on each enterprise to the Agricultural Foundation and share the profit or loss with the Foundation according to established percentages.

In the Department of Plant Science students have an opportunity for project participation, usually limited to five-acre plots. Under certain conditions, reduced or expanded acreage may be allowed. Students prepare seed beds, plant, cultivate, irrigate, control insect pests and weeds, and harvest and market their crops, in addition to making all managerial decisions necessary to completion of the enterprise.

### COURSES

*Note: Active immunization against tetanus (available through the Student Health Service) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.*

#### PLANT SCIENCE (Plant)

##### 10. Plant and Man (3)

Principles of plant structure, physiology, heredity, and environment in relation to growth, adaptation and management of crops. Techniques of research; future developments in plant sciences.

##### 20. Plant Propagation (3)

Principles of sexual and asexual propagation; seed identification, seedage, cuttage, specialized plant structures for propagation; propagation media, rooting aids, structures. (2 lecture, 3 lab hours)

##### 40. Water and Man (3)

Problem approach to man's need for and use of water; his management of water supply, allocation, use, disposal, and quality control for domestic, aesthetic, agricultural, industrial, power, navigation, and recreational uses.

##### 50. Irrigation (3)

Methods of irrigation adapted to the San Joaquin Valley; water requirements of various crops and methods of application. (2 lecture, 3 lab hours; 1 Saturday field trip)

##### 80. Undergraduate Research (1-4; max total 4)

Open to freshmen and sophomores with permission of instructor. Exploratory work on a suitable agricultural problem in plant science.

##### 110. Advanced Irrigation (3)

Prerequisite: Plant 50. Evaluation of the equipment design, operation, soil and crop response of methods of irrigation, sprinkler methods; pipe line and other methods featuring water control, soil and water conservation. (2 lecture, 3 lab hours; 1 week end field trip)

##### 120. Soil Classification and Survey (3)

Prerequisite: Plant 130. Influence of environmental factors on soil development; description and identification of soil profiles and mapping, interpretation of survey data. (2 lecture, 3 lab hours)

##### 130. Soils (3) (Former Plant 30)

Prerequisite: high school chemistry or Chem 2A (Chem 2B or 2C concurrent). Physical and chemical properties of soils as a medium for plant growth; factors that influence soil formation; evaluation of current studies including food production, soil map interpretation, fertilizer use, soil's role in the biosphere. (1 Saturday field trip)

##### 130L. Soils Laboratory (1) (Former Plant 30L)

Prerequisite: Plant 130 (or concurrently). Physical, chemical, and biological analysis. Interpretation of field and laboratory data. (3 lab hours)

##### 132. Agricultural Chemical Application (3)

Application techniques of agricultural chemicals: fertilizers, insecticides, herbicides, fungicides, nematocides, fumigants. Emphasis on effective and safe use of chemicals and on equipment calibration to ensure proper rate of application. (2 lecture, 3 lab hours)

**140. Plant Breeding (3)**

Prerequisite: Biol 120. Application of genetic and environmental principles to improvement of plants; heredity and variation in plants, effects of environmental factors on plant improvements, effects of self and cross fertilization, principles and results of selection and hybridization in plant improvement. (2 lecture, 3 lab hours)

**150. Soil Management (3)**

Prerequisite: Plant 130. Factors affecting soil fertility, management of soils, attaining continuous maximum productivity. Physical, chemical, and field tests on soil productivity and crop management. (2 lecture, 3 lab hours; 1 Saturday field trip)

**152. Soil Fertility (3)**

Prerequisite: Chem 2A-B and 3 units of soils. Evaluation of plant nutrient status of soils, chemistry of the nutrient elements, soil and plant tissue analyses and interpretation, fertilizer use. (2 lecture, 3 lab hours)

**160. Plant Science Seminar (1; max total 2)**

Undergraduate seminar for advanced students in junior or senior year.

**170T. Topics in Plant Science (1-4; max total 6 per discipline if no topic repeated. Same as Geog 114 section)**

Prerequisite: junior standing. Plant science, agricultural climatology, agronomy, horticulture, and other associated areas.

**180. Undergraduate Research (1-4; max total 4)**

Open to juniors and seniors. Exploratory work on a suitable agricultural problem in plant science.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 series.** Graduate courses are listed under *Agriculture* following this section.

**PLANT PROTECTION (Plant)****21. Plant and Food Protection (3)**

Origin, history, and evaluation of protective measures (chemical, biological, cultural) for the control of diseases, weeds, insects, and rodents in the field and around the home.

**91. Beekeeping (3)**

Fundamentals of beekeeping; manipulation of the hive; diseases and enemies of bees; nectar sources and pollination problems; production and marketing of honey and beeswax; laws and regulations pertaining to beekeeping. (2 lecture, 3 lab hours)

**101. Plant Quarantine (3)**

Prerequisite: Plant 121. The biological, economic, and administrative aspects of plant quarantine; study of the plant pests under federal and state quarantine laws.

**111. Fruit and Vegetable Standards (3)**

State and federal standards and regulations for packing, processing, and shipping fruits and vegetables.

**121. Economic Entomology (3) (Same as Ent 106.)**

Prerequisite: Bot 10 or Zool 10. General and economic entomology; taxonomy of the principal orders of insects; life histories, habits, recognition, and control of the principal agriculture insect pests of the San Joaquin Valley. (2 lecture, 3 lab hours; field trips)

**131. Weeds (3)**

Prerequisite: Bot 1, Chem 2A-B. Weeds common to the San Joaquin Valley, their identification and control. (2 lecture, 3 lab hours)

**141. Fruit Diseases and Pests (3)**

Fruit diseases and pests; identification and control; application of sprays, insecticides; establishment of control programs. (2 lecture, 3 lab hours)

**151. Properties of Pesticides (3)**

Prerequisite: Chem 8. Physical and chemical properties of the principal insecticides, fungicides, and nematocides; formulations, regulations, and typical uses.

**161. Plant Nematology (3)**

Prerequisite: Zool 10. Morphology, life history, parasitic activity, and control of economically important nematodes with emphasis of plant-parasitic forms. (2 lecture, 3 lab hours)

**171. Plant Pathology (4)**

Prerequisite: Bot 1. Nature, cause, and control of plant disease in economic agriculture plants. (2 lecture, 6 lab hours)

**181. Soil Microbiology (3)**

Prerequisite: Plant 171 or Microbiology. Isolation, population studies and biochemical activities of soil organisms related to organic matter and agricultural chemicals decomposition, including their effects on plant growth. (2 lecture, 3 lab hours)

**AGRONOMY (Plant)****13. Agronomy (3)**

Principles of crop production, survey of important field crops, production methods and major uses in California and the San Joaquin Valley. (2 lecture, 3 lab hours; 2 Saturday field trips)

**33. Row Crops Production (3)**

Cultural methods, insect and disease control; harvesting; quality and marketing of major California row crops including cotton, other fiber and oil crops, sugar beets, beans. (2 lecture, 3 lab hours)

**43. Cereal Crops (3)**

Prerequisite: Plant 13. Cereal crops common to the San Joaquin Valley; varieties and cultural practices, harvesting and marketing. (2 lecture, 3 lab hours)

**113. Seed Production (3)**

Prerequisite: Plant 13 or permission of instructor. Principles and practices in the culture of vegetable and field crops for seed production; harvesting, storage, yields, quality, seed laws, certification, seed cleaning, and marketing. (2 lecture, 3 lab hours)

**123. Field Crop Technology (3)**

Prerequisite: Chem 2A, 6 units of agronomy or permission of instructor. Evaluation of factors that impart quality to fiber and oil crops, cotton, cereals, and other major California field crops. Relationship of crop quality to varieties, cultural practices, insects and disease, harvesting and storage. (2 lecture, 3 lab hours)

**133. Forage Crops (3)**

Prerequisite: Plant 13 or permission of instructor. Irrigated forage crops of California as related to livestock enterprises; cultural methods, harvesting, marketing, quality, insect and disease control. (2 lecture, 3 lab hours)

**173. Range Management (3)**

Prerequisite: Plant 13 or permission of instructor. Identification of range forage; estimating carrying capacity; methods of range conservation, controlled grazing, water development, rodent control, fertilization, reseeding, brush removal; identification of poisonous plants. (2 lecture, 3 lab hours; 1 Saturday field trip)

**183. Advanced Agronomy (3)**

Prerequisite: Bot 104, 6 units of agronomy or permission of instructor. Relating the various production techniques and problems to the functions of agronomic crops. Practical problem solving; field experimentation; research paper evaluation.

**VEGETABLE CROPS (Plant)**

**14. Vegetable Crops (3)**

Culture of vegetable crops for market and home; importance, varieties, cultivation, harvesting, storing, and marketing; vegetable diseases and insect pests; vegetables grown commercially in the San Joaquin Valley. (2 lecture, 3 lab hours; 2 Saturday field trips)

**114. Vegetable Field Crops (3)**

Prerequisite: Plant 14. Mechanized production, harvesting, processing, packaging, and marketing of vegetables common to the western San Joaquin Valley; morphology and development; management peculiar to vegetable crops. (2 lecture, 3 lab hours; 3-day field trip)

**154. Organic Gardening (3) (Former EXP 115)**

Organic method of growing vegetables and other plants. Demonstrations and applications on principles of composting, cover cropping, mulching, crop rotation. Biological control of pests and use of natural pesticides. Students prepare land, grow crops suitable to season. (2 lecture, 3 lab hours)

**174. Physiology of Vegetable Crops (3)**

Prerequisite: Plant 14, Bot 104. Principles of plant physiology related to factors associated with maturity, quality, pest resistance, development of new varieties, and production of vegetables. (2 lecture, 3 lab hours)

**ORNAMENTAL HORTICULTURE (Plant)**

**15. Introductory Ornamental Horticulture (3)**

Planting and maintenance of the garden; selection, planting, fertilization, and pruning of ornamental plants; lawn planting and care. (2 lecture, 3 lab hours)

**25. Plant Identification (3)**

Identification, habits of growth, culture and landscape use of trees, shrubs, vines, annuals, herbaceous perennials including tropicals, subtropicals, conservatory and house plants. (2 lecture, 3 lab hours)

**35. Principles of Nursery Operation (3)**

Prerequisite: Plant 20. Nursery structures; practice in production of ornamental, fruit, nut, annual, perennial, bedding, vegetable, and pot plants; retail and wholesale nursery practices. (2 lecture, 3 lab hours)

**55. Introductory Landscape Design (3)**

History and development in the field of landscape design. A study of the need for landscaping in modern man's environment. Consideration of landscaping practices for the modern home and their effect on the home microenvironment.

**65. Floral Design (3)**

Introductory floral design; principles and rules of design and color using plants as the media; influence of the Japanese and European schools; emphasis on modern American line-mass design. \$10 materials fee required. (2 lecture, 3 lab hours)

**105. Arboretums and Botanical Gardens (2)**

Arboretums and botanical gardens in the United States; purpose, design, and functions of arboretums and botanical gardens in the present environment. (1 lecture, 3 lab hours)

**125. Ornamental Trees (3)**

Prerequisite: Bot 1, Plant 20. Trees grown in California for landscaping, shade and ornamentation; identification, habits of growth, cultural requirements, landscape, use. (2 lecture, 3 lab hours)

**135. Flower Shop Management (3)**

Prerequisite: Plant 65. Practices and principles in planning and managing a retail flower shop. Design of floral compositions for special occasions, weddings, and funerals, including the use of dried and permanent materials. \$10 materials fee required. (2 lecture, 3 lab hours; 1-day field trip)

**145. Floriculture (3)**

The construction, operation, and management of greenhouses and other forcing structures. The greenhouse environment and its relationship to the production of commercial florist crop. (2 lecture, 3 lab hours)

**155. Plant Hormones (3)**

The effects of plant hormones and other growth regulating chemicals on the physiology, growth, and development of horticultural plants. (2 lecture, 3 lab hours)

**165. Turfgrass Production and Management (3)**

Production and maintenance of grass for lawns, public parks, public institutions, playgrounds, playing fields, golf courses, bowling greens; identification of turfgrasses and turfgrass seed. (2 lecture, 3 lab hours)

**175. Nursery Management (3)**

Prerequisite: Plant 15, 25. Design, construction and utilization of nursery structures; control of temperature and lighting; business organization. (2 lecture, 3 lab hours)

**185. Landscape Design (4)**

Prerequisite: senior standing. The analysis and solution of construction problems as they relate to design and site development. (2 lecture, 6 lab hours)

**195. Advanced Floriculture (3)**

Prerequisite: Plant 145. Practices and techniques in the production of major floricultural crops with emphasis on cut flowers, potted plants, and bedding plants. (2 lecture, 3 lab hours)

**HORTICULTURE (Plant)****16. Fruits of the World (3)**

Origin, history, nutrition value and world distribution of fruits; factors affecting growth, storage and handling, fruit processing, and marketing.

**106. Fruit Species of California (3)**

Prerequisite: junior standing. Fruit and nut species common to California; their adaptation and uses.

**116. Fruit Production I (3)**

Prerequisite: Plant 16. Adaptations of fruits to their environments; training, pruning, propagation, rootstocks; fundamentals of fall cultural practices. (2 lecture, 3 lab hours)

**126. Fruit Production II (3)**

Prerequisite: Plant 16. Fruit and vegetative development; pollination, nutrition, product utilization; fundamentals of spring cultural practices. (2 lecture, 3 lab hours)

**136. Citriculture (3)**

Prerequisite: Plant 16. History and botany of citriculture; species adaptation to our environment; fruit and vegetative development; cultural practices; production and economics. (2 lecture, 3 lab hours)

**166. Postharvest Physiology of Horticultural Crops (3)**

Prerequisite: Bot 104 or permission of instructor. Physiology of maturation, ripening, and senescence of tree fruits, grapes, and vegetables. Principles of handling fresh produce: harvesting, precooling, packaging, storage, and transportation. Control of postharvest problems. (2 lecture, 3 lab hours)

**186. Orchard Management (3)**

Prerequisite: Plant 116. Practices and principles in planning, establishing, and maintaining fruit and nut crops; new development analysis; survey of scientific literature. (2 lecture, 3 lab hours)

**VITICULTURE (Plant)**

**17. General Viticulture (3)**

History and origin of the grape industry; study of major grape producing countries; current trends in the raisin, table, wine, fresh juice and canning segments of the grape industry.

**27. Raisin Production and Processing (3)**

Prerequisite: Plant 17 or permission of instructor. Principles and practices of raisin production, dehydration and processing operations; utilization of the university vineyard and raisin processing laboratory. (2 lecture, 3 lab hours)

**107. Viticulture I (3)**

Prerequisite: Plant 17. Current status and future of grape industry; commercial classes of grapes; climatic and soil requirements for grape growing. Principles and practices of vineyard fertilization, cultivation, and pruning. (2 lecture, 3 lab hours)

**117. Viticulture II (3)**

Prerequisite: Plant 17. Planning of new vineyards. Principles and practices of propagation, planting, and training grapes. Morphology and physiology of the grapevine and response of the vine to growth regulators and other means of improving grape quality. (2 lecture, 3 lab hours)

**127. Grape Varieties (3)**

Prerequisite: Plant 17. Grape varieties common to California; rootstocks and species, identification, adaptability, use and acreage; taste testing fresh grapes.

**177. Marketing Grapes and Tree Fruit (3)**

Prerequisite: Plant 116 or 117, Ag Ec 31. Principles of marketing dealing specifically with grape and tree fruit, fresh and processed; marketing orders, modes of transportation, market news, competing countries, and the export market. (3-day field trip)

**187. Advanced Viticulture (3)**

Prerequisite: permission of instructor. Relating the various cultural techniques to the physiology of the grape vines; effect of these techniques on vine health and vigor; economics and management of vineyards. (2 lecture, 3 lab hours; 3-day field trip)

**GRADUATE COURSES—AGRICULTURAL SCIENCES**

(See *Course Numbering System—Definitions and Eligibility*)

**AGRICULTURE (Agri)**

**200. Biometrics in Agriculture (3)**

Prerequisite: Math 40; permission of instructor. Statistical principles in agricultural research. Emphasis on collection, summarization of data and the design, conduct, analysis, and interpretation of experiments.

**210T. Topics in Agricultural Economics (3; max total 15)**

Prerequisite: upper division agricultural economics courses appropriate to study topic; permission of instructor. Agricultural marketing, farm management and production analysis, price, credit, and land economics study areas.

**219. Seminar in Agricultural Economics (1–4; max total 4)**

Prerequisite: permission of instructor. Written and oral reports in recent literature and problems related to agricultural economics.

**220. Readings in Agriculture (2–3)**

Prerequisite: permission of instructor. Individually directed readings in a field of special concern to the student's graduate program; appropriate reports and evaluation required.

**221T. Topics in Food Science (3; max total 12)**

Prerequisite: upper division food science course appropriate to study topic, permission of instructor. Advanced studies in a given area: food preservation; processing effect on chemical components; flavor, texture, and other quality factors in foods.

**229. Seminar in Food Science (1; max total 4)**

Prerequisite: permission of instructor. Investigation of current research and problems related to food science. Oral and written reports.

**230T. Topics in Mechanized Agriculture (3; max total 12)**

Prerequisite: upper division mechanized agriculture course appropriate to study topic or permission of instructor. Advanced studies in a given area: farm power and machinery, agricultural processes, machinery management.

**240T. Topics in Animal Science (3; max total 12)**

Prerequisite: upper division animal science appropriate to study topic; permission of instructor. Investigation of topic in animal science: anatomy, physiology, pathology, nutrition, genetics, or economics.

**241. Endocrine and Reproductive Physiology (3)**

Prerequisite: Chem 8. Physiology which deals with neural and hormonal integration and control of the animal body, including scientific aspects of the processes of reproduction and application of current knowledge in improving reproductive efficiency.

**242. Environmental Physiology of Domestic Animals (3)**

Prerequisite: A Sci 110, 155; Chem 2A; permission of instructor. A study of environmental factors affecting domestic animals under field and controlled conditions.

**243. Metabolism and Energy Physiology (3)**

Prerequisite: Chem 8. Current aspects of the integral processes involved in metabolism and energy physiology of laboratory and farm animals. Application of the principles concerned in intermediary metabolism. Selected readings in the current literature within the field.

**244. Vitamin and Mineral Nutrition (3)**

Prerequisite: A Sci 70. A survey of the biochemical and physiological importance of vitamins and minerals in the nutrition of man and his animals. Included is the diagnosis, prevention and treatment of both vitamin and mineral deficiencies.

**245. Advanced Animal Breeding (3)**

Prerequisite: A Sci 110, 155; Chem 2A; permission of instructor. The application of genetic principles to the breeding of livestock and poultry. The study of applied selection and measurements of the results.

**250T. Topics in Plant Science (3; max total 12)**

Prerequisite: upper division plant science appropriate to study topic, permission of instructor. Advanced studies in a given area: crop physiology, plant breeding, plant pathology, plant nutrition, or economics.

**251. Pesticides (3)**

Prerequisite: Bot 10, Chem 8. Modes of action of pesticides. Absorption and translocation of pesticides. Mechanisms of pesticide specificity. Interaction with soil and soil microbes. Methods of pesticide investigations (biological assay, instrumental detection, chemical assay, chemical and microbial degradation). (2 lecture, 3 lab hours)

**252. Plant Nutrition (3)**

Prerequisite: Bot 104. Mineral requirements of plants; the acquisition and translocation of nutrients by higher plants and the role of nutrient elements in plant development. (2 lecture, 3 lab hours)

**254. Plant Hormones and Regulators (3) (Former Agri 250T section)**

Prerequisite: Bot 104, Chem 8 or permission of instructor. History of discovery, chemical nature, extraction, and identification of naturally occurring hormones. Physiological and biochemical effects of plant growth substances and hormones. Mechanism of action of auxins, gibberellins, cytokinins, inhibitors (ABA), ethylene, and other hormones. Agricultural impacts of growth regulators. (2 lecture, 3 lab hours)

**255. Advanced Plant Breeding (3)**

Prerequisite: Plant 140. Principles and techniques of plant improvement, breeding methods, combining ability, sterility systems, quantitative genetic analysis, heritability estimates, experimental designs for plant breeding.

**256. Plant-Water Relationships (3)**

Prerequisite: Bot 104. Physicochemical properties of water and solutions; movement of water, solutes, and growth regulators in plants; study of moisture-sensitive periods of various crops; factors affecting water absorption and retention.

**257. Physiology of Cultivated Crops (3) (Former Ag 250.7)**

Prerequisite: Bot 104. Plant cell structure and function. Response of cultivated plants to the environment. Physiology and hormonal control of flower induction, fruit set, and development. Review of pertinent current publications.

**258. Plant Disease Control (3)**

Prerequisite: Plant 171. Principles of plant disease control; agricultural chemicals used in plant disease control. Methods and theory used in application of chemicals, biological control, and breeding for resistance. Insight into industrial research and development of control measures. (2 lecture, 3 lab hours)

**260. Seminar in Animal Science (1; max total 4)**

Prerequisite: permission of instructor. Written and oral reports on selected areas of research on problems in animal science.

**270. Seminar in Plant Science (1; max total 4)**

Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in agronomy, horticulture, irrigation, soils, ornamental horticulture, or viticulture and enology.

**280. Seminar in Agriculture (1-3; max see below)**

Maximum total credit 9 units in any given area or any combination of the three areas. Prerequisite: bachelor's degree in agriculture or permission of instructor. Advanced problems in agriculture; research and experimentation in a selected area: animal science, plant science, or agricultural mechanics.

**281. Problems in Agricultural Education (1–3; max total 3)**

Prerequisite: graduate standing. Individual supervised research in agricultural education; appropriate reports and evaluation required. Individual conferences.

**287. Organization, Administration, and Supervision of Agricultural Education (3)**

Prerequisite: graduate standing. A study of the California and federal plans for vocational education as they pertain to agricultural education. The VEA Act of 1968 and the preparation of district plans.

**289. Adult and Continuation Education in Agriculture (3) (Former Ag Ed 189)**

Prerequisite: graduate standing or permission of instructor. History, philosophy, organization, administration, and development of teaching rural and urban adult education programs in agricultural mechanics and agricultural sciences.

**290. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**299. Thesis (2–6; max total 6)**

Prerequisite: see *Master's Degrees-Thesis Requirements*. Preparation, completion, and submission of an acceptable thesis for the master's degree.



**SCHOOL OF BUSINESS**

Accounting and Quantitative Studies Department

Finance and Industry Department

Management and Marketing Department

Office Administration Department



## SCHOOL OF BUSINESS

Irwin Weinstock, Dean

Assistant Dean .....	Allen M. Agnew
Director, Bureau of Business Research and Service .....	Gerald O. Bryan
Director, Graduate Program .....	Joan G. Schroeder

### Department

### Chairman

Accounting and Quantitative Studies .....	Clayton R. Tidyman
Finance and Industry .....	Robert A. Carr
Management and Marketing .....	John H. Kruger, Jr.
Office Administration .....	Berle Haggblade

The School of Business prepares students for professional careers in the business world and for teaching in secondary schools and junior colleges. At the undergraduate level it offers a program in business administration leading to the bachelor of science degree. The program is designed to provide a knowledge of the principles, procedures and practice of business management; an understanding of the role and responsibility of business in present day society; a foundation of basic background materials for participation in the American enterprise system; and the proficiency in technical skills and information required by our complex business society.

At the graduate level the master of business administration and master of science degrees are offered. The master of business administration degree is designed to prepare students for careers in management of business enterprises and other organizations, including public corporations, educational systems, and nonprofit institutions. The master of science degree provides specialized advanced work in business as distinguished from the broader program of management. Either degree may be used to deepen the competence of teachers of business subjects in secondary schools and community colleges.

In addition to preparing students for business careers the school offers real estate courses which fulfill the statutory course requirement needed to qualify for the real estate broker examination (Fin 180, 181, 183, B A 184). The bachelor of science degree in business administration is also considered appropriate and desirable for prelegal students.

The school offers appropriate programs for students planning to work toward a teaching credential with a major in business. Business teacher education students should consult the appropriate advisers in the Schools of Business and Education as early in their programs as possible. Students wishing to combine the credential with a master's degree should also consult the Director of the Graduate Program of the School of Business and the Dean of the School of Graduate Studies.

The School of Business is a member of and is accredited by the American Assembly of Collegiate Schools of Business.

### BUREAU OF BUSINESS RESEARCH AND SERVICE

The Bureau of Business Research and Service is organized within the School of Business to meet the research and service needs of the San Joaquin Valley business community and to provide ancillary services to the students and faculty of the School of Business. It is a member of and accredited by the Association for University Business and Economic Research. The Bureau compiles, interprets, and publishes statistics and studies on the local and regional economy. It facilitates research in appropriate areas by the students and faculty; seeks cooperative arrangements with outside organizations for conducting specific research and service projects; and arranges and conducts executive development and other programs as part of the school's responsibility to provide continuing education in business.

### BUSINESS ADVISORY COUNCIL

Twenty leading business executives of the San Joaquin Valley serve as an advisory body to the School of Business, helping to keep the program attuned to the changing needs of business. The Council meets periodically with faculty and its members participate in a number of school functions. Members of the Council are available to faculty and students for consultation and as speakers. The Council sponsors the Executive-in-Residence Program, an Annual Awards Dinner for graduating students, and other events which benefit the School.

### **MANAGEMENT SEMINARS**

Each year, a local business firm brings its top management to the school for a series of seminar type meetings with students. The contact between students and executives allows students to develop a fuller perspective of the managerial function. Arrangements are managed by the Inter Business Council, composed of representatives of professional business student organizations. The Beta Gamma Sigma Colloquium brings to the campus well-known top management men for discussions with selected senior and graduate students.

### **MANAGEMENT BLOCK PROGRAMS**

Management Block Programs, a unique feature of the School of Business, are planned to bridge the gap between the classroom and the outside world. There are two programs: Management 101, Basic Management Block and Management 102 A-B-C-D, Advanced Management Block. Each course meets 12 hours per week for 12 units of credit. Students engage in a variety of group projects and are graded on their performance rather than on tests or examinations. Information is gathered from local businesses which the students analyze in research projects and classroom presentations. More than 45 business and community leaders are invited as guest speakers each semester.

Either or both of the Block Programs may be substituted for the standard requirements. The basic Management Block substitutes for four basic courses required in all business majors. Students majoring in other fields may use credits to partially meet requirements for a minor in Business Administration. Advanced Management Block credits can be substituted for elective and required course credits in most of the business options. See course descriptions or consult the Assistant Dean, School of Business, for details.

### **OTHER SPECIAL FEATURES**

A growing number of internships in local firms and agencies are available. Units are granted the business interns and some also carry stipends.

The School of Business works with the Internal Revenue Service in bringing the VITA (Volunteer Income Tax Assistance) program to the Fresno community. Students are trained to assist low-income citizens with their tax returns. Students receive credit from the school for this voluntary service. The school also works with the Small Business Administration to improve the managerial performance of new or existing minority-owned enterprises.

Opportunity is afforded students through classes and student organizations to become acquainted with business and industrial organizations in California and the San Joaquin Valley. Effort is made to adapt the program to meet the particular needs of the San Joaquin Valley. Business and industrial concerns in Fresno and vicinity cooperate to make possible practical application of the theory studied in the classroom through field trips and guest lecturers in classes. The school sponsors professional organizations for both men and women. Convocations are held annually, bringing to the campus a well-known leader to discuss some scholarly aspect of business. This blending of the practical and theoretical is designed to insure vitality of instruction and breadth of vision.

### **HIGH SCHOOL PREPARATION**

High school preparation for business majors should include the typical college preparatory courses in social sciences, natural sciences, English, and mathematics through intermediate algebra.

### **COMMUNITY COLLEGE PREPARATION**

It is recommended that students taking their first two years of study at a community college complete, if possible, general education requirements, including the appropriate courses in behavioral sciences, speech, English composition, mathematics, and a year of principles of economics. The following business courses are also recommended: principles of accounting, one semester of automation and data processing, one semester each of business law and business statistics. Other transfer business courses taken in community colleges are accepted as elective credit. Transfer students should see the School of Business evaluator prior to registering for business classes.

**BACHELOR OF SCIENCE DEGREE IN BUSINESS**

All students seeking a bachelor of science degree in business must complete a minimum of 124 units. A uniform set of 33 units constitutes the business core and is required in all options. Students with a major in business must complete a minimum of 39 upper division business units. The student must complete a total of 49 units outside the School of Business, including the 40-unit general education course requirements for a degree. Within these 49 units the following specific requirements must be met: 3 units each of Economics 1A and 1B, English composition, speech, and 9 units from the areas of cultural anthropology, and/or psychology, and/or sociology.

Each student must complete course work for one of the various options in the School of Business. See departmental listing of options.

**School of Business Core Requirements (Required of all business majors)**

*Units*

The 33 unit business core provides students with a general background commonly acknowledged as furnishing the basis for effective management of business enterprise. The courses providing this background are grouped as follows:

A. A background of the concepts, processes, and institutions in marketing and distribution, production and financing functions of business enterprises: Mgt 124, Fin 133, Mktg 100, (see also Mgt 101) .....	9
B. A background of the economic and legal environment of business enterprise along with consideration of the social and political influences on business: B A 18 .....	3
C. A basic understanding of the concepts and methods of accounting, quantitative methods, and information systems: Acct 1A-B or 4A-B, Q M 65, 103 .....	12
D. A study of organizational theory, interpersonal relations, control and motivation systems, and communications: Mgt 110A-B or 110, (see also Mgt 101) .....	6
E. A study of administrative processes under conditions of uncertainty including integrating analysis and policy determination at the overall management level: Mgt 187 .....	3
	33

**BUSINESS MINORS**

**Administration of the Performing Arts**

Provides an opportunity to study the economic and business problems of the arts, to explore their future implications, and to supply the necessary tools for administrative decision making.

Acct 3, B A 18, 128, Mgt 110A, Q M 65 .....	15
Mktg 140 .....	3
	18

**General Business**

Designed for students with majors in other fields who wish a minor in the broad basic areas of business. A minor appropriate for use on a credential program may be developed by students from nonbusiness areas in consultation with the school credential adviser.

	<i>Units</i>
Acct 4A .....	3
Elect from: B A 18, Fin 133, Mgt 110A-B, Mktg 100, Q M 65 .....	6
Elect from not more than two fields (8 ud): Acct, B A, Fin, Ind R, Mgt, Mktg, O Ad, Q M .....	11
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**Office Administration**

Designed primarily to enable students, especially those in professional studies, the humanities, and other liberal arts fields, to acquire the basic business preparation necessary to enter their chosen fields.

	<i>Units</i>
O Ad 4, 23 .....	7
O Ad 112, 114, 121 .....	9
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**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and the School of Education; see the sections on *Public School Credentials*.

**MASTER OF BUSINESS ADMINISTRATION DEGREE**

The degree of master of business administration is designed to prepare students for careers in management of business enterprises and other organizations, including public corporations, educational systems, government, other nonprofit institutions, and also for college teaching. It is awarded upon satisfactory completion of a 30-unit program of study. Students are required to have background courses in accounting, business law, computer science, economics, finance, management, marketing, operations analysis, and statistics. Students who lack any of the required background courses must remove any deficiencies by completing the appropriate graduate foundation courses. For details, consult the Director, Graduate Business Program, School of Business.

**MASTER OF SCIENCE DEGREE IN BUSINESS**

The master of science degree is offered for students who wish to specialize in one particular area of study at the graduate level. It is awarded upon satisfactory completion of a 30-unit program of study. Students are required to have taken the appropriate background courses or to remove any deficiencies as outlined above in the section describing the master of business administration degree. Application for approval of individual programs must be made through the Director, Graduate Business Program, School of Business.

**ACCOUNTING AND QUANTITATIVE STUDIES DEPARTMENT****FACULTY**

Clayton R. Tidyman, *Department Chairman*

Sarah C. Bedrosian ■ Elwyn L. Christensen ■ Harry G. Costis ■ Phillip R. Crabtree ■ Mostafa Elhag ■ Samuel F. Holmes ■ Gerald L. Johnston ■ Moti C. Malkani ■ Darrel S. Mattoon ■ William D. McFerrin ■ Marilyn L. Meyers ■ Harry J. Miller ■ Dell L. Mortimer ■ William M. Parker ■ Dennis F. Perry ■ Clyde L. Posey ■ Joan G. Schroeder ■ Frank E. Taylor ■ Charles B. Titus ■ William C. Wayne

**MAJOR IN BUSINESS*****School of Business Core Requirements (A through E)***

See *School of Business—BS Degree in Business Administration.*

***Accounting Option***

	<i>Units</i>
Two semesters of approved college level mathematics .....	6
Acct 120A-B, 132, 144A, 162, and 144B or 167 .....	18
B A 118, Q M 60, 64 .....	9
O Ad 105 .....	3
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	36

***Quantitative Analysis Option***

Two semesters of approved college level mathematics .....

***Statistics:***

Q M 60, 63, 161A-B, 174 .....

Elect from: B A 100, Q M 166, 175, 176, 178 .....

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***Computer Applications & Systems:***

Two semesters of approved college level mathematics .....

Q M 60, 64, 161A-B, 166 .....

Elect from: B A 100, Q M 162, 164, 168, 169, 173, 174 .....

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**COURSES****ACCOUNTING (Acct)****1B. Principles of Accounting (3)**

Not open to freshmen. Primarily for community college transfers. Acct 1A no longer offered. Prerequisite: Acct 1A. Accounting for partnerships, corporations manufacturing accounting, accounting managerial controls, budgeting, funds flow statements.

**3. Essentials of Accounting (3)**

Not open to students majoring in accounting or business administration. Basic concepts in preparation of business financial statements; introduction to understanding, analyzing, and interpreting accounting data by investors, managers, and creditors for decision making, planning, and control. Only minor attention given to recordkeeping procedures.

**4A-B. Financial and Managerial Accounting Principles and Systems (3-3) (Former Acct 1A-B)**

Not open to freshmen; meets requirements for Acct 1A-B. (A) Financial accounting; accounting statements, transaction analysis, and data accumulation; balance sheet analysis and interpretation; partnership and corporation accounting. (B) Prerequisite: Acct 4A. Managerial control and information systems; organization, planning, budgeting; cost accumulation and capital budgeting; measuring and reporting performance.

**120A-B. Intermediate Accounting (3-3)**

Prerequisite: for 120A, Acct 1A-B or 4A-B; for 120B, 120A, Math 71 and 72 or Q M 21A-B recommended. Preparation and analysis of balance sheet and income statements; partnership and corporation accounts; basic accounting theory; theory of current and fixed assets, investments, liabilities, funds, reserves, and accounting ethics.

**128. Managerial Accounting (3)**

Not open to students with credit in Acct 4B, 120A or 132; not applicable for credit toward major in accounting. Prerequisite: Acct 1A-B. Uses of accounting data as an aid in business management; nature of accounting data, uses and limitations; relationships to quantitative methods and computer technology.

**132. Cost Accounting (3)**

Prerequisite: Acct 1A-B or 4A-B; Math 71 and 72 or Q M 21A-B recommended. Industrial cost accounting; general principles of job-order, process and standard cost systems; special problems; use of linear programming and computer.

**140. Accounting Information Systems (3)**

Prerequisite: Acct 132. Framework and tools for the design, implementation, and control of information systems. Systems, concepts, problem identification, user requirements, methods of systems analysis and data processing; measurement, coding, recording, transfer, storage, reporting and analysis of information.

**144A-B. Tax Accounting and Planning (3-3)**

(A) Effect of federal and California income tax laws on individual tax returns and tax planning. (B) Prerequisite: Acct 120A-B. Effect of federal and California income tax laws on partnerships, corporation, estates and trusts; social security taxes, estate and gift taxes; business income tax planning.

**162. Auditing (3)**

Prerequisite: Acct 120A-B (120B may be taken concurrently). Objectives and techniques in verification of business financial statements; duties, responsibilities, and professional ethics of the auditor; auditor's reports; analysis of internal controls; audits of computerized systems.

**167. Advanced Accounting Problems (3)**

Prerequisite: Acct 120B. Partnership, corporation, governmental and institutional accounting.

**189T. Topics in Accounting (1-3; max total 6 if no topic repeated)**

Prerequisite: 12 units of accounting. Accounting theory; contemporary developments in financial, managerial, or public accounting.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**198. Supervised Work Experience (1)**

Open only to business majors. Prerequisite: permission of instructor. Work Experience: Learning through on-the-job experience in a business. Written reports.

**199. Internship (2-6; max total 6)**

Open only to business majors. Prerequisite: permission of instructor. Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

**200 series.** Graduate courses are listed under *Business*.

**QUANTITATIVE METHODS (Q M)****21A-B. Quantitative Analysis (3-3) (Former Bus Ad 21A-B)**

(A) Prerequisite: two years high school algebra, one year high school geometry. Applications of finite mathematics and discrete probability models in the quantitative formulation and solution of problems of modern management. (2 hours lecture, 2 hours lab)  
 (B) Prerequisite: Q M 21A. Applications of selected tools of mathematical analysis and continuous probability models in the quantitative formulation and solution of problems of modern management.

**60. Computer Concepts (3) (Former B A 60)**

Introduction to computer hardware and software systems, and to several basic computer languages. Discussion of the social impact of computers and automation.

**63. Automation and Computer Language—FORTRAN (3) (Former B A 62A)**

Not open to students with credit in Engr 70, B A 62, 62A or 160. Prerequisite: Q M 60 or permission of instructor. Programming in FORTRAN, cards, disk, and tape.

**64. Automation and Computer Language—COBOL (3) (Former B A 62B)**

Not open to students with credit in B A 61 or 62B. Prerequisite: Q M 60. Programming in COBOL, cards, disk, and tape 1/0. (2 hours lecture, 2 hours lab)

**65. Statistical Analysis I (3) (Former B A 65)**

Prerequisite: Math 51 or 71 or Q M 21A; Econ 1A-B recommended. Frequency distributions; measures of central tendency; measures of variation, skewness, and kurtosis; time series analysis; index numbers; rules for computing probabilities; Bayes' Theorem; discrete and continuous probability distributions. (2 hours lecture, 2 hours lab)

**103. Statistical Analysis II (3) (Former B A 103)**

Prerequisite: Q M 65, Math 71, or Q M 21A recommended. Continuous probability distributions; theory of sampling; sampling distributions; point and interval estimations; significance tests; Bayesian statistics; the Chi-square and analysis of variance tests; regression and correlation models; use of computer statistical packages to solve business problems.

**161A-B. Principles of Operations Research (3-3) (Former B A 161A-B)**

Q M 161A not open to students with credit in B A 161. (A) Prerequisite: Q M 65. Systems approach to decision making; mathematical models and management; OR tools and techniques; modern decision theory. (B) Prerequisite: Q M 103, 161A. Stochastic models, single station finite and infinite populations, probability distributions, queuing theory, simulation, Monte Carlo method. (PERT/CPM).

**162. Advanced Computer Programming (3) (Former B A 162)**

Prerequisite: Q M 63, 64. Algorithmic and procedure-oriented languages; arrays, graphs, sorting, merging, symbol tables, searching, list processing, simulation techniques, discs and tape program segmentation and linkage.

**164. Interactive Decision Making (3; max total 6) (Former B A 164)**

Limited to seniors with business and quantitative background. Participation in interactive, dynamic business games. Applications of techniques of finance, accounting, personnel management, and quantitative areas to business problems. (3-day field trip required)

**166. Applied Computer Systems (3) (Former B A 166)**

Prerequisite: Acct 4A-B, 128 or 132, Q M 64 (Q M 63 and 161A-B desirable). Development and programming of management information systems; accounting subsystems for external reporting and for internal control; techniques and methods used in systems analysis.

**168. Data Processing Management (3) (Former B A 168)**

Prerequisite: Acct 4A-B, 128 or 132, Q M 63 or 64 (Mgt 124 desirable). Theories, cost and problems of operation of a computer center; standards; flow of work, scheduling, batching, spooling, multiprogramming, and multiprocessing techniques as methods of control and operation.

**169. Machine Language Programming (3) (Former B A 169)**

Prerequisite: Q M 63 or 64. Machine assembly and symbolic languages; report generators; development of macro instructions. Requires development of programs in several languages.

**173. Computer Configurations (3) (Former B A 173)**

Prerequisite: Q M 63 or 64, and a basic electronics course or permission of instructor. In-depth study of selection and installation of hardware and software of various computers; feasibility studies, comparisons of self-managed versus service bureau operations; comparison of competitive systems; costs of reprogramming.

**174. Regression and Correlation Models Time Series (3) (Former B A 174)**

Prerequisite: Q M 103. Bivariate, joint and conditional probability distributions, regression analysis, linear and nonlinear regression and multiple relationships, covariance and significance tests; autocorrelation, serial and partial correlation; time series analysis.

**175. Sample Survey Methods and Applications (3) (Former B A 175)**

Prerequisite: Q M 103. Sampling distributions, sample design, estimations of means, proportions, ratios, totals, simple random sample; stratified, cluster, and systematic sample design; replicated sampling techniques, acceptance sampling; industrial uses of sampling and nonprobability sampling.

**176. Design of Scientific Experiments (3) (Former B A 176)**

Prerequisite: QM 103. Notion of sampling distributions, theoretical probability distributions, gamma and F-distribution; analysis of variance, one-way and two-way classification tests; mixed and random effect models. Latin and Graeco Latin squares; factorial experimentation.

**178. Bayesian Inference and Decision Theory (3) (Former B A 178)**

Prerequisite: Q M 103. Revision of probability and subjective interception, the Bayes' theorem, statistical estimation of various parameters and decision theory, prior analysis and prior probability distributions; posterior analysis and posterior probability distributions; utility problems, expected profit of perfect information.

**189T. Topics in Quantitative Methods (1-3; max total 6 if no topic repeated)**

Prerequisite: 12 units in quantitative methods. Theory or application of statistics, operations research, or computers applied to current developments.

**190. Independent Study (1-3; max total see reference)**

See *General Information—Independent Study*.

**198. Supervised Work Experience (1)**

Open only to business majors. Prerequisite: permission of instructor. Work Experience: Learning through on-the-job experience in a business. Written reports.

**199. Internship (3-6; max total 6)**

Open only to business majors. Prerequisite: permission of instructor. Student holds responsible position in business or a government agency and reports on firm's operations and suggested improvements.

**200 Series.** Graduate courses are listed under *Business*.

## FINANCE AND INDUSTRY DEPARTMENT

### FACULTY

Robert A. Carr, *Department Chairman*

Ellis T. Austin ■ Ray Benson ■ Wayne A. Brooks ■ Irving F. Davis ■ J. Parry  
Dodds ■ Tom Doyel ■ John T. Emerson ■ F. Lee Hull ■ Robert I. Kutscher ■  
Paul M. Lange ■ Marshall E. Minich ■ Somayina G. Nwoko ■ John C. O'Brien

### MAJOR IN BUSINESS

#### *School of Business Core Requirements (A through E)*

See *School of Business—BS Degree in Business Administration.*

#### *Finance Option*

	<i>Units</i>
One semester of approved college level mathematics .....	3
Acct 132.....	3
B A 100, Fin 104, 135, Q M 60.....	12
Elect from: B A 115, 118 or 119 .....	3
Elect from: Fin 132, 134, 137, 139.....	6
Q M 161A, or 164 .....	3
	30

#### *Agribusiness Option*

One semester of approved college level mathematics .....	3
Acct 132.....	3
B A 100, Fin 104, 135, Q M 60.....	12
B A 115, 118 or 119.....	3
Approved electives from the School of Agricultural Sciences .....	9-12
	30-33

#### *Business Economics Option*

One semester of approved college level mathematics .....	3
Acct 132.....	3
B A 100, Fin 104, 135, Q M 60.....	12
B A 115, 118 or 119.....	3
Elect from: B A 101, Econ 110, 103, or approved electives.....	9
	30

#### *Insurance Option*

One semester of approved college level mathematics .....	3
Acct 132.....	3
B A 100, Fin 104, 135, 143, 144, Q M 60 .....	18
Elect from: B A 115, 118 or 119 .....	3
Fin 132, 134, 137, 139 .....	3-6
	30-33

#### *Legal Environment of Business Option*

One semester of approved college level mathematics .....	3
Acct 132.....	3
B A 100, Fin 104, 135, Q M 60.....	12
B A 115, 118 or 119.....	3
Elect from: B A 115, 118, 119, 156, 184, Econ 174 .....	9-12
	30-33

#### *Real Estate and Urban Land Economics Option*

Two semesters of approved college level mathematics .....	3
Acct 132.....	3
B A 100, Fin 104, 135, Q M 60.....	12
B A 115, 118 or 119.....	3
Elect from: B A 184, Fin 180, 181, 183, 186 .....	12
	36

## COURSES

**BUSINESS ADMINISTRATION (B A)****8. Law and Society (3)**

Function of law in implementing solutions to human problems, in giving body to theories of justice and to ethical judgments, and in providing a frame of order and authority within which clashes of value may be resolved. Case studies, analysis.

**10. Business and Society (3)**

Open only to lower division students. Examination of the interaction of business and social forces in modern society. Nature of business and the management of firms in a changing environment; interrelationships among business, government, labor, and the public. Emphasis on current business-environmental problems.

**18. Business and the Legal Environment (3)**

Prerequisite: sophomore standing. Legal environment of business through examination of sources of law; relation of the legal system to business through examination of the law of contracts and of agency; case studies; analysis.

**50. Business Lectures (1; max total 2)**

Various viewpoints on current business problems and developments presented by a different guest business executive each class meeting.

**100. Business Economics (3)**

Prerequisite: Econ 1A-B. Applications of economic principles in business management; measure of profit, analysis of demand, cost analysis; price, wage, and public policies; case studies.

**101. Economics, Ethics and Civilization (3)**

Theories of ethics and their relevance to the realm of business; economic, social, and political implications of theories advanced by Adam Smith, Machiavelli, William Graham Sumner, John Dewey, Keynes, Eric Fromm, and others.

**115. Government Regulation and Control of Business (3)**

Prerequisite: B A 18. An analytical approach to the government regulation of business as it affects employment, inflation, consumerism, pollution, wages, and restraints on business and corporate power. Legislative analysis and case studies.

**116. Environmental Legislation and Controls (3) (Former BA 189T section)**

Review of environmental problems, search for root causes and objectives; identification and evaluation of past and present controls; examination of alternative legislative remedies for present and anticipated problems.

**117. Administrative Law and Business (3)**

Prerequisite: B A 18. The effects of regulatory agencies, such as F.T.C., I.C.C., on business. Study of their rule making powers, procedures, and control through judicial review.

**118. Law and Business Activities (3)**

Prerequisite: B A 18. Nature of property and the relation of the legal environment to the ambiguities of economic capability through examination of the law of bailments, shipments, sales, commercial paper, and secured transactions; case studies; analysis.

**119. Law of Business Organizations (3)**

Prerequisite: B A 18. Partnerships, corporations and trusts with reference to their advantages and limitations. Effect of form of operations on taxation, freedom from liability, and on social responsibilities. Includes bankruptcy and security transactions, such as mortgages and installment sales.

**128. Business Environment of the Fine Arts (3)**

Proseminar for seniors. Integration of principles of business management with production in the fine arts; case studies; analysis.

**156. Labor Law (3)**

Prerequisite: Econ 1A-B; B A 18, Mgt 110A-B. Proseminar in the law of industrial relations; historical and current principles for legal settlement of labor-management disputes; statutes, court decisions, administrative rulings; case studies; individual presentations.

**174. Introduction to International Business (3)**

Principles and practice of international business and finance; government policies; mechanisms of world trade; international commercial relations.

**175. Management of Multinational Enterprises (3)**

Entering foreign markets; building an operational organization abroad to meet host country requirements; management strategies; problems of managing in foreign environments; trade barriers; comparative management styles of foreign businesses; case studies.

**176. World Commerce and Development (3)**

History, growth and change in world trade; importance of foreign trade in national economies; relationship of social and cultural development to foreign trade; opportunities and constraints for expansion of international business.

**178. Technical Aspects of International Business (3)**

International finance, foreign exchange, balance of payments, source of capital, management of funds, IMF, World Bank; accounting procedures in foreign countries; handling of multinational transactions; inflation, valuation of currencies, taxes and financial reporting; import/export procedures; international investments.

**184. Real Estate Law (3)**

Meets California statutory course requirement for real estate license. Prerequisite: B A 118. Legal aspects of acquisition and ownership of real estate; conveyances, mortgages, evidences of title; planning and zoning.

**189T. Topics in Business Administration (1-3; max total 9 if no topic repeated)**

Prerequisite: senior standing or permission of instructor. Studies in business administration.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**198. Supervised Work Experience (1)**

Open only to business majors. Prerequisite: permission of instructor. Work Experience: Learning through on-the-job experience in a business. Written reports.

**199. Internship (3-6; max total 6)**

Open only to business majors. Prerequisite: permission of instructor. Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

**200 series.** Graduate courses are listed under *Business*.

**34. Personal Investments (3)**

Alternative uses of personal savings; stocks, bonds, mortgages and other securities, mutual funds, credit unions, banks, savings and loans, real estate investment trusts, insurance; financial security; mathematics of finance.

**104. Business Forecasting (3) (Former B A 104)**

Prerequisite: Q M 103. Business activity analysis; methods of forecasting; general and specific forecasts; analysis of trends in product groups, sectors, regions, and other areas of the world economy; mathematical models and statistical decisions; analysis of case problems.

**132. Financial Institutions (3) (Former B A 132)**

Prerequisite: Econ 1A-B, Acct 4A-B. Theory of the financial system; intermediation; gross and net money doctrines; financial institutions; money and capital markets; mathematical models, simulation, case problems.

**FINANCE (Fin)****133. Business Finance (3) (Former B A 133)**

Prerequisite: Econ 1A-B; Acct 4A-B. Theory of financing the business firm under uncertainty. The supply of and demand for capital; asset management, simulation problems, capital structure analysis, cost of capital, capital budgeting decisions, mathematics of finance.

**134. Security Analysis (3) (Former B A 134)**

Prerequisite: Fin 133. Analysis of security markets; financial mathematics; stocks, bonds and mortgages; fundamental analysis; public and private regulation of security markets.

**135. Monetary Theory and the Banking System (3) (Former B A 135)**

Not open to students with credit in Econ 135. Prerequisite: Econ 1A-B. Monetary theory, commercial banking, central banking; the Federal Reserve system; the international monetary system; mathematical models of money flows.

**137. Credit Management (3) (Former B A 137)**

Mercantile and consumer credit; derivation of credit information from business data; credit agencies and credit bureaus; valuation; analysis of financial statements; technical and legal problems; collections.

**138. Small Business Finance and Development (3) (Former Fin 189T section)**

Prerequisite: permission of the instructor. Practical application of business principles to improve small businesses; minority business problems; students serve as consultants to owners, managers; class reports.

**139. Proseminar in Finance (3) (Former Fin 139A-B)**

Prerequisite: senior standing, B A 100, Q M 103. Integration of analysis and policy for financial organizations; decisions under uncertainty; mathematical models and simulation.

**143. Risk and Insurance (3) (Former B A 143)**

Prerequisite: B A 8 or 18 (may be taken concurrently). Fundamental principles of insurance; risk aversion, actuary statistics, property and casualty insurance and insurance carriers.

**144. Life Insurance (3) (Former B A 144)**

Prerequisite: B A 8 or 18 (may be taken concurrently). Nature and use, scientific basis, types and forms of life insurance; organization, management; public regulation and control.

**180. Real Estate Principles and Practice (3) (Former B A 180)**

Meets California statutory course requirement for real estate practitioner license. Prerequisite: Econ 1A-B. Theory and practice of urban land use. Location and legal dimensions, planning and market processes; financial and investment decisions in real estate; case analysis.

**181. Real Estate Appraisal (3) (Former B A 181)**

Meets California statutory course requirement for real estate practitioner license. Prerequisite: Fin 180. Theory of real property value; historical development; methods used in urban and rural property appraisals; special purpose appraisals. Field work required.

**183. Real Estate Finance and Investment (3) (Former B A 183)**

Meets California statutory course requirement for real estate practitioner license. Prerequisite: Fin 180. Financial analysis, pricing, acquiring, managing, and marketing the real estate investment.

**186. Urban Land Economics (3) (Former B A 186)**

Prerequisite: Fin 180. Metropolitan and regional growth analysis, population pressures and urban land use patterns, planning, and investment decisions.

**189T. Topics in Finance and Industry (1-3; max total 9 if no topic repeated)**

Prerequisite: senior standing or permission of instructor. Studies in business including agricultural economics, business economics, business law, finance, real estate and urban economics.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**198. Supervised Work Experience (1)**

Open only to business majors. Prerequisite: permission of instructor. Work Experience: Learning through on-the-job experience in a business. Written reports.

**199. Internship (3-6; max total 6)**

Open only to business majors. Prerequisite: permission of instructor. Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

**200 Series.** Graduate courses are listed under *Business*.

**MANAGEMENT AND MARKETING DEPARTMENT**

**FACULTY**

John H. Kruger, Jr., *Department Chairman*

David C. Anderson ■ Richard K. Brock ■ Douglas A. Cords ■ Charlotte M. Erb ■ Robert E. Hampton ■ Victor L. Jepsen ■ Robert J. Piersol ■ Lanny J. Ryan ■ Douglas B. Simpson ■ Richard D. Tellier ■ Irwin Weinstock ■ Charles H. Wetmore ■ Kenneth G. Wheeler

**MAJOR IN BUSINESS**

*School of Business Core Requirements (A through E)*

See *School of Business*—BS Degree in Business Administration.

**General Administration Option**

One semester of approved college level mathematics .....	Units 3
Fin 104 .....	3
Ind R 150 .....	3
O Ad 105 .....	3
Elect: 12 approved upper division units from one of the following areas or 6 units from each of two areas: Accounting, Business Administration, Finance, Industrial Relations, Management, Marketing, Office Administration, Quantitative Methods.	12
	<hr/> 24

**Personnel and Industrial Relations Option**

One semester of approved college level mathematics .....	3
Ind R 150, 152, 159.....	9
Elect from: B A 156, Ind R 153, 154, 189T, O Ad 105, Econ 150, 151, Psych 134, 176.....	12
	<hr/> 24

**Marketing Option**

One semester of approved college level mathematics .....	3
Mktg 101, 104, 109 .....	12
Elect from: B A 118, Fin 104, Mgt 146, 147, Mktg 112, 115, 117, 127, 130, 140, 142, 150, 155, 176, 189T, O Ad 105, Ag Ec 172 .....	12
	<hr/> 27

**Transportation and Physical Distribution Management Option**

One semester of approved college level mathematics .....	3
Mgt 146, 147, 148 .....	9
Elect from: B A 115, Fin 104, Ind R 152, Q M 63, Mgt or Mktg or Ind R 189T (appropriate section), Mktg 104, 176, Acct 128, Geog 102, O Ad 105 .....	12
	<hr/> 24

**COURSES**

**INDUSTRIAL RELATIONS (Ind R)**

**150. Administration of Personnel (3) (Former B A 150)**

Prerequisite: Mgt 110A-B or 110 or Econ 150. Composition of labor force; acquisition and utilization of human resources in organizations: recruitment; selection; performance appraisal; motivation; compensation; communications; social issues and government influence. Individual and group projects; written and oral reports.

**152. Labor Relations and Collective Bargaining (3) (Former B A 152)**

Prerequisite: Mgt 110A-B or 110 or Econ 150. Relations between employers and organized employee groups; organization, election, and certification procedures; techniques of collective bargaining; labor agreements; grievance handling; settlement of industrial disputes.

**153. Management Development (3) (Former B A 153)**

Prerequisite: Mgt 110A-B or 110. Knowledge and skills leading to effective interpersonal relations; understanding one's self as leader and others as individuals and members of working groups; leadership practice and decision making as individuals and small groups.

**154. Compensation Administration (3) (Former B A 154)**

Prerequisite: Mgt 110A-B or 110, Ind R 150 or permission of instructor. Analysis of compensation programs for business, not-for-profit, and government organizations. Special attention given to job evaluation programs, motivation-to-work theory, micro and macro forces influencing compensation decisions. Case analysis; individual and group reports.

**159. Problems in Manpower Management (3) (Former B A 159)**

Prerequisite: Ind R 150, 152. Manpower policy formulation and decision making; labor market analysis; governmental manpower policy; methodology and application of manpower research. Individual and group research projects; case analysis and presentation; computer applications.

**189T. Topics in Industrial Relations. (1-3; max total 9 if no topic repeated)**

Prerequisite: senior standing or permission of instructor. Studies in personnel and labor relations: recruiting and selection, motivation, compensation, training, evaluation, labor organizations, collective bargaining, government and industrial relations, special problems in industrial relations.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 series.** Graduate courses are listed under *Business*.

**MANAGEMENT (Mgt)****101. Basic Management Block (12)**

Meets School of Business requirements for Mgt 110A-B or 110, 124, Mktg 100. Not open to students with credit in Mgt 110A-B, 110, 124, Mktg 100. Prerequisite: first-semester junior, Econ 1A-B, Acct 4A, Q M 65, application, and permission of instructor. Special integrative undergraduate seminar: 12 hours weekly; marketing, production, administration, organizational behavior. Small group projects; field trips and research; computer simulation; student planned and presented programs; business, government, academic guest presentations. Consult school or departmental office.

**102A-B-C-D. Advanced Management Block (3-3-3-3)**

Meets 12 units of the following requirements; concurrent enrollment in A-B-C-D.: (a) Area E requirement for all options except accounting, (b) School of Business social science requirement, (c) option requirements as indicated under the various options, (d) general electives. Prerequisite: senior, all major core requirements except Area E, application, and permission of instructor. Undergraduate seminar integrating business disciplines; decision models of local businesses, history of ideas, business simulations by computer, case analyses, student-planned programs, individual and group presentations with executives and academicians, field trips, negotiations, group projects.

**110. Administration and Organizational Behavior (6)**

Not open to students with credit in Mgt 110A or B. Combines Mgt 110A and B into an integrated, one-semester course, under one instructor. Extended use of small group work, individual research, and class presentation. (See Mgt 110A-B description for course content.)

**110A-B. Administration and Organizational Behavior (3-3) (Former B A 110A-B)**

Prerequisite: Mgt 110A prerequisite to B. Organizational theory; structure and forms of organization, authority, leadership, group dynamics, policy formulation, conflict resolution, organizational control, theory of work and motivation, individual differences, communications, planning, development, evaluation, managerial processes, management of human resources. Lecture-discussion, individual and group projects and reports.

**124. Operations Management (3) (Former B A 124)**

Prerequisite: Q M 65, Mgt 110A or 110. Operations systems and problems; facility location and design; material handling; operation planning and control; inventory control; product development; quality control; methods analysis and job design; work measurement; quantitative methods in solution of operation problems.

**128. Problems in Small Business Management (3) (Former 189T section)**

Prerequisite: senior standing or permission of instructor. Special problems of small businesses: initiation, financing, operations. Class projects: studying local business operations; preparing business plans and financial requests.

**146. Transportation Management (3) (Former B A 146)**

Prerequisite: Econ 1A-B. Major modes for movement of goods and people; comparison of alternatives; carrier organization and management; rate structures; government regulation; effect of transportation on plant location, pricing, and markets; urban and national transportation problems.

**147. Physical Distribution Management (3) (Former B A 147)**

Prerequisite: Mktg 100. Systems approach to physical distribution; traffic management; plant and warehouse location; inventory control; information flows and order processing; supply scheduling; total cost planning; organizational patterns.

**148. Advanced Transportation Management (3) (Former B A 148)**

Prerequisite: Mgt 146, 147. New tools and techniques in carrier management, physical distribution management, carrier-shipper cooperation; trends in intracarrier and intercarrier competition, pricing and regulatory philosophy; case problems; computer simulation; individual and group problem solving.

**187. Seminar in Business Strategy (3) (Former Mgmt 120)**

Prerequisite: second semester senior and completion of School of Business core requirements A through D. Integration of various fields of knowledge through utilization of previously acquired academic and practical experience; emphasis upon decision making under conditions of uncertainty, and experience with policy formulation and implementation.

**189T. Topics in Management (1-3; max total 9 if no topic repeated)**

Prerequisite: senior standing or permission of instructor. Studies in management, organizational theory, organizational behavior, production, transportation, business administration, special management and organizational problems.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 Series.** Graduate courses are listed under *Business*.

**MARKETING (Mktg)****100. Principles of Marketing (3)**

Prerequisite: Econ 1A-B. Economic and social problems involved in moving goods and services from the producer to the consumer; major kinds of goods and services to be marketed; the institutions and agencies of distribution, and the series of functions involved.

**101. Consumer Behavior (3)**

Prerequisite: Mktg 100. Consumer motivation and behavior based on analysis of the findings of the behavioral sciences.

**104. Proseminar in Marketing Research (3)**

Prerequisite: Econ 1A-B; Mktg 100; Q M 65 (may be taken concurrently). Fundamentals of market and marketing analysis, research procedure, methods of analysis; individual and group problem analysis and presentation of results; computer simulation.

**109. Marketing Problems (6)**

Prerequisite: Mktg 104, and senior standing. Integration and application of marketing theory; decision making and decision models, class analysis; individual and small group research and presentations, computer simulation. Relationship of other business areas to marketing.

**112. Product and Pricing Policies (3)**

Prerequisite: Mktg 100. Policies and practices involved in developing and maintaining products, services, and prices.

**115. Distribution Systems and Controls (3)**

Prerequisite: Mktg 100. Planning, development, and control of distribution systems and supporting facilities.

**117. Industrial Marketing (3)**

Prerequisite: Mktg 100. Analysis of marketing systems serving business, industry, government, and other institutions; industrial procurement practices; individual and group problem research, analysis and presentation of results.

**127. Consumerism and Marketing (3)**

Prerequisites: B A 18, Mktg 100. Consumerism impact on marketing strategy and decision-making. Examination and evaluation of consumerist movement; historical development and current state of consumerism; consideration of consumerist groups, role of government, involvement of private enterprise and general public. Individual and group presentations; seminar instruction.

**130. Retailing Management (3)**

Prerequisite: Mktg 100. Management operations and functions of retailing organizations; structure, personnel, impact on the community; buying, pricing and selling of merchandise.

**140. Advertising Principles (3)**

Analytical approach to advertising as a broad social influence; functions in our culture; application as a marketing and communication force; individual and group problem analysis and presentation of results; individual field research.

**142. Advertising Problems (3)**

Prerequisite: Mktg 140. Advertising production and media problems; market research techniques; selection of campaign themes, copy preparation, art and layout. Field trips required.

**150. Psychology of Personal Persuasion (3)**

Prerequisite: Mktg 100. Behavioral science approach to personal selling. Emphasis on analysis of psychological aspects of consumer decision-making and consumer attitudes toward the salesman that affect selling success. Case analysis, individual and group presentations.

**155. Sales Administration (3)**

Prerequisite: Mktg 100. Techniques of personal persuasion; behavioral science methods; selection, training, and supervision of sales staff.

**176. International Marketing (3)**

Prerequisite: Mktg 100. Examination and evaluation of business policies and practices of firms engaged in world trade; the marketing area; organization, product, channels of distribution, marketing research, demand creation, and other management problems.

**189T. Topics in Marketing (1-3; max total 6 if no topic repeated)**

Prerequisite: senior standing or permission of instructor. Topics in advertising, consumer behavior, distribution, industrial procurement, marketing research, retailing, wholesaling.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**198. Supervised Work Experience (1)**

Open only to business majors. Prerequisite: permission of instructor. Work Experience: Learning through on-the-job experience in a business. Written reports.

**199. Internship (3-6; max total 6)**

Open only to business majors. Prerequisite: permission of instructor. Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

**200 Series.** Graduate courses are listed under *Business*.

## OFFICE ADMINISTRATION DEPARTMENT

### FACULTY

Berle Haggblade, *Department Chairman*

Allen M. Agnew ■ Gerald O. Bryan ■ Jack Coffey ■ Robert A. Flam ■ Margaret W. MacMillan ■ Victor G. Panico ■ Dwayne G. Schramm ■ Gayle A. Sobolik

### MAJOR IN BUSINESS

*School of Business Core Requirements (A through E)*

See *School of Business—BS Degree in Business Administration.*

#### *Office Administration Option*

	<i>Units</i>
One semester of approved college mathematics .....	3
O Ad 4, 103, 105, 107.....	12
Q M 60 .....	3
Elect from: O Ad 112, 114, and 121, or 9 units from Acct 120A-B, 128, 132, B A 100, 118, Q M 63, 64, and 166 .....	6-9
	24-27

### COURSES

#### OFFICE ADMINISTRATION (O Ad)

##### \* 1. Typewriting (2)

Not recommended for students with one or more semesters of high school typewriting. Development of typewriting techniques and their applications to practical usage. (4 lab hours)

##### \* 2. Typewriting (2)

Prerequisite: O Ad 1. Review of keyboard; use of the typewriter as a communication tool; refinement of typewriting techniques with personal and business applications. (4 lab hours)

##### \* 4. Office Production (3)

Prerequisite: O Ad 1. Problems and solutions applicable to office production and word processing centers; use of duplicating equipment, machine transcription; executive typewriter. (2 lecture; 2 lab hours)

##### † 23. Gregg Shorthand (4)

Prerequisite: adequate typewriting ability. Mastery of theory; proficiency in reading, writing and transcribing shorthand.

##### 103. Principles of Office Management (3)

Office management in business and industry; organization and control of office services; selection, training, and supervision of personnel; utilization of the computer and peripheral equipment in the office; improvement of office efficiency; office planning and layout; equipment and supplies.

##### 105. Business Communication (3)

Prerequisite: 3 units of English composition and junior standing. Business communication theory; analysis of communication alternatives; effective business writing and dictating; case studies.

##### 107. Information Retrieval Systems (3)

Records organization, management, and control; basic principles and procedures of information storage and retrieval; impact of data processing on the records area. Observation of retrieval systems in business installations.

\* Not more than six units of credit in typewriting will be allowed toward any degree.

† Not more than ten units of credit in shorthand will be allowed toward any degree.

† 112. **Advanced Shorthand (3)**

Prerequisite: O Ad 23 or one year high school Gregg or equivalent. Review of theory and development of proficiency in writing and transcribing shorthand notes; speed and endurance in writing and transcribing shorthand notes.

114. **Transcription (3)**

Prerequisite: O Ad 112 (may be taken concurrently). Transcription from shorthand and machine dictation; development of production standards for office transcription.

116. **Office Appliances for Business Teachers (3)**

Not open to students with credit in O Ad 4. Prerequisite: O Ad 1. For students working toward a standard secondary credential in business and those wishing to teach business subjects in community colleges. Operation of all modern business machines.

121. **Office Services and Procedures (3)**

Prerequisite: O Ad 114. Duties and responsibilities of executive secretarial positions.

189T. **Topics in Office Administration (1-3; max total 6 if no topic repeated)**

Prerequisite: 3 units in office administration or permission of instructor. Special areas of office administration: communications, management, records management, secretarial science.

190. **Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

198. **Supervised Work Experience (1)**

Open only to business majors. Prerequisite: permission of instructor. Work Experience: Learning through on-the-job experience in a business. Written reports.

199. **Internship (3-6; max total 6)**

Open only to business majors. Prerequisite: permission of instructor. Student holds responsible position in business or government agency and reports on firm's operations and suggested improvements.

**200 Series.** Graduate courses are listed under *Business*, following.

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† Not more than ten units of credit in shorthand will be allowed toward any degree.

**GRADUATE COURSES—BUSINESS**

(See *Course Numbering System—Definitions and Eligibility*)

**BUSINESS (Bus)**

*Note: The foundation courses (Bus 202, 205, 208, 209, 211, 214, 216, 217, and 218) are open only to classified graduate students who have not completed equivalent undergraduate courses. Other 200 series courses are open only to graduate students in classified standing, except that teaching credential candidates may take Bus 280, 281, 282 in unclassified standing when approved by the Business Credential Adviser.*

**202. Economics for Business Decisions (3) (Former Bus 101G)**

Not open to students with credit in Econ 1A-B. Microeconomic decisions; product, service, and factor markets; risk, uncertainty, and profits; macroeconomic framework of business decisions.

**205. Financial and Managerial Accounting (3) (Former Bus 105G)**

Not open to students with credit in Acct 1A-B or 4A-B. Financial accounting; statement analysis and interpretation; transaction analysis; partnerships and corporations; taxation; financial reporting; managerial controls, information systems, budgeting; costs, capital budgets.

**208. Quantitative Methods in Business (3) (Former Bus 108G)**

Not open to students with credit in Q M 65, 103. Statistical analysis in business, tests of hypotheses, time series, correlation analyses, index numbers, estimation models, and Bayesian statistics in business decision making.

**209. Computers and Programming (3) (Former Bus 164G, 227)**

Not open to students with credit in Q M 60 or 63 or 64. Programming languages; data processing, COBOL; FORTRAN; simulation, models; problems.

**211. Legal Environment of Business (3) (Former Bus 115G)**

Not open to students with credit in B A 18. Basic legal concepts; nature of the legal system, law of contracts, sales, negotiable instruments, agencies, partnerships, corporations.

**214. Organization and Management Theory (3) (Former Bus 121G)**

Not open to students with credit in Mgt 110 or 110A-B. Organizational theory, structure and forms of organization, authority, leadership, group dynamics, policy formulation; conflict resolution, organizational control.

**216. Operations Analysis (3) (Former Bus 125G)**

Not open to students with credit in Mgt 124. Operations theory and methods; operations planning and control; methods analysis, work measurements; materials handling and control, facilities location and layout; application of statistical techniques and electronic data processing; relationships with other functional areas of management.

**217. Marketing Organization and Policies (3) (Former Bus 145G, 221)**

Not open to students with credit in Mktg 100. Environmental factors for marketing, elements of marketing and marketing systems, marketing activities and strategies of the firm; evaluating marketing programs and systems.

**218. Principles of Finance (3) (Former Bus 130G)**

Not open to students with credit in Fin 133. Impact of uncertainty and environmental considerations upon the finance function. Financial problems and policies: working capital management, capital budgeting, cost of capital, and dividend policy. Problems and cases.

**220. Seminar in Business Policy (3)**

Prerequisite: completion of foundation courses. Advanced problems in business policy; evaluation, determination, execution, administration, and control; policy objectives in integration of product, marketing, manufacturing, finance, and organization; analysis of administrative policy-making bodies and processes.

**222. Seminar in Business Research (3) (Former Bus 200)**

Prerequisite: Bus 208, 209. Methods of research; applications to business problems.

**223. Seminar in Organizational Behavior (3)**

Prerequisite: Bus 214. Problems of the individual and groups brought about by modern industrial organizations and techniques; motivations for work and cooperation between executives and different economic and social groups; analysis of effect of company policy on employee and public relations.

**226. Seminar in Accounting Control and Reporting (3) (Former Bus 261)**

Prerequisite: Bus 205, 208. Procedures for financial reporting, systems and internal control, interpretation of administrative reports; accounting control—statistical inference, budgetary planning, standard costs, differential cost analysis, profit volume relationships.

**228. Seminar in Quantitative Analysis (3) (Former Bus 264)**

Prerequisite: Bus 208, 216. Quantitative analysis of business problems; development of models, simulation and matrices; applications.

**229. Seminar in Managerial Economics (3) (Former Bus 201)**

Prerequisite: Bus 202, 208. Economic analysis of managerial problems; theory of the firm.

**230T. Seminar in Business Topics (3; max total 9 if no topic repeated) (Former Bus 210T)**

Prerequisite: 9 units of 200 courses. Theory and developments in accounting, administration and organization, business education, communications, consumer economics, finance, industrial and regional studies, international business, law, management, marketing, personnel and industrial relations, quantitative studies, real estate and urban economics, records management, resource economics, risk and insurance, or transportation.

**232. Seminar in Money and Capital Markets (3)**

Prerequisite: Bus 218. Analysis of money and capital markets, their organization and role in economic activity.

**233. Seminar in Business Finance (3)**

Prerequisite: Bus 218. Critical review of theory and practice; supply and demand factors; sources and uses of business funds; management of financial assets; cost of capital; theory of financial structures; promotion; liquidation of firms; current trends; changing institutional environment.

**237. Seminar in Public Policy and Enterprise (3) (Former Bus 215)**

Prerequisite: Bus 211. Development of legal controls of business; constitutional problems; legal aspects of business organization; anti-trust laws and competition, securities regulation, consumer protection.

**240. Seminar in Marketing (3)**

Prerequisite: Bus 217. Critical review of the literature of marketing, special reports and research dealing with marketing institutions and organization, and marketing functions.

**242. Seminar in Marketing Management (3)**

Prerequisite: Bus 217. Analysis of basic problems of marketing management and alternative methods of approaching these problems; case studies; use of statistics, economics, psychology, and other tools in directing marketing activities; relation of marketing to other areas of business administration.

**250. Seminar in Personnel Management (3)**

Prerequisite: Bus 214. Trends and problems in management-employee relationships; administrative action in selection, motivation, and development of personnel; relation of personnel administration to other areas of management; concentrated study by each student of a special phase of personnel work.

**252. Seminar in Labor Relations (3)**

Prerequisite: Bus 214. Current trends in labor relations theory and practice; labor relations systems; contract negotiations; dispute prevention and settlement; role of government; applications of behavioral sciences; individual research.

**253. Manpower Management (3) (Former Bus 224)**

Prerequisite: Bus 214, 250. Principles and methods for understanding the effective use of manpower resources, macro and micro. Analysis and resolution of specific manpower problems at the operating level.

**255. Seminar in Production Management (3) (Former Bus 225)**

Prerequisite: Bus 216. Current production management theories and problems; critical analysis and review of present practices and theories.

**258. Seminar in Office Management (3) (Former Bus 203)**

Managerial control of office functions, services, and personnel; case studies.

**260. Seminar in Accounting Theory (3)**

Prerequisite: Bus 226. Development of accounting theory; current accounting theory; areas of accounting theory where professional differences exist; AICPA research studies, governmental regulations, recent literature, and accounting classics.

**262. Seminar in Programming (3)**

Prerequisite: Bus 209. Advanced techniques of sorting, file maintenance and information systems, controls and teleprocessing directed toward business applications.

**263. Seminar in Cost Accounting (3)**

Prerequisite: Bus 226. Advanced study of process and standard costs; overhead costs; budgeting; use of cost accounting data in economic analysis and managerial control; problems illustrating course material.

**265. Seminar in Information Systems (3)**

Prerequisite: Bus 209. Analysis of integrated and decentralized systems related to business organizations, their decision and control centers; underlying technologies and methods for designing, implementing, and operating an information system.

**266. Data Processing Management and Computer Selection (3)**

Prerequisite: Acct 128. Theories, costs, and problems of operating computer centers: standards, flow of work, scheduling, batching, spooling, multiprogramming techniques. In-depth study of hardware and software of various computers; feasibility studies; comparisons of competitive systems; costs of reprogramming.

**267. Sampling Design (3)**

Prerequisite: Q M 103 and permission of instructor. Theory and applications of probability and sampling distributions; theory of point and internal estimations of means, proportions, ratios, totals; precision of estimation and sample designs; probability and nonprobability designs; simple, stratified, cluster, systematic, and Bayesian estimation.

**268. Regression, Correlation, Factor Analysis (3)**

Prerequisite: Q M 103 and permission of instructor. Conditional, marginal, and joint probability distributions; statistical dependence; simple, multiple, linear and nonlinear regression models; correlation analysis; analysis of variance and regression; introduction to Bayesian decision theory.

**271. International Business (3)**

Prerequisite: Bus 202. Principles of trade and finance; comparative business systems and national policies; organization and management of business enterprises under different national systems; cultural and environmental factors influencing business operations in various countries.

**272. Seminar in International Finance (3)**

Prerequisite: Bus 271. Theory and practice in international money and capital markets; foreign exchange; balance of payments; problems of adjustment; comparative financial systems.

**275. Seminar in International Business (3)**

Prerequisite: Bus 271. Examination of the economic, social, and political environment for operation of the multinational enterprise; consideration of the policies, practices and problems of the firm in the international setting. Text, case, and literature analysis.

**280. Seminar in Business Education (3)**

Study of advanced problems in business education.

**281. Instructional Procedures in Business Education (3)**

Objectives, procedures, materials, and evaluation in the teaching of business subjects at the secondary school level.

**282. Seminar in Business Curricula (3)**

Objectives, principles, and curricula of business in secondary schools, and colleges and universities; evaluation and trends of current programs.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**291. Management Project (3 or 6)**

Prerequisite: Completion of the master's core or concurrent enrollment therein. Independent field analysis of an operating business firm or one of its principal functional areas. The managerial audit may be submitted to the faculty in lieu of a thesis.

**292. Readings in Business (2-3; max total 6)**

Prerequisite: permission of instructor. Individually directed readings in a field of special concern to the student's graduate program; appropriate reports and evaluation required. Individual conferences; no formal class meetings.

**299. Thesis (3 or 6)**

Prerequisite: Completion of master's core or concurrent enrollment therein. See *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Elective for master of business administration.

**IN-SERVICE COURSES**

(See *Course Numbering System*.)

**367. CPA Review (4)**

**380T. Topics in Business (2; may be repeated if no topic repeated)**

**381. Instructional Procedures in Vocational Business Education (2-3)**

**385. Bridging the Gap (2-4)**

**389. Workshop in Business Education (1-6; max total 6)**

**398. Business Internship (1-6; max total 6)**





**SCHOOL OF EDUCATION**

**Elementary Education Department**

**Secondary Education Department**

**Advanced Studies Department**



# SCHOOL OF EDUCATION

Ralph F. Evans, Dean

*Department*

*Chairperson*

Elementary Education .....	Arne J. Nixon
Secondary Education .....	Lester J. Roth
Advanced Studies .....	Orley W. Wilcox
Coordinator, Graduate Programs .....	Raymond H. Harrison
Coordinator, Secondary Student Teaching .....	Marty Santigian
Coordinator, Elementary Student Teaching .....	David Haimbach
Credential Analyst .....	Janet Smith

The School of Education utilizes the resources of the university in the preparation of teachers, administrative officers, and special service personnel for elementary and secondary schools. Teacher education curricula are developed on the assumption that a teacher or administrative officer needs a broad and liberal education, and should be master of the subject or subjects he teaches. This training, which is supplemented by professional education, provides a knowledge of pupils, familiarity with teaching problems, and meaning to the subjects of instruction.

The School of Education provides professional preparation in elementary teaching, secondary teaching, pupil personnel services, special education, and administration and supervision.

The School of Education is organized on a departmental basis. Supporting services included in the school organization are the Curriculum Library, Children's Library in the University Library, Instructional Materials Center for Special Education, Learning Laboratory, Reading Center, Credential Analyst's Office, and School Graduate Office.

**COOPERATING PUBLIC SCHOOL DISTRICTS**

The professional preparation programs of the School of Education utilize the services and facilities of a number of cooperating public school districts in the area for assignments in observation, student teaching, and internship. Teachers, administrators, consultants, and other personnel provide excellent opportunities for students to gain practical experience in the field. The school works closely with the public schools in planning and implementing credential programs.

The following school districts are currently cooperating in the university program:

- |   |   |
|---|---|
| Bishop Union Elementary School District<br>(Bishop, California) | Kerman Union High School District                                     |
| California State University, Fresno<br>(Campus Day Care)        | Kings Canyon Unified School District                                  |
| Caruthers Union High School District                            | Livingston Union School District                                      |
| Central Union High School District                              | Los Banos Unified School District                                     |
| Chowchilla Union High School District                           | Madera Unified School District  |
| Clovis Unified School District                                  | McKinley-Roosevelt Union School<br>District                           |
| Coalinga Unified School District                                | Merced Union High School District                                     |
| Corcoran Joint Unified School District                          | Orange Center School District   |
| Dinuba Joint Union High School District                         | Sanger Unified School District  |
| Dos Palos Joint Union High School<br>District                   | San Joaquin Memorial High School                                      |
| Fowler Unified School District                                  | Selma Unified School District   |
| Fresno County Department of Education<br>(Special Education)    | State Center Community College District                               |
| Fresno Unified School District                                  | Tranquility Union High School District                                |
| Hanford Elementary School District                              | Tulare County Department of Education<br>(Special Education Services) |
| Hanford Joint Union High School District                        | Tulare Elementary School District                                     |
| Kern Joint Union High School District<br>(Bakersfield)          | Tulare Union High School District                                     |
|   | Visalia Unified School District                                       |
|   | Washington Union High School District                                 |

### CREDENTIAL REQUIREMENTS

The state now issues credentials for public school service under the provisions of the Teacher Preparation and Licensing Law of 1970 (the Ryan Act).

Information regarding the Ryan Act and the professional preparation programs being developed in accordance with its provisions are available in the departmental offices of the School of Education and in other departments of the university providing programs of instruction for the specialized credentials.

### APPLICATION FOR ADMISSION TO CREDENTIAL PROGRAMS

Students planning to undertake a program of studies leading to a credential must file with the School of Education, through its Admissions Office, an application for admission to the credential program. This should normally be done during the first semester of the junior year. Candidates for credentials entering the university as juniors, seniors, or graduate students should make application for admission to the credential program immediately following admission to the university.

Under normal circumstances students will not be permitted to enroll in any of the professional course work leading to any credential until official admission to the credential program has been granted.

Acceptance for a credential program does not guarantee the granting of the credential, nor does acceptance for one credential or specialization imply acceptance for another credential or specialization. Final admission to a credential program must follow admission to the university and to graduate standing, where appropriate.

The following minimum requirements must be met for acceptance in the programs of professional preparation. Additional criteria may be used for acceptance to programs leading to professional master of arts degrees.

1. **Academic Aptitude.** Students who fall below the percentile rank of 25 on the college aptitude and reading tests must demonstrate compensating strength in other areas listed in the following sections.
2. **Scholarship.** Candidates for credentials with elementary or secondary specialization must present a minimum grade-point average of 2.50 in the total university program. A grade-point average of not less than 2.0 must be maintained in all work taken at CSUF.
3. **Professional Aptitude.** Ability to work with pupils, parents, and school officials must be demonstrated in field work assignments.
4. **Physical Fitness.** All candidates for public school credentials must secure medical clearance from the staff of the university Student Health Service before admission to a credential program is approved.
5. **Language Usage.** Habitual use of clear, correct, and appropriate language, both written and oral, is required, including demonstrated competency in composition. This requirement is met by securing clearance statements in writing from both the English and Communicative Disorders Departments. The School of Education Admissions Committee reviews cases in which questions arise relative to this requirement.
6. **Personality and Character.** Personal qualifications required for professional service are expected. These include appearance, dress, poise, force, vitality, social attitudes, cooperativeness, temperament, emotional stability, integrity, and such personal habits and manners as are not offensive to pupils, co-workers, and school patrons.
7. **Many-sided Interests.** Participation in community enterprises, discussions of social problems, reading, music, conversation, social contacts, clubs, hobbies, and travel are considered important.
8. **General Fitness for Teaching.** Weakness in the foregoing items, or evidence of unfavorable traits of character or personality, will disqualify a student from candidacy for a credential program. Each candidate must secure approval from the School of Education Admissions Committee to continue through any credential program; approval is granted upon satisfactory completion of all requirements listed above.

The School of Education Admissions Committee is responsible for admitting applicants to credential programs. Students who do not meet all of the criteria for admission to a credential program may submit written petitions to the chairman of the Admissions Committee requesting review of their applications.

**ADMISSION TO MASTER'S DEGREE PROGRAMS**

Additional requirements must be met by students seeking admission to the professional master's degree programs. For further information regarding these requirements, the School of Education Graduate Office, and the department offering the desired degree should be consulted. The School of Education Graduate Office maintains a record center for all students who are working toward the master's degree in the School of Education. It also maintains liaison between the School of Graduate Studies and departments in the School of Education offering master's degree programs. See *School of Graduate Studies*.

## ELEMENTARY EDUCATION DEPARTMENT

## FACULTY

Arne J. Nixon, *Department Chairman*

Norma L. Avedisian ■ George E. Avery ■ Beatrice E. Bradley ■ Robert D. Brenner  
 ■ Dorothy A. Cady ■ Maxima A. Dandoy ■ David Haimbach ■ Phyllis B. Henfling ■  
 Joyce M. Huggins ■ Alexander H. Lark ■ Jerome E. Leavitt ■ Glenn F. Leslie ■  
 James B. Lundberg ■ John E. Martin ■ Georgia E. Nicklett ■ Lowell K. Ogden ■  
 Richard F. Osterberg ■ Marjorie L. Ragsdale ■ Thelma M. Rea ■ Sanford W. Reitman  
 ■ Ivan H. Rowe ■ Harold Silvani ■ Forest E. Sloan ■ Charlene K. Smith ■ Richard  
 K. Sparks ■ Sarah L. Stull ■ Carl R. Stutzman ■ Vera C. Taylor ■ William Walker ■  
 Hortencia Winiker

## TEACHING CREDENTIAL WITH AUTHORIZATION FOR MULTIPLE SUBJECTS INSTRUCTION

*(Teacher Licensing Act of 1970—Ryan Act)*

The new state mandated credential program for licensing candidates for elementary and secondary classroom teaching became fully operational in September, 1974. The new program, operated under provisions of the Teacher Preparation and Licensing Act of 1970 (known as the Ryan Act) specifies two credentials for classroom teaching: (1) The *Multiple Subjects Credential*, which authorizes teaching in a self-contained classroom, and (2) the *Single Subjects Credential*, which authorized teaching of single subjects. Although both credentials authorize the holder to teach at any grade level from kindergarten through grade twelve, since self-contained classrooms in which multiple subjects are taught are virtually always found at elementary grade levels, in effect, the *Multiple Subjects Credential* becomes the credential or license which authorizes classroom teaching at elementary grade levels.

In addition to these two basic teaching credentials, other specialist and service credentials are in process of development and review by the Commission. Consult the appropriate departmental offices or the office of the dean of the school for information concerning these credentials.

To qualify for the *Multiple Subjects Credential*, the candidate must earn a baccalaureate degree with the Liberal Studies Major, or, if he completes his degree without the specified major, he must achieve qualifying scores on the National Teachers Examination (Common Branches). He must also complete a sequence of required professional courses and field experiences in teacher training. He then receives a preliminary teaching credential. Before this credential becomes a clear credential, he must complete, within five years of his first employment, a program of 30 upper division or graduate units earned after the AB degree (known as the Fifth Year).

## Majors

Candidates may complete the major designated as Liberal Studies (Credential) which is described on page 89 of this catalog. Candidates who complete this major are also adjudged to have completed all General Education requirements for the baccalaureate degree (Note: PI Sci 2 or PI Sci 101 must also be completed). If candidates elect any major other than Liberal Studies, they must also complete all General Education requirements for the baccalaureate degree and must attain qualifying scores on the Common Branches section of the National Teachers Examination before they may be admitted to full-time student teaching in the *Multiple Subjects Credential Program*.

## Professional Preparation

The minimum professional requirements necessary to qualify for the Multiple Subjects preliminary credential vary from 24-27 units. When a candidate is admitted to the *Multiple Subjects Credential Program* he is assigned to one of three options, according to his interests and experience.

Option I is one which most candidates will complete. It assumes that the candidate has had limited or no experience in working with children or in classroom and school situations. Option II is a specialized program for candidates who wish to work toward specialization in Early Childhood Education. Option III is a specialized program for candidates who have had extensive experiences in working with children and in classrooms. Assignment to one of the three options will be made by the department when a candidate applies for admission to the *Multiple Subjects Credential Program*.

The sequence of required courses in the three options is as follows:

<i>Option I</i>	<i>Option II</i>	<i>Option III</i>
E ED 110 (3)	E ED 111A,B,C (1-1-1)	E ED 130 (3)
E ED 130 (3)	E ED 130 (3)	E ED 140 (2)
E ED 140 (2)	E ED 140 (2)	E ED 150 (4)
E ED 150 (4)	E ED 150 (4)	E ED 156 (3)
E ED 156 (3)	E ED 156 (3)	E ED 160 (6-6)
E ED 160 (6-6)	E ED 160 (6-6)	
27	27	24

**Admission to Multiple Subjects Credential Program**

Apply in Room 120, Education-Psychology Building. Complete required steps in the admission process.

Students are not permitted to enroll in any of the courses listed under professional preparation until official admission to the credential program has been granted. Students who have completed 45 units may begin the professional sequence.

**SPECIALIST CREDENTIALS IN THE TEACHING OF READING AND EARLY CHILDHOOD EDUCATION**

The University offers an approved program for the Reading Specialist Credential. A professional preparation program for the Early Childhood Specialist Credential is in process of development. Consult the departmental office for information concerning these credentials.

**MASTER OF ARTS DEGREE**

The Elementary Education Department offers a program leading to the master of arts degree in education with a concentration in elementary teaching. Emphasis is on developing highly qualified professional personnel for the elementary schools. Prospective candidates can usually plan to coordinate many of the requirements for the master of arts degree in education with the fifth year which must be completed by every candidate for a standard teaching credential. A student may enter the master's degree program following completion of fifteen semester units of acceptable work in professional education or following completion of the minimum requirements for a standard teaching credential, provided all criteria for classified graduate standing have been met. Students must also comply with policies and procedures established by the School of Education Graduate Committee.

For specific requirements consult the department chairman; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**COURSES**

**ELEMENTARY EDUCATION (E Ed)**

**110. Student Teaching in Elementary School (3) (Former E Ed 132A)**

Prerequisite: admission to Multiple Subjects Credential Program. Orientation to problems and practices of elementary teaching; observation, participation and directed teaching in multicultural, multigrade classrooms. Minimum of 45 clock hours, with additional conference periods, observations and visitations by arrangement.

**111A-B-C. Student Teaching in Elementary Schools (1; max total 3)**

Prerequisite: admission to Multiple Subjects Credential Program. Sequence of one unit field experiences taken concurrently with each of the following: E Ed 111A, concurrently with E Ed 130 and E Ed 140; E Ed 111B, concurrently with E Ed 156, E Ed 111C, concurrently with E Ed 150. Directed observation, participation and directed teaching in multicultural classrooms coordinated with course work in cultural and psychological foundations, curriculum and reading. Provides field experiences for interpreting educational theories.

**120. Problems in Elementary Education (3; repeatable with different topics)**

Prerequisite: admission to credential program; E Ed 130. Study in depth of various areas in elementary education including social studies, science, culturally disadvantaged, kindergarten, children's literature, childhood education, mathematics, nursery school, language arts, classroom organization and management, curriculum, storytelling, bilingual-bicultural education.

**122F. Field Work in Outdoor Education (1-2; max total 2)**

Prerequisite: E Ed 130 or S Ed 152; permission of instructor. Practice at camp with responsibilities of counseling, camp leadership, curriculum planning and evaluation; and utilization of resource people from several disciplines.

**130. Psychological Foundations of Education (3) (Former E Ed 105)**

Prerequisite: E Ed 110; admission to Multiple Subjects Credential Program. Facts, ideas and principles fundamental to an understanding of educational procedures in teaching and learning and to the growth and development of children.

**135. Audio-Visual Education (2) (Same as S Ed 135)**

Evaluation, selection, and utilization of various types of contemporary instructional materials, systems, and equipment. Laboratory experiences in the operation of equipment and materials design.

**136. Multicultural Education (3)**

Helps teachers cope effectively with diverse student needs in a plural society. Considers ethnic, socio-economic, sex, religious, other subcultural differences and problems of curriculum and instruction in multi-group classrooms.

**137. Creative Dramatics (2) (See Drama 137)****140. Cultural Foundations of Education (2) (Former E Ed 100)**

Prerequisite: E Ed 110; admission to Multiple Subjects Credential Program. Functions of education in America's multicultural society; role of the school and teacher; impact of social conflict and interaction on the school's function; relationship between school and community.

**141. School Library Reference and Bibliography (3) (Same as S Ed 141)**

Evaluation and use of basic reference tools found in the school library; selection, critical evaluation, and sources.

**142. Selection and Uses of Library Materials (3) (Same as S Ed 142)**

Selection and use of materials for school media centers according to the needs of children and the educational goals of the school program.

**143. Literature for Young People (3) (Same as S Ed 143)**

Survey of selected materials appropriate to the needs, interests, and abilities of young people. Use of books for curricular, leisure, and guidance purposes, practice in reviewing media and in giving book talks.

**144. Advanced Cataloguing (3) (Same as S Ed 144)**

Extensive practice in cataloguing, with emphasis upon resources requiring special description, such as audio-visual, resource material, and pamphlets.

**145. School Library Practicum (9) (Same as S Ed 145)**

Observation and practice work in selected school libraries; includes at least 180 clock hours of supervised library experience under the supervision of a credentialed librarian.

**147. Administration of School Library Services (3) (Same as S Ed 147)**

Prerequisite: admission to credential program or permission of instructor. The materials-centered library; effective organization and maintenance based on standards, aims, and policies for the library in relation to curriculum; budgeting, reporting, and evaluating.

**148. Organization of School Library Materials (3) (Same as S Ed 148)**

Prerequisite: E Ed 147 and admission to credential program or permission of instructor. Acquisition, cataloging, classification, and allied processes for a materials-centered school library. Practice in cataloging and classifying library materials; development of a sample catalog.

**149. The School Library as an Educational Force (3) (Same as S Ed 149)**

Prerequisite: E Ed 148 and admission to credential program or permission of instructor. Depth study of the role of the school library; functions, aims and policies for libraries in relation to curriculum, teachers, and children.

**150. Curriculum and Instruction in Elementary Schools (4) (Former E Ed 120T)**

Prerequisite: admission to Multiple Subjects Credential Program. E Ed 110 or E Ed 111A-B-C, E Ed 130, and E Ed 140. Current conceptions of curriculum and instructional resources in the elementary school; methods of teaching.

**151. Organization of Programs for Young Children (3)**

Prerequisite: Admission to credential program. A study of varied types of organization and administrative patterns in programs for young children. Principles of democratic supervision and policies related to purposes and organization, licensing, equipment, records, financing, parent and community relations, personnel policies and staff development.

**156. The Teaching of Reading (3) (Former E Ed 120T)**

Not open to students with credit in S Ed 156. Prerequisite: admission to credential program. Designed for candidates for multiple subject credential. The nature of reading; methods and materials for teaching reading skills; provision for individual differences (ethnic, socio-economic, dialectal); theories, programs and organization; stimulation of interest; improvement in oral reading and phonics.

**157. Conservation of Natural Resources (3) (See Biol 157)****158. Communication and Learning (3) (See Spch 114)****160. Student Teaching in Elementary School (6-6) (Former E Ed 132B)**

Prerequisite: admission to Multiple Subjects Credential Program. Completion of Liberal Studies Major or passing score on National Teachers Examination; completion of all required courses in approved program. Supervised teaching in multicultural, multigrade public school classrooms; one unit of credit to 22.5 clock hours of directed teaching.

**164. Tutorial Reading (3) (Former E Ed 106) (Former E Ed 120T section)**

Prerequisite: E Ed or S Ed 156. Designed to give the student direct involvement with a child who has reading problems; practical experience that uses the knowledge, skills and techniques obtained in the prerequisite basic reading course. (2 lecture, 2 lab hours)

**174. Theory of Reading (3)**

Prerequisite: E Ed or S Ed 156. Study of the theory of teaching as it relates to the psychology of reading, thinking, and learning; the structure and dialects of the English language; cultural differences; motivation of children, colleagues, and communities.

**175. Seminar and Practicum in Elementary Teaching (6-8)**

Prerequisite: baccalaureate degree (concurrent registration in E Ed 267 required), or permission of instructor. On-school-site seminar and practicum to train teachers for service in economically depressed areas. Growth and development, principles of learning, curricular and methodological focus on language development and reading.

**176. Seminar and Practicum in Elementary Teaching (6-8)**

Prerequisite: E Ed 175 (concurrent registration in E Ed 267 required). On-school-site seminar and practicum to train teachers for service in economically depressed areas. Relationship between school and community; scope and function of elementary school. Curricular and methodological focus on social studies, science, and mathematics.

**180. Modern Trends in Education (1-4; max total 4) (Same as S Ed 180)**

Recent trends in educational objectives; selection and revision of curricular materials; methods of instruction.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

See *Course Numbering System—Definitions and Eligibility*

**213. Language in the Elementary School (3)**

Prerequisite: graduate standing or permission of instructor. Seminar in the study of the English language arts. Objectives, curriculum, materials, and research in oral and written communication; project required.

**214. Children's Literature (3)**

Prerequisite: graduate standing or permission of instructor. Seminar in children's literature; critical interpretation of children's literature; emphasis upon impact of changing social and cultural patterns in books for children; project required.

**220. Research in Education (3) (See A S 220)**

**221. Early Childhood Education (3)**

Prerequisite: E Ed 130, graduate standing or permission of instructor. Seminar in early childhood education; philosophical and sociological development of early childhood education; alternate philosophies and programs; current trends and controversial issues; project required.

**224. Diagnosis and Correction of Reading Disabilities (3) (Former E Ed 212)**

Prerequisite: E Ed 156. Causes of reading disabilities; observation and interview procedures; diagnostic instruments; standard and informal tests; materials and methods of instruction. (2 lecture, 2 lab hours)

**231. Curriculum in Early Childhood Education (3)**

Prerequisite: completion of E Ed 120EC; admission to Early Childhood Specialist program, or special permission of inspector. Concepts underlying curriculum development for children eight years and younger. Teacher's role in planning, implementing, and assessing curriculum; development of teaching strategies in environmental settings to include nursery, kindergarten, and primary levels. (2 seminars, 2 lab hours)

**234. Practicum in Reading Disabilities (3) (Former E Ed 219)**

Prerequisite: E Ed 156, 224 or permission of instructor. Laboratory experiences in the diagnosis and correction of reading disability cases under supervision. (2 lecture, 2 lab hours)

**241. Practicum in Early Childhood (3)**

Prerequisite: admission to Early Childhood Specialist program; concurrent enrollment in E Ed 231, or special permission of instructor. Supervised experiences in work with young children in a variety of settings aimed at enabling the student to implement curriculum content and demonstrate teaching skills with the young child and his family in a prekindergarten program and at least one other age group.. (Minimum of 135 hours)

**244. Research in Reading Curriculum (3) (Former E Ed 252)**

Prerequisite: E Ed 174, 224, 234, and permission of instructor. Study of selected curricula; planning curriculum in reading; effective ways of dealing with the functions and duties of reading specialists and consultants.

**250. Elementary School Curriculum Development (3)**

Prerequisite: teaching credential or permission of instructor. Seminar on concepts and principles of curriculum planning; evaluation of processes and programs; availability and use of resources; innovations and research in curriculum development. Project required.

**251. Home, School, Community Resources in Early Childhood (3)**

Prerequisite: admission to Early Childhood Specialist program or special permission of instructor. Teacher-parent relationships in individual and group settings, role of classroom aids and community volunteers, work with student teachers, organization and execution of in-service programs using home, school, and community resources.

**254. Supervised Field Experiences in Reading (3)**

Prerequisite: E Ed 224, 244 and permission of instructor. Intensive varied supervised field experiences involving diagnosis and treatment of reading difficulties; development or refinement of reading programs; evaluation of reading instruction; application of interpersonal communications and group process skills.

**267. Teaching Internship (3-12)**

Prerequisite: approval by departmental admission and internship committees, E Ed 111A-B-C, E Ed 268 (concurrently). One-half day teaching experience with contract for one school year under supervision of college and assigned district personnel.

**268. Seminar for Interns (2-4; max total 4)**

Prerequisite: E Ed 267 (concurrently). Curricular and instructional materials and procedures with emphasis upon internship assignment.

**271. Comparative and International Studies in Early Childhood (3)**

Prerequisite: admission to Early Childhood Specialist program or special permission of instructor. Factors affecting personality, language, and cognitive skills in early childhood. Analysis of similarities and contrasts among varying cultures to include Mexican-American, Black, Oriental, European, and Asian environments for young children, Unesco and International children's agencies. Project required. (2 seminars, 2 lab hours)

**275. Workshop in Curriculum Development (1-6; max total 6) (Same as S Ed 275)**

Practical assistance in solving curriculum problems; problems determined by in-service teachers enrolled.

**290. Independent Study (1-3; max see reference)**

(See *General Information—Independent Study.*)

**298. Directed Research (4)**

Prerequisite: advancement to candidacy for MA degree; B average on 24 units of MA program including E Ed 220. Research in solution of problems in elementary teaching. Individual research papers required. Weekly group discussions, weekly individual conferences, and hours arranged.

**299. Thesis (4)**

Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**353. Curriculum Problems and Practices (1-3; max total 12 if no topic repeated)****380T. Topics in Education (1-6; max total 12)****381. Planning and Organizing Outdoor Education (2)****383. Problems in Child Study (2; max total 12)****395. Supervision of Student Teachers (2; max total 4) (See S Ed 395)**

## SECONDARY EDUCATION DEPARTMENT

### FACULTY

Lester J. Roth, *Department Chairman*

Stephen V. Ballou ■ Morris L. Bigge ■ William R. Gilbert ■ Allen Hasson ■ Arthur A. Hiatt ■ Maurice P. Hunt ■ M. Marty Santigian ■ Edwin J. Swineford

Coordinators listed below act as official liaison between the subject matter department and the Department of Secondary Education. They advise on credential matters, teach methods courses in their subject fields, and supervise student teachers.

#### *Department*

Agriculture: Dowler  
 Art: Dolarian  
 Biology: Sister Clay  
 Business: Schramm  
 Drama: Emanuel  
 English: Karr  
 Foreign Language: Poythress  
 Health Science: Liskey  
 Home Economics: Bauer

#### *Department*

Industrial Arts and Technology: Bliss  
 Mathematics: Hiatt  
 Music: Bakkegard  
 Physical Education—Men: J. Wilcox  
 Physical Education—Women: Bevans, Mott  
 Physical Science: Frank  
 Social Science: J. Christensen, Echols, Koller  
 Speech: G. Anderson

The Secondary Education Department provides professional preparation, advising, and evaluating services to students in secondary education. The department includes in its program the master of arts degree in education with concentration in secondary teaching.

### TEACHING CREDENTIAL WITH AUTHORIZATION FOR SINGLE SUBJECT INSTRUCTION

*(Teacher Licensing Act of 1970—Ryan Act)*

Single Subject instruction means the practice of assignment of teachers and students to specified subject matter courses as commonly practiced in California high schools and most junior high schools.

Minimum requirements for teaching credentials with specialization in Single Subject teaching are:

- (a) a baccalaureate degree or higher degree, except in professional education, from an approved institution;
- (b) a fifth year of study to be completed within five years of the first employment of the certificated employee;
- (c) an approved program of professional preparation;
- (d) passage of a subject matter examination or its waiver.

#### **Subject Matter Examination or Waiver**

Candidates for authorization to teach Agriculture, English, Physical Science, Life Science, Mathematics, Social Science, Industrial Arts, Physical Education, Business, Music, Art, Home Economics, Foreign Languages, History, or Government may validate subject matter competency by passing examination in one or more of the above single subject categories or by completing a Commission approved program of studies offered by the University. For information on approved programs of studies or examinations, consult a Departmental Coordinator.

#### **Approved Program of Professional Preparation**

The department of Secondary Education is responsible for instruction and administration of the approved program of professional preparation.

The approved program of professional preparation for Single Subject Teaching requires 24 upper division units in professional education courses, including a semester of full-time student teaching or its equivalent. The following sequence of courses constitutes the approved program:

	<i>Units</i>
S Ed 155A Student Teaching .....	4
S Ed 151 Social Foundations .....	3
S Ed 152 Psychological Foundations .....	3
S Ed 161 Methods and Materials of Secondary Teaching .....	3
S Ed 155B Student Teaching .....	4-4 (or 8)
S Ed 156 Reading .....	<u>3</u>
	24

**Admission to Single Subject Credential Program**

Apply at Room 120, Education Psychology Building. Complete required steps in the admission process.

**MASTER OF ARTS DEGREE**

The Secondary Education Department offers a program leading to the master of arts degree in education with a concentration in secondary teaching. Emphasis is on developing highly qualified professional personnel for the secondary schools. Prospective candidates can usually plan to coordinate many of the requirements for the degree with the fifth year of work which must be completed by every candidate for a teaching credential. A student may enter the master's degree program following completion of fifteen semester units of acceptable work in professional education or following the meeting of minimum requirements for a teaching credential, provided all criteria for classified graduate standing have been met. In addition, students must also comply with policies and procedures established by the School of Education Graduate Committee. For specific requirements consult the department chairman; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**COURSES**

**SECONDARY EDUCATION (S Ed)**

- 135. Audio-Visual Education (2) (See E Ed 135)
- 136. Multicultural Education (3) (See E Ed 136)
- 141. School Library Reference and Bibliography (3) (See E Ed 141)
- 142. Selection and Uses of Library Materials (3) (See E Ed 142)
- 143. Literature for Young People (3) (See E Ed 143)
- 144. Advanced Cataloguing (3) (See E Ed 144)
- 145. School Library Practicum (9) (See E Ed 145)
- 147. Administration of School Library Services (3) (See E Ed 147)
- 148. Organization of School Library Materials (3) (See E Ed 148)
- 149. The School Library as an Educational Force (3) (See E Ed 149)
- 150. Observation and Participation (3)

Prerequisite: admission to credential program or permission of instructor; S Ed 151 concurrently. Guided observation and participation in public school services programs and procedures.

**151. Social Foundations of Education (3)**

Scope and function of secondary schools, social, historical and philosophical influences, curriculum, recent trends and issues.

**152. Psychological Foundations of Education (3)**

Educational psychology; theories of growth and learning; concepts of growth, learning, mental hygiene, and personality development; implications for instruction and guidance programs.

**153. Curriculum and Instruction (3)**

Prerequisite: S Ed 152, or equivalent. Theory and practice of curriculum development; principles and organization of instruction; audio-visual education, classroom management and discipline, measurement and evaluation.

**155A. Student Teaching (4)**

Supervised field experiences and teaching in public schools; minimum 120 hours. Scheduled conferences with college supervisors, and public school personnel.

**155B. Student Teaching (4 or 8; max total 8)**

Prerequisite: S Ed 151, 152, 161 (or concurrent), 155A, senior standing, approval of committee on teaching credentials, approval of major department or passing of single subject examination. Supervised field experiences and teaching in public schools; minimum 120 hours for each 4 units. Scheduled conferences with college supervisor and public school personnel.

**155C. Student Teaching (12)**

Not open to students with credit in S Ed 155B. Prerequisite: S Ed 151, 152, 161 (or concurrent), senior standing, approval of committee on teaching credentials, approval of major department or passing of single subject examination. Supervised field experiences and teaching in public schools; minimum 360 hours. Scheduled conferences with college supervisor and public school personnel.

**156. The Teaching of Reading (3) (Former S Ed 154)**

Not open to students with credit in E Ed 156. Prerequisite: admission to the credential program. Designed for candidates for single subject credentials. The nature of reading; methods and materials for teaching reading skills; provision for individual differences (ethnic, socio-economic, dialectal); theories, programs and organizations; stimulation of interest improvement in oral reading and phonics.

**161. Methods and Materials in Secondary Teaching (3)**

Prerequisite: S Ed 152 or equivalent, admission to credential program or teaching experience. A methods course in secondary school subjects. Instructional procedures, techniques, and resources for teaching; appraisal of instructional innovations; classroom organization and management; measurement and evaluative techniques.

**165. Practicum in tutoring (1-3)**

Skills in tutoring individuals and small groups. Study habits, problem solving, writing and test-taking skills. Field work in tutoring. Not applicable for public school credentials.

**180. Modern Trends in Education (1-4; max total 4) (See E Ed 180)****184. History of Education in the United States (3)**

Prerequisite: admission to credential program. Sources and development of modern American educational theory and practice; understanding and appreciation of educational development and reorganization now in progress.

**186. Educational Sociology (3)**

Prerequisite: admission to credential program. Scope and methods of educational sociology; basic sociological concepts; problems involving child, school, and teacher in their cultural settings; social role of schools in a democratic society.

**190. Independent Study (1-3; max see reference)**

(See *General Information—Independent Study.*)

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**220. Research in Education (3) (See A S 220)****253. Secondary School Curriculum Development (3)**

Prerequisite: teaching credential or permission of instructor. Seminar on concepts and principles of curriculum planning; evaluation of processes and programs; availability and use of resources; innovations and research in curriculum development. Project required.

**275. Workshop in Curriculum Development (1-6; max total 6) (See E Ed 275)****280. Seminar in Current Problems in Secondary Education (3)**

Prerequisite: possession of a regular teaching credential or permission of instructor. Problems of teaching in the public secondary school; recent reports of national professional groups; newly developed research; significant movements in education.

**282. Philosophy of Education (3) (Former S Ed 187. Same as A S 282)**

Prerequisite: S Ed 152 or equivalent, teaching experience or permission of instructor. Seminar on philosophical issues in educational theory and practice and their historical backgrounds. Educational implications of current and historical systematic philosophical outlooks.

**290. Independent Study (1-3; max see reference)**

(See *General Information—Independent Study.*)

**298. Directed Research (4)**

Prerequisite: advancement to candidacy for the MA degree; B average on 24 units of MA program including S Ed 220. Research in solution of problems in secondary teaching. Individual research papers required. Weekly group discussions, weekly individual conferences; and hours arranged. Research paper required.

**299. Thesis (4)**

Prerequisite: see *Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**353. Curriculum Problems and Practices (1-3; max total 6, if no topic repeated)****361. General Methods of Teaching (3)****362. Adult Education (2; max total 4)****363F. Field Work in Curriculum (1-3; max total 6, if no project repeated)****380T. Topics in Education (1-6; max total 12)****395. Supervision of Student Teachers (2; max total 4) (Same as E Ed 395)**

## ADVANCED STUDIES DEPARTMENT

### FACULTY

Orley W. Wilcox, *Department Chairman*

Ray E. Brewer ■ Ralph F. Evans ■ Peter G. Fast ■ I. Ace Griffiths ■ Raymond H. Harrison ■ Gordon F. Johnson ■ Benjamin G. Kremen ■ Leland E. Mach ■ Robert H. Monke ■ Robert E. Valett ■ Bruce M. Wilkin

The Advanced Studies Department provides preparation for educational specializations which require advanced study beyond the teaching credential and maintains credential records for students pursuing programs leading to specialized service credentials in education. It offers the following master of arts degrees: (1) Education with a concentration in administration and supervision, (2) education with a concentration in educational theory, (3) counseling, and (4) special education. Information regarding the specialized preparation for administrative services, pupil personnel services, and teachers of specialized education is available in the departmental office.

### COOPERATING PUBLIC SCHOOL DISTRICTS

The professional preparation program of the Advanced Studies Department utilizes the services and facilities of a number of cooperating public school districts and community agencies in the area for assignment of students to specialized field work. Public school teachers, administrators, consultants, and other personnel provide excellent opportunities for students to gain practical experience in pupil personnel, special education, supervisory, and administrative work.

### CREDENTIAL REQUIREMENTS

The State now issues credentials for public school service under the provisions of the Teacher Preparation and Licensing Law of 1970 (the Ryan Act).

Information regarding the Ryan Act and the professional preparation programs being developed in accordance with its provisions is available in the departmental office.

### MASTER OF ARTS DEGREE

The Advanced Studies Department offers a master of arts degree in education with concentrations in administration and supervision and educational theory; a master of arts degree in counseling, and a master of arts degree in special education with concentrations in mental retardation, gifted, and educationally handicapped and learning disabilities. Courses may be applied both on these degree programs and on the desired advanced credential programs.

For specific requirements for the master of arts degree consult the department chairman and the coordinator of the School of Education graduate program; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies. Students must also comply with policies and procedures established by the School of Education Graduate Committee.

## COURSES

### ADVANCED STUDIES (A S)

*Note: Courses are offered in the following areas:*

*Educational Foundations: A S 153, 154, 281, 282, 284, 285, 286, 287*

*Counseling and Guidance: A S 118, 172, 174, 222, 223, 224, 224FA, 224FB, 225, 226, 227, 228, 229, 230, 231*

*School Administration and Supervision: A S 261, 262, 263, 264, 265, 266, 272, 273, 275*

*Special Education: A S 114, 115F, 116, 162, 163A, 163B, 163C, 164A, 164B, 168, 170, 242, 243, 244, 245, 246, 248, 249, 251, 253, 254, 256, 256D, 257, 258, 259, 260*

*All areas: A S 190, 220, 290, 298, 299, 373*

**112. School Public Relations (3) (See Jour 112)**

**114. Education of Exceptional Children (3) (Former AS 160) (Same as C D 114)**

Identification of common and differentiating characteristics of exceptional children. Diagnostic instructional program of legal provisions, certification requirements. Observation in clinical sites on and off campus, public and/or parochial schools. Students will incur travel expenses. (2 lecture, 2 lab hours)

**115F. Field Work With Exceptional Children (1-3; max total 6)**

Prerequisite: permission of instructor. Supervised observation and participation in selected programs for exceptional children; educational planning, guidance, and counseling.

**116. Prescriptive and Individualized Instruction (3) (Same as C D 116)**

Prerequisite: C D 114, A S 114, or permission of instructor. Development and examination of methods and materials relative to individual learning problems; study of models and individual programs. (2 seminar, 2 lab hours)

**118. Mental Hygiene and Guidance (3) (Former A S 218)**

Seminar on emotional and social problems of children in their adjustments to school and home practices and pressures.

**143. Producing the Educational Broadcast (3) (See R-TV 143)****153. Elementary Statistics (3)**

Not open to students with credit in Psych 25. Methods of collecting, organizing, interpreting, and applying data in quantitative studies.

**154. Measurement in Education (3)**

Objective measurement of capacities and achievement of pupils; construction of informal, objective examinations and criteria for selection of standardized measuring instruments; planning and administering a measurement program.

**162. Curriculum for the Educable Mentally Retarded and Slow Learner (3)**

Methods of instructing the educable mentally retarded child and slow learner; examination and demonstration of materials. (2 lecture, 2 lab hours)

**163A. Student Teaching, Exceptional Children: Mentally Retarded (1-8)**

Prerequisite: concurrent enrollment for a teaching credential; approval by a departmental review committee. Directed observation, participation and teaching in class for the mentally retarded in public schools under supervision. Weekly conference with university supervisor.

**163B. Student Teaching, Exceptional Children: Educationally Handicapped (1-8)**

Prerequisite: concurrent enrollment for a teaching credential; approval by a departmental review committee. Directed observation, participation and teaching in classes for the educationally handicapped in public schools under supervision. Weekly conference with university supervisor.

**163C. Student Teaching, Exceptional Children: Gifted (1-8; max total 8)**

Prerequisite: concurrent enrollment for a teaching credential; approval by a departmental review committee. Directed observation and teaching in classes for the gifted and creative in public schools under supervision. Weekly conference with university supervisor.

**164A. Student Teaching: Speech and Hearing Handicapped (4-9; max total 9)**

Prerequisite: 4-6 units of C D 130 or 230, including 150 clock hours of therapy; admission to the credential program. To be taken concurrently with C D 209. Directed observation, participation, and clinical practice (120 hours minimum) under supervision. Weekly conference with university supervisor.

**164B. Student Teaching: Deaf and Hard of Hearing (4-9; max total 9)**

Prerequisite: 4 units of C D 160 or 260; approval by a departmental review committee; admission to the credential program. Teaching under supervision in a class for the deaf or hard of hearing. Directed observation; participation and weekly conference with university supervisor.

**168. Language and Speech Development of Exceptional Children (3)**

Prerequisite: A S 114 or permission of instructor. Development of language and speech patterns and disorders for teachers of exceptional children; cultural and ethnic background problems, (bilingualism and alalia), investigations in communication processes; acquisition of language habits. (2 lecture, 2 lab hours)

**170. Introduction to Learning Disabilities (3)**

Prerequisite: A S 114. Introduction to theories, programs, and methods of educating children with specific learning disabilities. (2 lecture, 2 lab hours)

**172. Laws Relating to Children (3)**

Current and proposed legislation in parent-child relationships, adoption, and guardianship, education of the minor, marriage contract, child labor, juvenile delinquency, and child welfare programs.

**174. Principles and Techniques in Guidance (3) (Same as Psych 174)**

Recommended for both elementary and secondary credential candidates. Prerequisite to all courses in the pupil personnel services credential sequence. Principles, procedures, and techniques in guidance; interrelationships and responsibilities of school personnel; identifying and meeting student needs.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**220. Research in Education (3) (Same as E Ed 220, S Ed 220)**

Prerequisite: graduate standing and 15 units of education. Seminar in research methodology; identification of educational research problems; use of library resources, data gathering and processing, writing a research report.

**222. Seminar in Occupational Analysis and Information (3)**

Prerequisite: A S 174. Theories of vocational development; career education; work experience techniques; problems in vocational counseling; research problem acceptable to the instructor required. (2 seminar, 2 lab hours)

**223. Child Welfare, Parent Education, and Counseling (3)**

Prerequisite: A S 174. Application of theories and research in child welfare, parent education, and counseling; problems of home, school and child welfare. Research paper required in a selected area.

**224. Counseling Techniques (3)**

Prerequisite: A S 174 or permission of instructor. Interviewing; directive and nondirective counseling techniques. (2 seminar, 2 lab hours)

**224FA. Field Work in Counseling (3-12; max total 12)**

Designed for counseling credential candidates. Prerequisites: A S 224, admission to Designated Services Credential Program, and permission of School of Education Graduate Office. Supervised practice in a school. (40 hours field work required for one unit of credit.)

**224FB. Field Work in Child Welfare and Attendance (2-12; max total 12)**

Designed for Child Welfare and Attendance Credential candidates. Prerequisite: A S 224, admission to Designated Services Credential program, and permission of School of Education Graduate Office. Supervised practice in a child welfare and attendance office. (40 hours field work required for one unit of credit.)

**225. Advanced Theories and Techniques in Counseling (3)**

Prerequisite: A S 222, 224. Advanced study of theories and techniques in counseling; emphasis on application to problems of childhood and adolescence. Case study, interviewing, critique.

**226. Seminar in Guidance Services (3)**

Prerequisite: completion of 10 or more units in pupil personnel services credential sequence or in master of arts degree program in counseling, including A S 222, 224. Organization, administration, and evaluation of guidance services. (2 seminar, 2 lab hours)

**227. Seminar in Tests in Counseling (3)**

Prerequisite: A S 153, 222. Evaluation and selection of psychological tests for guidance and counseling; use of psychometric data in counseling; preparation of case studies. (2 seminar, 2 lab hours)

**228. Seminar in Group Process (3)**

Prerequisite: A S 174, 222. Theories and techniques in the group process; application to school guidance procedures. (2 seminar, 2 lab hours)

**229. Seminar in Elementary School Counseling (3)**

Prerequisite: A S 174, 224. Counseling theory and practice as they apply to the elementary school counselor. Research paper required in a selected area. (2 seminar, 2 lab hours)

**230. Guidance of Exceptional Children and Their Parents (3)**

Principles and procedures in developing counseling and guidance programs; interrelationship of home and school. Case-study approach to special problems of groups, problems faced by parents of exceptional children, conduct of parent groups, pertinent legislation. Research paper required. (2 lecture, 2 lab hours)

**231. Counseling Practicum (3; max total 6)**

Prerequisite: A S 174, 222, 224, 227, 228. Supervised on-campus counseling experiences with school-aged students. Experience in individual counseling, critiquing of tapes and typewritten reports, case report writing, consulting with teachers and parents. (6 lab hours)

**242. Seminar in Behavior Modification (3)**

Behavior modification principles, programs, and techniques employed in special education and clinical-prescriptive teaching. Emphasis on school and home applications. (2 discussion, 2 lab hours)

**243. Motor, Sensory, and Perceptual Abilities (3)**

Prerequisite: A S 114, 170, 245, or permission of instructor. Seminar in the special education of children who are educationally handicapped with psychomotor disabilities. Diagnostic-prescriptive programming and critiques required. (2 seminar, 2 lab hours)

**244. Organization and Supervision of Special Education (3)**

Seminar in the organization, financing, housing, equipping, staffing, and supervision of the special education program; desirable educational provisions for each type of exceptionality; legal provisions for special education including curriculum development, in-service education, and teacher-pupil relationships.

**245. Seminar in Identification and Evaluation of Exceptional Children (3)**

Prerequisite: A S 114, 153, 154, or permission of instructor. Review of testing techniques, evaluation of psychological reports, development of psychoeducational recommendations as a clinical process. Independent child study; field testing with appropriate diagnostic instruments. (2 seminar, 2 lab hours)

**246. Language and Cognitive Abilities (3)**

Prerequisite: A S 114, 170, 243, 245, or permission of instructor. Seminar in the special education of children who are educationally handicapped with language and cognitive disabilities. Diagnostic-prescriptive programming and critiques required. (2 seminar, 2 lab hours)

**248. Social and Affective Education (3)**

Seminar. Development and remediation of social skills and affective abilities. Model programs for normal children and prescriptive interventions for those with social and personal behavior disorders. (2 seminar, 2 lab hours)

**249. Practicum/Clinic: Career Education for the Handicapped (3-9; max total 9)**

Prerequisite: A S 114, or equivalent, and permission of instructor. Clinical experience in private and public agencies involved with vocational/career training for the handicapped work evaluation and job training programs supervised by university personnel. (2 lab hours and 1 hour outside preparation per unit)

**251. Seminar in the Mentally Retarded (3)**

Prerequisite: A S 114 or permission of instructor. Characteristics and identification procedures, principles of counseling, administrative, and legal provisions for mentally retarded. (Seminar and arranged faculty-supervised clinical practice) (2 seminar, 2 lab hours)

**253. Vocational/Career Education for the Handicapped (3)**

Seminar. Prerequisite: A S 114, 162 or permission of instructor. Concurrent enrollment in A S 256 recommended. Examination and application of vocational/career education and training for the handicapped; local, state and federal models. (2 seminar, 2 lab hours)

**254. Seminar in the Severely Handicapped Child (3)**

Prerequisite: A S 114 or permission of instructor. Characteristics, identification procedures, training programs, legal, and administrative problems. Research in causation, prevention, and treatment. Counseling of parents.

**256. Practicum in Special Education (3-9; max total 9)**

Prerequisite: A S 114, 170, 243, 245, 246 or permission of instructor. Clinical experience in diagnosis and evaluation of exceptional children, prescriptive program development, prescriptive instruction, and program management. Experience to include data gathering, program planning and execution, evaluation and consultation. (6 field hours arranged)

**256D. Practicum and Clinical Experience: Gifted (3-9; max total 9)**

Prerequisite: A S 114 or permission of instructor. Clinical experience in community agencies dealing with the identification, diagnosis, and education of mentally gifted children. Practical field experience in cooperating school districts with special and experimental programs. (6 field hours arranged)

**257. Seminar on the Gifted Child (3)**

Prerequisite: A S 114 or permission of instructor. Research and practice regarding community attitudes, means of identification, types of giftedness, behavioral characteristics, environmental backgrounds, differentiated needs of the gifted.

**258. Seminar in Educational Provisions for the Gifted (3)**

Prerequisite: A S 114 or permission of instructor. Research pertaining to administrative provisions, program planning, curricular adaptations, teaching-learning strategies, and ways of motivating gifted and talented youth.

**259. Seminar in Creative Children and Youth (3)**

Prerequisite: A S 114 or permission of instructor. Analysis of current theory and research on creativity, its manifestations and measurement; guidelines for creative development, creative approaches in learning and teaching.

**260. Seminar in Research in Contemporary Problems: Gifted and Creative (3)**

Prerequisite: A S 114 or permission of instructor. Analysis of research problems regarding the gifted, creative, and talented. Individual critiques or original research. Development of research project in preparation for the thesis.

**261. Organization for Administration and Support of Education (3)**

Prerequisite: teaching experience. Interrelationships of federal, state, county, city, and district units in the administration and promotion of programs of education.

**262. Seminar in School Principalship (3)**

Prerequisite: teaching experience; A S 261 or equivalent. Seminar on problems, procedures, and organizational relationships of elementary and secondary schools; principal's responsibilities in areas of organization and control; teacher personnel, pupil personnel, noncertificated personnel; special and auxiliary agencies; guidance; supervision; community relationships.

**263. Seminar in Supervision for Improvement of Instruction (3)**

Prerequisite: teaching experience; E Ed 250 or S Ed 253; A S 261; or equivalent. Seminar for clarification and application of modern concepts and techniques of supervision; practice in leadership roles, promoting productive human relationships, developing communication skills, and evaluation of teaching; ways of helping teachers in their credential fields.

**264. Seminar in the Legal Aspects of Education (3)**

Prerequisite: teaching experience; A S 261 or equivalent. A case study approach in reviewing important court decisions, both state and federal, that have directly affected the public schools. Legal relationships in public education applied to federal, state, and local levels.

**265. Seminar in Legal and Financial Principles in School Administration (3)**

Prerequisite: A S 261, permission of instructor. Fiscal policies controlling the management of the school and the responsibilities and obligations of the school principal in relation to staff, pupils, parents, and public. Legal liability and established defenses; personnel policies; admission and attendance regulations; pupil control measures.

**266. Seminar in School Finance and Business Administration (3)**

Prerequisite: A S 261 or equivalent. Principles and practices of school finance and business administration; local, state, and federal responsibility for financial support of education.

**272. Seminar in Advanced Curriculum Evaluation and Development (3)**

Nature and scope of curriculum development: administrative determiners of curriculum; influence of governmental agencies and organizations, foundations, business and industry, and power structures as curriculum determiners; international influence on curriculum development and curriculum evaluation at various levels of governmental operation.

**273. Field Work in Administrative Services (3)**

Prerequisite: 18 units of course work in school administration to be selected from: A S 261, 262, 263, 264, 265, 266, 267, 272, 275, or equivalent. For individuals working toward an administrative services credential. Involves on-the-job experiences in the solution of practical administrative problems with written reports thereon; seminar discussions of field experiences and related literature and interaction in field and in seminar with practicing school administrators.

**275. Seminar in Advanced Techniques of Personnel Administration in Education (3)**

Prerequisite: A S 262, 264, 266, or permission of instructor. Advanced techniques of staff improvement in service, staff participation in policy making, improvement of communication channels and methods of communication, economic and contractual relationships and improvement of working conditions; work and responsibility of nonteaching staff members.

**276. Seminar in School-Community Relations and Facilities (3) (Former A S 267)**

Prerequisite: A S 261, 262, 263, or equivalent. Seminar on interaction with community forces, news media, political agencies, and minority groups in policy development; decision-making based on factual data; and management of physical facilities.

**281. Selected Applications of Statistical Techniques (3)**

Prerequisite: A S 153 or equivalent. Application and interpretation of correlation techniques, chi square, the "t" and "F" tests, interval estimation, and the simple case of analysis of variance.

**282. Philosophy of Education (3) (See S Ed 282)**

**284. Seminar in International Education (3)**

Analysis of historical, social and political forces which shape national education endeavor. Emerging international education efforts and organizations.

**285. Seminar in Advanced Educational Psychology (3)**

Prerequisite: E Ed 130 or S Ed 152. Seminar on the psychological foundations of education; nature and characteristics of development, learning process, forces which affect educational growth.

**286. Seminar in Advanced Educational Sociology (3)**

Prerequisite: S Ed 186 or E Ed 140 or S Ed 151, or course in sociology or anthropology and permission of instructor. Seminar for analysis of effect of institutional and ideological trends and problems on the role and operation of the school in American society.

**287. Seminar in History of Educational Thought (3)**

Prerequisite: S Ed or A S 282, or philosophy course and permission of instructor. Seminar on historical foundations of educational theory; growth of thought regarding teaching and learning; relationship of educational theory and practice in the United States.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**298. Directed Research (4)**

Prerequisite: advancement to candidacy for MA degree; B average on 24 units of MA program including A S 220. Research in solution of educational problems; separate sections for administration and supervision, counseling and guidance, educational theory, special education. Individual research papers, and weekly seminar conferences arranged.

**299. Thesis (4)**

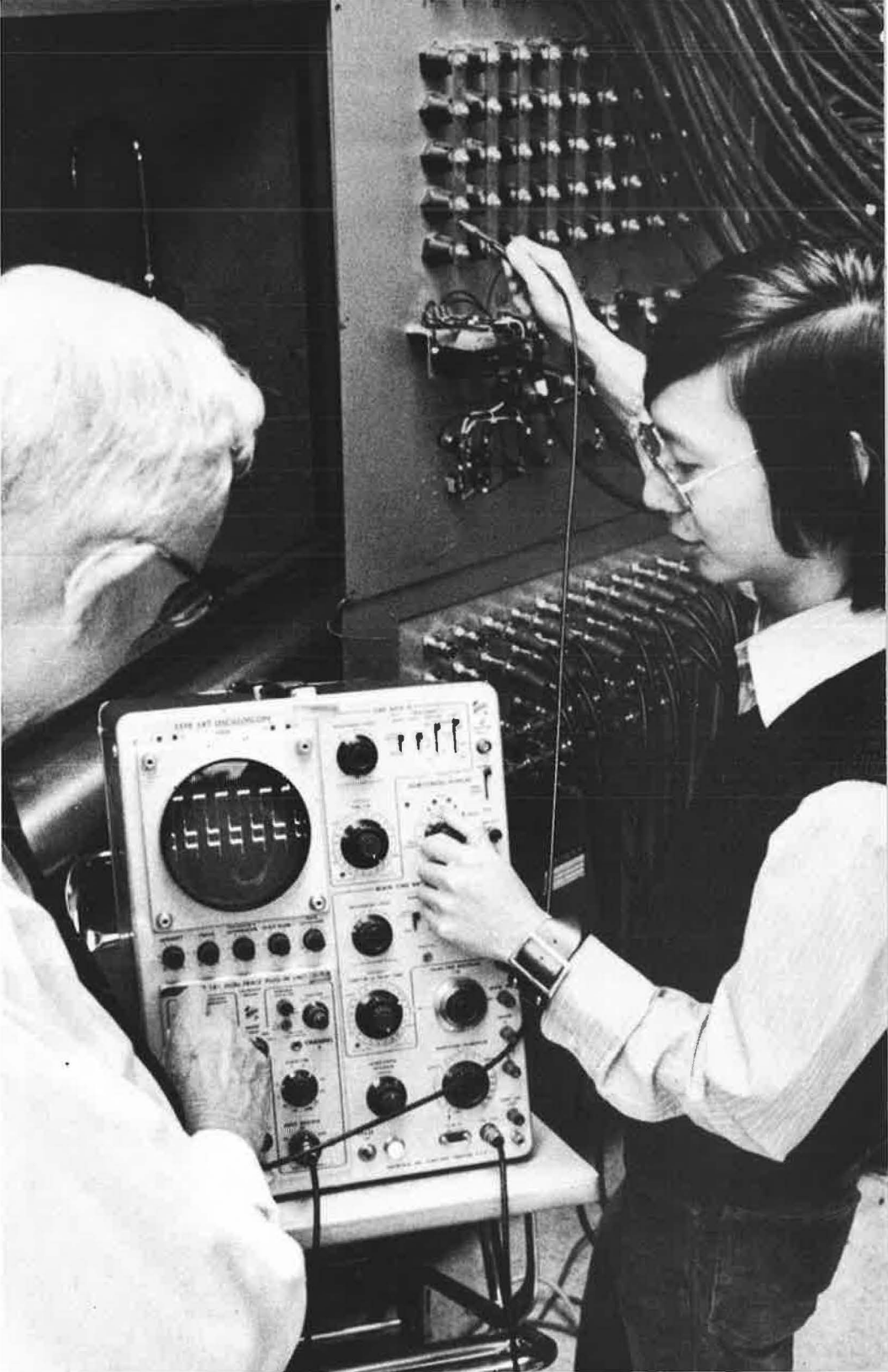
Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**373. Instructional and Curriculum Problems and Practices (1-3; max total 12 if no topic repeated)**





**SCHOOL OF ENGINEERING**

Civil Engineering

Electrical Engineering

Industrial Engineering

Mechanical Engineering

Surveying and Photogrammetry



## SCHOOL OF ENGINEERING

### FACULTY

James Matheny, *Dean*

Kenneth E. Barnhart, Jr. ■ Vincent D. Bevill ■ W. Kenneth Bodger ■ Donald E. Deming ■ Wayne P. Dominick (Assistant Dean) ■ Owen F. Foin, Jr. ■ Charles W. Haynes ■ Francis V. Higgins ■ David F. Hotz ■ McRae Jarrett ■ Kandiah Jayapalan ■ Irvin H. Kral ■ Edward F. Kulhan ■ Samuel Y. Liao ■ Herbert D. Richards ■ Walter F. Rowland ■ James H. Smith ■ Jankie N. Supersad

Engineering may be defined as the application of science for the benefit of society. Therefore, the engineering student pursues courses in the sciences, mathematics, humanities, and social sciences; and in engineering science which interfaces the courses in science with those in professional engineering. Because it embraces a broad horizon, engineering is divided into interrelated fields of specialization. The School provides instruction in the fields of civil, electrical, industrial, and mechanical engineering. Electrical engineering includes the study of electronics. A program in surveying and photogrammetry is also offered. Engineering students are prepared to enter the practice of professional engineering or graduate study; students studying surveying and photogrammetry are prepared to become specialists in the various aspects of surveying.

The civil, electrical, and mechanical engineering programs are accredited by the Engineers' Council for Professional Development (ECPD), the nationally recognized accrediting agency of the engineering profession.

The School of Engineering offers a program in cooperation with the Health Science Department. The program is designed to prepare its graduates for careers in occupational health and safety. Interested persons are referred to the section of this catalog entitled Health Science Department.

### HIGH SCHOOL PREPARATION

Recommended preparation for engineering or surveying and photogrammetry consists of: English (4 years), algebra (2 years), geometry (1 year), trigonometry ( $\frac{1}{2}$  year), physics or chemistry (1 year). Additional recommended courses are: advanced mathematics ( $\frac{1}{2}$  year), chemistry or physics (1 year), mechanical drawing ( $\frac{1}{2}$  year), shop ( $\frac{1}{2}$  year).

### TRANSFERS

Transfers from community colleges or other institutions of higher learning are accepted under provisions outlined under *General Information—Admissions*. Students planning to transfer to the California State University, Fresno engineering or the surveying and photogrammetry programs should follow as closely as possible the outline of the program of their choice.

### ENGINEERING FIELDS

**Civil Engineering.** Civil engineering is concerned with the science and technology of planning, analyzing, designing, constructing, operating, and maintaining structures, transportation systems, environmental works, and water resource developments. Within these fields the civil engineer deals with buildings, bridges, foundations, highways, airports, waterways, pipelines, surveying, mapping, water supply systems, waste treatment systems, environmental water quality control, dams, hydropower installations, irrigation, flood control, and other fixed engineering works.

The civil engineer may utilize computer methods of analyzing and designing complex structures and systems; undertake research on structural use of new materials or on advanced methods of water and waste treatment; design protective structural features and radiation shielding in nuclear power plants; participate in structural and facility aspects of aerospace projects; or work in municipal engineering, urban planning, or vehicular traffic control.

**Electrical Engineering.** Electrical engineering concerns the production and utilization of electrical energy. The many specialties are grouped under the areas of electronics and power. In each area, the engineer is responsible for the analysis, development, design, and management of equipment and systems.

Electronics engineering specialists are concerned with high-frequency power and its use in equipment and systems pertaining to communications as exemplified by radio, television, telephony, and optical radiation; to computers and information processing, guidance and control; and to electronics combined with other specialized fields such as medical electronics.

Power engineering specialists deal with electrical power and its utilization in lighting, powering, and heating, and with related equipment. The areas of electronics and power are not independent of each other or of other fields of engineering. The electrical engineering program provides the student with broad, basic training so that upon graduation he may enter any of the areas of electrical engineering.

**Industrial Engineering.** Industrial engineering is concerned with the design, improvement, and installation of integrated systems of men, materials, and equipment. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems.

Industrial engineers give valuable service to management in decision making relative to the most efficient utilization of men, materials, equipment, and energy. Industrial engineers are a prime source of management talent and therefore are in demand by a wide variety of organizations, even those not usually regarded as "industrial."

**Mechanical Engineering.** Mechanical engineering deals with engineering problems relating to the generation, transmission, and utilization of energy in the thermal or mechanical form. It is concerned also with engineering problems related to the production of tools, machinery, and their products and to heating, ventilation, refrigeration, and plumbing in their research, design, production, operation, organization, and economic aspects.

Mechanical engineers are concerned with propulsion systems; cryogenics; environmental systems for control of humidity, temperature, and air cleanliness; transportation equipment including land, water, and space vehicles and mechanical, pneumatic, and hydraulic conveyor systems; power components including engines, turbines, rockets, jets, and fuel cells; and machinery such as pumps, fans, compressors, blowers, valves, and material handling and processing equipment including machine tools and food processing equipment.

#### **SURVEYING AND PHOTOGRAMMETRY**

Graduates of this program are prepared as specialists trained in the theory and applied techniques of topographic, geodetic, cadastral (land), and photogrammetric surveying.

#### **BACHELOR OF SCIENCE DEGREE PROGRAMS**

The bachelor of science degree is granted upon completion of the following programs: civil, electrical, industrial, or mechanical engineering; surveying and photogrammetry. These programs include the general education and degree requirements of the university. Foreign students taking I S C 10, 21, and 93 in their first year may postpone courses that are not prerequisite to courses in their major.

**FIFTH SEMESTER**

C E 102, L	Geodetic Surveying .....	3
C E 103	Advanced Photogrammetry .....	3
C E 104	Boundary Control & Legal Principles...	3
E E 104	Basic Electronics .....	3
URP 100	Intro to Urban & Regional Planning .....	3
		<hr/> 15

**SIXTH SEMESTER**

C E 101, L	Route Surveying .....	3
C E 108	Geodasy .....	3
C E 109	Subdivision Preparation.....	2
App Elect	See <sup>1</sup> .....	2
Geog 112	Aerial Photograph Interpretation .....	3
Pl Si 2	American Govt and Institution .....	3
		<hr/> 16

**SEVENTH SEMESTER**

C E 105	Advanced Survey Computations.....	3
C E 107	Electronic Distance Measurements .....	3
C E 186	Surveying Practice .....	1
App Elect	See <sup>1</sup> .....	3
Geog 115	Cartography .....	3
Humanities	See General Education Requirements....	3
		<hr/> 16

**EIGHTH SEMESTER**

C E 106	Cartographic Techniques & Map Repro	2
C E 180	Senior Project.....	1
Engr 161	Legal Aspects of Engineering .....	2
Engr 182	Engineering Writing .....	1
Geog 111	Map Interpretation.....	3
Mgt 110A	Admin & Organizational Behavior.....	3
Humanities	See General Education Requirements....	3
		<hr/> 15

<sup>1</sup> Approved Electives: Select from the following courses: C E 20, 120, 120L, 121, 150, 190, 191T; Engr 70, 160, 191T; E E 110; M E 31, 112, 116; Math 77.

**COURSES**

**ENGINEERING (Engr)**

**26. Engineering Graphics (4)**

Prerequisite: Math 75 (or concurrently). Principles and applications of orthographic projection and graphical mathematics to the solution of engineering problems. (2 lecture, 2 3-hour labs)

**70. FORTRAN IV Programming (2)**

Prerequisite: Algebra, trigonometry. Flowcharting, program structure, computation and arithmetic functions, input-output, transfer of control, looping, subscripted variables, subprograms, file processing, printer plotting techniques, terminal and batch processing procedures. (1 lecture, 3 lab hours)

**100. Technology and Society (3)**

Prerequisite: junior standing. Technological developments and their effects on society; ecology and environment; selected examples.

**115. Home Applications of Engineering (2)**

Prerequisite: junior standing or permission of instructor. Management of household and yard appliances, underlying principles of their operation, installation, and maintenance; lighting for utility and aesthetics; safety. (2 lecture-demonstration hours)

**160. Engineering Economy (2) (Former Engr 170)**

Prerequisite: senior standing in engineering or permission of instructor. Importance of economic analyses of problems in engineering and in management decision making; interest, depreciation, income tax, classification of costs, break-even and minimum cost points, economic comparisons of alternatives, economy of replacement.

**161. Legal Aspects of Engineering (2) (Former Engr 171)**

Prerequisite: senior standing in engineering or permission of instructor. Development of law, canons of ethics, torts, principles of contracts, contracting procedure and specifications, property, negotiable instruments, sales, agency and patents; preparation of reports.

**173. Analog Computation (2)**

Prerequisite: Phys 4B, Math 77 (or concurrently). Introduction to electronic analog computer programming. (1 lecture, 3 lab hours)

**182. Engineering Writing (1)**

Corequisite: senior project. Preparation of applications, forms, letters, reports, and specifications. Substance of final report: senior project investigation.

**MECHANICAL ENGINEERING**

(66 units engineering; 128 units total)

FIRST SEMESTER		<i>Units</i>
Engr 26	Engineering Graphics .....	4
Math 75	Mathematical Analysis I.....	4
Chem 1A	General Chem & Qualitative Analysis ..	5
PE	Physical Education .....	1
		14

SECOND SEMESTER		<i>Units</i>
Engr 70	FORTRAN IV Programming .....	2
Math 76	Mathematical Analysis II.....	4
Chem 8	Elementary Organic Chemistry .....	3
Phys 4A	Mechanics and Wave Motion.....	4
Humanities	See <sup>2</sup> .....	3
PE	Physical Education .....	1
		17

THIRD SEMESTER		<i>Units</i>
C E 20	Engineering Mechanics: Statics.....	3
Hist 11/12	American History .....	3
Math 77	Mathematical Analysis III .....	4
Phys 4B	Electricity, Magnetism, Heat .....	4
Soc Sci	See <sup>3</sup> .....	3
		17

FOURTH SEMESTER		<i>Units</i>
M E 11, L	Manufacturing Processes.....	3
M E 31	Engineering Materials .....	2
Math 81	Applied Analysis .....	4
Phys 4C	Light and Modern Physics .....	4
PI Si 2	American Govt and Institutions .....	3
PE	Physical Education .....	1
		17

FIFTH SEMESTER		<i>Units</i>
M E 112	Engineering Mechanics: Dynamics .....	3
M E 116	Thermodynamics-Fluid Mechanics A.....	3
M E 117	Instrumentation & Fluid Laboratory.....	2
C E 121	Mechanics of Materials .....	3
Soc Sci	See <sup>3</sup> .....	3
PE	Physical Education .....	1
		15

SIXTH SEMESTER		<i>Units</i>
M E 131	Advanced Engineering Materials .....	3
M E 134	Mechanism .....	3
M E 136, L	Thermodynamics-Fluid Mechanics B.....	4
E E 110, L	Magnetic and Electric Circuits .....	4
App Elect	See <sup>1</sup> .....	3
		17

SEVENTH SEMESTER		<i>Units</i>
M E 154	Machine Design.....	3
M E 156, L	Adv Thermodynamics-Fluid Mechanics .....	4
E E 121, L	Electromechanical Systems & Energy Conversion .....	4
App Elect	See <sup>1</sup> .....	6
		17

EIGHTH SEMESTER		<i>Units</i>
M E 180	Senior Project.....	1
Engr 160	Engineering Economy .....	2
Engr 182	Engineering Writing .....	1
App Elect	See <sup>1</sup> .....	3
Humanities	See <sup>2</sup> .....	3
Hum/Soc Sci	See <sup>2, 3</sup> .....	4
		14

<sup>1</sup> Approved Electives: Select at least one course from each of the following groups: Group 1: M E 137, 146, 146L; Group 2: M E 142, 144, 164; Group 3: M E 143, 151; Engr 173.

<sup>2</sup> Humanities: Select from Art 5, 6, Drama 62, 184; Engl 20; Hist 1, 2, 110, 111, 112; Phil 20T.

<sup>3</sup> Social Sciences: Select from Anth 2, 3; Econ 1A, 1B,15; Hist 3, 6, 8; Soc 1, 2, 130.

**SURVEYING AND PHOTOGRAMMETRY**

(62 units engineering; 124 units total)

FIRST SEMESTER		<i>Units</i>
C E 1, L	Plane Surveying.....	3
Engr 26	Engineering Graphics .....	4
Math 75	Mathematical Analysis I.....	4
Chem 2A	Introductory General Chemistry .....	3
		14

SECOND SEMESTER		<i>Units</i>
C E 2, L	Advanced Plane Surveying.....	3
C E 6	Photographic Processes .....	3
Math 76	Mathematical Analysis II.....	4
Chem 2B	Introductory General Chemistry .....	3
Phys 2A	General Physics .....	4
		17

THIRD SEMESTER		<i>Units</i>
C E 3	Photogrammetry .....	2
App Elect	See <sup>1</sup> .....	3
Phys 2B	General Physics .....	4
Geol 1, L	Physical Geology .....	4
Engl 1	Composition .....	3
		16

FOURTH SEMESTER		<i>Units</i>
C E 4	Machine Comp & Comp Programming .....	3
C E 5	Photogrammetric Instrumentation.....	3
Spch 3	Fundamentals of Oral Communication..	3
Soc Sci	Geog 4 World Geog recommended .....	3
Hist 11/12	American History .....	3
		15

**CIVIL ENGINEERING**

(74 units engineering; 132 units total)

<b>FIRST SEMESTER</b>		<i>Units</i>
C E 1, L	Plane Surveying.....	3
C E 85	Introduction to Civil Engineering .....	1
Engr 26	Engineering Graphics .....	4
Math 75	Mathematical Analysis I.....	4
Hist 1/2	American History .....	3
		15

<b>THIRD SEMESTER</b>		
C E 20	Engineering Mechanics: Statics.....	3
Math 77	Mathematical Analysis III.....	4
Phys 4B	Electricity, Magnetism, Heat.....	4
Chem 1A	General Chem & Qual Analysis .....	5
		16

<b>FIFTH SEMESTER</b>		
C E 121, L	Mechanics of Materials .....	4
C E 150	Transportation Planning & Design .....	3
M E 112	Engineering Mechanics Dynamics .....	3
M E 116, L	Thermodynamics-Fluid Mechanics A.....	4
Soc Sci	See <sup>3</sup> .....	3
		17

<b>SEVENTH SEMESTER</b>		
C E 124	Concrete Laboratory .....	1
C E 132	Reinforced Concrete .....	3
C E 185	Civil Engineering Practice .....	1
Engr 160	Engineering Economy .....	2
M E 110, L	Magnetic and Electric Circuits .....	4
App Elect	See <sup>1</sup> .....	6
		17

<b>SECOND SEMESTER</b>		<i>Units</i>
C E 2, 2L	Advanced Plane Surveying.....	3
Engr 70	FORTRAN IV Programming .....	2
Math 76	Mathematical Analysis II.....	4
Phys 4A	Mechanics and Wave Motion.....	4
PI Sc 2	American Govt and Institutions .....	3
		16

<b>FOURTH SEMESTER</b>		
M E 31	Engineering Materials .....	2
Math 81	Applied Analysis .....	4
Phys 4C	Light and Modern Physics .....	4
Chem 8	Elementary Organic Chemistry .....	3
Geol 1, L	Physical Geology .....	4
		17

<b>SIXTH SEMESTER</b>		
C E 123, L	Soil Mechanics .....	3
C E 130	Theory of Structures .....	3
C E 142, L	Water Supply & Wastewater .....	4
M E 136	Thermodynamics-Fluid Mechanics B.....	3
Humanities	See <sup>2</sup> .....	3
		16

<b>EIGHTH SEMESTER</b>		
C E 133	Steel and Timber Structures .....	4
C E 180	Senior Project.....	1
Engr 182	Engineering Writing .....	1
App Elect	See <sup>1</sup> .....	6
Humanities	See <sup>2</sup> .....	3
Soc Sci	See <sup>3</sup> .....	3
		18

<sup>1</sup> **Approved Electives:** Select from courses in one or more of the following groups; selection of asterisked courses requires the Dean's prior approval.

- Construction: C E 101, 152; Engr 161; I A 110 \*.
- Environmental Water Quality: C E 140, 144;
- Biol 133 \*, Micro 91 \*.
- Structures: C E 122, 131, 134, 135.

- Surveying: C E 3, 101, 102, 104, 105.
- Transportation: C E 101, 140, 151, 152, 153.
- Water Resources: C E 140, 141, 143, 144; M E 137.
- Additional approved electives: C E 190, 191T, 193;
- Engr 173, 174; I E 110.

<sup>2</sup> **Humanities:** Select from Art 5, 6; Drama 62, 184; Engr 20; Hist 1, 2, 110, 111, 112; Phil 20T.

<sup>3</sup> **Social Sciences:** Select from Anth 2, 3; Econ 1A, 1B, 15; Hist 3, 6, 8; Soc 1, 2, 130.

**ELECTRICAL ENGINEERING**

(67 units engineering; 128 units total)

<b>FIRST SEMESTER</b>		<i>Units</i>
Math 75	Mathematical Analysis I.....	4
Chem 1A	General Chem & Qualitative Analysis ..	5
E E 1	Intro to Electrical Engineering .....	1
Engr 1	Composition .....	3
Hist 1/2	American History .....	3
		16

<b>THIRD SEMESTER</b>		
Math 77	Mathematics Analysis III.....	4
Phys 4B	Electricity, Magnetism, Heat .....	4
E E 85	Minicomputers as System Components..	2
C E 20	Engineering Mechanics: Statics.....	3
Humanities	See <sup>3</sup> .....	3
		16

<b>SECOND SEMESTER</b>		<i>Units</i>
Math 76	Mathematics Analysis II.....	4
Phys 4A	Mechanics and Wave Motion.....	4
Chem 8	Elementary Organic Chemistry .....	3
Engr 70	FORTRAN IV Programming .....	2
PI Si 2	American Govt & Institutions .....	3
		16

<b>FOURTH SEMESTER</b>		
Math 81	Applied Analysis .....	4
Phys 4C	Light and Modern Physics .....	4
M E 31	Engineering Materials .....	2
M E 112	Engineering Mechanics: Dynamics .....	3
Engr 20	Literature and Composition.....	4
		17

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## FIFTH SEMESTER

E E 110, L	Magnetic and Electric Circuits .....	4
E E 114	Physical Electronics .....	2
E E 126	Electromagnetic Fields and Waves .....	3
E E 128, L	Electronic Devices and Circuits .....	4
App Elect	See <sup>1</sup> .....	3
		<hr/> 16

## SEVENTH SEMESTER

E E 136, L	Electromagnetic Energy Transmission ..	4
M E 116	Thermodynamics-Fluid Mechanics A.....	3
Soc Sci	See <sup>2</sup> .....	3
App Elect	See <sup>1</sup> .....	3
Gen Elect	See <sup>4</sup> .....	3
		<hr/> 16

## SIXTH SEMESTER

E E 121, L	Electromech Sys & Energy Conversion ..	4
E E 124, L	Electrical Circuit Analysis.....	4
E E 140, L	Pulse and Digital Circuits Design.....	4
C E 121	Mechanics of Materials .....	3
		<hr/> 15

## EIGHTH SEMESTER

E E 155	Control Systems .....	3
E E 180	Senior Project.....	1
M E 136	Thermodynamics-Fluid Mechanics B.....	3
Engr 160	Engineering Economy .....	2
Engr 182	Engineering Writing .....	1
Soc Sci	See <sup>2</sup> .....	3
App Elect	See <sup>1</sup> .....	3
		<hr/> 16

<sup>1</sup> Approved Electives: Select from the following courses with at least 6 units from the boldface course numbers:

- (a) Electronics and communications: 134, 161, 166, 166L, 169, 171, 176.
- (b) Computer Sciences and Digital Systems: 106, 107, 175, 175L, Engr 173.
- (c) Power Systems and Energy Conversion: 151, 151L.
- <sup>2</sup> Social Sciences: Select from Anth 2, 3; Econ 1A, 1B, 15; Hist 3, 6, 8; Soc 1, 2, 130.
- <sup>3</sup> Humanities: Select from Art 5, 6; Drama 62, 184; Hist 1, 2, 110, 111, 112; Phil 20T.
- <sup>4</sup> General Electives: May be approved electives.

## INDUSTRIAL ENGINEERING

(62 units engineering; 132 units total)

### FIRST SEMESTER

		<i>Units</i>
Engr 26	Engineering Graphics .....	4
Math 75	Mathematical Analysis I.....	4
Chem 1A	General Chem & Qualitative Analysis ..	5
Hist 11/12	American History .....	3
		<hr/> 16

### THIRD SEMESTER

C E 20	Engineering Mechanics: Statics.....	3
M E 31	Engineering Materials .....	2
Math 77	Mathematical analysis III .....	4
Phys 4B	Electricity, Magnetism, Heat .....	4
Econ 1A	Principles of Economics .....	3
		<hr/> 16

### FIFTH SEMESTER

I E 110	Statistical Anal & Control .....	3
I E 111	Methods Analysis .....	2
M E 112	Engineering Mechanics: Dynamics .....	3
M E 116	Thermodynamics-Fluid Mechanics A.....	3
M E 117	Instrumentation Lab & Fluid Lab .....	2
Acct 4A	Fin & Managerial Acct Prin & Syst .....	3
		<hr/> 16

### SEVENTH SEMESTER

I E 112, L	Statistical Design of Experiments.....	4
Engr 160	Engineering Economy .....	2
E E 121, L	Electromechanical Systems & Energy or, E E 128 Electronic Devices & Circuits .....	4/3
App Elect	See <sup>1</sup> .....	5/6
Gen Elect	See <sup>4</sup> .....	2
		<hr/> 17

### SECOND SEMESTER

		<i>Units</i>
Engr 70	FORTRAN IV Programming .....	2
M E 11, L	Manufacturing Processes .....	3
Math 76	Mathematical Analysis II.....	4
Chem 8	Elementary Organic Chemistry .....	3
Phys 4A	Mechanics and Wave Motion.....	4
		<hr/> 16

### FOURTH SEMESTER

Pl Si 2	American Govt and Institutions .....	3
Econ 1B	Principles of Economics .....	3
Math 81	Applied Analysis .....	4
Phys 4C	Light and Modern Physics .....	4
Humanities	See <sup>2</sup> .....	3
		<hr/> 17

### SIXTH SEMESTER

I E 114	Facilities Engineering .....	2
C E 121, L	Mechanics of Materials .....	4
E E 110, L	Magnetic & Electric Circuits .....	4
M E 136, L	Thermodynamics-Fluid Mechanics B.....	4
Acct 4B	Fin & Managerial Acct Prin & Systems ..	3
		<hr/> 17

### EIGHTH SEMESTER

I E 113	Operations Analysis .....	3
I E 180	Senior Project.....	1
Engr 182	Engineering Writing .....	1
App Elect	See <sup>1</sup> .....	5
Humanities	See <sup>2</sup> .....	3
Nat/Soc Sci	See <sup>3</sup> .....	3
		<hr/> 17

<sup>1</sup> Approved Electives: Select from I E 118, 120, 190, 191T; Engr 161, 173, 174; C E 122; M E 134, 154; Mgt 110A-B; Math 107.

<sup>2</sup> Humanities: Select from Art 5, 6; Drama 62, 184; Engl 20, 50T; Hist 1, 2, 110, 111, 112, 121, 131, 132; Phil 20T.

<sup>3</sup> Natural or Social Science: Select from Psych 10, 60T, 134.

<sup>4</sup> General Electives: May be approved electives.

**191T. Topics in Engineering (1-4; max total 8)**

Prerequisite: permission of instructor. Investigation of selected engineering subjects not in current courses.

**192. E.I.T. Review (3)**

Preparation for Engineer-in-Training Examination. Basic mathematics, chemistry, statics, dynamics, mechanics of materials, fluid mechanics, thermodynamics, electrical theory, materials science, economic analysis.

**CIVIL ENGINEERING (C E)****1. Plane Surveying (2) (Former Engr 1)**

Prerequisite: Math 30. Familiarization with surveying instruments; calculations; topographic surveying.

**1L. Plane Surveying Laboratory (1) (Former Engr 1L)**

Prerequisite: C E 1 (or concurrently). Field practice in measurements of distance and use of level, transit, and plane table in solution of practical problems. (3 lab hours; field trips required)

**2. Advanced Plane Surveying (2) (Former Engr 2)**

Prerequisite: C E 1L. Theory and computations covering land surveying; engineering astronomy; introduction to route surveying.

**2L. Advanced Plane Surveying Laboratory (1) (Former Engr 2L)**

Prerequisite: C E 2 (or concurrently). Field practice in land surveying, astronomy, triangulation, and route layout. (3 lab hours; field trips required)

**3. Fundamentals of Metrical Photogrammetry (2) (Former Engr 3)**

Prerequisite: C E 1 or permission of instructor. Fundamental characteristics of metrical photography and photogrammetric equipment; extraction of metrical data from single and overlapping photographs; flight planning and control considerations for photogrammetric mapping; accuracy and economy. (1 lecture, 3 lab hours)

**4. Machine Computing and Computer Programming (3) (Former Engr 4)**

Prerequisite: C E 2L or permission of instructor. Survey computations by use of desk calculator; electronic computer programming. (2 lecture, 3 lab hours)

**5. Photogrammetric Instrumentation (3)**

Prerequisite: C E 3. Applications of theory of optics to photogrammetric and surveying instruments. Theory of stereo-orientation; theory of optical and optical-mechanical plotting instruments; calibration and maintenance of plotting instruments; mapping with stereo-plotting instruments, orthophoto mapping. (1 lecture, 2 3-hour labs)

**6. Photographic Processes in Engineering (3)**

Use of photographic process in engineering drawing. Annotated photo-drawings. Use of special films in engineering reproduction. Use of microfilm in engineering drawings, storage, and reproduction. (2 lecture, 3 lab hours)

**20. Engineering Mechanics: Statics (3) (Former Engr 30)**

Prerequisite: Phys 4A, Math 77 (or concurrently), or permission of instructor. Analysis of force systems, equilibrium problems, section properties; graphic, algebraic, and vector methods of problem solution. (2 lecture, 2 lab hours)

**85. Introduction to Civil Engineering (1)**

Introduction to the Civil Engineering Profession.

**101. Route Surveying (2) (Former Engr 101)**

Prerequisite: C E 2L. Computation and field work covering surveys for highway, irrigation, construction, and other kinds of engineering projects. (1 lecture, 3 lab hours; field trips required)

**101L. Route Surveying Laboratory (1) (Former Engr 101L)**

Prerequisite: C E 101 (or concurrently). Survey for highway location, stakeout of roads and intersections from plans. (3 lab hours)

**102. Geodetic Surveying (2) (Former Engr 102)**

Prerequisite: C E 2L, Math 76. Triangulation: adjustment of geodetic figures; base line measurement; map projection; precise leveling. (1 lecture, 3 lab hours; field trips required)

**102L. Geodetic Surveying Laboratory (1) (Former Engr 102L)**

Prerequisite: C E 102 (or concurrently). Field work for surveying and photogrammetry majors. (3 lab hours)

**103. Advanced Photogrammetry (3) (Former Engr 109)**

Prerequisite: C E 5 or permission of instructor. Introduction to analytical photogrammetry; analog strip triangulation, independent model triangulation, block triangulation; analytical plotters. (1 lecture, 2 3-hour labs)

**104. Boundary Control and Legal Principles (3) (Former Engr 104)**

Prerequisite: C E 2. Legal principles that control the boundary location of real property.

**105. Advanced Survey Computations (3) (Former Engr 105)**

Prerequisite: C E 4 or Engr 70, C E 102. Statistics, propagation of errors, theory of least squares, observation and condition equations. Adjustments of traverse, level nets, triangulation, and trilateration; simultaneous block adjustment. (2 lecture, 3 lab hours)

**106. Cartographic Techniques and Map Reproduction (2) (Former Engr 106)**

Prerequisite: C E 3, Chem 2B. Cartographic color separation, scribing; line and half-tone copy, theory of photographic processes, photographic optics, emulsions, developers, lenses; offset lithographic process, single- and multicolor photolithographic reproduction; modern edge enhancement and photo-tone techniques. (1 lecture, 3 lab hours)

**107. Electronic Distance Measurements (3) (Former Engr 107)**

Prerequisite: C E 102, E E 104, or permission of instructor. Introduction to electronic surveying systems. Analysis of main elements in electronic surveying instruments; geometrical concepts in electronic measurements. Use of electronic distance measurements in surveying, traverse, and trilateration. Use of airborne systems. (2 lecture, 3 lab hours; field trips required)

**108. Geodesy (3)**

Prerequisite: C E 102. Analytic geometry, three-dimensional coordinate system; introduction to geometric geodesy, geodetic astronomy, gravimetric geodesy and satellite geodesy; deviation of the vertical and Laplace stations; applications of map projections in surveying.

**109. Subdivision Preparation (2)**

Prerequisite: C E 104. Subdivision Map Act, title research, zoning study. Tentative and final subdivision layout, map drafting; environmental impact study. (1 lecture, 3 lab hours)

**120. Strength of Construction Materials (3) (Former Engr 132)**

Not open to civil engineering majors. Prerequisite: Phys 2A. Stress and deflections in steel and wood structures and in formwork for concrete structures.

**120L. Strength of Construction Materials Laboratory (1) (Former Engr 132L)**

Prerequisite: C E 120 (or concurrently). Application of testing procedures to determine and verify limitations on the use of construction materials. (3 lab hours)

**121. Mechanics of Materials (3) (Former Engr 131)**

Prerequisite: C E 20. Application of principles of mechanics to find stresses and deformations in machine and structural members.

**121L. Mechanics of Materials Laboratory (1) (Former Engr 131L)**

Prerequisite: C E 121 (or concurrently), M E 31. Application of the principles and methods of testing to verify theory and determine limitations of principles of mechanics of materials. (3 lab hours)

**122. Advanced Mechanics of Materials (3) (Former Engr 139)**

Prerequisite: C E 121, Engr 70, Math 81. Advanced topics in mechanics of materials.

**123. Soil Mechanics (2) (Former Engr 137)**

Prerequisite: C E 121. Physical and mechanical properties of soil as an engineering material; theoretical studies in permeability, compressibility, stress-deformation, and strength characteristics.

**123L. Soil Mechanics Laboratory (1) (Former Engr 137L)**

Prerequisite: C E 121L, 123 (or concurrently). Experiments to illustrate and amplify the principles of soil mechanics. (3 lab hours; field trips required)

**124. Concrete Laboratory (1) (Former Engr 143)**

Prerequisite: C E 121L. Proportioning of concrete mixes; admixtures; workability tests; compressive, flexural, and tensile strength tests; reinforced concrete. (3 lab hours; field trips required)

**130. Theory of Structures (3) (Former Engr 135)**

Prerequisite: C E 121. Trusses and frames analyzed by algebraic and graphic procedures; influence lines and live loading analysis; rigid frames analyzed by slope deflection and moment distribution. Introduction to matrix methods.

**131. Intermediate Theory of Structures (3) (Former Engr 146)**

Prerequisite: C E 130. Analysis of statically indeterminate beams, trusses, and frames; energy methods; column analogy; advanced topics in slope deflection and moment distribution; matrix methods.

**132. Reinforced Concrete (3) (Former Engr 134)**

Prerequisite: C E 130. Analysis and design of concrete elements by working stress, ultimate strength, and prestressed methods.

**133. Steel and Timber Structures (4) (Former Engr 133)**

Prerequisite: C E 130. Steel and timber members for buildings and bridges designed for dead, live, impact, wind, and seismic loads; light gage design; plastic design of steel. (3 lecture, 3 lab hours)

**134. Foundation Design (3) (Former Engr 144)**

Prerequisite: C E 123, 132 (or concurrently). Theory and design of footings, piles, retaining walls, and other structures combining the use of soil mechanics and structural analysis.

**135. Reinforced Concrete Design (2)**

Prerequisite: C E 132. Design of concrete structures; working stress, ultimate strength, and prestressed methods. (1 lecture, 3 lab hours)

**140. Hydrology (3) (Former Engr 140)**

The Hydrologic cycle, atmospheric conditions, precipitation, infiltration, ground water, soil moisture, evaporation, runoff, streamflow, hydrographs, flood routing, hydrologic frequency analyses and their effects in water resource planning and management.

**141. Water Resources Engineering (3) (Former Engr 141)**

Planning, design, and engineering-economic evaluation of water resources projects. (2 lecture, 3 lab hours; field trips required)

**142. Water Supply and Wastewater Engineering (3) (Former Engr 142)**

Prerequisite: M E 116. Design of urban water distribution, storm drainage, and sanitary sewer systems. Introduction to water purification and wastewater treatment processes. (Field trips required)

**142L. Water Quality Laboratory (1)**

Prerequisite: C E 142 (or concurrently). Study and analysis of the physical, chemical and biological characteristics of raw and waste waters. (3 lab hours)

**143. Engineering Hydraulics (3) (Former Engr 149)**

Prerequisite: M E 116. Theory and analysis of pressure-conduit and open-channel flow systems. Applications to hydraulic structures and control works, hydraulic power conversion, sediment transport, and channel stabilization.

**144. Water Quality Control (3) (Former Engr 177)**

Prerequisite: C E 142 or senior-level chemical or biological science. Physical, chemical, and biological operations and processes in water quality control. Process and hydraulic design of water purification and wastewater treatment facilities. (Field trips required)

**145. Hydrology, Water Supply, and Wastewater Disposal (2)**

Prerequisite: one year high school algebra; high school chemistry or Chem 2A. Occurrence and movement of water about the earth's land masses; measurement and estimation of precipitation, evaporation, groundwater flow, streamflow; man's influence on natural waters; water supply, wastewater disposal systems; collection, treatment, distribution of water supplies; wastewater collection, treatment.

**150. Transportation Planning and Design (3) (Former Engr 138, 125)**

Prerequisite: C E 2. Transportation as a multimode system; functions, development, elements, and characteristics. Transportation planning; design of geometric elements of route and terminal. (2 lecture, 3 lab hours)

**151. Pavement and Drainage Design (2) (Former Engr 126)**

Prerequisite: C E 123 (or concurrently). Factors affecting drainage and load-bearing elements of transportation facilities. Capacity design of drainage facilities. Structural design of highway and airfield pavements.

**152. Transportation Engineering Materials (2)**

Prerequisite: C E 123. Soil stabilization with bitumen, lime, and portland cement for pavement construction; properties of bituminous road materials; properties, design, and testing of bituminous paving mixtures for pavement construction. (1 lecture, 3 lab hours; field trips required)

**153. Traffic Operations and Control (2)**

Prerequisite: C E 150 (or concurrently). Highway traffic characteristics and studies; regulation and control; administration. Air traffic control; railroad operation control.

**180. Senior Project (1) (Former Engr 172)**

Prerequisite: senior standing in civil engineering or in surveying and photogrammetry; approved subject; Engr 182 (or concurrently). Study of a problem under supervision of a faculty member; final typewritten report required. (Individual project except by special permission)

**185. Civil Engineering Practice (1)**

Prerequisite: senior standing in Civil Engineering. Practice of Civil Engineering; opportunities in Civil Engineering; transition from student to professional engineer.

**186. Surveying Practice (1)**

Prerequisite: senior standing in Surveying and Photogrammetry. Application of various surveying and photogrammetric methods.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191T. Topics in Civil Engineering (1-3; max total 6) (Former Engr 191T)**

Prerequisite: permission of instructor. Investigation of selected civil engineering subjects not in current courses.

**193. Internship in Civil Engineering (1-3; max total 3)**

Prerequisite: senior standing in Civil Engineering. Supervised professional practice in a private firm or public agency.

**ELECTRICAL ENGINEERING (E E)**

*All associated lecture and laboratory courses must be taken concurrently.*

**1. Introduction to Electrical Engineering (1)**

The electrical engineering profession; introduction to engineering methods; familiarization with recent developments.

**85. Minicomputers as System Components (2)**

Prerequisite: Engr 70. Basic principles for the application of a small digital computer as a dedicated electronic system component for on-line and real-time measurement, control, and computation in such areas as data acquisition, automated testing, corrective measurement, real-time computation, and visual display. (1 lecture, 3 lab hours)

**104. Basic Electronics (3) (Former Engr 154)**

Not open to electrical engineering majors. Prerequisite: Math 75, Phys 2B. Basic concepts of electronic circuits, oscillators, and high-frequency transmitters and receivers, with applications to measurements in surveying. (2 lecture, 3 lab hours)

**106. Introduction to Switching Theory (3)**

Prerequisite: Phys 2B. Axiomatic development of Boolean algebra; logic gates and memory elements; realization of Boolean networks; Boolean function minimization procedures; state assignment and state transitions; analysis and synthesis of linear sequential networks; synchronous and asynchronous behavior.

**107. Digital Data Handling (3)**

Prerequisite: Engr 70 or permission of instructor. Data acquisition by computers; data encoding and machine representation; data storage devices; logical and physical-media data structures; data structure processing algorithms; static and dynamic properties of data structures; applications of symbol manipulation to engineering.

**110. Magnetic and Electric Circuits (3) (Former Engr 150)**

Prerequisite: Engr 70; Phys 4B; Math 81 (or concurrently). Fundamentals of magnetic circuits; basic laws of direct-current and of single and polyphase alternating-current circuits; transient phenomena in simple circuits; principles of electrical instruments; computer solutions.

**110L. Magnetic and Electric Circuits Laboratory (1) (Former Engr 150L)**

Prerequisite: E E 110 (concurrently). Experiments on magnetic, direct- and alternating-current circuits, including single and polyphase systems. Use of electrical instruments, development of laboratory techniques, and verification of basic principles. (3 lab hours)

**114. Physical Electronics (2)**

Prerequisite: Phys 4C. Electronic structure of metals, semiconductors, and insulators; crystal lattices; energy band structure; thermal, optical, dielectric and magnetic properties; transport properties; microscopic and macroscopic behavior.

**121. Electromechanical Systems and Energy Conversion (3) (Former Engr 151)**

Prerequisite: E E 110, 110L. Principles of direct- and alternating-current machinery and other energy-conversion devices and associated apparatus.

**121L. Electromechanical Systems and Energy Conversion (1) (Former Engr 151L)**

Prerequisite: E E 121 (concurrently). Experiments and computations on direct- and alternating-current machinery and on other energy-conversion devices and associated apparatus. (3 lab hours)

**124. Electrical Circuit Analysis (3) (Former Engr 152)**

Prerequisite: E E 110, 110L. Introduction to the operational analysis of linear electric circuits and related systems; Laplace transformation; Fourier analysis; state-space representations; computer solutions.

**124L. Electrical Circuit Analysis Laboratory (1) (Former Engr 152L)**

Prerequisite: E E 124 (concurrently). Experiments on linear electric networks, including response, transformations, and identification of circuits. (3 lab hours)

**126. Electromagnetic Fields and Waves (3) (Former Engr 155)**

Prerequisite: E E 110 (or concurrently). Electrostatic and magnetostatic fields, time-varying fields, Maxwell's equations, plane waves.

**128. Electronic Devices and Circuits (3) (Former Engr 156)**

Prerequisite: E E 110 (or concurrently). Physical electronics, characteristics and properties of electronic devices, both thermionic and solid state; theory and analysis of electronic circuits.

**128L. Electronic Devices and Circuits Laboratory (1) (Former Engr 156L)**

Prerequisite: E E 128 (concurrently). Experiments on static and dynamic characteristics of electron tubes and solid-state devices, and on electronic circuits. (3 lab hours)

**134. Information Transmission (3) (Former Engr 183)**

Prerequisite: E E 124, 124L. Mathematical modeling of signals and noise; information theory; modulation techniques; communications; information loss due to noise; digital communications; statistical communications theory.

**136. Electromagnetic Energy Transmission (3) (Former Engr 153)**

Prerequisite: E E 124, 124L, 126. Principles of transmission of electromagnetic energy over wires at power and communication frequencies and through wave guides and space at ultra-high frequencies, filter circuits and antennas; design of transmission systems; computer solutions.

**136L. Electromagnetic Energy Transmission Laboratory (1) (Former Engr 153L)**

Prerequisite: E E 136 (concurrently). Experiments on the transmission of electromagnetic energy through wires, wave guides, and space; filters and antennas; impedance matching; cross-over networks; location of faults on lines. (3 lab hours)

**140. Pulse and Digital Circuits Design (3) (Former Engr 157)**

Prerequisite: E E 124 (or concurrently), 128, 128L. Design and analysis of wave-shaping, linear-sweep, electronic-gate, multistable, and negative-resistance circuits; Boolean algebra and digital logic design.

**140L. Pulse and Digital Circuits Design Laboratory (1) (Former Engr 157L)**

Prerequisite: E E 140 (concurrently). Experiments on wave-shaping, switching, pulse, and digital circuits. (3 lab hours; field trips required)

**151. Electrical Power Systems (3) (Former Engr 180)**

Prerequisite: E E 121, 121L, 128, 128L, 136, 136L (or concurrently). Power system networks and equipment, steady-state operation, short-circuit analysis, power system stability analysis by digital computation, synchronous generator excitation and governor systems, system load representation, numerical analysis techniques.

**151L. Electrical Power Systems Laboratory (1) (Former Engr 180L)**

Prerequisite: E E 151 (concurrently). Experiments and demonstrations on power system apparatus; power system network analysis by digital computation; synchronous generator stability and control. (3 lab hours; field trips required)

**155. Control Systems (3) (Former Engr 181)**

Prerequisite: E E 110, 110L or permission of instructor. Computerized analysis, design, and synthesis of linear feedback control systems; non-linear systems; sampled-data and optimal control systems; stability.

**155L. Control Systems Analysis Laboratory (1) (Former Engr 181L)**

Prerequisite: E E 155 (concurrently). Experiments and demonstrations on control systems, including response, design, and stability criteria. (3 lab hours; field trips required)

**161. Network Synthesis (3) (Former Engr 184)**

Prerequisite: E E 124, 124L. Characteristics of linear, passive, lumped-parameter systems; modern synthesis procedures for realizing driving-point and transfer functions of one-, two-, and n-terminal networks.

**166. Microwave Devices and Circuits Design (3) (Former Engr 158)**

Prerequisite: E E 136, 136L. Microwave theory and techniques, propagation, wave guides, cavities, circuits, S-parameters, microwave devices including klystrons, traveling-wave tubes, magnetrons, and solid state devices.

**166L. Microwave Devices and Circuits Design Laboratory (1) (Former Engr 158L)**

Prerequisite: E E 166 (concurrently). Microwave measurements selected from measurement of microwave power, standing-wave ratio, impedance, frequency, and klystron characteristics. (3 lab hours; field trips required)

**169. Electromagnetic Measurements Laboratory (1) (Former Engr 159)**

Prerequisite: E E 136, 136L (or concurrently), 140L. Advanced experiments in precision measurement techniques and computations in electricity, magnetism, electronics, and electromagnetic fields and waves; modern error analysis techniques; computer solutions. (3 lab hours; field trips required)

**171. Quantum Electronics (3) (Former Engr 185)**

Prerequisite: E E 126. Review of wave properties; cavity mode theory; radiation laws; interaction of radiation and matter; laser amplifiers and oscillators; morphology of masers and lasers.

**175. Design of Digital Systems (3)**

Prerequisite: EE 106, 140, 140L. Logic and memory devices; analog-to-digital and digital-to-analog signal conversion transducers, computer architectures and system structures, control units; memory systems, arithmetic units, input-output subsystems, digital signal transmission and error correction, reliability, self-repair.

**175L. Digital Systems Laboratory (1)**

Prerequisite: EE 175 (concurrently). Characteristics and use of integrated logic circuits and logic modules; logic circuit measurement techniques; synchronous and asynchronous sequential network realization; design, testing and evaluation of digital subsystems for computation, memory, display, communications, coding, etc. (3 lab hours)

**176. Computer-Aided Circuit Design (3)**

Prerequisite: E E 124, 124L, 128, 128L. Digital computer methods in analysis and simulation of lumped parameter circuits; topological and matrix representation; modeling; time and frequency domain algorithms; optimization; worst-case and statistical analysis; use of problem oriented programs for circuit design. Introduction to system design.

**180. Senior Project (1) (Former Engr 172)**

Prerequisite: senior standing in electrical engineering; approved subject; Engr 182 (or concurrently). Study of a problem under supervision of faculty member; final typewritten report required. (Individual project except by special permission)

**189A-B. Developments in Engineering (1-1)**

(A) Prerequisite: junior standing in engineering or permission of instructor. Presentations and discussions of developments in engineering. (B) Prerequisite: senior standing in engineering or permission of instructor. Presentations and discussions of advanced developments in modern engineering. (Field trips required)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191T. Topics in Electrical Engineering (1-3; max total 6) (Former Engr 191T)**

Prerequisite: permission of instructor. Investigation of selected electrical engineering subjects not in current courses.

**INDUSTRIAL ENGINEERING (I E)****110. Statistical Analysis and Control (3) (Former Engr 110)**

Prerequisite: Math 76. Fundamentals of probability and statistics; general theory and practice of statistical quality control; sampling plans; introduction to statistical methods. (Field trips required)

**111. Methods Analysis (2) (Former Engr 111)**

General approach to the design process; application of design process to problem solving. Methods evaluation techniques: motion and time study, work sampling, and simulation. (2 2-hour lecture-labs; field trips required)

**112. Statistical Design of Experiments (3) (Former Engr 112)**

Prerequisite: I E 110, Engr 70. Analysis of variance; regression and correlation; analysis of covariance; randomized blocks and Latin squares; design of experiments; response surface analysis and determination of optimum conditions.

**112L. Statistical Design of Experiments Laboratory (1) (Former Engr 112L)**

Prerequisite: I E 112 (or concurrently.) Problem design and data analysis; experimental studies of statistical techniques.

**113. Operations Analysis (3) (Former Engr 113)**

Prerequisite: I E 110, Engr 70, Math 81. Application of quantitative and numerical techniques for analysis of complex operational problems.

**114. Facilities Engineering (2) (Former Engr 114)**

Value analysis, materials handling, packaging, layout of facilities, safety, location of facilities.

**116. Fire Protection Engineering (2)**

Basic theory of fire behavior; common fire hazards; classification of fires; sources of ignition; structural effects upon cause or control of fire; fire detection and alarm systems; extinguishment systems; codes and regulations; inspection methods.

**118. Principles of Safety Engineering (3)**

Prerequisite: junior standing or permission of instructor. Principles of Safety Engineering with emphasis directed to industrial situations. Selected topics include: materials handling, machine guarding, lighting, noise, ventilation, personal protective equipment, instrumentation, plant inspection, accident investigation.

**120. Systems Safety Engineering (3)**

Prerequisite: Math 51 or permission of instructor. Principles of system safety engineering. Selected topics include: human factors engineering, key system interfaces, logic trees, fault and risk tree analyses, hazard identification and analysis, safety review system trees, statistical analysis, product safety.

**180. Senior Project (1) (Former Engr 172)**

Prerequisite: senior standing in industrial engineering, approved subject, Engr 182 (or concurrently). Study of a problem under supervision of a faculty member; final typewritten report required. (Individual project except by special permission)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191T. Topics in Industrial Engineering (1-3; max total 6) (Former Engr 191T)**

Prerequisite: permission of instructor. Investigation of selected industrial engineering subjects not in current courses.

**MECHANICAL ENGINEERING (M E)****11. Manufacturing Processes (2) (Former Engr 11)**

Processing techniques, including casting, welding, forming, and machining; capabilities and limitations of these techniques.

**11L. Manufacturing Processes Laboratory (1) (Former Engr 11L)**

Prerequisite: M E 11 (or concurrently). Application of existing and new processing techniques. (3 lab hours; field trips required)

**31. Engineering Materials (2) (Former Engr 32)**

Prerequisite or concurrently: C E 20, Chem 8. Fundamental nature and properties of engineering materials; structure of matter; mechanical, electrical, magnetic, and thermal properties.

**112. Engineering Mechanics: Dynamics (3) (Former Engr 130)**

Prerequisite: C E 20. Application of principles of kinematics and kinetics to problems in engineering.

**116. Thermodynamics-Fluid Mechanics A (3) (Former Engr 164)**

Prerequisite: M E 112 (or concurrently). Fundamentals of thermodynamics and fluid mechanics as applied to engineering problems.

**116L. Thermodynamics-Fluid Mechanics Laboratory A (1) (Former Engr 164L)**

Prerequisite: M E 116 (or concurrently). Applications of experimental methods used in engineering practice to thermo-fluid systems. (3 lab hours)

**117. Instrumentation and Fluid Laboratory (2)**

Prerequisite: M E 116 (or concurrently). Study of instrumentation and experimental methods; applications; fluid mechanics laboratory. (2 3-hour labs)

**131. Advanced Engineering Materials (3) (Former Engr 136)**

Prerequisite: M E 31, C E 121. Applications of the principles of materials science to the study of the mechanical behavior of metallic, polymeric, ceramic, and composite materials. Effects of stress and environmental variables. (2 lecture, 3 lab hours)

**134. Mechanism (3) (Former Engr 121)**

Prerequisite: M E 112, Engr 26. Analytical and graphical solutions of motion problems involving mechanical elements; synthesis of plane and space linkage systems. (2 3-hour lecture-labs)

**136. Thermodynamics-Fluid Mechanics B (3) (Former Engr 165)**

Prerequisite: M E 116. Continuation of M E 116. Fundamentals of thermodynamics, fluid mechanics, and heat transfer as applied to engineering problems.

**136L. Thermodynamics-Fluid Mechanics Laboratory B (1) (Former Engr 165L)**

Prerequisite: M E 117, 136 (or concurrently). Applications of experimental methods as used in engineering practice to thermo-fluid systems. (3 lab hours)

**137. Pressure Flow and Turbomachinery (3) (Former Engr 145)**

Prerequisite: M E 136, 136L (or concurrently). Applications of fluid mechanics and thermodynamics to pipe flow and rotor-fluid energy interchange. Steady and transient problems; real fluids in pipes; water hammer. Pumps, compressors, and turbines with incompressible and compressible fluids.

**142. Mechanical Vibration (3) (Former Engr 124)**

Prerequisite: M E 112, Math 81. Mathematical and physical basis of vibration theory with applications to engineering; transient and steady state phenomena; distributed and lumped parameters; coupled systems; computer solutions.

**143. Mechanical Design Laboratory (1)**

Prerequisite: M E 142 or (concurrently), C E 121. Theory and techniques of static and dynamic measurements; experimental determination of strain, stress, displacement, velocity, acceleration, force; vibration measurements, experimental stress analysis. (3 lab hours)

**144. Advanced Mechanics of Materials (3) (Former Engr 139)**

Prerequisite: C E 121, Engr 70, Math 81. Advanced topics in mechanics of materials.

**146. Air Conditioning (3) (Former Engr 162)**

Prerequisite: M E 136 (or concurrently). Theory and practice in air conditioning including psychrometrics, load estimating, heating and cooling systems, fluid design and controls.

**146L. Air Conditioning Laboratory (1) (Former Engr 162L)**

Prerequisite: M E 146 (or concurrently). Practical laboratory work with commercial type units; test of components of air conditioning systems. (3 lab hours; field trips required)

**151. Materials Engineering (2)**

Prerequisite: M E 131. Techniques for selecting optimum materials for specific applications, evaluation of critical requirements, recognition of unknown factors, economic considerations. Modification of materials to meet requirements.

**154. Machine Design (3) (Former Engr 122)**

Prerequisite: M E 112, C E 121, Engr 70, Math 81. Analytical study of machinery; applications to design of machines; use of computers in design problems.

**156. Advanced Thermodynamics—Fluid Mechanics (3) (Former Engr 166)**

Prerequisite: M E 136. Advanced topics in thermodynamics, fluid mechanics, and heat transfer as applied to engineering problems.

**156L. Advanced Thermodynamics—Fluid Mechanics Laboratory (1) (Former Engr 166L)**

Prerequisite: M E 136L, 156 (or concurrently). Applications of advanced experimental methods used in engineering practice to thermo-fluid systems. (3 lab hours)

**164. Advanced Mechanical Design (2) (Former Engr 123)**

Prerequisite: M E 134, 154. Analytical study of dynamics of machinery; applications to design problems. (2 2-hour lecture-labs)

**180. Senior Project (1) (Former Engr 172)**

Prerequisite: senior standing in mechanical engineering, approved subject, Engr 182 (or concurrently). Study of a problem under supervision of a faculty member; final typewritten report required. (Individual project except by special permission)

**190. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**191T. Topics in Mechanical Engineering (1–3; max total 6) (Former Engr 191T)**

Prerequisite: permission of instructor. Investigation of selected mechanical engineering subjects not in current courses.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**311. Professional Examination Review (2; may be repeated in different fields)****321. Professional Engineering Seminar (1–3; may be repeated in different fields)**





**DIVISION OF HEALTH PROFESSIONS**

Communicative Disorders Department

Health Science Department

Nursing Department

Physical Therapy Program

Rehabilitation Counseling Program



## DIVISION OF HEALTH PROFESSIONS

**Harold L. Best, Interim Director**

<i>Department</i>	<i>Chairperson</i>
Communicative Disorders .....	Susan J. Shanks
Health Science .....	Nathan E. Liskey
Nursing .....	Shirley R. Good
Physical Therapy Program.....	Joan E. Turnquist (Coordinator)
Rehabilitation Counseling Program.....	Joseph L. Townsend (Coordinator)

The departments of the Division of Health Professions provide programs leading to the bachelor of arts, the bachelor of science, the master of arts, and the master of science degrees. Preparation is offered for professional careers in the specialized areas of physical therapy, rehabilitation counseling, speech and hearing therapy, health science, and nursing and in the general areas of teaching, business, public, or governmental service.

For specific degrees and programs, refer to the individual departmental information on the following pages.

## COMMUNICATIVE DISORDERS DEPARTMENT

## FACULTY

Susan J. Shanks, *Department Chairwoman*

Jacqueline C. Abell ■ Bette J. Baldis ■ Charles E. Fankhauser ■ Jon M. Fitch ■ Karen M. Jensen ■ Donald Lee Mast ■ Marion D. Meyerson ■ Betty Jane Pollock ■ Steven D. Wadsworth ■ Donald M. Wilson

The department offers a bachelor of arts degree program with a major and minor in communicative disorders providing for emphasis in speech pathology, audiology, or education of the deaf. The major is designed to provide a broad and basic understanding of language, hearing, and speech disorders. The program provides a foundation for the master of arts degree in this field, which is required for certification by the American Speech and Hearing Association and the Council on Education of the Deaf.

Admission to the Department of Communicative Disorders will be granted to all interested students seeking a BA in the major.

Admittance to the clinical program will be contingent on the student's earning a 3.0 GPA in 18 units of selected core courses. These courses include: CD 100, 101, 102 or 121, 104, 114, 131, E Ed 130, 140, and Ling 134. The student may be allowed to complete a BA without the clinical program but will be unable to continue in the post-baccalaureate professional sequence without the clinical component.

Each student will be requested to complete a departmental information sheet before entering the clinical program.

**Speech Pathology:** The baccalaureate curriculum with emphasis in speech pathology and a fifth year of prescribed study may be followed to satisfy requirements for a Multiple Subjects Teaching Credential, a Special Education Specialist Credential—Communication Handicapped, and the Certificate of Clinical Competence in Speech Pathology awarded by the American Speech and Hearing Association. Upon the completion of the graduate requirements, a student is qualified for a position in public or private schools, colleges, universities, hospitals, and community or private clinics.

**Audiology:** The baccalaureate curriculum with emphasis in audiology and a fifth year of prescribed study may be followed to satisfy the academic requirements for the Certificate of Clinical Competence in Audiology awarded by the American Speech and Hearing Association.

**Education of the Deaf:** The baccalaureate curriculum with emphasis in education of the deaf and a fifth year of prescribed study may be followed to satisfy requirements for a Multiple Subjects Teaching Credential, a Special Education Specialist Credential—Communication Handicapped, and basic certification of the National Council on Education of the Deaf, and for the master of arts degree.

The Communicative Disorders Department conducts a Language, Hearing, and Speech Clinic as part of its program. Any regular student may take advantage of its services without charge.

## COMMUNICATIVE DISORDERS MAJOR

	<i>Units</i>
C D 100, 102, or 121, 104, 107 (1 unit), 128 (1 unit), 108 (1 unit), 131, 132, 136.....	22
Elect one area: .....	9
Speech Pathology: C D 101, 105, 106, 110, 112	
Audiology: C D 101, 105, 106, 112, 133	
Education of the Deaf: C D 162, 163, 164	
Approved Electives .....	8
E Ed 130, 140; Ling 134; C D 111, 114, 116, 130, 135, 137, 160, 205, 260, 266; Spch 160, 162; additional communicative disorders courses and other approved nondepartmental electives.	

**COMMUNICATIVE DISORDERS MINOR**

C D 100, 104, 131, Spch 160 .....	Units 12
Elect one area: .....	9
Speech Pathology: C D 101, 102, 105	
Audiology: C D 101, 132, 133	
Education of the Deaf: C D 132, 135, 136	—
	21

**CREDENTIAL PROGRAM**

Information regarding the Special Education Specialist—Communication Handicapped Credential Program is available by writing to the Department of Communicative Disorders or the School of Education.

**SPEECH TEST**

For credential candidates. See *Admissions—Undergraduate Application Procedures*, and *School of Education—Admission to the Credential Programs*.

The following schedule of courses described below was developed according to the Ryan Act Guidelines (1973). The preparation to teach children with communication handicaps will be concurrent with the program to receive the Multiple Subjects Teaching Credential (See *School of Education*). The curriculum also provides undergraduate preparation for the master of arts degree with emphasis in communicative disorders. Additional information may be obtained from the departmental credential advisors in each area of specialty.

**Deaf and Severely Hard of Hearing**

Core courses: CD 100, 102 or 121, 104, 107, 108, 128 and 131 (concurrently), 132, 136 .....	Units 22
Ed Deaf core: CD 135, 137, 162, 163, 164, 262, 263, 264 .....	24
Clinical requirements: CD 160 or 260; AS 164B (4-9); CD 268 (6 units) .....	12-17
Generic core: CD 114, 116; E Ed 130, 140, 156, 160 (6 units) .....	21
Education core: E Ed 120T (Curriculum), 160 (6 units) * .....	10
Approved electives: CD 111, 211, 232, 266; Ling 134 .....	12
	101-106

**Speech and Hearing**

Core courses: CD 100, 102 or 121, 104, 107, 108, 128 and 131 (concurrently), 132, 136 .....	Units 22
Spch and Hearing core: CD 101, 105, 106, 110, 111, 112, 205 .....	21
Clinical core: CD 130 (1-6 units), 209 (1 unit), 230 (1-6 units); AS 164A (4-9 units) .....	10-19
Generic core: CD 114, 116; E Ed 130, 140, 156, 160 (6 units) .....	21
Education core: E Ed 120T (Curriculum), 160 (6 units) * .....	10
Approved electives: CD 133, 204, 206, 207, 210, 211, 213, 214, 215, 220, 232; Psych 177 .....	15
	99-108

**Aphasic/Severe Oral Language Handicapped**

Core courses: CD 100, 102 or 121, 104, 107, 108, 128 and 131 (concurrently), 132, 136 .....	Units 22
Aphasic/Severe Oral Lang Core: CD 101, 105, 106, 110, 111, 112, 188T,** 205 .....	24
Clinical core: CD 130 (1-6 units), 209 (1 unit), 230 (1-6 units); AS 164A (4-9 units) .....	10-19
Generic core: CD 114, 116; E Ed 130, 140, 156, 160 (6 units)** .....	21
Education core: E Ed 120T (Curriculum), 160 (6 units) * .....	10
Approved electives: CD 133, 207, 211, 213, 214, 220, 232; AS 245; Ling 243; Psych 169, 177 .....	15
	101-111

\* See requirements for the student teaching multiple subjects credential—School of Education.

\*\* Language for Aphasic Child

**MASTER OF ARTS DEGREE**

The graduate program for the master of arts degree in Communicative Disorders is based on the equivalent of the undergraduate major or minor in Communicative Disorders at CSU, Fresno. Conditional classified or classified standing in the department graduate program requires at least a 3.0 GPA in the last 60 units of undergraduate or graduate study. From 15 to 24 of the 30 units required for the degree must be in communicative disorders. For specific requirements, consult the head of the department or the department graduate adviser; for general requirements see *School of Graduate Studies* and the *Graduate Bulletin*.

**COURSES****COMMUNICATIVE DISORDERS (C D)****100. Principles of Communicative Disorders (3)**

Problems of speech and language, types of communicative disorder including delayed speech and language development; classification of speech and language defects; causes and therapeutic procedures; development of spoken language in the child; speech theory in the educational processes.

**101. Phonetics of American English (3) (Former Sp Corr 151)**

Perceptual and physiological characteristics of speech sounds of American English; application of phonetics to the study of normal and aberrant speech patterns and to American regional dialects.

**102. Psychology of Speech and Language Development (3) (Former Sp Corr 157)**

Normal process of speech and language development in children; genetic, cultural, psychological, and educational concepts related to the learning of speech and language.

**104. Physiology and Anatomy of Speech and Hearing Mechanisms (3)**

Physical, physiological, and neurological basis of speech and hearing mechanisms and pathology.

**104L. Physiology and Anatomy Laboratory (1) (Former C D 188T section)**

Prerequisite: C D 104 or concurrent. Laboratory study of anatomy and physiology of speech and language; cadaver dissection.

**105. Voice and Articulation Disorders (3)**

Prerequisite: C D 100, 101, 102 or 121, 104. Prognostic and therapeutic procedures related to voice and articulation disorders of children.

**106. Stuttering (3)**

Prerequisite: C D 100, 101, 102 or 121, 104, permission of instructor. Explores theories and therapies, psychological and educational concepts of stuttering; development of parent-child relationships.

**107. Field Experience in Communicative Disorders: Speech Pathology (1-3; max total 3)**

(Former 128A)

Observation of diagnostic evaluations, parent counseling and clinical services in Language, Hearing and Speech Clinic, in the public/private schools, and related clinical settings. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

**108. Field Experience in Communicative Disorders: Education of the Deaf (1-3; max total 3)**

(Former 128C)

Observation of diagnostic evaluations, parent counseling and educational/clinical services at clinical sites on campus, in public and/or private schools, and at residential schools for the deaf. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

**110. Diagnostic Procedures (3)**

Prerequisite: C D 100, 101, 104. Selection and use of various speech, language, hearing, psychological, and sensory-motor tasks used in the diagnostic process. Team approach concepts.

**111. Neurological and Physiological Basis of Speech (3)**

Prerequisite: C D 104. Neuroanatomy and physiology in relation to the processes of speech and language.

**112. Management of Language Disorders in Children (3)**

Prerequisite: C D 100, 101, 102 or 121, 104. Determination of rationale for selection from various approaches to therapy; preparation to administer language programs; evaluation of language therapy with children; observation in public and/or private schools. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction. (2 lecture, 2 lab hours)

**114. Education of Exceptional Children (3) (Former A S 160) (See A S 114)****116. Prescriptive and Individualized Instruction (3) (See A S 116)****121. Language Acquisition (3)**

Prerequisite: C D 100, Ling or Spch 134. Analysis of research in the details of normal speech and language acquisition; observation and research, normal language acquisition in children; compilation of a detailed outline of specific milestones in language acquisition.

**128. Observation in Communicative Disorders: Audiology (1-3; max total 3) (Former 128B)**

Prerequisite: C D 131 concurrent or permission of instructor. Observation of diagnostic evaluations of hearing disorders in Language, Hearing and Speech Clinic or other clinical settings. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

**130. Clinical Practice in Speech and Hearing Therapy (1-3; max total 6)**

Prerequisite: C D 100, 101, 102 or 121, 104, 105, 106, 112. Supervised clinical practice in speech and hearing therapy; diagnosis of speech deficiencies, referral procedures, parent counseling, case records. Clinical sites on campus, satellite centers; public and/or private schools. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

**131. Principles of Audiology (3)**

Anatomy, physiology, and neurology of the hearing mechanism; medical aspects of deafness and surgical treatment of hearing loss; psychological and social factors.

**132. Aural Rehabilitation (4)**

Prerequisite: C D 131. Techniques employed in selecting amplification supplemented by speech reading and audition in the communication process; physics of sound and application of all sensory modalities. Observation of hearing aid evaluations and participation in therapy related to visual-auditory training.

**133. Audiometry (3)**

Prerequisite: permission of instructor. Concepts of perception of speech; testing procedures utilized in detection and evaluation of hearing loss; application of testing procedures for diagnostic and rehabilitative purposes.

**135. History, Education and Guidance of the Deaf (3) (Former C D 235)**

History of the education of the deaf; source material; research studies related to psychology, social adjustment, and learning problems of the deaf.

**136. Manual Communication for the Deaf (3)**

Prerequisite: permission of instructor. Development of skills necessary to communicate with deaf adults and children through use of finger spelling and the language of signs.

**137. Psychology of Deafness (3)**

Psychological implications and effects of deafness; psychological testing of deaf children; role of the adult deaf in our society.

**160. Clinical Practice in Education of the Deaf (2; max total 6)**

Prerequisite: C D 132, 136, 162, 163, 164 or concurrent. Supervised clinical participation and practice in clinical/classroom teaching of persons who are deaf and severely hard of hearing; parent counseling. Therapy planning and implementation; clinical sites on campus and public and/or private schools. Students are expected to defray travel and personal expenses resulting from off-campus clinical instruction.

**162. Speech for the Deaf (3)**

Techniques employed in the development of speech with deaf children. Yale charts and diacritical marking systems. Devices for developing all English sounds. Includes observation, demonstration, and practice with deaf children.

**163. Language for the Deaf (3)**

Techniques employed in the development of language with deaf children; systems of teaching techniques, construction of English sentences and grammar; methods of correcting language mistakes of the deaf child. Includes observation and demonstration.

**164. Elementary School Subjects for the Deaf (3)**

Detailed study of the process of teaching reading to deaf children. Investigation of classroom procedure and presentation of content areas (math, science, social studies); integration with visual instructional materials. Includes observation and demonstration.

**188T. Topics in Communicative Disorders (1-3; max total 6)**

Speech pathology, audiology, education of the deaf, speech and hearing science, language disorders.

**190. Independent Study (1-3; max total 6)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**204. Seminar in Stuttering (3)**

Prerequisite: permission of instructor. In-depth study of specific characteristics, causes, and therapeutic approaches to remediating stuttering.

**205. Functional Speech Disorders in Children (3)**

Prerequisite: C D 105, 106. Seminar in clinical approaches to understanding functional aspects of speech and language disorders of children. Emphasis given to parent counseling, parent-child interaction, and child-centered therapy.

**206. Communication Disorders Articulation (Phonemic) (3)**

Prerequisite: C D 101, 110, 105 or permission of instructor. Nature of articulatory process; symptomatology; etiology in relation to diagnosis and appraisal of articulatory problems. Comparisons of therapy approaches; planning and conducting therapy; critical review of recent research trends in articulation.

**207. Dysphasia in Adults (3)**

Prerequisite: permission of instructor. The history of dysphasia; neurological concepts needed for understanding this disorder; application of linguistic theory to testing and therapy; formulation of programs for dysphasics.

**209. Speech-Hearing in Public School Environment (1)**

Prerequisite: C D 110; concurrent enrollment in A S 164A. Seminar in selection, application, and interpretation of diagnostic tests for public school children; demonstration and application of therapy for children with a variety of language, hearing, or speech disorders; organization and administration of school speech and hearing program.

**210. Seminar in Structural Speech Disorders (3)**

Prerequisite: C D 100, 104. Theories, etiologies, and habilitative processes. Emphasis given to orofacial growth and cleft palate.

**211. Programmed Instruction (3)**

Prerequisite: C D 130, 160, A S 164A or B, and permission of instructor. Integration of theory; techniques and methods for developing individualized instruction utilizing programmed procedures; development of sophisticated materials for use with hearing, language, and speech clients.

**213. Seminar in Neurological Speech Disorders (3)**

Prerequisite: C D 100, 104. Symptomatology, etiology, habilitative, and rehabilitative processes related to neurological speech disorders of children and adults.

**214. Seminar in Language Disorders of Children (3)**

Prerequisite: C D 102 or 121, 112, or permission of instructor. Etiology, symptomatology, assessment, and habilitation of language disorders in children. Practical experience includes diagnosis and management of a child's language disorder. Clinic sites on campus and in public and/or private schools. Travel to off-campus settings at student expense.

**215. Seminar in Voice Disorders (3)**

Prerequisite: C D 100, 104, 105. Nature of normal and deviant vocal production. Symptomatic assessment and voice therapy.

**218. Research Methodology in Communicative Disorders (3) (Former C D 113)**

Prerequisite: Undergraduate major in Communicative Disorders; permission of the instructor. Concepts and procedures for research in Communicative Disorders.

**220. Communicative Disorders of Second Language Usage (3)**

Prerequisite: Ling 131 or 134. Seminar in clinical approaches to speech and language therapy for those for whom standard English is a second language; emphasis on U. S. minority groups.

**230. Advanced Clinical Practice in Speech and Hearing Therapy (1-3; max total 6)**

Prerequisite: C D 105, 106, 112, 130 or permission of instructor. Supervised clinical practice in diagnosis/treatment of complex speech and hearing problems; causative factors; outlining therapy; parent counseling; referrals. Clinic sites on campus, satellite centers, and public and/or private schools. Travel to off-campus settings at student expense.

**231. Seminar in Audiology (3; max total 6)**

Prerequisite: C D 131 or permission of instructor. Projects in library research or experimentation.

**232. Seminar in Differential Diagnosis of Auditory Disorders in Children (3)**

Procedures for differentiating children who may have hearing deficits, mental retardation, emotional disturbances, or brain disfunction. Syndromes characteristic of these disorders.

**233. Seminar in Analysis of Hearing Aids (2)**

Prerequisite: C D 131, 133, 231. Study in depth of current hearing aids, body, post-auricle, and insert types; specific application to conductive and sensory-neural hearing losses. Analysis of frequency response and harmonic distortion of various instruments; theory of sloped amplification.

**234. Seminar in Industrial Audiology (2)**

Principles of industrial hearing conservation and the design of a comprehensive plan for a specific industry.

**250. Advanced Clinical Practice, Audiology (2; max total 6)**

Prerequisite: C D 130, 131, 132, 133. Supervised clinical practice in diagnosis and treatment of complex hearing problems; causative factors, counseling parents, therapy planning, etc.

**260. Advanced Clinical Practice, Education of the Deaf (2; max total 6)**

Prerequisite: C D 132, 136, 162, 163, 164 or permission of instructor. Supervised clinical participation and practice in clinical/classroom teaching of persons who are deaf and severely hard of hearing; parent counseling. Therapy planning and implementation. Clinical sites on campus and in public and/or private schools. Travel to off-campus settings at student expense.

**262. Seminar in Speech for the Deaf (3)**

Prerequisite: C D 162. Development of oral communication for the child who is deaf. Detailed study of the essentials of good speech and of methods of building or correcting the speech of the deaf. Projects in library research or experimentation. Includes demonstration and practice.

**263. Seminar in Language for the Deaf (3)**

Prerequisite: C D 163. Investigation of language errors of the deaf. Comparative study between the hearing and the deaf in syntax of language and structure of thought. Projects in library research or experimentation. Includes demonstration and practice of techniques with deaf children.

**264. Seminar in Elementary School Subjects for the Deaf (3)**

Prerequisite: C D 164. Special problems and techniques of adjusting the elementary school curriculum to the needs of deaf children; innovations and research in curriculum development. Project required. Includes demonstration and practice.

**266. Instructional Strategy and Technology for the Deaf (3)**

Prerequisite: C D 162, 163, 164. Development of techniques for organizing instruction for the deaf. Specialized equipment and production of visual materials used in classrooms for the deaf.

**267. Supervised Instruction with the Deaf (3)**

Prerequisite: C D 262, 263, 264, 266, A S 164B. Supervised instruction with deaf children within their nonresidential educational settings. Planning of instructional programs, analysis of behavior and student progress. Small group instruction.

**268. Internship with the Deaf (6)**

Prerequisite: C D 136, 262, 263, 264, 266, A S 164B. Supervised internship in a residential school for the deaf. Full time in residence for 8 weeks.

**270. Seminar in Organization and Management of Audiology Clinics (3)**

Prerequisite: C D 131, 133. Establishing, organizing, and maintaining audiology clinics in colleges and universities, hospitals, and private organizational settings. Project required.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**298. Individual or Group Research Project (1-6; max total 6)**

Prerequisite: consent of advisory committee. Utilization of communication research principles and techniques to select study design, determine data collection techniques, collect and process data, interpret findings, and prepare final written report. Same standards as for thesis.

**299. Thesis (1-6; max total 6)**

Prerequisite: see Master's Degrees—Thesis requirement. Preparation, completion and submission of an acceptable thesis or project for the master's degree.

## HEALTH SCIENCE DEPARTMENT

### FACULTY

Nathan E. Liskey, *Department Chairman*

Donald G. Casperson ■ Wayne N. Clark ■ Armon O. Deurmier ■ James A. Fikes ■ Henry F. Fricker ■ John G. Hardgrave ■ Max E. Kimberly ■ Ronald C. Schultz

The Department of Health Science offers curricula leading to a bachelor of arts degree, including a major and minor in health science with options in school and community health, environmental health science, and occupational safety and health.

These programs are designed to provide basic training for public health, safety, or voluntary health agencies; allied health professions; the Peace Corps; and elementary, secondary, and college teaching. The programs outlined below do not include any changes which may be necessitated by the Ryan Act.

### HEALTH SCIENCE MAJOR

A major in health science for the bachelor of arts degree consists of a minimum of 36 units composed of a health science core and one of the options listed below. Consult the department adviser for recommended sequence of major and general education courses.

	<i>Units</i>
Health Science Core .....	15
H S 100, 102*, 104, 105, 109	
Elect one option below.....	21-31

#### *School and Community Health Option*

H S 110, 113, 123, 124

Elect from: H S 129, 141, 143, 152T, 161, 163, 168, H Ec 131, La R 117, Psych 171

#### *Environmental Health Science Option*

H S 152T, 161, 162, 163, 165, 168, 169

*Registration as a Sanitarian:* Students who desire to take the *State Examination for Registration as a Sanitarian* must complete H S 152T, 185F, Ent 107, F Sci 170, and must include among their electives and general education selections the following courses: Biol 10, 105, Micro 20, 21, Chem 2A-B, Phys 2A-B, Math 71, Anth 2, Soc 1, Engl 1, and Spch 3. Consult the departmental adviser concerning substitutions and additions. (Accredited by the State Department of Health.)

#### *Occupational Safety and Health Option*

H S 113, 143, 168, 169, M E 11, 11L, I E 110, 116, 118, 120, Engr 26, 160, 161

Students who desire to meet the American Society of Safety Engineers and Department of Health, Education and Welfare registration requirements for the Safety Engineer must complete among their electives and general education selections the following courses: B A 8, 18, Fin 143, Mgt 110A, Engr 70, Engl 1, Biol 10, 105, Phy 22, Chem 2A, 2C, Math 70, Phys 2A-B, Psych 176, H S 90, 152T, Ind A 133, 162, Econ 1A, and Spch 3.

Field assignments may be required for which students are expected to defray travel and personal expenses.

### HEALTH SCIENCE MINOR

The minor in health science consists of 20 units composed of the health science core requirement and 5 units from the courses required in any one option. Consult the department adviser for assistance in program planning.

### MASTER OF SCIENCE DEGREE

The graduate program leading to the master of science degree in health science is based on undergraduate preparation in health science and/or related fields. For specific requirements consult the department graduate adviser; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

\* Students completing the occupational safety and health option may substitute I E 110 for H S 102 in the required core.

**CREDENTIAL PROGRAMS**

For information on the current credential programs consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

**The Standard Designated Subjects Teaching Credential With Specialization in Public Safety and Accident Prevention Including Driver Education and Driver Training**

This credential authorizes the holder to teach public safety and accident prevention, including driver education and driver training, at all grade levels and in classes for adults. Candidates for this credential, on the basis of college recommendation, must have a bachelor's degree; a valid California driver's license and satisfactory driving record; admission to the credential program and 12 semester units composed of the following courses: H S 105, 113, 141, 205. For further information, consult the department adviser.

**COURSES****HEALTH SCIENCE (H S)****90. Health Science (3)**

Meets general education requirements. Significance of basic health problems applicable to the young adult and to society. Field assignments may be required.

**100. Community Health (3) (Former H S 157)**

Public health services as they affect the community; investigation and analysis of community health problems. Field assignments may be required.

**102. Public Health Statistics (3) (Former H S 158)**

Public health statistics and principles of epidemiology; methods of investigating epidemics, collecting of data, analysis and reports. Field assignments may be required.

**104. International Health (3) (Former H S 140)**

History and evaluation of programs of international health organizations; health problems on a world scale. Field assignments may be required.

**105. Environmental Safety (3)**

The physical environment as it relates to accidents and safety; investigation and analysis of factors involved in the areas of home, school, industry, recreation, and traffic; human factors; accidents by type, age groups, and occupations. Field assignments may be required.

**109. Epidemiology of Disease (3) (Former H S 155)**

Prerequisite: H S 102 or permission of instructor. Modern concepts and principles of epidemiology; interaction of all agents, host, and environmental factors of communicable and noncommunicable diseases; problems of the aged. Field assignments may be required.

**110. Habit Forming Substances (3)**

Problems of tobacco, depressants, and stimulants including hallucinogens; use and effects on adolescents and adults. Field assignments may be required.

**113. Advanced First Aid and Emergency Care (3) (Former H S 103)**

American Red Cross Advanced First Aid and Emergency Care course; safety factors in daily living; disaster preparedness programs, emergency care including closed chest heart massage, artificial respiration and emergency childbirth instruction. Certificates issued when requirements are met. Field assignments may be required.

**120. Introduction to School Health Science Education (3)**

Designed for the teacher credential candidate (non-health science major) to meet current California legislative requirements. Focus upon the methods, processes, and content used in teaching health science. Student evaluation based on expected competencies in a continuous progress modular format. Field assignments may be required.

**123. School Health Programs (3)**

Health science in the public school curriculum, with emphasis on current health problems; the determining factors in teaching content; school health programs. Field assignments may be required.

**124. Human Sexuality (3) (Former H S 180)**

Factors relating to the significance of sexuality as a function of being human. Field assignments may be required.

**126. Female Sexuality (3) (Former EXP 150) (Same as W S 127)**

Studies on female sexuality which include past and present sexual roles, female sexual response patterns, and discussion of common problems encountered by women functioning as sexual beings. Field assignments may be required.

**129. Rural Health (3) (Former H S 130)**

Health problems of rural areas including community medical services, medical facilities, federal, state, and local legislation and administrative problems. Field assignments may be required.

**141. Driver and Traffic Safety Education (3) (Former H S 170)**

Prerequisite: H S 105, senior standing, valid California driver's license. Materials, equipment, and procedures for driver education and training including training with simulators. Field assignments may be required. (2 lecture, 2 lab hours)

**143. Occupational and Industrial Safety (3) (Former H S 106)**

Application of safety and accident prevention measures that provide a basis for insight into the hazards of occupational and industrial situations. Field assignments may be required.

**152T. Topics in Health (1-3; max total 12)**

Analysis and investigation of selected areas in environmental health, public health, and health and safety.

**161. Environmental Health I (3)**

Basic principles and concepts of environmental health with a particular emphasis on health hazards. Environmental health organizations; communicable disease and environment; contamination control, water, air, solid waste, and noise. Field assignments may be required.

**162. Environmental Health II (3)**

Basic principles and concepts of environmental health with a particular emphasis on health hazards. Radiation, food, rodent control, managing special environments, planned environments, value systems, and community organizations. Field assignments may be required.

**163. Public Health Administration (3)**

Principles of public health administration; fundamentals of organization and administration in public health. Field assignments may be required.

**165. Directed Group Study in Environmental Health (3)**

Prerequisite: H S 161, 162 or permission of instructor. Problems of environmental health studied through field trips, observations, demonstrations, and seminars. (2 lecture, 2 lab hours)

**168. Occupational and Industrial Health (3) (Former H S 107)**

Prerequisite: H S 161 or 162, or permission of instructor. Concepts of occupational health as they pertain to appraising and controlling environmental health hazards; occupational diseases, chemical, biological, and physical agents that produce organic or systemic damage. Problems in toxicology, measurement instruments, and evaluating health hazards. Field assignments may be required.

**169. Radiological Health and Safety (3) (Former H S 108)**

Problems with ionizing radiation in the work environment. Biological effects of exposure, radiation monitoring, data interpretation, and radiation protection. Field assignments may be required.

**185F. Field Work in Health (1-3; max see below)**

Repeatable to 3 units in any one area, maximum total 6. Prerequisite: permission of instructor. To be taken concurrently with appropriate course.

**190. Independent Study (1–3; max see reference.)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**203. Seminar in Community Health Organization (3) (Former H S 257)**

Prerequisite: H S 100 and 123. Individual research, analysis, and evaluation in relation to educational aspects of community health programs; group procedures; community organizations; selection, development, and use of media. Field assignments are required.

**205. Seminar in Safety Problems and Programs (3)**

Prerequisite: H S 105. Development, organization, and administration of safety programs; individual research, analysis, and evaluation of pertinent problems. Field assignments are required.

**210. Seminar in Administration of the Health Science Program (3)**

Prerequisite: H S 123 or permission of instructor. Individual research, analysis, and evaluation of the organization, administration, and legal aspects of the health science program. Field assignments are required.

**220. Seminar in Physical Handicaps (3)**

Prerequisite: H S 123. Individual research, analysis, and evaluation of the cause, treatment, and educational implication of crippling conditions, including cerebral palsy of preschool and school-age children; rehabilitation and adjustment problems. Field assignments are required.

**222T. Seminar in School and Community Health (1–3; max total 15) (Former H S 234T)**

Individual research, analysis, and evaluation of current topics in school health education and community health education programs such as family life education, consumer health problems, substance abuse, and chronic disease. Field assignments may be required.

**223. Seminar in Health Science Education (3)**

Prerequisite: H S 123; teaching experience or permission of instructor. Individual research, critical analysis and evaluation of the health science program; curriculum materials, and special techniques relating to instruction, services, and environment. Field assignments are required.

**262T. Seminar in Environmental Health (1–3; max total 15) (Former H S 230T)**

Individual research, analysis, and evaluation of current topics: air, water, housing, vector control and other selected environmental health problems. Field assignments may be required.

**280. Seminar in Techniques of Health Research (3)**

Research methodology, identification of health research problems, use of library resources, data gathering and processing, writing a research report.

**285F. Field Work in Health (1–2; max total 10)**

Topics repeatable to 2 units in any one area, maximum 10. Planning, implementation, participation, evaluation in selected areas: safety, school health, community health, physical handicaps, occupational health, and environmental health.

**290. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**298. Directed Research (4)**

Prerequisite: advancement to candidacy for MS degree in health science. Individual research projects in health science; weekly independent and group conferences.

**299. Thesis or project (2–4; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**302. Selected Topics in Health (1-3)**

## NURSING DEPARTMENT

### FACULTY

Shirley R. Good, *Department Chairwoman*

Sandra C. Aspen ■ Carol L. Avent ■ Carol A. Bedrosian ■ John Bergey ■ Tsai Yu Lillian Chang ■ Martha A. Davis ■ Arlene C. Evans ■ Frances F. Farrell ■ Fannie L. Gardner ■ Eleanore R. Greene ■ M. Ursula Guthormsen ■ Marie N. Haddad ■ Julia A. Hansen ■ Helen J. Huillier ■ Evelyn M. Husson ■ Margaret T. Johnson ■ Dolores J. Kindell ■ Fred C. Krell ■ Myrthel S. Nelson ■ Karen H. Nishio ■ Mary G. Patterson ■ Emperatriz N. Rabago ■ Ellen L. Rosen ■ Ming Be Sia ■ Dorothy C. Sommer ■ Eva L. Steffes ■ Diane E. Stephen ■ Eleanor M. Stittich ■ Margaret C. Thorburn ■ Norma S. Tigerman ■ Monnette C. Viau ■ Marie R. Welch

The Nursing Department offers a bachelor of science degree program with a major in nursing. The graduate will be eligible to take the examination required by the California State Board of Nursing Education and Nurse Registration for licensure to practice as a registered nurse. The program qualifies the graduate for the California certificate in public health nursing and provides a foundation for graduate study. It also provides an opportunity for the registered nurse to fulfill the requirements for the bachelor of science degree in nursing. At the graduate level the department offers a master of science degree in nursing. Both the baccalaureate and master's degree programs are accredited by the National League for Nursing and the California State Board of Nursing Education and Nurse Registration.

### COOPERATING HOSPITALS AND AGENCIES

The Nursing Department utilizes the resources of Clovis Memorial Hospital, Fresno Community Hospital, Sierra Hospital, St. Agnes Hospital, Valley Children's Hospital, Veteran's Administration Hospital, Kings View Community Mental Health Center, Valley Medical Center, Fresno County Health Department, Tulare County Health Department, Madera County Health Department, and Kings County Health Department. These facilities are used for clinical nursing laboratory experience.

### BACHELOR OF SCIENCE DEGREE WITH MAJOR IN NURSING

The bachelor of science degree curriculum in nursing consists of 130 units, 60 of which are in the nursing major.

An application for admission to the university must be completed to determine the student's eligibility for admission to the institution. A separate nursing application must be submitted to the Department of Nursing during (or after) the semester in which the student completes the science prerequisites to the major (Chemistry 2A and C and Physiology 22 and 23 or equivalent courses). Applications to the major will be screened by the Department of Nursing Student Affairs Committee during the semester preceding that in which the student plans to enter the major. Students are admitted Fall and Spring semesters.

Particular attention will be given to the following admissions criteria. The science prerequisites must be completed with a minimum grade of C in each course. High school and college transcripts must be submitted (optional for transfer students with 56 or more units, but recommended for review). Specific health criteria must be met. Recommended foundation courses are high school chemistry, algebra 1 and 2, college mathematics, English courses, and foreign language. (Meeting the above criteria does not guarantee acceptance into the major.)

A student transferring from a community college who meets the criteria will be considered on the same basis as a CSUF student applying for admission to the major.

Criteria for retention and progression in the program include a minimum grade of C in each nursing course and all courses required by the major. A 3.0 GPA is required to take two clinical courses in the same semester. Refer to the department for complete admission, progression, and retention policy.

Students must carry malpractice insurance and must provide for their transportation for clinical experiences. They are requested to carry 15 or more units while in the nursing major. Completion of requirements for the nursing major may take more than four years. For application form and further information write to the Department of Nursing, California State University, Fresno, including a self-addressed legal-size envelope with all correspondence.

**NURSING MAJOR***Units*

Nurs 17, 17L, 27, 27L, 36.....	15
Nurs 109, 109L, 110, 110L, 114, 119, 119L, 124, 124L, 125, 129, 129L, 145.....	39
Nursing Electives .....	6
	<b>60</b>

*Additional Requirements:* Micro 20 and 21; H Ec 52 or 54 or 154; Psych 101 or H Ec 39; Chem 2A and C; Phy 22 and 23; Spch 3 or 7 or 8, or Drama 22; Engl 1 or 20; Psych 10 or 60T; Soc 1 or 2, or Anth 2. Psych 25 recommended.

**PLACEMENT EXAMINATIONS**

Registered nurses, licensed vocational nurses, psychiatric technicians, medical technicians and others with previous nursing education and practice, who have been admitted to the nursing major through the department admission procedure, will be required to take placement examination(s) to determine nursing subject matter competency and course equivalencies. CSUF credit toward the BS in Nursing may be awarded on the successful completion of the examination(s) providing no previous academic credit has been awarded for the subject matter covered in the examination(s).

Maximum of 30 units through credit by examination may be applied toward the baccalaureate degree.

Students with transfer nursing credit who pass the placement examination(s) will not receive double credit but equivalent CSUF courses will be waived and the student will be placed at the appropriate level in the nursing course sequence.

Students with transfer nursing credit who fail the placement examination(s) will be required to take the corresponding course(s) at CSUF, and they will receive credit for the CSUF course(s) in the major and the transferred course(s) as an elective(s).

**HEALTH SERVICES CREDENTIAL AUTHORIZING SERVICES AS A SCHOOL NURSE**

The Nursing Department offers a program to prepare the registered nurse with a baccalaureate degree to meet the state requirements for the Health Services Credential Authorizing Services as a School Nurse. For further information consult the department adviser.

**MASTER OF SCIENCE DEGREE**

The master of science degree in nursing is designed to prepare teachers, supervisor-administrators, and clinical nursing specialists in the areas of medical-surgical, community mental health, and community health nursing. Applicants must have completed an undergraduate program substantially the equivalent of the undergraduate program in nursing at CSU, Fresno. A minimum of thirty units is required, of which at least 15 must be in core courses and 12 in the field of concentration. The remaining units are selected in related fields. For specific requirements consult the departmental adviser; for general requirements see *School of Graduate Studies*.

**COURSES****NURSING (Nurs)****17. Introduction to Nursing Theory (3) (Former Nurs 16)**

Prerequisite: admission to the nursing major. Chem 2A-C, Phy 22, 23, Nurs 17L concurrently. Recommended: first aid and general mathematics. Introduction to basic nursing principles to meet needs of patients.

**17L. Introduction to Nursing Process (3) (Former Nurs 16)**

Prerequisite: Nurs 17 concurrently. Orientation to problems and practices in professional nursing through laboratory assignments. (9 lab hours)

**27. Medical-Surgical Nursing I (3) (Former Nurs 26)**

Prerequisite: Nurs 17, 17L, H Ec 52 or 54 or 154, Micro 20, 21 (or concurrently), Nurs 27L concurrently. Basic concepts essential to medical-surgical nursing; care of the patient and family.

**27L. Medical-Surgical Nursing I Laboratory (3) (Former Nurs 26)**

Prerequisite: Nurs 27 concurrently. Laboratory experience emphasizing patient-centered approach to nursing care of medical-surgical patients. (9 lab hours)

**36. Historic and Legal Influences in Nursing (3) (Former Nurs 35, 116)**

Strategic influences of historical, social, political, religious, and scientific movements in nursing.

**80T. Topics in Nursing (1-3; max total 12 if no topic repeated) (See Nurs 180T)**

**109. Maternal Nursing (3) (Former Nurs 111)**

Prerequisite: Nurs 27, 27L, H Ec 39 or Psych 101 (or permission of instructor), Nurs 109L concurrently. Concepts of family-centered maternity nursing; focus upon needs of the family and their adaptations during child-bearing cycle and neonatal period.

**109L. Maternal Nursing Laboratory (3) (Former Nurs 111)**

Prerequisite: Nurs 109 concurrently. Laboratory experience to acquire skills and judgment in applying concepts of family-centered maternity nursing. (9 lab hours)

**110. Nursing of Children (3) (Former Nurs 112)**

Prerequisite: Nurs 27, 27L, Psych 101 or H Ec 39 (or permission of instructor); Nurs 110L concurrently. Theoretical aspects of nursing care of children including health maintenance, common illnesses, the relationship of illness to growth and development, and family relationships.

**110L. Nursing of Children Laboratory (3) (Former Nurs 112)**

Prerequisite: Nurs 110 concurrently. Laboratory experience with children at various points in the health-illness continuum. (9 lab hours)

**114. Public Health Science (3)**

Trends in public health administration, organization, functions; national, state, local, public, voluntary agencies; interpretation and use of vital statistics; environmental health and epidemiology.

**119. Psychiatric Nursing (3) (Former Nurs 120)**

Prerequisite: Nurs 17, 17L, Psych 101 or H Ec 39 (or permission of instructor), Nurs 119L concurrently. Mental disorders, the psychoses and psychoneuroses; causes, prevention, treatment, and total nursing care; social problems involved in modern concepts of mental illness.

**119L. Psychiatric Nursing Laboratory (3) (Former Nurs 120)**

Prerequisite: Nurs 119 concurrently. Guided laboratory experience in providing nursing care for individuals who have emotional and behavioral disorders in a variety of treatment settings. (9 lab hours)

**124. Medical-Surgical Nursing II (3) (Former Nurs 126)**

Prerequisite: Nurs 109, 109L, 110, 110L, 119, 119L; Nurs 124L concurrently. Total patient care utilizing a problem-solving approach.

**124L. Medical-Surgical Nursing II Laboratory (3) (Former Nurs 126)**

Prerequisite: Nurs 124 concurrently. Laboratory experience in planning and directing nursing care for individuals and groups of patients. (9 lab hours)

**125. Seminar in Nursing (3)**

Prerequisite: Nurs 27, 27L. Basic concepts of research as it relates to reading nursing studies; understanding problem-solving techniques.

**129. Community Health Nursing (3) (Former Nurs 130)**

Prerequisite: Nurs 109, 109L, 110, 110L, 114, 119, 119L; Nurs 129L concurrently. Preparation to meet the needs of individuals and groups for health promotion, health maintenance, and disease prevention in the home.

**129L. Community Health Nursing Laboratory (3) (Former Nurs 130)**

Prerequisite: Nurs 129 concurrently. Field experiences selected from a variety of community agencies to provide a basic structure to help the student implement nursing skills and extend knowledge to individuals and groups in a community setting, and in the home. (9 lab hours)

**140. Disaster Nursing (3)**

Responsibilities and functions of a professional nurse in common emergencies and mass disaster.

**145. Principles of Nursing Administration (3)**

Prerequisite: Nurs 109, 109L, 110, 110L, 119, 119L. Principles of nursing service administration; interpersonal relationships; team concept; leadership roles.

**180T. Topics in Nursing (1–3 units; max total 12 if no topic repeated)**

Prerequisite: permission of instructor. Selected topics include pharmacology, physical assessment, aging, communication skills, etc.

**190. Independent Study. (1–3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**210. Seminar in Nursing (3)**

Review and critical analysis of current developments in nursing.

**221. Seminar in Nursing Research (3)**

Application of general techniques of research methodology to specific problems in nursing.

**245T. Seminar in Clinical Nursing (3; max total 6)**

Synthesis and application of knowledge pertinent to clinical specialization in nursing.

**247. Seminar in Nursing Administration (3)**

Synthesis and application of knowledge which will enable nurses to organize, administer, supervise, and evaluate nursing services.

**249. Seminar in Nursing Education (3)**

Philosophical and conceptual foundation for teaching in schools of nursing and nursing service organizations.

**250T. Practicum in Clinical Nursing (3; max total 9)**

Prerequisite: permission of instructor. Assignment for field experience to a variety of local health agencies.

**251. Practicum in Nursing Administration (3; max total 6)**

Prerequisite: Nurs 247 or permission of instructor. Application of principles of administration to introductory and advanced field practice. Study of specific administrative problems is required.

**252. Practicum in Nursing Education (3; max total 6)**

Prerequisite: Nurs 249 or permission of instructor. Assignment for field experience to local departments, schools of nursing, or inservice programs in nursing.

**290. Independent Study (1–3; max total 3)**

See *General Information—Independent Study*.

**299. Project or Thesis (2–4; max total 4)**

Prerequisite: See *Master's Degree—Thesis Requirement*. Preparation, completion, and submission of an acceptable project or thesis for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**302T. Selected Topics in Nursing (1–6; repeatable with different topics)**

## PHYSICAL THERAPY PROGRAM

### FACULTY

E. Joan Turnquist, *Coordinator*

Helen G. James ■ Darlene L. Stewart

The Physical Therapy Program leads to a bachelor of science degree with a major in physical therapy. The program prepares students for professional careers in hospitals, schools for crippled children, clinics, and other facilities where physical therapists are needed. It is accredited by the AMA Council on Medical Education in collaboration with the American Physical Therapy Association. It is a four-year curriculum, plus a clinical internship at the end of the last year.

An application for admission to the University must be completed to determine the student's eligibility. A separate application must be submitted to the Physical Therapy Program on or before February 1 of the year the student wishes to enter the program. All required prerequisites must be completed prior to entering the major. A very limited number of students are admitted to the program each fall. Applications to the Physical Therapy Program will be screened during the spring semester.

The following admissions criteria will be reviewed by the screening committee.

- (1) Completion of the required units as listed below.
- (2) A grade of B or better in each of the required courses.
- (3) Specific health criteria based on a physical examination.
- (4) Completion of 60 units including all University requirements.
- (5) Evidence of knowledge of physical therapy through employment, volunteering or observation in a physical therapy department for a minimum of 15 hours.
- (6) Evidence of knowledge of content of the prerequisite courses by passing a written comprehensive examination.
- (7) Participate in a personal interview.

Recommended foundation courses are high school chemistry, physics, algebra, geometry and biology.

Meeting the above criteria does not guarantee acceptance into the major.

Students transferring from community colleges and other colleges or universities who meet the above criteria will be considered on the same basis as California State University, Fresno, students applying for admission to the major.

Criteria for retention and progression in the program include a grade of C or better in each physical therapy course and completion of all courses in the major.

Students must carry malpractice insurance and must provide their own transportation to hospitals and clinics for off campus classes and clinical laboratories. Students must also provide for all expenses while taking the clinical internship at the end of the senior year. For supplemental application form write to the Physical Therapy Program, California State University, Fresno, Fresno, California 93740 and include a self-addressed legal size envelope for requested return information.

### COOPERATING INSTITUTIONS

The resources of institutions including Fresno Community Hospital, Valley Medical Center of Fresno, Saint Agnes Hospital, Sierra Hospital, U.S. Veterans Administration Hospital, and other hospitals and clinics throughout the State will be utilized to provide clinical laboratory experience. In addition, schools within the Fresno City Unified District, Fresno County Schools, and other agencies which deal with the physically handicapped will be involved. As the programs expand, additional resources will be used.

**BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN PHYSICAL THERAPY**

The bachelor of science degree curriculum in physical therapy consists of 132 units of which 66 are in the physical therapy major.

	<i>Units</i>
Ph Th 50, 100, 115, 116, 120, 121, 122, 123, 130, 131, 132, 133, 143, 151, 152, 153, 155, 175	58
Phy 155, 160 .....	8
<i>Prerequisite requirements</i> (Prephysical Therapy Preparation)	
Chem 2A-B, Psych 10, Zool 10, Phy 22, 23, Phys 1A, Psych 166, Micro 20, HEc 39 .....	32
<i>Recommended Courses</i>	
Engl 20, Soc 1, Spch 3, Psych 101, Math 40 or 51, CD 100 .....	19
<i>Other Electives</i> .....	15
	132

**COURSES**

**PHYSICAL THERAPY (Ph Th)**

**50. Introduction to Medical Terminology (1)**

Required for Physical Therapy majors. May be taken concurrently with Ph Th 100. Introduction to common medical conditions and terminology by anatomical systems.

**100. Principles in the Practice of Physical Therapy (2)**

Prerequisite: Ph Th 50 or concurrent. Introduction to the profession; role of the physical therapist in helping the patient who suffers from disabilities. Investigation and discussion of basic concepts, code of ethics, and governing bodies of the physical therapy profession.

**115. Applied Anatomy and Kinesiology (5)**

Prerequisite: Physiology 22, 23, or permission of instructor. Mechanical laws and movement of the locomotor system of the human body as applied to the advanced anatomical study of the skeletal, circulatory, neuromuscular and respiratory systems with special emphasis on the skeletal and upper and lower extremities. (3 lecture, 6 dissection lab hours)

**116. Advanced Applied Anatomy and Kinesiology (5)**

Prerequisite: Ph Th 115 or permission of instructor. Mechanical laws and movements of the locomotor system of the human body applied to the advanced anatomical study of the skeletal, circulatory, neuromuscular, and respiratory systems of the trunk. (3 lecture, 6 dissection lab hours)

**120. Procedures in Physical Therapy I (4)**

Principles and clinical application of hydrotherapy, cryotherapy, radiant heat, electrotherapy, and massage: rationale and techniques to restore function. Lecture, demonstration, and student practice in application of modalities used in physical therapy. (2 lecture, 6 lab hours)

**121. Procedures in Physical Therapy II (4)**

Prerequisite: Ph Th 120. Introduction to the theory and practice of exercise as it relates to posture, muscle reeducation, coordination, stretching, ambulation, strengthening, and special routines. (2 lecture, 6 lab hours)

**122. Procedures in Physical Therapy III (4)**

Prerequisite: Ph Th 121. Principles and techniques of range of motion, joint measurements and muscle testing as it applies to evaluation for treatment planning. (2 lecture, 6 lab hours)

**123. Procedures in Physical Therapy IV (3)**

Prerequisite: Ph Th 122. Presentation of special exercise techniques as related to specific medical disease entities including neuromuscular facilitation, Bobath method, sensory-motor perception, and respiration. (2 lecture, 3 lab hours)

**130. Medical Science I (3)**

Prerequisite: Ph Th 115 or permission of instructor. Presentation of pathology and medical-surgical management of common orthopedic conditions and physical therapy procedures for the rehabilitation of patients with these conditions.

**131. Medical Science II (3)**

Prerequisite: Ph Th 130 or permission of instructor. Presentation of pathology and medical-surgical management of common disorders of the vascular, respiratory, endocrine and digestive systems to include the application of physical therapy procedures for treatment and restoration of function.

**132. Medical Science III (3)**

Prerequisite: Ph Th 131 or permission of instructor. Presentation of pathology and medical-surgical management of common disorders of the central nervous systems, introduction to common psychiatric disorders, psychosomatic implications and special problems of children.

**133. Physical Medicine and Rehabilitation (3)**

Prerequisite: Ph Th 121 or permission of instructor. Techniques of rehabilitating patients in a clinical setting through lectures, demonstrations, conferences, ward rounds.

**143. Administration and Supervision (3)**

Prerequisite: Ph Th 100. Techniques of supervision and management of a physical therapy department including planning a new physical therapy department, carrying personnel policies, developing a budget, purchasing equipment, and filling out governmental and insurance forms.

**151. Clinical Laboratory (1) (Former Ph Th 170B)**

Prerequisite: Ph Th 120. Clinical participation under supervision of a registered physical therapist in local hospitals and clinics.

**152. Intermediate Clinical Laboratory (2) (Former Ph Th 170C)**

Prerequisite: Ph Th 121, 151. Clinical practice of the techniques learned in Ph Th 120 and 121. Observation of outpatient clinics relating to the practice of physical therapy.

**153. Advanced Clinical Laboratory (2) (Former Ph Th 170D)**

Prerequisite: Ph Th 122, 152. Clinical practice of techniques learned in Ph Th 120, 121, and 122. Clinical observation.

**155. Emotional Problems of the Physically Handicapped (2) (Former Ph Th 111)**

Prerequisite: Psych 10, Ph Th 151 and 152. An understanding of emotional problems of the Physically Handicapped.

**175. Clinical Internship in Physical Therapy (8) (Former Ph Th 175A-B)**

Summer offering only as final experience for majors. Prerequisite: Ph Th 153. Integrated application of professional practice demonstrating achievement of the behavioral objectives of the program in selected hospitals and clinics throughout California.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

## REHABILITATION COUNSELING PROGRAM

### FACULTY

Joseph L. Townsend, *Coordinator*

Don L. Goodyear ■ Everett W. Stude

The graduate program in rehabilitation counseling prepares prospective rehabilitation counselors for employment in State and federal vocational rehabilitation programs, public, and private agencies. These include rehabilitation units in mental hospitals, correctional institutions, public schools, rehabilitation agencies and centers, sheltered workshops, adjustment centers, social service agencies, and other organizations serving persons who are mentally, emotionally, socially, or physically handicapped for employment. The program also provides advanced training for persons presently employed in agencies and facilities offering services to handicapped individuals.

Emphasis is placed upon professional education for developing the skills and knowledge necessary for effective rehabilitation counseling of handicapped persons. The variety of activities performed by rehabilitation counselors necessitates a program highly diversified in character and interdisciplinary in nature. In addition to the development of a broad understanding of human behavior, techniques of individual and group counseling, interprofessional relations, vocational appraisal and adjustment, and use of community resources in facilitating rehabilitation of mentally, emotionally, socially, and physically handicapped persons are stressed.

The graduate program of study leads to the degree of master of arts in rehabilitation counseling. The program meets the professional employment requirements of state and federal rehabilitation programs throughout the United States. No teaching credential is required or awarded upon completion of the program.

### INTERNSHIP

The internship in rehabilitation counseling is required of all students who have had no previous rehabilitation agency experience. In addition, observation of and participation in clinical procedures with selected clients is an integral part of the academic course content. The internship provides an opportunity for students to develop techniques and skills in connection with the total rehabilitation process. It gives students an opportunity for application of theory in the practice of rehabilitation counseling and case management in a rehabilitation setting. The internship is provided under the direction of the rehabilitation counseling program and the immediate supervision of qualified personnel in approved and cooperating rehabilitation agencies or facilities. Enrollment in the internship constitutes full-time study for the semester and is permitted for only those students who have demonstrated their readiness to undertake the experience.

### COOPERATING INSTITUTIONS

Rehabilitation facilities and agencies throughout California participate in the rehabilitation counseling program by providing field experience and observation. These include offices of the California Department of Rehabilitation, Multi-Service Center, Goodwill Industries of America, Fresno Community Hospital, and Kelso School and Activity Center. Other agencies are added as relationships are established. Other cooperating agencies include out-of-state rehabilitation programs that have demonstrated effective and innovative approaches to the rehabilitation of the disabled.

### MASTER OF ARTS DEGREE

The master of arts degree prepares rehabilitation counselors for a wide variety of positions in both public and private agencies. A working knowledge of the behavioral sciences, physiology, and elementary statistics is utilized as the foundation for academic study. Admission to classified standing in the program requires basic courses in psychology and/or counseling. The degree program requires 60 units covering two years of full-time course work, including a full semester of internship. The required core consists of a minimum of 28 units of rehabilitation counseling courses. Elective courses may be selected from a number of study areas; at least 18 units must be in 200 series courses. They may be selected from the following areas: advanced studies, counseling, criminology, home economics, psychology; social welfare, social work, special education, and communicative disorders. Although a

thesis is not required, the student must demonstrate proficiency by the satisfactory completion of a comprehensive examination and fulfillment of all other degree requirements: See *Graduate Bulletin*.

#### **GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

#### **REHABILITATION COUNSELING (R C)**

##### **201. Seminar in Rehabilitation Counseling (3)**

The fundamental concepts of rehabilitation counseling and vocational rehabilitation including examination and analysis of historical, philosophical, organizational and functional principles. Community rehabilitation agency or orientation visits.

##### **211. Medical Aspects of Disability (3)**

Seminar in the treatment of disabling conditions including etiology, functional limitations, and vocational implications. Student presentation of case studies.

##### **212. Psychological and Social Aspects of Disability (3)**

Seminar in psychological and sociological effects of physical and mental disability and the dynamics of adjusting to disabling conditions. Student presentation of case studies.

##### **221. Vocational Rehabilitation Counseling and Placement (4)**

Prerequisites: RC 201, 211. Seminar in vocational diagnosis and evaluation, counseling techniques, job development, placement techniques and follow-up procedures as they relate to employment and vocational adjustment of the disabled. Field placement in a community rehabilitation agency. (2 class hours, 6 lab hours)

##### **251T. Seminar in Special Problems (3; max total 6)**

Prerequisites: RC 201, 211, 212, 221 or permission of instructor. Topics rotated each semester to include subjects such as principles and techniques of supervision and administrative duties, rehabilitation program evaluation, sheltered workshop administration, rehabilitation research, current issues in rehabilitation counseling as a profession.

##### **290. Independent Study (1-3; max see reference)**

See *Regulations and Procedures—Independent Study*.

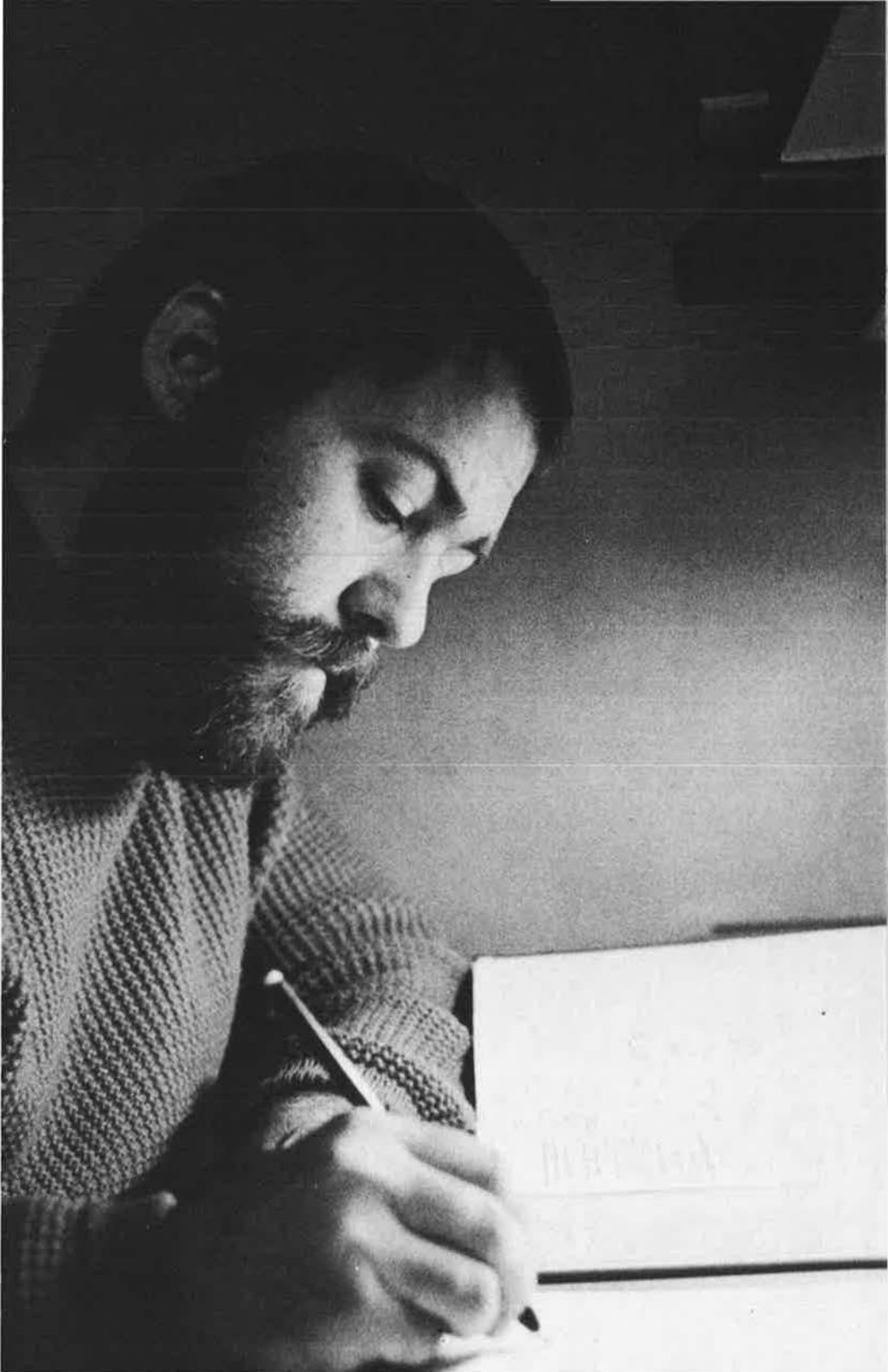
##### **296. Internship in Rehabilitation Counseling (12)**

Prerequisites: RC 201, 211, 212, 221, 251T, permission of instructor. Full-time, supervised field placement in one of a variety of settings including case responsibilities.

##### **299. Thesis or Project (2-6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.





**SCHOOL OF HUMANITIES**

Art Department

English Department

Foreign Language Department

Linguistics Department

Philosophy Department



## SCHOOL OF HUMANITIES

Joseph Satin, Dean

### *Department*

Art .....	Frank B. Laury
English.....	Robert S. Billings
Foreign Language .....	Jose A. Elgorriaga
Linguistics.....	P. J. Mistry
Philosophy .....	Warren Kessler

### *Chairmen*

Opportunities in the School of Humanities exist for students who wish to major or minor in any of the five departments, or who desire to take courses in any of the disciplines to meet general education requirements. The courses designed for general education treat their subject matter from a substantive point of view so that an understanding of the course content contributes to the understanding of the problems of an individual as well as the modern world.

The curriculum for each of the departments consists of introductory and developmental courses on the lower division level and a series of upper division courses for each area of study. Upper division work is designed primarily to meet the needs of students with a major or minor in one of the departments of the school and graduate students. Each department except Philosophy offers a master of arts degree program. The Linguistics Department offers both bachelor of arts and master of arts degree programs in bilingual studies. The Philosophy Department offers an option in religious studies under its major for the bachelor of arts degree. For specific information concerning courses that meet requirements for general education, teaching credentials, and degree programs, consult the chairman of the department of the area of interest.

## ART DEPARTMENT

### FACULTY

Frank B. Laury, *Department Chairman*

Joyce B. Aiken ■ Terrence L. Allen ■ Lawrence L. Anderson ■ Francisco G. Barrio ■ Allen E. Bertoldi ■ David J. Dangelo ■ Richard W. Delaney ■ Ara H. Dolarian ■ Charles F. Gaines ■ Susan L. Herman ■ Thomas J. Jacoby ■ Heinz N. Kusel ■ Norman H. Lockwood ■ Edward O. Lund, Jr. ■ Mary L. Maughelli ■ Thomas McDougall ■ William E. Minschew, Jr. ■ S. Michael Opper ■ Ernest Palomino ■ Raphael X. Reichert ■ Sharon K. Shore ■ R. Gayle Smalley ■ Gina Strumwasser ■ Gene L. Thompson ■ Wesley M. Williams

The Art Department offers a major in art which leads to a bachelor's degree and a program leading to the master's degree. The program for students majoring or minoring in art is designed to provide a liberal arts education and is not directed toward providing terminal vocational or professional training at the undergraduate level.

The department reserves the right to hold projects completed by a student for class credit for a period of three years and to retain for the permanent collection of its gallery such examples as may be selected.

The department cooperates with other departments in providing for courses in Asian Studies. (See *Special Programs—Asian Area Courses*)

### ART MAJOR

The major in art for the bachelor of arts degree provides for the study of art in practice, history, and theory. The major consists of 39 upper division units in art, at least 6 of which must be in art history and 6 in one studio area.

Students will propose a program which is appropriate to their needs and interests in consultation with an adviser. The areas of concentration offered by the Art Department include, but are not limited to: drawing, painting, ceramics, sculpture, photography, design, crafts, printmaking, and art history.

### ART MINOR

The minor in art consists of 24 upper division art units (at least 3 of which must be in art history). The student will propose a program in consultation with an Art Department adviser.

### CREDENTIAL PROGRAM

For information on the current credential program consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in art is based upon the equivalent of the undergraduate major in art at CSU, Fresno. The program provides specifically for certain nonvocational areas of concentration: photography, crafts, design, drawing, painting, ceramics, sculpture, art history, and theory. For specific requirements consult the chairman of the departmental graduate committee; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

## COURSES

### ART

Note: Students may be expected to purchase supplementary materials for use in laboratory and activity classes.

Lower division studio courses may be repeated for credit.

#### 1. Art Forms (3)

Description and investigation of traditional and contemporary art forms.

**5. History of Art I (3) (Former Art 119)**

Western art forms from prehistory to the 13th century including Egypt, Mesopotamia, Greece, Rome, Medieval, Romanesque and Gothic.

**6. History of Art II (3) (Former Art 119)**

Western art from the 13th to the 19th century, including Renaissance, Baroque and Rococo.

**12. Ceramics (3)**

A survey of ceramic materials and their functions in the arts. Basic studio practices in the handbuilding processes, glazing, and throwing on the potter's wheel. \$10 fee. (6 lecture-lab hours)

**15. Drawing (3)**

Introductory course in drawing concepts, materials and techniques. (6 lecture-lab hours)

**16. Figure Drawing (3)**

Introductory course in the basic concepts of figure drawing problems and techniques. (6 lecture-lab hours)

**20T. Studio Processes (1-3)**

Specific studio processes not normally covered in regular course offerings. Areas offered may be: drawing, painting, ceramics, sculpture, photography, printmaking, design, crafts. (6 lecture-lab hours)

**25. Painting (3)**

Introduction to painting processes through studio problems and critiques. (6 lecture-lab hours)

**30. Philosophies of the Visual Arts (3)**

Visual representation of past and present art movements.

**41. Design: Interaction of Color (3)**

Interaction of color as developed by Joseph Albers; basic design principles in connection with color work. (6 lecture-lab hours)

**46. Design (3)**

Exploration of basic art concepts through two- and three-dimensional design problems. (6 lecture-lab hours)

**51. Sculpture I (3)**

Introductory course in materials and concepts. (6 lecture-lab hours)

**56. Printmaking (3)**

Introductory experience in the basic graphic processes such as woodblock, etching, engraving, lithography. \$6 fee. (6 lecture-lab hours)

**57. Beginning Lithography (3)**

Studio class offering work in stone, metal plate, and color lithography. \$6 fee. (6 lecture-lab hours)

**58. Intaglio Processes (3)**

Studio class offering work in basic intaglio processes such as etching, engraving, drypoint, aquatint, color etching. \$6 fee. (6 lecture-lab hours)

**60. Art Tours (3)**

Directed trips to galleries, museums, and other places of interest to the student of art; half of the semester devoted to studio projects, half devoted to out-of-town tours. Assigned papers, projects, and discussion. Chartered travel costs will be approximately \$50. (6 lecture-lab hours)

**65. Crafts Design (3)**

Fundamental exploration of several media (fiber, wood, leather) with emphasis on understanding the potential of the various materials. (6 lecture-lab hours)

**70. Photography (3)**

Introductory course in black and white photography. Basic theoretical and practical aspects of the photographic process relevant to the medium as an art form. (2 lecture, 3 lab hours)

**105T. Topics in Art History (1-3; max total 3 per area)**

Specific areas in art history not normally covered in the regular course offering. Possible topical areas include African, Pre-Columbian, Primitive, Early Migrations, American Indians, Buddhism, Chinese Painting, Happenings, Cinematography, Picasso, Duchamp.

**109. Design (3; max total 12)**

Prerequisite: Art 41 or 46, permission of instructor. Continuation of the exploration of two- and three-dimensional design problems. (6 lecture-lab hours)

**110T. Topics in Art (1-3; max total 3 per area)**

Specific lecture areas not normally covered in regular course offerings or in art history. Topics may include but are not limited to: Sexual Imagery in Art, Personal Adornment, Chicano Art, Black Art, Urban Aesthetics, Economics of Art, Careers in Art.

**114. Content and Form (3; max total 6)**

The concept of form in art and its effects upon content, style, materials, and techniques through studio problems and critiques. (6 lecture-lab hours)

**117. Advanced Figure Drawing (3; max total 12)**

Prerequisite: Art 16, permission of instructor. The human figure and its relevancy to advanced drawing concepts and techniques; emphasis on individual exploration in studio problems. (6 lecture-lab hours)

**120T. Topics in Studio Processes (1-3; max total 12 in area)**

Prerequisite: permission of instructor. Specific advanced studio processes not normally covered in regular course offerings. Areas offered may be: drawing, painting, ceramics, sculpture, photography, printmaking, design, crafts, motion-picture, art education. \$10 fee in some sections. (6 lecture-lab hours)

**122. Museum Techniques (3; max total 12)**

Prerequisites: Art 41 or 46, permission of instructor. Introduction to museum practices related to exhibition selection, design, and installation techniques. Field trips, lectures, projects and critiques. (6 lecture-lab hours)

**124. Feminist Art (3; max total 12) (Former Art 120T section) (Same as W S 124)**

Prerequisite: permission of instructor. Multimedia art in varied forms creating images based on women's unique experiences and feelings. Exposure to art and lives of women artists; development of awareness of female heritage in arts. (6 lecture-lab hours)

**125. Advanced Drawing (3; max total 12)**

Prerequisite: Art 15 or 16, permission of instructor. Investigation of advanced concepts through the techniques of the drawing medium. (6 lecture-lab hours)

**127. Painting (3; max total 12)**

Prerequisite: Art 25, permission of instructor. Individual investigation of advanced aesthetic concepts; continued search into personal direction. (6 lecture-lab hours)

**128. Advanced Painting (3; max total 12)**

Prerequisite: Art 127, permission of instructor. Designed primarily for students with two or more semesters of experience in painting. Emphasis on individual involvement in the painting process aiming toward advanced formal and technical expression. (6 lecture-lab hours)

**132. Experimental Processes (3; max total 12)**

Understanding through studio problems the nature of experimental processes involved in directions such as process art, formalist and antiformalist art. Concepts, techniques, and materials in contemporary styles as resource materials for required original student works. (6 lecture-lab hours)

**136. Advanced Crafts Design (3; max total 12)**

Prerequisite: Art 65, permission of instructor. Advanced design in a variety of materials. Study of contemporary designer craftsmen. (6 lecture-lab hours)

**137. Textile Design (3; max total 12)**

Prerequisite: Art 41, 46, or 65, permission of instructor. Design relating to fabrics, tie dye, batik, and silk screen. (6 lecture-lab hours)

**138. Advanced Textile Design (3; max total 12)**

Prerequisite: Art 137, permission of instructor. Advanced design problems in processes related to textile designing. Emphasis on study in depth in a single process. (6 lecture-lab hours)

**139. Weaving (3; max total 12)**

Prerequisite: Art 65, permission of instructor. Exploration of fiber as a creative medium. Loom building and experimentation with emphasis on technique, form, design, and sensitivity. (6 lecture-lab hours)

**140. Silversmithing (3; max total 12)**

Prerequisite: Art 65, permission of instructor. Exploration of nonferrous metals as creative medium with an emphasis on understanding and experimenting with basic techniques, fabrication, lost-wax casting. (6 lecture-lab hours)

**146A-B-C-D. Photography (3-3-3-3)**

Prerequisite: Art 70, permission of instructor. Advanced photography. May emphasize black and white, color, history and appreciation, and individual productions. (2 lecture, 3 lab hours)

**151. Sculpture (3; max total 12)**

Prerequisite: Art 51, permission of instructor. Introduction to materials and concepts. (6 lecture-lab hours)

**152. Sculpture: Metal Casting (3; max total 12)**

Prerequisite: Art 51, 151, permission of instructor. Introduction to metal casting. (6 lecture-lab hours)

**153. Sculpture: Metal Fabrication (3; max total 12)**

Prerequisite: Art 51, 151, permission of instructor. An introduction to metal construction methods. (6 lecture-lab hours)

**154. Sculpture: Wood Fabrication (3; max total 12)**

Prerequisite: Art 51, 151, permission of instructor. An introduction to wood working methods. (6 lecture-lab hours)

**155. Sculpture: Mixed Media (3; max total 12)**

Prerequisite: Art 51, 151, permission of instructor. Introduction to projects and concepts. (6 lecture-lab hours)

**157. Advanced Lithography (3; max total 12)**

Permission of instructor required for investigation of wood block or serigraphy. Studio class designed for advanced work in stone, metal plate, and color lithography; transfer methods. \$6 fee. (6 lecture-lab hours)

**158. Advanced Intaglio (3; max total 12)**

Permission of instructor required for investigation of wood block or serigraphy. Designed to offer advanced work in intaglio processes such as etching, engraving, drypoint, aquatint, mezzotint, color, photoengraving, inkless intaglio, viscosity printing. \$6 fee. (6 lecture-lab hours)

**160. Art Tours (3; max total see below)**

Prerequisite: permission of instructor. May be repeated for credit; no more than 6 units may be applied on the art major. Directed trips to galleries, museums and other places of interest to the student of art; half of the semester devoted to studio projects, half to out-of-town tours; assigned papers, studio projects, discussion. Chartered travel costs approximately \$50. (6 lecture-lab hours)

**164. Elementary Art Education (3)**

Art materials and techniques, as they apply to the elementary school curriculum; introduction to current philosophies in art education, theories of the developmental phases of artistic expression in children. (6 lecture-lab hours)

**171. Renaissance Art History (3)**

Comparative study of the northern and southern European art between the years 1250-1600. Slide identification required; student presentations on in-depth research topics.

**174. Twentieth Century Art History (3)**

Development of paintings and sculpture of the 20th century; social, political, and philosophical implications on the artists of this period.

**175. Contemporary Art History (3)**

A critical and analytical evaluation of significant paintings and sculpture after WWII. Advanced topic discussion course; text supplemented by contemporary magazines.

**176. American Art History (3)**

A critical and analytical study of the art forms of America from Colonial times to 1945.

**177. Indian-Asian Art History (3)**

Investigation of the art of India-Asia in a cultural context.

**178. Chinese Art History (3)**

Investigation of the art of China in a cultural context.

**179. Japanese Art History (3)**

An investigation of the art of Japan in a cultural context.

**183. Ceramics (3; max total 12)**

Prerequisite: Art 12, permission of instructor. Advanced lab processes in throwing on the potter's wheel. Continued study on nontechnical glaze composition. Kiln stacking and firing. \$10 fee. (6 lecture-lab hours)

**184. Ceramics (3; max total 12)**

Prerequisite: Art 183, permission of instructor. Individual projects in selected ceramic areas. \$10 fee. (6 lecture-lab hours)

**185. Ceramics (3; max total 12)**

Prerequisite: Art 184, permission of instructor. Advanced study in ceramic art. \$10 fee. (6 lecture-lab hours)

**190. Independent Study (1-3; max see reference)**

\*See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**220T. Topics in Studio Processes (3; max total 9)**

Prerequisite: permission of instructor. Specific studio processes not normally covered in regular course offerings. Areas offered may be: drawing, painting, ceramics, sculpture, photography, printmaking, design, crafts, dance, art education.

**225. Seminar in Art Education (3; max total 9)**

Prerequisite: permission of instructor. Curriculum development; implications of recent research and philosophic inquiry on the subjective dimensions of art education.

**230. Seminar in Art Theory (3; max total 9)**

Prerequisite: permission of instructor. Theory and concepts in the visual arts; patterns and technique of art criticism; preparation, oral presentation, and defense of critical papers.

**240. Seminar in Art Studio (3; max total 15, max 9 in one area)**

Prerequisite: permission of instructor. Opportunity to work individually with selected staff in areas of specialization such as printmaking, crafts, dance, sculpture, design, ceramics, photography, drawing and painting. Concurrent obligation to periodic seminars as scheduled by the instructor.

**260. Seminar in Art History (3; max total 9)**

Prerequisite: six units of art history or permission of instructor. Research problems in art history. Group or individual inquiry as determined by instructor.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**298. Exhibition (2-6; max total 6)**

Prerequisite: permission of Art Department Graduate Committee chairman. Preparation, production, design, and installation of original works produced while engaged in the graduate program. An exhibit committee must approve of the work, location, and quality of installation. Students must pass an oral examination based on the work exhibited. \$10 fee.

**299. Thesis (2-6; max total 6)**

Prerequisite: permission of chairman of Art Department Graduate Committee; see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering Systems*.)

**343. Contemporary Approaches in Art (1-3; repeatable for credit)**

## ENGLISH DEPARTMENT

### FACULTY

Robert S. Billings, *Department Chairman*

■ Sharon R. Barba ■ Gene Bluestein ■ Roger D. Chittick ■ Cheng Lok Chua ■ William H. Cowling ■ Peter P. Everwine ■ Lillian Faderman ■ James E. Frey ■ Everett Frost ■ Charles G. Hanzlicek ■ Francis A. Hart ■ Harold S. Karr ■ Donald E. Kausch ■ Russell E. Leavenworth ■ Philip Levine ■ George M. Lewis ■ Barry L. Logan ■ John J. McDermott ■ H. Ray McKnight ■ Norman D. Meinke ■ Robert M. O'Neil ■ Martin T. Paul ■ Jean E. Pickering ■ Stanley H. Poss ■ Joaquim S. Ries ■ Judy A. Rosenthal ■ Kenneth A. Seib ■ Mary B. Shetzline ■ Andrew M. Simmons ■ Walter H. Stuart ■ Michael C. Tate ■ Sherley A. Williams ■ Eugene E. Zumwalt

The English Department offers a major in literature, language, and writing leading to the bachelor of arts and master of arts degrees. For students majoring in other departments it provides courses of general interest in reading, composition of various kinds, and literature. A daily tutorial program is available to all students.

### ADVANCED PLACEMENT

See *General Information—Advanced Placement*

### ENGLISH MAJOR

The major in English for the bachelor of arts degree provides for the study of English, American, and world literature, language studies, and creative writing. It will prepare students for postgraduate training in English and in business, law, medicine, theology, civil service, teaching, and in the other fields that recommend a grounding in the liberal arts as preparation for occupational training.

The major consists of 28 upper division units, including 8 units from English 189 and 193T or 8 units from English 193T. English 193T should ordinarily not be taken until 3 upper division courses have been completed. English 134 may not apply toward the English major. Up to three courses (but not more than 10 units) of those linguistics courses which are cross-listed as English courses may apply toward the English major. Courses taken as CR-NC may not apply to the major, with the exception of 4 units of 175T and 176T.

Not more than 6 units by extension and correspondence courses may be applied toward the English major; correspondence courses may be applied only if they are acceptable for the major at the college where the course is offered.

Students majoring in English are advised to select a course in English history as one of their upper division electives.

The student will propose a program in consultation with his adviser, selecting courses in appropriate proportions from among the following general categories: Literary History, Advanced Writing, Forms of Literature, Seminar in Literary Studies, Major Writers, and Linguistics.

### CREDENTIAL PROGRAM

For information on the current credential program, consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in English is based on an undergraduate major in English. An option in creative writing is available.

The student who plans to do graduate work in English at CSU, Fresno should know that to earn his master's degree he is expected to have at least the following undergraduate or graduate courses: two courses in English literature, a course in American literature, a course in world literature, a course in Shakespeare, and a course in Chaucer. These area requirements may be satisfied while the undergraduate is working on his major. For other requirements consult the *Graduate Bulletin* and the departmental advisers; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**Foreign Language Requirement**

Advancement to candidacy for the master of arts degree with a major in English requires the passing of an examination demonstrating a reading knowledge of one foreign language.

**COURSES****ENGLISH (Engl)**

*Note:* Engl 20 or equivalent is a prerequisite for all upper division English courses except Engl 175T and 176T and courses cross referenced to Linguistics.

**1. Composition (3) (Equivalent to former Engl 3)**

Not open to students with credit in Engl 3. Prerequisite: college-level competence in written English. Theory and practice of composition. Themes, chiefly expository or analytical; one paper based upon investigation of a selected topic.

**20. Literature and Composition (4)**

Reading and analysis of short stories, novels, drama, and poetry. Development of critical thinking and expression through individual projects and extensive writing under close supervision.

**41. Poetry Writing (4)**

Prerequisite: Engl 20, or permission of instructor. Beginning workshop in the writing of poetry; appropriate reading and analyses.

**43. Fiction Writing (4)**

Prerequisite: Engl 20, or permission of instructor. Beginning workshop in the writing of fiction; appropriate reading and analyses.

**44. Nonfiction Prose Writing (1-4; max total 8)**

Prerequisite: Engl 20, or permission of instructor. Beginning workshop in nonfiction prose writing; appropriate reading and analyses.

**50T. Studies in Literature (4; max total 8 if no topic repeated)**

Sections designated as emphasizing certain writers, types, or themes, (for example, Shakespeare, The Poem, Literature of Protest, Women in Novels). Appropriate readings and analyses.

**101. Masterpieces of World Literature (4)**

Discussion and written analyses of widely influential poetic, dramatic, and fictional works studied in translation.

**102. Masterpieces of English Literature (4)**

Discussion and written analyses of widely influential poetic, dramatic, and fictional works by British authors.

**103. Masterpieces of American Literature (4)**

Discussion and written analyses of widely influential poetic, dramatic, and fictional works by American authors.

**112. World Literature: Ancient (4)**

Selected works in translation surveying from the beginnings of literature to early centuries A.D. Examination of relationships among myth, legend, ritual, folklore, belief and literature. Readings primarily from selected Greek, Roman, Norse, Indian, Anglo-Saxon and Biblical authors.

**113. World Literature: Medieval and Renaissance (4)**

Authors and works may include Dante, Rabelais, Cervantes, Murasaki, Ts'ao Hsuehchin; Boccaccio, Petrarchian tradition; Calderon; Montaigne, Erasmus; Tu Fu, Li Po, haiku; Nō drama, morality plays; medieval epic, fabliaux, romance, troubador poetry.

**114. World Literature: Modern (4)**

Major movements in world literature from the Renaissance to the present. Writers such as Cervantes, Goethe, Dostoyevski, Chekov, Mann, and Camus will be read in translation. Writers outside the western tradition like Mishima and Akuthagawa may also be studied.

**115. Literature of the New Testament (3) (See Phil 133)****116. Literature of the Old Testament (3) (See Phil 134)****131. English Dialects (4) (Former Ling 146. See Ling 131)****134. Structure of English (3) (See Ling 134)****135. General Linguistics (3) (See Ling 135)****137. American English (3) (See Ling 137)****138. History of the English Language (3) (See Ling 138)****146. Beowulf to Malory (4)**

The literature of Medieval England, including Malory, Chaucer and other narrative poetry (*Beowulf*, *Piers Plowman*, *Sir Gawain and the Green Knight*), drama, and lyric poetry.

**147. Renaissance (4)**

Discussion and written analyses of works by selected playwrights (Webster, Dekker, Jonson) and poets (Spenser, Donne, Herbert, Marvell, Milton) from the 16th and 17th centuries.

**150. The Age of Wit (4)**

Major writers and topics include Dryden, Swift, Pope, Johnson, Restoration Comedy, and the rise of the novel; the literature will be read in the context of 18th century civilization, with attention to political and intellectual history, and the other arts.

**151. 19th Century Romantics (4)**

Study of the conjunction of a literary period (19th Century) and a literary movement identified with it (Romanticism) by examining the works of figures who exemplify the conjunction such as William and Dorothy Wordsworth, Coleridge, Blake, Byron, Keats, Shelley, Wollstonecraft.

**152. Dickens to Hardy (4)**

The literature of Industrial England including the poetry from Tennyson to Yeats, the novel from Dickens to Hardy, and the essay from Carlyle to Huxley. May include such topics as the Pre-Raphaelites, the Decadents, Darwinism, and the New Woman.

**153. American Literature to Whitman (4)**

Discussion and close written analyses of major works and their backgrounds in American literature to the Civil War. Includes Puritanism, Emerson, Thoreau, Hawthorne, Melville, Poe, and Whitman.

**154. American Literature 1865 to WWI (4)**

Discussion and written analyses of major works and their cultural backgrounds within this period of change. Topics include the rise of realism and naturalism. Writers discussed include Whitman, Twain, Howells, James, Crane, Dickinson, and others.

**155. 20th Century American Literature (4)**

Discussion and written analyses of selected poems, plays, and fiction from WWI to the present by such authors as Frost, Eliot, Anderson, Hemingway, O'Neill, Faulkner, Fitzgerald, Steinbeck, Stevens, Williams, and post-WWII writers.

**156. 20th Century British Literature (4)**

Discussion and written analyses of selected poems, plays, and fiction from 1900 to the present by such authors as Forster, Yeats, Woolf, Lawrence, Joyce, Greene, Auden, Thomas, and post-WWII writers.

**160. Writing Workshop (1-4; max total 8)**

Practical assignments in writing, directed according to each student's individual interests. May be elected as preparation for special composition requirements.

**161. Advanced Writing of Poetry (4; max total 8)**

Prerequisite: Engl 41, or permission of instructor. Intensive workshop in the writing of poetry; appropriate readings, and analyses.

**163. Advanced Writing of Fiction (4; max total 8)**

Prerequisite: Engl 43, or permission of instructor. Intensive workshop in the writing of fiction; appropriate readings, and analyses.

**164. Advanced Writing: Non-Fiction Prose (1-4; max total 8)**

Intensive workshop in expository writings; appropriate readings, and analyses.

**167. Studies in Folk Lore and Folk Song (4) (Former Engl 169T section)**

Studies in aural and historical sources of folk tradition, including regional and ethnic styles gathered from primary and secondary materials.

**168T. Women and Literature (4; repeatable with different topics) (Former Engl 169T sections. Same as W S 168T)**

Prerequisite: Engl 20. No more than 12 units of Engl 168T-169T may be applied on the English major. Sections designated as dealing with some aspect of women in literature; for example, Contemporary Women Writers, Women in Literature.

**169T. Forms of Literature (4; repeatable with different topics)**

No more than 12 units of Engl 168T-169T may be applied on the English major. Prerequisite: Engl 20 or equivalent. Sections designated as emphasizing poetry, drama, novel, short story, perhaps limited to a specific period or subclass; (for example, 18th Century English Novel, 20th Century British and American Poetry, Modern Short Stories, 20th Century Drama, Tragedy, Folklore, Mythology. Reading and close written analysis with particular attention to form.

**175T. Lectures in Literature (1-4; max total 8, in 175T and 176T, if no topic repeated)**

No more than 4 units of 175T and 176T may apply to the English major. Lectures in a selected topic in literature or related fields by the regular faculty and/or visiting lecturers.

**176T. Programs in Cinema (1-4; max total 8 in 175T and 176T, if no topic repeated)**

No more than 4 units of 175T and 176T may apply to the English major. Study of film as a literary form, based upon the viewing and analyses of selected examples.

**181. Research Methods (4)**

Prerequisite: English major or permission of instructor. Introduction to research methods, documentation, biographical research, questions of authorship, problems of establishing accurate texts, historical bibliography, editing of texts, and the academic profession of English. Research assignments, reports, written examination.

**183T. Seminar in Literature (4; max total 8)**

Prerequisite: appropriate upper division literature course. Designed for students interested in in-depth study of a literary topic; recommended for liberal studies major. Seminar in an aspect of literary history; type, period, movement, individual author.

**189. Shakespeare (4) (Same as Drama 194)**

Reading and written analyses of the major works of Shakespeare.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191T. Supervised Independent Reading (1-4; max total 4, if no topic repeated)**

The student reads works from a literary period (for example, Beowulf to Marlowe, American Literature to Whitman, World Literature: Ancient and Medieval) and discusses them in individual conferences.

**192. Projects in English (1–3; max total 3)**

Not applicable to English major. Prerequisite: English major or permission of instructor. Individual projects in problems related to teaching English composition and literature; for example, tutoring minority students, investigating the effectiveness of programs in English composition and literature, devising new approaches to teaching English.

**193T. Seminar in Literary Studies (4; repeatable with different topics)**

No more than 12 units of 193T–194T may be applied on the English major. Sections designated by topic. Individual projects. Reading, discussion, and writing of papers centered on individual writers (for example, Milton, D.H. Lawrence), short periods of literary history (for example, Romantic Poets, Modern Novel), literary themes and traditions (for example, Transcendental Vein in American Literature, Arthurian Tradition) literary criticism (for example, Problems in Modern Criticism, Archetype and Myth), and other special topics.

**194T. Seminar in Women and Literature (4; repeatable with different topics) (Former Engl 193T section. Same as W S 194T)**

May be substituted for Engl 193T in the English major; no more than 12 units of Engl 193T–194T applicable to the major. Sections designated by topic. Individual projects. Reading, discussion, and writing papers on individual women writers or some aspect of women in literature; for example, Doris Lessing, Myth and Archetypes of Women.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**250T. Seminar in Literature (4; max total 12 if no topic repeated)**

Prerequisite: major or minor in English; permission of instructor. Seminar in an aspect of literary history: type, period, movement, or an individual author (for example, Fiction, Seventeenth Century Lyric Poetry, The Irish, Dickens).

**261. Advanced Writing: Poetry (4; max total 12)**

Prerequisite: permission of instructor. Advanced individual projects in the writing of poetry.

**263. Advanced Writing: Fiction (4; max total 12)**

Prerequisite: permission of instructor. Advanced individual projects in the writing of fiction.

**264. Seminar in Rhetoric (4; max total 12 if no topic repeated)**

Prerequisite: advanced composition or equivalent. Seminar in rhetorical theory in relation to social history, critical analysis of current rhetorical doctrine.

**265. Advanced Writing: Expository (4; max total 12)**

Prerequisite: permission of instructor. Advanced individual projects in expository writing.

**280T. Seminar in Critical Theory (4; max total 12 if no topic repeated)**

Prerequisite: major or minor in English; permission of instructor. Seminar in literary criticism (for example, Literary Critics).

**290. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**291T. Supervised Independent Reading (1; max total 4 if no topic repeated)**

The student reads works from a literary period (for example, More to Milton, 20th Century American Literature, World Literature, Renaissance-Modern) and discusses them in individual conferences.

**299. Thesis or Project (2–6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**300. English Colloquium (2; max total 6)**

**FOREIGN LANGUAGE DEPARTMENT**

**FACULTY**

Jose A. Elgorriaga, *Department Chairman*

John M. Barta ■ Frank Benitez ■ Wayne S. Bowen ■ Ralph A. Brenninger ■ Carmen P. Clough ■ Helen L. Dmitriew ■ Walter Ensslin ■ G. Ronald Freeman ■ Maurice C. Gendron ■ June M. Gill ■ Cordelia Jasutis ■ Paul F. Kinzel ■ Leta J. Lewis ■ Edgar A. List ■ M. Margarita Lopez-Urrutia ■ Vance Y. McConnell ■ Elemer J. Nagy ■ Ransom H. Poythress ■ Alexander Pronin ■ David A. Ross ■ Howard C. Roth ■ James K. Saddler ■ Keith Sauer ■ Adriana N. Slaniceanu ■ Edith H. Stock ■ Hazel J. Tucker

The Foreign Language Department aims to teach students to understand, speak, read, and write the foreign languages offered, with varying degrees of emphasis upon those objectives according to their needs and interests; to promote an interest in and an understanding of foreign civilizations and of the problems of foreign nations as they arise day by day; to contribute to students' knowledge of English through comparative study of a foreign language; to prepare students to teach foreign languages in the elementary and secondary schools; and to give specialized professional training for positions such as interpreter, translator, consular representative, and foreign trade specialist. For students majoring or minoring in foreign language, the department recommends an overseas experience of academic and cultural studies. See *Special and Interdisciplinary Problems—International Program*.

**CREDIT ALLOWANCE IN FOREIGN LANGUAGE**

Students who wish to continue in a language taken in high school should consult an adviser for placement. College credit may be earned in any class in which the student is placed. See also *Degrees and Credentials—Foreign Language Requirement*.

**ADVANCED PLACEMENT**

*See General Information—Advanced Placement*

**MAJORS AND MINORS**

All majors, except Russian, require upper division units only. The Spanish major requires 30 upper division units, but no specific courses in any area; the student is required to plan an acceptable program in consultation with his Spanish adviser.

**MAJORS**

	<i>Units</i>
<b>French</b>	
Fren 101, 102, 109A-B .....	12
French electives, upper division .....	15
	—
	27
<b>German</b>	
Germ 101A-B .....	6
German electives, upper division.....	21
	—
	27
<b>Russian</b>	
Russ 2A-B .....	8
Russ 101 (9 units), 110, 118A-B, 148A-B .....	21
	—
	29
<b>Spanish</b>	
Upper division units in Spanish .....	30

## 252 / FOREIGN LANGUAGE

### MINORS

	<i>Units</i>
<b>Armenian</b>	
Arm 1A-B, 2A-B .....	16
Arm 111, 112, or 190.....	6
	<hr/> 22
<b>French</b>	
Lower Division Courses .....	6-9
Upper Division Courses .....	12-15
	<hr/> 21
<b>German</b>	
Germ 2A-B .....	0-6
Germ 50A or B, 101A-B .....	9
German electives, upper division.....	6-12
	<hr/> 21
<b>Latin</b>	
Elect from Latin 1A-B, 2A-B, 131T.....	15
Latin electives, upper division .....	6
	<hr/> 21
<b>Russian</b>	
Russ 1A-B, 2A-B .....	16
Russian electives, upper division .....	6
	<hr/> 22
<b>Spanish</b>	
Lower Division Courses .....	6-9
Upper Division Courses .....	12-15
	<hr/> 21

### CREENTIAL PROGRAM

For information on the *current* credential program consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

### MASTER OF ARTS DEGREE

The master of arts degree is granted in Spanish. The graduate program for the degree is based on the equivalent of the undergraduate major at CSU, Fresno. Students interested in graduate study in French and German see the options under the Master of Arts degree in Linguistics. For specific requirements consult the *Graduate Bulletin* or the departmental graduate committee chairman; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

### COURSES

#### ARMENIAN (Arm)

##### 1A-B. Elementary Armenian (4-4) (1A. Former EXP 109)

Not open to students with previous training in Armenian. Beginning course of graded lessons acquainting the student with basic structure and pronunciation of Armenian through practice, reading, and writing.

**2A-B. Intermediate Armenian (4-4)**

Prerequisite: Arm 1A-B or X109A, B. Grammar review; selected readings; compositions and conversations on assigned topics; pronunciation drill.

**111. Composition and Conversation (3)**

Prerequisite: Arm 2B. Idioms, written translations in Armenian, compositions on assigned topics, oral exercises. Emphasis on grammar and syntax.

**112. Advanced Composition and Conversation (3)**

Prerequisite: Arm 111 or permission of instructor. Style in composition; written and oral reports on assigned topics.

**148T. Topics in Armenian Literature in Translation (4; max total 8 if no topic repeated)**

Three units credit may be applied to Armenian minor upon request. Studies of the major works of Armenian literature, past and present.

**165. Armenian Linguistics (2) (See Ling 165)****190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*

**GRADUATE COURSE (Arm)****290. Independent Study (1-3; max total 6)**

See *General Information—Independent Study*.

**CHINESE (Chin)**

See *Linguistics Department*

**FOREIGN LANGUAGE (FL)****131. Trends in Foreign Language Teaching (3)**

Current trends and issues in foreign language teaching. Evaluation of recent teaching materials. May include on-campus practice in teaching beginning languages.

**135. Pronunciation and Phonetics (3) (Former Germ 40)**

Intensive practice in the pronunciation, enunciation, and intonation of French, German, Italian, Russian, and Spanish to meet the needs of students in other areas.

**170T. European Women in Literature (3; max total 12) (Same as W S 170T)**

The stereotypes and realities of women in European literature. Women as authors and women as characters in European fiction.

**FRENCH (Fren)****1A-B. Elementary French (4-4)**

Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of French through practice in speaking, reading, and writing.

**1A-I. Intensive French (8)**

For students who wish to complete two semesters of elementary French in one. Emphasis on oral communication through small group discussion; two hour sessions allow greater exposure and practice in the language.

**2A-I. Intensive Reading and Speaking French (6)**

For students who wish to complete two semesters of second year French in one. Emphasis on reading, conversation, writing. Two hour sessions allow for the rapid development of these skills.

**3. Intermediate French (3)**

For students with a basic background in French who wish to read popular literature, discuss issues confronting French-speaking communities, interview local French-speaking people, correspond with persons in the French-speaking world, listen to short wave radio broadcasts.

**4A-B. Intermediate Composition (2-2)**

Fren 4A-B or equivalent recommended of all majors and minors at the intermediate level; optional for others. Prerequisite: Fren 1B or equivalent. Concentration on writing skills preparatory to upper division course work.

**50. Conversation (3; max total 6) (Former Fren 50A-B)**

Prerequisite: Fren 1B. May be taken concurrently with Fren 2A1, 3 or 4A-B. Oral drill for pronunciation; conversation on assigned topics; brief talks, extemporaneous discussions.

**AREA I. Language and Culture**

**101. Advanced Composition (3)**

Prerequisite: Intermediate French or permission of instructor. Written assignments in French on varied topics. Emphasis on composition, style, and grammar.

**102. Advanced Composition and Translation (3)**

Prerequisite: Intermediate French or permission of instructor. Written assignments in French on varied literary topics, with emphasis on composition, style, and grammar complemented by an introduction to the problems and techniques of literary translation.

**120T. Topics in French Civilization (3; max total 6 if no topic repeated)**

Prerequisite: Intermediate French or permission of instructor. Possible topics: French contributions to Western Civilization (art, music, architecture, history, science). Special emphasis on contemporary France. The history of Anglo-French and Franco-American relations. Linguistic, cultural, intellectual, political, commercial and diplomatic similarities and differences explored. Taught in French.

**130. Phonetics and Pronunciation (3)**

Prerequisite: Intermediate French or permission of instructor. Articulatory phonetics as a means to forming native French pronunciation habits. Emphasis upon the difficulties encountered by speakers of American English.

**137. Applied Linguistics (3)**

Prerequisite: Intermediate French or permission of instructor. Phonological, morphological, syntactical, and lexical structure of French; conflicts with English structure; linguistics problems in design of teaching materials.

**150. Advanced Conversation (3)**

Prerequisite: intermediate French or permission of instructor. Intensive practice in oral expression in French. Emphasis on current affairs in France.

**AREA II. Literature**

**109A-B. Survey of French Literature (3-3)**

Prerequisite: Intermediate French or permission of instructor. Principal movements and major figures in the development of French literature from the earliest periods to the present. Taught in French.

**140. Age of Louis XIV (3) (Former French 110A-B)**

Prerequisite: Fren 109A or permission of instructor. Literary developments from Baroque to high point of French Classicism. The Golden Age of French Drama; Corneille, Racine, Molière. Representative readings and discussions.

**141. Readings in the French Enlightenment (3) (Former French 111A-B)**

Prerequisite: Fren 109A or permission of instructor. Important liberal and social thought in the writings of the most representative, 18th Century writers: Montesquieu, Voltaire, Rousseau, and Diderot. Emphasis on the history of some great ideas: religious tolerance, public opinion, and constitutional government.

**142. Nineteenth Century French Poetry and Drama (3) (Former French 112A)**

Prerequisite: French 109B or permission of instructor. Exploration of poetic themes and movements (Romanticism, Symbolism) and their relationship to art of the period, and a study of the dramas of Musset, Hugo, and Becque.

**143. The French Novel (1830–1900) (3) (Former French 112B)**

Prerequisite: French 109B or permission of instructor. Analysis of the major novelists of the period with emphasis on the novel as a reflection of values (such as moneymaking, social climbing) predominant at the time. Balzac, Hugo, Stendahl, Flaubert, Zola.

**144. Twentieth Century—Theatre in France (3) (Former French 118A)**

The “renaissance” of French Theater (1900–1940); the “théâtre des idées” reflecting political and social concerns; the “théâtre de l’absurde” and the “nouveau théâtre”—experiments in structure and staging.

**145. Twentieth Century Poetry (3) (Former French 118B)**

Surrealism and post First World War expression; great independent poets: Claudel, Saint-John Perse, Reverdy.

**146. Twentieth Century; The French Novel (3)**

Prerequisite: French 109B or permission of instructor. The spectrum of 20th Century fiction in France from the psychological tradition of Proust and Gide through the philosophic novels of Sartre and Camus to the exploration of new literary forms by the New Novelists: Robbe-Grillet, Butor, Duras, et al.

**148T. Topics of French Literature in Translation (3; max total 9 if no topic repeated)**

Three units credit may be applied to French major or minor upon request. Studies of literary movements, genres or major authors; selected readings, discussions, written analyses.

**160T. Selected Topics in French Studies (3; max total 6)**

Prerequisite: Fren 2B or permission of instructor. Topics chosen from French literature (genre, themes, movements) or from French linguistics (History of the Language).

**190. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES (Fren)**

(See *Course Numbering System—Definitions and Eligibility*)

**204. Literary Theory and Criticism (3)**

Prerequisite: undergraduate major in French or permission of instructor. Critical approaches to literature; analysis of literary doctrines; techniques of research and bibliography.

**211. Historical Linguistics (3)**

Prerequisite: 24 upper division units in French or permission of instructor. History of the phonological, morphological, syntactical, and lexical development of the French language from its origins to the present, through study of representative texts.

**212. Comparative Synchronic Linguistics (3)**

Prerequisite: undergraduate major or permission of instructor. Language learning problems as seen through comparison of the structure of American English and French.

**220T. Seminar in French Literature (3; max total 9 if no topic repeated)**

Prerequisite: 24 upper division units in French or permission of instructor.

**250. Directed Reading (3; max total 6)**

Prerequisite: 24 upper division units in French or permission of instructor.

**290. Independent Study (3; max total 6)**

See *General Information—Independent Study*.

**299. Thesis or Project (2–6; max total 6)**

Prerequisite: See *Master’s Degrees-Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master’s degree.

**GERMAN (Germ)**

**1A-B. Elementary German (4-4)**

Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of German through practice in speaking, reading, and writing.

**1A-I. Intensive German (8)**

For students who wish to complete two semesters of elementary German in one. Emphasis on oral communication through small group discussion; two-hour sessions allow greater exposure and practice in the language.

**2A-B. Intermediate German (3-3)**

Prerequisite: Germ 1B or equivalent. (A) Grammar review; reading and conversation. (B) Reading and practice in conversation.

**2A-I. Intensive Reading and Speaking German (6)**

For students who wish to complete two semesters of second year German in one. Emphasis on reading, conversation, and writing. Two hour sessions allow for the rapid development of these skills.

**50A-B. Oral German (3-3)**

Prerequisite: Germ 1B or permission of instructor. May be taken concurrently with Germ 2A. Conversation on assigned topics; brief talks by students; short scenes from plays.

**101A-B. Composition (3-3)**

Prerequisite: Germ 2B or permission of instructor. Idioms; written translations in German; compositions on assigned topics; oral exercises. Emphasis on grammar and syntax.

**102. Advanced Composition and Conversation (2; max total 4)**

Prerequisite: Germ 101A-B or permission of instructor. Emphasis on style in composition; written and oral reports on assigned topics.

**103T. Topics in German Culture (3; max total 6 if no topic repeated) (Former Germ 103)**

Prerequisite: Germ 2B or permission of instructor. Studies in principal aspects of German culture and civilization, history, thought, customs, institutions.

**112. German Literature to 1750 (3) (Former Germ 112A-B)**

Prerequisite: Germ 2B or permission of instructor. Lectures and discussions; selected readings. Not open to students with credit for 112A-B.

**114. Classical Age of German Literature (3)**

Prerequisite: Germ 2B or permission of instructor. Reading and discussion of representative writings of Lessing, Goethe, and Schiller.

**116. Nineteenth Century Literature (3) (Former 116A-B)**

Prerequisite: Germ 2B or permission of instructor. Reading and discussion of representative selections from major 19th Century German authors. Not open to students with credit for 116A-B.

**118A-B. Twentieth Century Literature (3-3)**

Prerequisite: Germ 2B or permission of instructor. Analytical and critical study of twentieth century literary production of Germany. Outside readings and one written report each semester.

**135. History of the German Language (3)**

Prerequisite: Germ 2B or permission of instructor. Development of the German Language from earliest times to the present.

**137. Applied Linguistics (3)**

Prerequisite: Germ 2B or permission of instructor. Analysis of the phonological, morphological, syntactical, and lexical structure of German; conflicts with English structure; linguistic problems and reports.

**146T. Germanic Literature in Translation (3; max total 12 if no topic repeated)**

Major Germanic authors, movements, and genre. Selected readings, lectures and discussions in English. Only 3 units of credit may be applied to German major.

**150. Advanced Conversation (3)**

Prerequisite: Germ 2B or permission of instructor. Intensive practice in oral expression in German. Emphasis on current affairs in Germany.

**160T. Selected Literary Topics (3; max total 12)**

Prerequisite: Germ 2B or permission of instructor. Intensive study of significant topics through selected literary texts; analysis, discussion, and evaluation of specific genres, themes, movements, and literary problems.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES (Germ)**

(See *Course Numbering System—Definitions and Eligibility*)

**200. Seminar in Literary Criticism (3)**

Prerequisite: completion of an undergraduate major in German or permission of instructor. Methods of literary criticism and techniques of bibliography.

**220T. Seminar in Literature (3; max total 12 if no topic repeated)**

Prerequisite: completion of an undergraduate major in German or permission of instructor. Study of an aspect of literary history: genre, period, movement, or individual author.

**230. Seminar in Middle High German (3)**

Prerequisite: German 135 or permission of instructor. Studies in Middle High German language and analysis of literary texts.

**240T. Seminar in Germanic Languages (3; max total 12 if no topic repeated)**

Prerequisite: German 230 or permission of instructor. Study of older Germanic languages and special linguistic problems.

**290. Independent Study (1-3)**

See *General Information—Independent Study*.

**299. Thesis or Project (2-6)**

Prerequisite: see *Master's Degrees-Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**GREEK (Grk)****1A-B. Elementary Greek (3-3)**

Fundamentals of Classical and New Testament Greek with practice in the reading and writing of the Greek language.

**2A-B. Intermediate Greek (3-3)**

Intensive study of grammar and syntax. Readings of intermediate difficulty with selections from Classical and New Testament writers.

**148. Greek Literature in English Translation (3)**

Analysis of selected works of major Greek poets, writers and thinkers from Homer to Lucian. Lectures, discussions, reports on readings.

**ITALIAN (Ital)****1A-B. Elementary Italian (3-3)**

Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of Italian through practice in speaking, reading, and writing.

**2A-B. Intermediate Italian (3-3)**

Prerequisite: Ital 1B or equivalent. (A) Review of grammar and syntax; composition; oral practice, reading of short stories and plays. (B) Oral and written composition; reading of short stories, newspaper articles. Conducted in Italian.

**190. Independent Study (1-3; max see reference)****JAPANESE (Japn)**

See *Linguistics Department*.

**LATIN (Latin)****1A-B. Elementary Latin (3-3)**

Elements of Latin grammar with its practical relation to Romance languages and English. Background study: Roman culture and its relevancy to the Western world.

**2A-B. Intermediate Latin (3-3)**

Prerequisite: Latin 1B or equivalent. Intensive study of grammar and syntax; use of the subjunctive mood in clause construction. Selected readings from Latin authors.

**31. Latin and Greek for English Vocabulary (3)**

Previous knowledge of Latin and Greek unnecessary. Analysis of Latin and Greek elements in English words; emphasis on practical use.

**131T. Classical, Medieval, Renaissance Latin (3; max total 9 if no topic repeated) (Former Latin 131, 132)**

Prerequisite: Latin 2B. Readings in prose and poetry of representative writers in Classical, Medieval, and Renaissance Latin literature.

**132. Classical Mythology (3)**

Greco-Roman myths, emphasis on their impact on the fine arts and literatures of the Western World. Illustrated lectures.

**148. Roman Literature in English Translation (3)**

Analysis of selected works of major Roman authors from Plautus to St. Augustine. Lectures, discussions, readings.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**PORTUGUESE (Port)****1A-B. Elementary Portuguese (3-3)**

Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of Portuguese through practice in speaking, reading, and writing.

**120T. Portuguese Culture (3)**

Topics in Portuguese culture and its manifestations in the Americas. Special emphasis on the cultural traditions of Portuguese immigrants and their descendants in the U.S., and California in particular.

**RUSSIAN (Russ)****1A-B. Elementary Russian (4-4)**

Beginning course of graded lessons acquainting the student with the basic structure and pronunciation of Russian through practice in speaking, reading, and writing.

**2A-B. Intermediate Russian (4-4)**

Prerequisite: Russ 1B or equivalent as determined by examination. (A) Review of grammar and syntax; composition; oral practice; reading of short stories. (B) Oral and written composition. Conducted in Russian.

**50. Oral Russian (2) (Former Russ 50A-B)**

Prerequisite: Russ 1B, 2A, or 2B. Oral drill for intonation and pronunciation; conversation on assigned topics, brief talks; extemporaneous discussions. (2 lecture, 1 lab hour)

**101. Composition and Conversation (3; max total 9)**

Prerequisite: Russ 2B or equivalent. Continuation of prose composition and oral-aural practice for mastery of the finer points in grammar and syntax.

**103T. Topics in Russian Culture (3; max total 9)**

Credit may not be applied to Russian major and minor requirements. Sections designated as emphasizing Russian-Soviet culture and Socialist realism, Russian folk arts and folklore. Lectures illustrated with films and other audio-visual media. Taught in English.

**110. Landmarks in Russian Literature (3) (Former Russ 110A-B-C)**

Chronicles, Byliny, Tales, Kievan Literature, Moscovite Literature, the Petrine Epoch, the Epoch of Catherine II, and the rise of the 19th century literary Giants.

**118A-B. Twentieth Century Literature (3-3)**

Prerequisite: Russ 2B or equivalent. Analytical and critical study of the twentieth century literary production of Russia. Outside readings.

**127T. Soviet Russian Topics (3; max total 9 if no topic repeated)**

Sections designated as emphasizing landmarks in Russian literature. Russian underground, protest, and emigre works. Lectures illustrated with films and other audio-visual media. Taught in English.

**148A-B. Russian Literature in Translation (3-3)**

Credit may not be applied to Russian major and minor requirements. Prerequisite: upper division standing or permission of instructor. Selective readings of major Russian literary works. Lecture, discussion. (A) Pushkin, Tolstoy, Dostoyevski. (B) Nobel prize winners: Solzhenitzyn, Pasternak, Sholokhov.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*

**SPANISH (Span)****1A-B. Elementary Spanish (4-4)**

Beginning course to acquaint the student with the basic structures through practice in listening, speaking, reading, and writing.

**1A-I. Intensive Spanish (8)**

For students who wish to complete two semesters of elementary Spanish in one. Emphasis on oral communication through small group discussion; two-hour sessions allow greater exposure and practice in the language.

**20A-B. Reading and Speaking Spanish (3-3) (Former Span 2A-B)**

Prerequisite: Span 1B or permission of instructor. Development of the student's ability to understand, speak, read, and write Spanish.

**20A-I. Intensive Reading and Speaking Spanish (6)**

For students who wish to complete two semesters of second year Spanish in one. Emphasis on reading, conversation, and writing. Two hour sessions allow for the rapid development of these skills.

**40A-B. Spanish for the Bilingual Student (3-3) (Former Span 4A-B. Same as La R 40A-B)**

For students with a bilingual background. Emphasis on reading and conversation; some grammar review and writing. Span 20A-B may be substituted for Span 40B.

**50A-B. Spanish for Conversation (3-3)**

Prerequisite: Span 1B or permission of instructor. Emphasis on spoken Spanish; development of oral fluency through panel discussions, short talks, small group conversations. Readings secondary to conversation; oral examinations.

**AREA 1. Language and Culture**

**100. Bilingual Studies (3) (See Ling 100)**

**100T. Practical Spanish for Specific Professions (3; max total 12 if no topic repeated)  
(Former F L 180T)**

Not applicable for major. Preparation of professionals and paraprofessionals in California Spanish to work with the Spanish speaking in the following fields: health, education, social work, and business.

**115. Press, Journals, Radio (3)**

Analysis of information in Spanish news media, including newspapers, magazines and popular literature. Emphasis on vocabulary acquisition and close examination of daily cultural patterns as reflected in Spanish-American periodicals.

**116. The Art of Translation (3)**

Differences between oral and written styles. Idioms, metaphors, slang, technical vocabulary, as well as structural and semantic factors. Emphasis on translation of Spanish into English.

**117. Oral Translation (3)**

Interpretation and translation techniques from Spanish to English, English to Spanish. Intensive work with Hispanic documents, judicial terminology and current events.

**118. Spanish Composition for Bilinguals (3)**

Refinement of writing skills through vocabulary development, spelling exercises and composition. Special emphasis on problems created by differences between the spoken and written language.

**120. Intermediate Composition (3) (Former Span 101)**

Prerequisite: Span 20B, 40B, 50B, or permission of instructor. Original compositions; analysis of basic stylistic elements. Conducted in Spanish.

**121. Advanced Composition (3)**

Prerequisite: Span 120 or permission of instructor. Creative written composition with special attention to problems of style.

**122. Advanced Grammar (3)**

Prerequisite: Span 20B, 40B, 50B or permission of instructor. Functional grammar review. Analysis of grammatical constructions.

**123. Advanced Conversation and Reading (3)**

Reading of current periodicals and newspapers. Conversation on current topics.

**124. Public Communication in Spanish (3)**

Theory and practice of oral expression for public purposes. Designed to provide a high degree of facility in spoken Spanish for those who speak in public. Practice in simultaneous interpretation.

**125. Spanish Culture (3)**

Examination of the cultural values of Spain through readings, lectures, films, and other media. Frequent written and oral reports by students.

**126. Spanish-American Culture (3) (Former Span 102)**

Examination of the cultural values of Spanish-America through readings, lectures, films, and other media. Oral and written participation by students.

**127T. Spanish Cultural Myths (3; max total 6 if no topic repeated)**

Analysis of common misconceptions: Spain, the land of Quixotes, Don Juan as a sex symbol, the Cid of Hollywood, the slavery of Spanish women, Spanish love of flamenco, the land of suppression. Impact of internationalism.

**128. Folk Literature of the Hispanic World (3)**

Tracing the travels and development of folk songs, riddles, legends, jokes, proverbs, and tales by experience and study of performances in folk literature as it is today throughout the Hispanic and Portuguese World.

**129. Mexican Culture (3)**

The development of modern Mexico seen through art, architecture and political institutions. Special emphasis on the Pre-Columbian era, Independence and Revolution. Study of the mestizo concept, the Cult of Death and machismo. Taught in Spanish.

**AREA II. Spanish Linguistics****130. Phonetics and Pronunciation (3)**

Analysis of the Spanish sound system. Practice in pronunciation and discussion of problems encountered by English speakers.

**132. The Bilingual Child (3)**

Understanding of the linguistic, social, psychological, and cultural components of bilingual programs at the elementary level. Educational considerations for teachers of Spanish as a native language and as a second language.

**134. Spanish in Bilingual Schools (3)**

Field work in bilingual elementary schools. Development of language materials for teaching Spanish as a native language and as a foreign language.

**135. History of the Spanish Language (3)**

Study of the linguistic changes from Latin to modern Spanish. Development of dialects and languages in the Iberian Peninsula. Consideration of such non-Latin influences as Basque, Arabic, Germanic, and American Indian languages.

**137A-B. Applied Spanish Linguistics (3-3) (Former Span 133, 137)**

Application of linguistics to the teaching of Spanish. Contrastive analysis of Spanish and English. Theories of language acquisition and their implications for language teaching. (A) Grammatical structures of English and Spanish. (B) Sounds and word formation.

**139. Spanish of the Southwest (3)**

Guidelines for language analysis. Research on dialect differences in California and the Southwest, including the linguistic, social, and cultural determinants. Emphasis on the Spanish of the San Joaquin Valley.

**AREA III. Reading and Appreciation of Literature****140. Hispanic Fiction and Poetry (3)**

Readings and appreciation of Hispanic fiction and poetry to familiarize the student with the fiction and poetry as art forms.

**144. Children's Literature in Spanish (3) (Former Span 136)**

Study of children's literature written or available in Spanish. Emphasis on predictable difficulties encountered in using such materials in a bilingual teaching situation.

**AREA IV. History of Hispanic Literature****142. Introduction to Spanish Literature (3) (Former Span 150-151)**

Selected readings from those literary works which have fundamentally affected the development of Spanish civilization, from El Cid to Lorca. This course attempts to provide a framework for the study of Spanish literature.

**143. Introduction to Spanish-American Literature (3) (Former Span 153-154)**

Selected readings from those literary works which have fundamentally affected the development of Spanish American civilization, from Hernan Cortes to Octavio Paz. This course attempts to provide a framework for the study of Spanish American literature.

**AREA V. Forms, Periods, and Figures of Hispanic Literature****160. Medieval and Renaissance Literature of Spain (3)**

Study of major works from the main genres such as *El Cid*, *El libro de buen amor*, *La Celestina*.

**161. The Picaresque: Novel of Alienation (3)**

Study of the structure and meaning of such Hispanic Picaresque novels as *El Lazarillo*, *El Buscón*, *El Periquillo Sarniento*.

**163T. The Golden Age: Tradition and Innovation (3; max total 6 if no topic repeated)**

Study of the "comedia" represented by Lope, Cervantes, Tirso, and Calderón; the poetry of Garcilaso, San Juan and Cóngora; the prose of Montemayor, Lope, Gracián, Quevedo, and Cervantes.

**164. Spanish Literature of the Nineteenth Century (3)**

Detailed study of selected works, authors, movements, and genres of the nineteenth century.

**165. Experimental Novel of Generation of '98 (3)**

Study of the novel of Azorín, Baroja, Unamuno, Valle Inclán, with particular attention to their experimentation with form and style.

**166T. Twentieth Century Spanish Literature (3; max total 6 if no topic repeated)**

Readings and discussion of such poets as Machado, Lorca, and Hernández and of such dramatists as Benavente, Valle-Inclán, Lorca, Buero Vallejo, and Alfonso Sastre.

**173. Mexican Literature (3)**

Study of the works of such major Mexican literary figures as Sor Juana, Gutiérrez Nájera, Azuela, and Fuentes.

**175. Literature and Revolution (3)**

Focus on the role of the essay and novel in the attempt to change and revolutionize Hispanic society; works by such writers as Martí, Azuela, Paz, Asturias, Gonzalez-Prada, Castro, and others.

**176T. Twentieth Century Spanish-American Literature (3; max total 6 if no topic repeated)**

(Former Span 105, 107, 171, 172)

Intensive study of selected Spanish-American works including writings of Azuela, Fuentes, Carpentier, Vargas Llosa; outstanding poets such as Neruda, Vallejo, and Paz.

**177T. Hispanic Literature in Translation (3; max total 6 if no topic repeated) (Former Span 177, 178)**

Credit may not be applied to Spanish major and minor requirements. Intensive study of outstanding works of Hispanic literature.

**179. Cervantes in Translation (3)**

Intensive study of *Don Quixote* with special consideration of sources, textual problems, and various critical approaches.

**180T. Major Figures in Hispanic Literature (3; max total 6 if no topic repeated)**

Reading and analysis of the works of one major Hispanic author such as Cervantes, Unamuno, Neruda.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES (Span)**

(See *Course Numbering System—Definitions and Eligibility*)

**215T. Hispanic Culture (3; max total 6)**

Selected topics on the elements of Spanish and Spanish American culture, the expression of culture at different social levels, and differences between Anglo-Saxon and Hispanic values.

**220. Hispanic Linguistics (3; max total 9 if no topic repeated)**

In-depth analysis of the Spanish language through the study of the following areas: diachronic linguistics, synchronic linguistics, and dialectology.

**230. Spanish Literature (3; max total 15 if no topic repeated)**

Seminar in critique and analytical study of selected topics, genres or specific literary figures in each of the following areas: Medieval Period, Renaissance Period, Golden Age, 18th-19th Century, and 20th Century.

**240. Spanish American Literature (3; max total 9 if no topic repeated)**

Seminar in critique and analytical study of selected topics, genres or specific literary figures in each of the following areas: Colonial Period to 1810, 19th Century to 1910, 20th Century.

**250. Directed Reading (3; max total 6)**

Reading of works from a selected reading list in preparation for comprehensive master's degree examination.

**290. Independent Study (2-3; max total 6)**

See *General Information—Independent Study*.

**299. Thesis or Project (3-6; max total 6)**

Prerequisite: See *Master's Degrees-Thesis Requirement*. Preparation, completion and submission of an acceptable thesis or project for the completion of the Master's degree.

**IN-SERVICE COURSES (Span)**

(See *Course Numbering System*.)

**301. Conversation and Composition Review (2; max total 8 if no language repeated)****304. Theory and Practice (2; max total 8)**

## LINGUISTICS DEPARTMENT

### FACULTY

P. J. Mistry, *Department Chairman*

Frederick H. Brengelman ■ Edward R. Gammon ■ Jerry D. Hopkins ■ Carol W. Pfaff ■ George W. Raney ■ Peter C. Wang ■ Raymond S. Weitzman ■ Milton Wohl ■ Jack B. Zeldis

The Linguistics Department offers programs leading to a bachelor of arts, a master of arts, or a minor in linguistics. Courses deal with the nature and structure of language and are relevant to the social and behavioral sciences, as well as to the teaching of English and foreign languages.

### BACHELOR OF ARTS DEGREE

The bachelor of arts degree is offered with a linguistics major in Spanish-English Bilingualism, Black Dialectology, and Teaching English as a Second Language. For details consult the departmental adviser.

### LINGUISTICS MAJOR

The major is intended to provide future teachers with a suitable background for work among bilingual, bidialectal, or non-English speaking students. It consists of 30 units selected according to one of the patterns listed below. Each student plans a program in consultation with his adviser.

<b>Spanish-English Bilingualism</b>	<i>Units</i>
Span-Ling-La R 100 .....	3
Ling 135, Span 132, La R 109.....	9
Approved electives.....	18
	30

<b>Black Dialectology</b>	
Ling 135 .....	3
Elect from Ling 131, 137, 138 .....	6-7
Elect from Bl S 143, 144, 178, La R 109, E Ed 120T .....	6
Approved electives.....	14-15
	30

<b>English as a Second Language</b>	
Ling 135 .....	3
Ling 131, 137, 141 .....	10
Elect from Ling 138, 143, 144, 145, 147, 171.....	10-11
Approved electives.....	6-7
	30

### LINGUISTICS MINOR

A minor in linguistics consists of at least 20 units.

	<i>Units</i>
Ling 135, 137 .....	6
Elect from Ling 138, 140T, 142, 143, 144 .....	8-9
Approved electives in related fields .....	6
	20-21

### CREDENTIAL PROGRAM

For information on the current credential program, consult the departmental advisers and the School of Education; see the section on *Public School Credentials*.

**MASTER OF ARTS DEGREE**

The master of arts degree in linguistics is open to students with undergraduate majors in anthropology, communicative disorders, English, foreign language, mathematics, philosophy, psychology, and other related fields. For specific requirements consult the *Graduate Bulletin* and the departmental adviser; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, See the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

One of the requirements for advancement to candidacy for the master of arts degree in linguistics is the passing of an examination demonstrating a reading knowledge of one foreign language.

**Available Options**

The department offers a master of arts degree in linguistics and options either in Spanish-English bilingualism, Black dialectology or teaching English as a foreign language. The master of arts degree in linguistics with emphasis in French or German is also available to students with suitable backgrounds in these languages. For details consult the *Graduate Bulletin* and the departmental adviser.

**COURSES****LINGUISTICS (Ling)****10. Introduction to Language (3)**

Introduction to the study of language based on a survey of English. Bilingualism/bidialectalism. Relevance of language to history, culture and thought.

**100. Bilingual Studies (3) (Same as La Raza, Span 100)**

History, methodology, and bibliography of bilingual studies. Current research in the field; various programs now in operation. Team teaching by areas represented in the program.

**131. English Dialects (4) (Same as Engl 131. Former Ling 146)**

The regional, social, and stylistic varieties of modern English. Emphasis on Black dialect and on the English of Mexican-Americans.

**134. Structure of English (3) (Same as Engl, Spch 134)**

Not applicable to the English major. Includes pronunciation and the system of word and sentence formation, spelling, styles and varieties of English (such as Mexican-American and Black English); linguistics and reading, a review of traditional grammar, and an introduction to modern transformational grammar.

**135. General Linguistics (3) (Same as Engl, Spch 135)**

An inquiry into the nature of language; methods of analysis and description; sound patterns and grammatical structures of language; traditional and transformational grammar; relationship between linguistics and allied areas.

**137. American English (3) (Same as Engl, Spch 137)**

Prerequisite: Ling 134 or 135. Studies in the linguistic structure of modern English.

**138. History of the English Language (3) (Same as Engl 138)**

Study of the development of the sound system, grammar, vocabulary, and writing system of English.

**140T. Topics in Linguistics (1-4; max total 12 if no topic repeated)**

Topics to be offered at the discretion of the department: historical, contrastive, mathematical, and other areas of linguistics.

**141. English as a Foreign Language (3)**

Theories, techniques, and procedures in TESOL (Teaching English to Speakers of Other Languages); contrastive analysis of target and native language; the audio-lingual method; ESL (English as a Second Language) as a strand in bilingual education; cognitive vs. behaviorist view of language learning.

**142. Phonology (4; max total 8 if no topic repeated)**

Prerequisite: Ling 135. Terms and techniques used in phonetic, phonemic and phonological investigation of languages.

**143. Syntax (4; max total 8 if no topic repeated)**

Prerequisite: Ling 135. Theory and practice in the description of grammatical systems. Comparison of approaches. Practical experience with data.

**144. Field Methods in Linguistics (4)**

Prerequisite: Ling 135. First-hand experience in eliciting linguistic data from informants; practice in analyzing and describing a language.

**145. Historical Linguistics (4)**

Prerequisite: Ling 135. Explanation of similarities among languages; methods of reconstructing past languages and investigating relationship and grouping among languages. Inquiry about the nature and types of linguistic change and their correlation with changes in culture.

**147. Bilingualism (3) (Former EXP 163)**

An examination of psychological and sociological factors affecting individuals who attempt to function simultaneously in two different cultural environments, employing two separate linguistic codes. Review and comparison of past experience as well as current experimental programs in bilingual education.

**148. Sociolinguistics (3)**

Methods of investigation and major findings in the study of the relationship between languages of the world and social class, race, age, sex and other social subcategories. Political and educational implications. Interaction between linguistic and social factors in linguistic variation.

**165. Armenian Linguistics (2) (Same as Arm 165)**

Analysis of the linguistic structure of the Armenian language, including phonology, morphology, and word origins. Place of Armenian in historical linguistics; development of orthography.

**171. Practicum in TESL (3)**

Prerequisite: Concurrent registration in Ling 141 or permission of instructor. Provides practice in teaching English as a second language; includes class visitations and classroom demonstrations; working with non-native speakers; lesson planning, material preparation, language lab work and evaluation of current ESL texts.

**190. Independent Study (1-3; max see reference)**

*See General Information Independent Study.*

**FOREIGN LANGUAGE COURSES****CHINESE (Chin)****1A-B. Elementary Chinese (4-4)**

Not open to students with previous training. Basic structure and pronunciation of Mandarin Chinese; practice in speaking, reading, and writing.

**2A-B. Intermediate Chinese (4-4)**

Prerequisite: Chin 1B or equivalent. Review grammar and syntax; techniques of brush use; speaking and reading.

**101. Advanced Chinese I (3)**

Prerequisite: Chin 2B or equivalent. Advanced readings of modern Chinese essays, newspapers, and magazines to improve student's ability in reading and writing Chinese.

**102. Advanced Chinese II (3)**

Prerequisite: Chin 2B or equivalent. Continuation of Advanced Chinese I with emphasis on Chinese short stories, plays, and literary analysis, political and historical essays of contemporary China.

**HEBREW (Hebr)****1A-B. Basic Hebrew (3-3)**

Basic structure and pronunciation of Hebrew; practice in reading, writing, speaking, and grammar; suitable introduction to both Biblical and modern Hebrew.

**JAPANESE (Japn)****1A-B. Elementary Japanese (4-4)**

Beginning course in modern spoken and written Japanese. Covers learning comprehension and oral practice, basic grammar and sentence patterns. Introduction to reading and writing in Kana and Kanji characters.

**2A-B. Intermediate Japanese (4-4)**

Prerequisite: Japn 1B or equivalent. Intermediate spoken and written Japanese; reading modern Japanese with emphasis on expository writings; translation and oral and written composition.

**101. Advanced Japanese I (3)**

Prerequisite: Japn 2B or equivalent. Advanced readings in modern Japanese, including essays on various topics, newspaper, and magazine articles; techniques of literary Japanese composition; improvement of conversation skills. Lectures in Japanese.

**102. Advanced Japanese II (3)**

Prerequisite: Japn 2B or equivalent. Continuation of Japn 101. Advanced readings in modern Japanese covering literary, cultural, and current affairs topics. Lectures in Japanese.

**GRADUATE COURSES**

*(See Course Numbering System—Definitions and Eligibility)*

**200A-B. Graduate Survey (4-4)**

Prerequisite: permission of instructor. Individually directed readings in linguistics and related subjects.

**231. Seminar in Linguistics (3; max total 12 if no topic repeated)**

Prerequisite: Ling 135 and permission of instructor. Topics to be offered at the discretion of the department: philosophy of language, psycholinguistics, dialectology, and other subjects in general linguistics.

**232. Seminar in English Linguistics (3; max total 12 if no topic repeated)**

Prerequisite: Ling 135 and permission of instructor. Topics to be offered at the discretion of the department: structure of Old, Middle, or Early Modern English; topics in English phonology, grammar, and lexicon.

**242. Phonological Analysis (3) (Former Ling 231)**

Prerequisite: Ling 142 or permission of instructor. The nature of phonological analysis, trends and issues in phonological theories, and phonological analysis of data from a variety of languages.

**243. Syntactic Analysis (3) (Former Ling 231)**

Prerequisite: Ling 143 or permission of instructor. The nature of syntactic analysis, trends and issues of syntactic theories, and syntactic analysis of data from a variety of languages.

**290. Independent Study (1-3; max see reference)**

*See General Information—Independent Study.*

**299. Thesis or Project (2-5, max total 5)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

## PHILOSOPHY DEPARTMENT

### FACULTY

Warren Kessler, *Department Chairman*

A. Wayne Colver ■ Hague D. Foster ■ Geoffrey J. Gibson ■ Elton A. Hall ■ Rendell N. Mabe ■ Jack A. Pitt ■ James W. Slinger ■ James Marvin Smith ■ William B. Uphold, Jr. ■ Harold E. Walker

Philosophy encompasses the study of fundamental questions that arise insistently in different areas of human experience, thought or practice. Whenever, for example, one reflects on the coherence of our common-sense views, or probes the standards used in some art or science, one is engaging in philosophy. The work of the Philosophy Department aims to make this natural activity of thought both richer and more systematic. Courses are offered which provide broad opportunities for self development, acquaintance with world-views of both East and West, and the building of a coherent outlook and critical reason.

Many of the courses offered will be of general interest to all students, while others are designed to explore issues that arise in selected and special areas. All courses stress the importance of dialogue and discussion as a central feature of philosophical development. The participation of students in the work of the Department is therefore always welcomed and encouraged.

The broad compass of philosophy provides a basis for many kinds of lifework, and people who have majors or minors in philosophy can be found in all areas of endeavour, from medicine, law and the ministry, to teaching, social work, and fine arts.

In addition to the regular philosophy major, the Department provides a special option of the Philosophy major in Religious Studies, and a philosophy concentration for the minor in Classical Studies (see p. 81).

### PHILOSOPHY MAJOR

The major in philosophy consists of 28 units, with the following specific requirements:

	<i>Units</i>
(a) Phil 25 or 110.....	4
(b) Electives in history of philosophy, three courses, at least one in ancient philosophy and one in modern philosophy.....	9
(c) Electives in upper division problems of philosophy; at least one in the general area of metaphysics, epistemology or religion, and one in the general area of ethics, aesthetics, and political and social philosophy; at least one of these courses must be a seminar.....	12
(d) Independent study.....	3
	28

*Note: Students intending to pursue graduate study in philosophy should seek the adviser's help in planning adequate preparation.*

### Religious Studies Option

The major in philosophy with a religious studies option consists of 29 units with the following specific requirements:

	<i>Units</i>
Phil 1 or 25.....	4
Phil 115T or 116.....	3
Phil 130T.....	6
Phil 132T, 133, 134.....	6
Phil 175T (Seminar in Religious Studies).....	4
Electives in philosophy, upper division.....	6
	29

**PHILOSOPHY MINOR**

The minor in philosophy consists of 16 units in philosophy, of which at least 6 must be upper division.

**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and the School of Education; see the sections on *Public School Credentials*.

**COURSES****PHILOSOPHY (Phil)****1. Introduction to Philosophy (4)**

Introduction to the basic issues, disputes and methods of traditional and contemporary philosophy, including theory of knowledge, ethics, metaphysics, religion and social theory. Development of skills in analysis, logical thinking and self-expression.

**25. Methods of Reasoning (4)**

Principles and methods of valid inference. Typical topics: forms of deductive inference, basic types of inductive inference, common pitfalls in moral reasoning, problems in reasoning due to the nature of language, and common fallacies found in arguments in everyday life.

**101. Ancient Philosophy (3)**

Development of Western Philosophy from its beginning; the emergence of critical theory, doctrines and schools of thought in Greek and Roman culture. Topics considered may include: "pre-Socratic" philosophy; the work of Plato and Aristotle; Epicurus and the Atomists; Stoicism.

**102. Medieval Philosophy (3)**

Consideration of Western Philosophy—its development, principal figures and schools of thought—from late classical times through the Middle Ages: Neo-Platonism, Augustine to Anselm; Abelard; Theology, "scholastic" thought and revival of Aristotle; Aquinas; the rise of nominalism; William of Ockham.

**103. Bacon to Kant (3)**

Development of early modern philosophy: the search for new scientific methods—Bacon, Descartes, Spinoza, Newton and Locke; empiricism and skepticism—Berkeley and Hume; rationalist metaphysics—Leibniz; influences on moral and political thought—the Enlightenment; Rousseau; Kant's Critical philosophy.

**104. Nineteenth Century Philosophy (3)**

Consideration of the principal figures and systems of thought in philosophy after Kant: the development of Idealism; Hegel and his critics; influential concepts of evolution and historical change; Marxism; Comte's positivism; J. S. Mill; irrationalist currents; Kierkegaard and Nietzsche.

**105. American Philosophy (3)**

Consideration of the principal doctrines, schools, and figures in American Philosophy from Puritans to the present.

**106T. Historical Issues (3; max total 9 if no topic repeated)**

Consideration of special issues or individual philosophers from Plato to Russell.

**107. Twentieth Century Philosophy (3)**

Consideration of developments in philosophy after 1900. Figures and movements may include—Russell, G. E. Moore, Whitehead, Dewey, Husserl, Heidegger, and Sartre; logical positivism, linguistic analysis, pragmatism, phenomenology, existentialism, and contemporary Marxism.

**110. Symbolic Logic (4)**

Prerequisite: Math 75 or Phil 25 or permission of instructor. Rigorous development of deductions; sentential logic, a natural deduction system for the predicate logic; definition of systematic consistency and completeness, proofs of invalidity, consistency, and independence of sentences within predicate logic.

**115T. Theory of Value and Obligation (3; max total 9 if no topic repeated)**

Investigations of selected topics in ethics, political and social philosophy, philosophy of law.

**116. History of Ethics (3)**

Development of the main ethical doctrines of Western Philosophy from Socrates and the Sophists to Hegel and Mill.

**117. Aesthetics (3) (Formerly Phil 115T section)**

Investigations of selected topics in the philosophy of art and beauty; the nature of the artistic process and the work of art; expression and creativity; aesthetic judgment in criticism and experience; the relation of art to moral and political theory.

**120. Introduction to Philosophical Issues (3)**

Not open to students with credit in Phil 1. Prerequisite: junior standing. For students without philosophical background capable of benefiting from lectures on selected philosophical issues without extensive discussion or written work.

**125T. Theory of Knowledge and Reality (3; max total 9 if no topic repeated)**

Investigations of selected topics in metaphysics, epistemology, philosophy of language, and philosophy of science.

**130T. Philosophical-Comparative Studies of Religion (3; max total 9 if no topic repeated)**

Investigations of selected topics in philosophy of religion and comparative religion.

**132T. Literature of the Great Non-Western Religions (3; max total 6 if no topic repeated)**

Investigations of selected scriptures of the great world religions including Hinduism, Buddhism, Taoism, Confucianism, Islam, and others, but excluding Christianity and Judaism.

**133. Literature of the New Testament (3) (Same as Engl 115)**

Discussion and close written analyses of selected texts from the New Testament.

**134. Literature of the Old Testament (3) (Same as Engl 116)**

Discussion and close written analyses of selected texts from the Old Testament.

**135T. Special Topics (3; max total 9 if no topic repeated) (Former Phil 150T)**

Topics of current or interdisciplinary interest or requiring special background.

**160T. Seminar in Historical Problems (4; max total 12 if no topic repeated)**

Prerequisite: one upper division philosophy course, and one unit of independent study or permission of instructor. Intensive investigation of historical periods or figures with extensive writing and supervised research.

**165T. Seminar in Metaphysics and Epistemology (4; max total 12 if no topic repeated)**

Prerequisite: one upper division philosophy course, and one unit of independent study or permission of instructor. Intensive investigation of selected problems in perception, philosophy of mind, philosophy of science, and philosophy of language.

**170T. Seminar in Moral and Political Theory (4; max total 12 if no topic repeated)**

Prerequisite: one upper division philosophy course, and one unit of independent study or permission of instructor. Intensive investigation of problems in ethical reasoning, moral psychology, legal and political theory. Extensive writing and supervised research.

**175T. Seminar in Religious Issues (4; max total 12 if no topic repeated)**

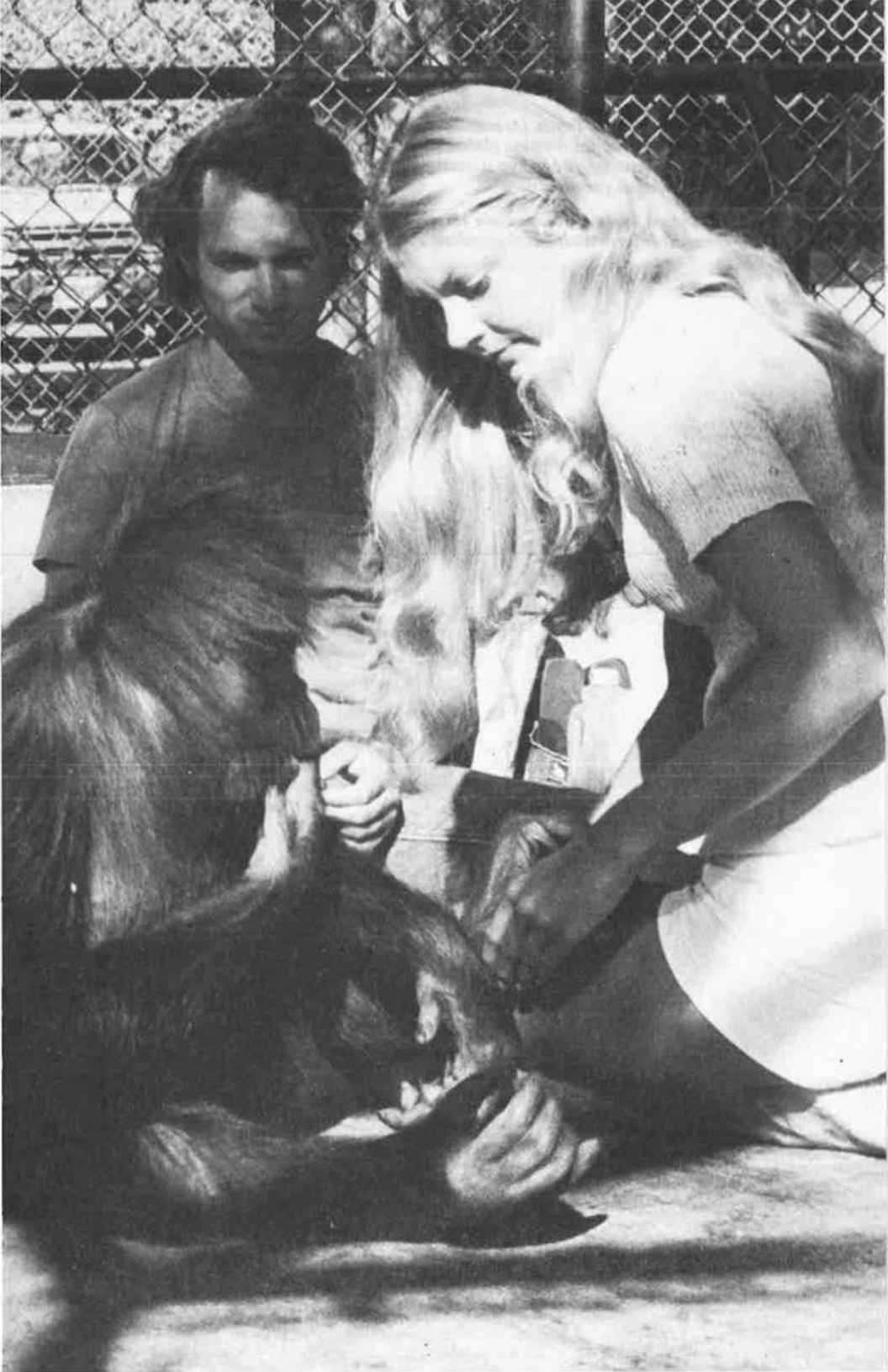
Prerequisite: one upper division philosophy course, and one unit of independent study or permission of instructor. Intensive investigation of problems in philosophical theology, comparative religion, and culture. Extensive writing and supervised research.

**180T. Seminar in Special Topics (4; max total 12 if no topic repeated)**

Prerequisite: one upper division philosophy course, and one unit of independent study, or permission of instructor. Intensive investigation of topics of an interdisciplinary nature or those having special prerequisites.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.



**SCHOOL OF NATURAL SCIENCES**

**Biology Department**

**Chemistry Department**

**Geology Department**

**Mathematics Department**

**Physical Science**

**Physics Department**

**Psychology Department**



# SCHOOL OF NATURAL SCIENCES

**Brandt Kehoe, Dean**

<i>Department</i>	<i>Chairman</i>
Biology.....	Bert A. Tribbey
Chemistry.....	Stephen A. Rodemeyer
Geology.....	Bruce A. Blackerby
Mathematics.....	Burke Zane
Physics.....	Hugh A. Williamson
Psychology.....	Wayne B. Holder

The School of Natural Sciences provides for study in the disciplines of Biology, Chemistry, Geology, Mathematics, Physics, and Psychology.

Instruction in these disciplines is designed to accomplish either of two objectives. The first is to provide enough professional training, at either the undergraduate or graduate level, to serve as a foundation for a career in the discipline or for continued study at the graduate level in pursuit of advanced degrees. The second is to provide a means for all university students to gain an understanding of the world of science and to give students specific skills for use in related disciplines.

## INTERDISCIPLINARY STUDY

The School also offers the opportunity for interdisciplinary science study in courses designed to meet student interest in such areas as environmental studies and ecology, science for public school teachers, and science for health professions.

Students interested in developing an interdisciplinary degree program through the Special Major (page 73) should contact the School Committee on Interdisciplinary Studies through the Dean.

### **Man and the Natural Environment** (17 unit thematic cluster)

This cluster of intensive field courses is presented at the introductory level. Concurrent registration in the four courses listed below is required. Involves approximately one month in the field. Expenses for transportation and food in the field of approximately \$125 should be anticipated. For further information, contact Dean, School of Natural Sciences.

- N Sci 15 Environment Science—Integrative Seminar (2)
- Anth 15 Man's Place in the Natural Environment (5)
- Biol 15 An Ecological Approach to Life Science (5)
- Geol 15 The Earth and Its History (5)

## COURSES

### **NATURAL SCIENCE (N Sci)**

#### **1. The Art of Medicine (1; max total 4)**

Not open to students with credit in N Sci 140T section or EXP 20. Primarily for prehealth-care students. Delivery of health care today. Concepts of the art of medicine presented by community physicians and specialists.

#### **15. Environmental Science: Integrative Seminar (2)**

Concurrent enrollment in Anth 15, Biol 15, Geol 15 required. Portion of *Man and the Natural Environment* Cluster. A study of the interrelationships among the anthropological, biological and geological aspects of man and the natural environment. Team taught.

#### **40T. Topics in Natural Sciences (1-4; max total 12)**

Prerequisite: permission of instructor. Interdisciplinary topics covering such subject matter areas as environmental studies and the impact of science on society.

**100. Clinical Observation: Premedical (2; max total 4 if no study repeated)**

Prerequisite: chemistry through organic, at least one course in anatomy and physiology. Observation of the daily practice of medicine in a physician's office; three different specialties or types of practice observed each semester. (1 lecture, 3 lab hours)

**140T. Topics in Natural Sciences (1-4; max total 12)**

Prerequisite: permission of instructor. Interdisciplinary topics covering such subject matter areas as medical technology and ecology.

## BIOLOGY DEPARTMENT

### FACULTY

Bert A. Tribbey, *Department Chairman*

Gina Arce ■ Robert E. Brown, Jr. ■ Donald J. Burdick ■ Gregor M. Cailliet ■ John H. Carr ■ S. Fai Cheuk ■ David L. Chesemore ■ Corinne Clay ■ Edwin H. Daubs ■ Stephen H. Ervin ■ Ronald L. Evans ■ David E. Grubbs ■ Richard Haas ■ Wallace M. Harmon ■ Barbara Kingsley ■ Karl T. Kleeman ■ A. Mark Kubinski ■ Howard L. Latimer ■ Thomas E. Mallory ■ Jerrome Mangan ■ J. Robert McClintic ■ Ronald W. Meyer ■ C. Joanne Pigg ■ Bryant E. Rees ■ Frederick E. Schreiber ■ Philip N. Smith ■ Richard A. Spieler ■ Arthur E. Staebler ■ Keith M. Standing ■ Vivian A. Vidoli ■ John H. Weiler ■ Lorraine Wiley ■ Keith H. Woodwick

The Biology Department provides a diversified but integrated program encompassing the following fields: biological science, botany, environmental biology, functional biology, microbiology, and zoology. Courses are listed under the headings of biology, botany, entomology, microbiology, physiology, and zoology. The program provides suitable preparation for a wide variety of careers in professional areas such as medicine, nursing, dentistry, veterinary medicine, medical technology, and many other allied health sciences fields, for teaching, for work with various governmental agencies and private companies, and as preparation for advanced degrees and careers in research.

In addition to the general education offerings, the department offers the biology major and minor for the bachelor of arts degree; the bachelor of science degree in microbiology for students planning careers in microbiology and laboratory technology; and master of arts degrees in biology and microbiology.

Faculty advising plays a major role in the department to assist students in preparing for the numerous careers possible in biology. Students should obtain faculty advisors as early as possible in their academic careers and consult with them at least once each semester for assistance in selecting courses and programs that will prepare them for their vocational objectives. Consult the department chairman for advisor assignment.

To assure satisfactory progress, students intending to transfer from community colleges should attempt to complete the following requirements prior to transferring: general education; constitution and government; and the required lower division courses in biology and other fields for their selected departmental program.

Six of The California State University and Colleges, including California State University, Fresno, cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs. For information, consult the department chairman. See *Special Programs—Moss Landing Marine Laboratories*; course descriptions follow Zoology courses.

### PREPROFESSIONAL PREPARATION

A major in the biological sciences is often used as preparation for other professions. For preprofessional programs in dentistry, medicine, and pharmacy, see the *Preprofessional Preparation* section and consult an advisor in the biology department.

### ADVANCED PLACEMENT

See *General Information—Advanced Placement*

### BACHELOR OF ARTS DEGREE IN BIOLOGY

The Biology Department offers a major for the bachelor of arts degree in biology, with options in biological science, botany, environmental biology, functional biology, microbiology, and zoology. Core courses required in all options provide the concepts, terminology, and experiences necessary to handle specialized biological material covered in advanced courses in each option. Selection of options, and of course patterns within options, will provide the required degree of specialization for entering graduate schools and research, professional schools, and vocations requiring a biological background. Students are encouraged to work closely with their faculty advisor in the selection of electives and course alternatives that will best prepare them for their future objectives. The Biological Science option is recommended for students planning to enter secondary teaching and other careers

requiring a broad coverage of biology; the Environmental Biology option is suitable for careers in fish and game management, other occupations requiring a predominantly biological orientation to the environmental sciences, and in marine biology through offerings at the Moss Landing Marine Laboratories; the Functional Biology option provides an in-depth coverage of physiology and cellular biology; options in Botany, Microbiology, and Zoology serve as preparation for careers and graduate work in these specialties. The biology major consists of 40 to 44 units, depending upon the option, of which a minimum of 24 units must be upper division. Students must be reasonably prepared in inorganic and organic chemistry, mathematics through introductory calculus, and statistics. Those students planning to pursue graduate work in biology should consult with their advisor and review the entrance requirements of the graduate school of their choice regarding additional requirements in foreign language, physics, mathematics, and special requirements in biology.

See bachelor of science degree in microbiology.

To complete a biology major for the bachelor of arts degree, students must complete the biology core, one of the options listed below, and additional requirements in related fields as specified in the selected option.

<b>Biology Core:</b>	<i>Units</i>
Bot 1 or equivalent .....	3-5
Zool 1 or equivalent.....	3-5
Biol 120, 130, 140.....	7
	<hr style="width: 100%; border: 0.5px solid black;"/>
	13-17

### BIOLOGY MAJORS

Complete one of the following options:

**Biological Science** Students must include a minimum of 6 ud Botany units and 6 ud Zool-Ent-Phy units in this option.

Biology Core .....	13-17
Micro 91 or 104 .....	3-5
Select a minimum of one course from each of the following categories:	
A. Biol 125, 133; Bot 107; Zool 138, 175; M Sci 103 .....	3-4
B. Biol 160, 180; Bot 104, 137; Ent 110; Phy 140, 170; Micro 161, 189; M Sci 123.....	3-4
C. Bot 106, 134, 135, 136; Ent 101; Zool 103, 113, 114; M Sci 111, 121, 131 .....	3-4
Biological Science electives .....	6-15
	<hr style="width: 100%; border: 0.5px solid black;"/>
	40

*Additional requirements:* Chem (including organic); Math 70; Math 105 or Psych 142.

### Botany

Biology Core .....	13-17
Upper division electives selected from Biol, Micro, Zool-Ent-Phy courses.....	6
Botany 104 .....	4
Select a minimum of one course from each of the following categories:	
A. Bot 106, 107 .....	3-4
B. Bot 134, 136, 137 .....	4
C. Bot 135, 140, 142; M Sci 131 .....	3-4
Additional Botany electives .....	1-7
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	40

*Additional requirements:* Chem (including organic); Math 70; Math 105 or Psych 142.

**Environmental Biology**

Biology Core .....	13-17
Select a minimum of one course from two of the following categories: .....	6-8
A. Bot 106, 142; M Sci 131, 132	
B. Ent 101, Zool 114, M Sci 121	
C. Zool 103, 113; M Sci 111	
Select a minimum of one course from two of the following categories: .....	6-8
A. Biol 133, Zool 136; M Sci 103	
B. Bot 107	
C. Zool 134, 138	
Select one course from: Bot 104, Phy 140, Micro 91, M Sci 123 .....	3-4
Additional Biological Science electives .....	3-12
	40

*Additional requirements:* Chem (including organic); Math 70; Math 105 or Psych 142; and a minimum of one additional course selected from Math 20, Phys 1A, M Sci 101, 151; Geol 1, 105, 109; Plant 130.

**Functional Biology**

Biology Core .....	13-17
Select at least two courses from Biol 180, Phy 170, Micro 104 .....	8-9
Select at least two courses from Biol 160, Bot 104, Ent 110, Phy 140, Micro 161, M Sci 123 .....	7-8
Additional Biological Science electives .....	6-12
	40

*Additional requirements:* Chem 1AB or 4AB, 28, 128, 105, 109, 150 or 155; 8 units Physics; Math 70; Math 105 or Psych 142.

**Microbiology**

Biology Core .....	13-17
Micro 104, 117, 161 .....	13
Select at least three courses from Micro 112A, 112B, 118, 150, 185, 189; Zool 108, 158 .....	6-14
Biology electives .....	0-12
	44

*Additional requirements:* Chem 1AB, 8 (or 28 and 128), 105, 109, 155, 156; Phys 1AB or 2AB; Math 70; Math 105 or Psych 142.

**Zoology**

Biology Core .....	13-17
Upper division electives selected from Biol, Micro, or Bot courses .....	6
Select a minimum of one course from each of the following categories:	
A. Ent 110, Phy 140, M Sci 123 .....	3-4
B. Ent 101, Zool 114, M Sci 121 .....	3-4
C. Zool 103, 113, 160; M Sci 111 .....	3-4
Additional Zool-Ent-Phy electives .....	5-12
	40

*Additional requirements:* Chem (including organic); Math 70; Math 105 or Psych 142.

**SUGGESTED SEQUENCE OF COURSES FOR BACHELOR OF ARTS DEGREE MAJOR**

In addition to courses required for the major, general education requirements and electives should be included to bring total to 15-17 units per semester. A total of 124 units must be included for the bachelor of arts degree. Electives may include minor and credential requirements. (See *Degrees and Credentials*).

During the first two years, students should attempt to complete most general education requirements; the constitution and government requirements; Zool 1 and Bot 1; and all additional lower division requirements in the option they have selected. Biol 120, 130, 140, and Math 105 or Psych 142 should be completed as early as possible after becoming eligible to receive upper division credit, preferably no later than the end of the third year. The remainder of the third and fourth years should be spent completing requirements for the selected option, and electives in biology and other fields.

### BACHELOR OF SCIENCE DEGREE IN MICROBIOLOGY

The bachelor of science degree for microbiology is offered for students preparing for careers in microbiology and laboratory technology, especially clinical laboratory technology. This degree requires 128 units. With judicious selection of electives, this major may also serve as preparation for graduate study and public health or industrial microbiology careers. Such careers would include the fermentation industries, pollution control, food technology, biologics production, and others. For the clinical laboratory technology examination, the California Department of Health requires a one year internship. The *California Administrative Code* provides that this requirement may be satisfied through a postbaccalaureate activity or it may be included as part of the baccalaureate curriculum. Microbiology 191 and 192 provide the academic vehicle for completing the internship as a part of the degree program. Students interested in this approach must consult an academic advisor immediately upon entering the program.

#### *Microbiology Major for the B.S. Degree*

	<i>Units</i>
Micro 104, 112A, 112B, 117*, 118*, 150*, 185* .....	26
Phy 1 .....	4
Zool 108*, 158 .....	6

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36

*Additional requirements:* Bot 10; Zool 1; Chem 2AB, 8, 105, 109, 150, 151, 153\*, 154\* Phys 125 (see General Education Requirements).

\* Microbiology 191 and 192 may be substituted for the starred courses; permission of the academic advisor is required.

### SUGGESTED SEQUENCE OF COURSES FOR BACHELOR OF SCIENCE DEGREE MAJOR

1st year: Bot 10, Zool 1; Chem 2AB

2nd year: Chem 8, 109; Micro 104, Phy 1; Phys 125

3rd and 4th years: Micro 112AB, 117\*, 118\*, 150\*, 185\*; Chem 105, 150, 151, 153\*, 154\*; Zool 108\*, 158. (\*or Micro 191 and 192 may be substituted for the starred courses during the fourth year with permission of academic advisor)

### BIOLOGY MINOR

The biology minor consists of 20 units of which 12 must be upper division.

	<i>Units</i>
Bot 10 and Zool 10 or equivalent.....	6-10
Biol 112 or an approved field course (see below) .....	3
Biol 120 .....	3
Biology electives (6 units ud) .....	6-8

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20-22

*Approved Field Courses:* Biol 112, 133, 208, Bot 106, 107, Ent 101, Zool 113, 114, 134, 135, 137, 138, 140, 165.

*Additional Requirements:* P Sci 10 and Chem 2A or 1A

### CREDENTIAL PROGRAM

For information on the current credential program, consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

### MASTER OF ARTS DEGREES

The Biology Department offers master of arts degrees in biology and microbiology.

**BIOLOGY**

The graduate program for the master of arts degree in biology is based on the equivalent of a California State University, Fresno undergraduate major in biology, botany, or zoology. Eighteen of the 30 units required for the degree must be in biological science. For specific requirements consult the department graduate adviser; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**MICROBIOLOGY**

The master of arts degree program in microbiology provides advanced educational opportunities for certain in-service people (e.g. medical technologists) as well as those newly completing the baccalaureate degree. The curriculum is also designed to meet the needs of those seeking the master of arts degree as a terminal graduate degree for professional advancement and those planning further education leading to the doctorate in bacteriology, microbiology, or molecular biology.

**BIOLOGY COURSES****BIOLOGY (Biol)****10. Life Science (3)**

Not open to students with credit in Bot 1 or Zool 1. Principles of biology related to the cell, maintenance, and relation of living organisms, heredity and elementary processes of evolution, and basic principles of ecology. (2 lecture, 2 lab hours)

**15. An Ecological Approach to Life Science (5)**

Concurrent Enrollment in Anth 15, Geol 15, N Sci 15 required. Portion of *Man and the Natural Environment* Cluster (see p. 275). An introduction to biological concepts and investigational methods in the natural environment. Lecture, lab, and field work.

**20. Biology and Society (3)**

Prerequisite: one college biology course. Impact of recent biological discoveries upon society, now and for the future; man's animal inheritance, human genetics, genetic engineering, organ transplants, and population problems.

**101. Nature Study (3)**

Evaluation of natural science programs at the elementary level; optional opportunities in developing K-9 environmental study material or designing environmental awareness topics for adult groups; emphasis on life science programs dealing with the interaction of man and the biosphere. (2 lecture, 3 lab hours)

**105. Human Ecology (3) (Former Biol 185T)**

Study of man's struggle with his environment from the beginning of civilization to the present; emphasis on current environmental problems.

**112. Field Biology (3)**

For biology minors only. Prerequisite: Bot 10, Zool 10 or equivalent. Local environmental and biotic interdependencies. (2 lecture, 3 lab or field hours \*)

**115. Symbiology (3)**

Prerequisite: Biol 130, 140, or permission of instructor. The biology of symbiotic associations. (2 lecture, 3 lab hours)

**120. Introduction to Genetics (3)**

Prerequisite: college zoology or botany. Principles of biological inheritance, including gene structure, gene function, statistical methods, problem solving, and human genetics.

**120L. Genetics Laboratory (2)**

Prerequisite: Biol 120 or permission of instructor. Experimental studies on inheritance in animals, plants, bacteria and viruses. (6 lab hours)

\* Late afternoon, Saturday and/or overnight field trips may be required.

**125. Organic Evolution (3)**

Biol 120 recommended. The study of evolutionary processes and patterns. (2 lecture, 1 discussion hour)

**130. Introduction to Cell Biology (2)**

Not open to students with credit in Biol 100. Prerequisite: Bot 1 and Zool 1, or equivalent; organic chemistry recommended. Principles of cell biology at the molecular, cell organelle, and whole cell level. Includes material related to both procaryotic and eucaryotic cells.

**133. Aquatic Biology (4)**

Prerequisite: Biol 140 or permission of instructor. Physical-chemical features of inland waters as related to their biology; community structure and function, ecological interactions, adaptations, and identification of aquatic organisms. (2 lecture, 6 lab or field hours, including weekend field trips \*)

**140. Introduction to Ecology (2)**

Not open to students with credit in Biol 100. Prerequisite: Bot 1 and Zool 1, or equivalent. Major concepts related to structure, function, organization, and regulation at the population, community, and ecosystem levels.

**150. Electron Microscopy (4)**

Prerequisite: permission of instructor. Preparation and examination of biological specimens. Basics of electron microscopy and interpretation of electronographs. (2 lecture, 6 lab hours)

**155. Marine Biology (3) (Former Biol 185T)**

Prerequisite: college biology, botany, or zoology. Introduction to the marine environment with emphasis on the biological aspects; systematics, ecology, and morphological and physiological adaptations of marine organisms, especially intertidal and shallow water forms; pollution; utilization of marine resources. (One field trip required)

**157. Conservation of Natural Resources (3) (Same as E Ed 157)**

Prerequisite: biological and physical science. Problems in conservation of natural resources in the United States; water supply, soils, minerals, metals, petroleum, natural gas, grasslands, forests, fisheries, wildlife, and recreational areas; local, state, and national plans and organizations for conservation; educational implications and techniques.

**160. Developmental Biology (3) (Former Biol 185T)**

Prerequisite: Biol 120, 130. Investigations concerning the variety of mechanisms acting during the several stages of development of the living organism, from gamete formation to morphological and biochemical differentiation of organ systems; emphasis on differential genetic control.

**162. Biological Methods and Techniques (3)**

For credential candidates only. Exploring innovative programs in biology; appraising instructional procedures; designing and conducting laboratory investigations; examining evaluative techniques; preparing and demonstrating an instructional unit. (2 lecture, 3 lab hours)

**180. Cytology (4)**

Prerequisite: college biology course and a physiology or chemistry course. Methods of cell research; cellular ultrastructure, cell function as an expression of structure. (3 lecture, 3 lab hours)

**185T. Topics in Biology (1-4; max total 6)**

Prerequisite: permission of instructor. Investigation of selected areas in the field of biology.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES (Biol)**

(See *Course Numbering System—Definitions and Eligibility*)

\* Late afternoon, Saturday and/or overnight field trips may be required.

**200. Principles and Great Experiments in Biology (2)**

Development and influence of current biological thought.

**202. Cytogenetics (3)**

Prerequisite: Biol 120. Seminars in structure, behavior, and function of chromosomes.

**204. Biology of Speciation (2)**

Prerequisite: Biol 120 and an evolution course or permission of instructor. Evolution of the species as a unit of biological organization.

**206. Principles of Taxonomy (2)**

Zoological nomenclature and related fields.

**208. Field Work in Biology (1-6; max total 6)**

Prerequisite: permission of instructor. Botanical and zoological field studies.\*

**220. Insect Toxicology (3)**

Prerequisite: Biol 101, Chem 8. Mode of action of insecticides and other toxicants in insects and other animals; physical and chemical properties. (2 lecture, 3 lab hours)

**225. Insect Taxonomy (2; max total 4)**

Prerequisite: Ent 101, 115. Identification and classification of major and specific groups of family and generic status. (6 lab hours)

**250. Scientific Research Reporting (2)**

Prerequisite: permission of instructor. Techniques of scientific drawing and writing, illustrating emphasized. (1 lecture, 3 lab hours)

**255T. Topics in Botany (2-3; max total 8)**

Prerequisite: permission of instructor. Investigation of selected areas in the field of botany: basic metabolism, evolution of cultivated plants, instrumentation, plant ultrastructure, plant symbiotic association.

**260T. Topics in Biology (2-3; max total 8)**

Prerequisite: permission of instructor. Investigation of selected areas not covered in current courses or advanced studies in a given area.

**265T. Topics in Physiology (2-3; max total 8)**

Prerequisite: permission of instructor. Investigation of selected areas in the field of physiology: endocrines, chemical physiology.

**270T. Topics in Zoology (2-3; max total 8)**

Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area: for example, protozoology, quantitative zoology, cytogenetics.

**275. Zoogeography (3)**

Prerequisite: Zool 113 or permission of instructor. Seminar in descriptive and ecological geography of animal groups.

**281T. Seminar in Biological Science (1; max total 5, max 2 in one field)**

Prerequisite: permission of instructor. Reviews and reports on current literature in the various phases of biology.

**282. Biology Colloquium (1; max total 2)**

Experience in evaluation and critique of research presentations of students, faculty, and other scientists. Student must attend a minimum of ten approved research-oriented colloquia and participate in discussions and/or submit written reports.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

\* Late afternoon, Saturday and/or overnight field trips may be required.

**299. Thesis (2–4; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**302T. Topics in Biology (3; max total 6)****BOTANY (Bot)****1. General Botany (5)**

Students with credit in Bot 10 will receive only 2 units of credit. Prerequisite to most upper division botany courses. Fundamentals of structure and function in seed plants; survey of plant kingdom. (3 lecture, 6 lab hours)

**10. Plant Biology (3)**

Not open to students with credit in Bot 1. Structure, function, and development of plants, including topics in heredity, ecology, and evolution. (2 lecture, 2 lab hours)

**104. Plant Physiology (4)**

Prerequisite: college botany, Chem 1A or 2A–B; organic chemistry recommended. General metabolism and related processes. (2 lecture, 6 lab hours)

**106. Plant Taxonomy (4)**

Prerequisite: college botany. Principles of plant classification; local flora. (1 lecture, 9 lab or field hours \*)

**107. Plant Ecology (3)**

Prerequisite: one year college biology. Interrelations of plants and environment. (2 lecture, 3 lab or field hours \*)

**116. Plant Microtechnique (3)**

Prerequisite: Bot 1 or 10 or the equivalent. Methods of preparing plant materials for microscopic examination, including tissue preparation, sectioning, staining, and photomicrography. (1 lecture, 6 lab hours)

**134. Plant Anatomy (4)**

Prerequisite: college botany. Initiation, development and structure of cells, tissues and tissue systems in roots, stems and leaves. (2 lecture, 6 lab hours)

**135. Morphology of Nonvascular Plants (3)**

Prerequisite: college botany. Comparative structure and phylogeny of the fungi, algae, mosses, and liverworts. (2 lecture, 3 lab hours)

**136. Morphology of Vascular Plants (4)**

Prerequisite: college botany. Comparative structure and phylogeny of ferns and seed plants. (2 lecture, 6 lab hours)

**137. Plant Morphogenesis (4)**

Prerequisite: Bot 1 or 10. Genetic, physiologic, and morphogenetic factors involved in the organization and development of plants. (2 lecture, 6 lab hours)

**140. General Mycology (4)**

Prerequisite: college botany or college microbiology. Structure, development, physiology, classification, and economic importance of representative genera and species of the fungi. (2 lecture, 6 lab hours, including field trips)

**142. Algology (4)**

Prerequisite: Bot 1 or equivalent. Morphology, cytology, ecology, physiology, economic importance and cultivation of the algae. (2 lecture, 6 lab or field hours \*)

\* Late afternoon, Saturday and/or overnight field trips may be required.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 Series.** Graduate courses are listed under *Biology*.

**ENTOMOLOGY (Ent)****101. General Entomology (3)**

Prerequisite: college zoology or one year of biology. Anatomy, physiology, life history, and classification of insects and other arthropods. (2 lecture, 3 lab or field hours \*)

**106. Economic Entomology (3) (See Plant 121)****107. Medical Entomology (3)**

Prerequisite: junior standing. Arthropod-borne diseases of man and animals and arthropod vectors of the diseases.

**107L. Medical Entomology Laboratory (1)**

Prerequisite or concurrently: Ent 107. (3 lab hours)

**110. Insect Physiology (3)**

Prerequisite: college zoology; Ent 101 recommended. Principles of physiology as applied to insects; functions of insect body, tissues, and organs. (2 lecture, 3 lab or demonstration hours)

**115. Insect Morphology (4)**

Prerequisite: Ent 101. Comparative study of the form and structure of insects; external and internal anatomy. (2 lecture, 6 lab hours)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*

**200 Series.** Graduate courses are listed under *Biology*.

**MICROBIOLOGY (Micro)****20. Basics of Microbiology (2)**

Not open to biology majors. Prerequisite: Chem 2A-B or 2A-C, Bot 1 or 10, or Phy 1. Introduction to the organisms constituting the field of microbiology; principles and selected practical applications.

**21. Microbial Applications (3)**

Not open to biology majors or to students with credit in Micro 20 prior to fall 1971. Prerequisite: Micro 20 or concurrent registration. Foundation principles. Specific microbial applications pertinent to the enrollees. (1 lecture, 6 lab hours)

**91. Principles of the Microbial World (3) (Former Micro 101)**

Prerequisite: Bot 1 and Zool 1, or equivalent. A study of microbial cells and their functions; particular emphasis on characterization and study of microorganisms from natural environments; uniculture and multiculture techniques emphasized. (2 lecture, 3 lab hours)

**104. Microbiology (5)**

For majors. Prerequisite: organic chemistry; Bot 10 or 1. Morphological and physiological consideration of the Schizomycetes and selected unicellular Eumycetes; techniques, illustration of principles, and determinative bacteriology in the laboratory. (3 lecture, 6 lab hours)

**112A. Clinical Microbiology (5)**

Prerequisite: Micro 104. Serological principles and procedures; an intensive study of the more important viral and parasitic etiological agents of human infections with emphasis on their diagnosis. (3 lecture, 6 lab hours)

\* Late afternoon, Saturday, and/or overnight field trips may be required.

**112B. Clinical Microbiology (5)**

Prerequisite: Micro 104. An intensive study of the more important bacterial and mycotic etiological agents of human infections with emphasis on their diagnosis. (3 lecture, 6 lab hours)

**117. Immunobiology (4)**

Prerequisite: Micro 104. Systemic and cellular biology of innate and specific immune response; illustration of principles and technique development in the laboratory. (2 lecture, 6 lab hours)

**118. Bacteriology of Human Disease (3)**

Prerequisite: Micro 104, 117. Bacterial, etiological agents of human disease. (1 lecture, 6 lab hours)

**150. Medical Mycology (2)**

Prerequisite: Micro 112A, 112B, or permission of instructor. Morphology, physiology, and principles of pathogenicity of selected fungal agents of human and animal disease. (1 lecture, 3 lab hours).

**160T. Topics in Microbiology (1-4; max total 4)**

Prerequisite: permission of instructor. Investigation of selected areas in microbiology.

**161. Microbial Physiology (4)**

Prerequisite: Micro 104. Structure and physiological functions in the microbial cell. (2 lecture, 6 lab hours)

**185. Virology (2)**

Prerequisite: college biology and organic chemistry. Structure and composition of viruses; biology and chemistry of viral replication.

**189. Microbial Genetics (4)**

Prerequisite: Biol 120. The nature of genetic information, its mutation, transfer, and recombination in microbial cells. (2 lecture hours, 6 lab hours)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191. Clinical Laboratory Foundations Seminar (2-3)**

Prerequisite: Chem 150, 151; Micro 112A-B; Zool 158. Principles and practices in the clinical laboratory as applied to hematology, serology, blood banking, biochemistry, and microbiology.

**192. Clinical Laboratory Practicum (8-12)**

Prerequisite: Micro 191 (or concurrent). Bench instruction and clinical experience in diagnostic procedures at the rate of forty (40) hours per week.

**GRADUATE COURSES (Micro)**

(See *Course Numbering Systems—Definitions and Eligibility*)

**256. Advanced General Microbiology (3)**

Intensive study of microbial cell structures and their relationship to physiological activities of the cell; enrichment isolation procedures and physiological activities of selected bacterial species, including autotrophic and photosynthetic organisms. (2 lecture, 3 lab hours)

**258. Experimental Virology (3)**

Prerequisite: permission of instructor. Experimental procedures used in bacteriophage and animal virus research; collection, interpretation and presentation of data. (1 lecture, 6 lab hours)

**260T. Topics in Microbiology (2-3; max total 8)**

Prerequisite: permission of instructor. Intensive investigation of selected areas in microbiology.

**281T. Seminar in Microbiology (1; max total 4 if no topic repeated)**

Prerequisite: permission of instructor. Reviews and reports on current literature in the various phases of microbiology.

**290. Independent Study (1-3; max total see reference)**

See *General Information—Independent Study*.

**299. Thesis (2-4; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

**PHYSIOLOGY (Phy)****1. Human Physiology (4)**

Prerequisite: one year of college chemistry and a college biology course. Detailed study of the functions of the human body. (3 lecture, 3 lab hours)

**22. Human Anatomy and Physiology (4)**

Not open to students having credit in human anatomy or human physiology. Structure and function of cells and tissues; the skeletal, muscular, and nervous systems and the special senses of the human body. (3 lecture, 3 lab hours)

**23. Human Anatomy and Physiology (4)**

Prerequisite: Phy 22. Structure and function of the circulatory, respiratory, digestive, urinary, reproductive and endocrine systems; metabolism of the human body. (3 lecture, 3 lab hours)

**140. Comparative Animal Physiology (4)**

Prerequisite: one year of college chemistry, general zoology, or permission of instructor. Evolution of physiological systems; functional adaptations to different environments; physiological principles as applied to animals. (3 lecture, 3 lab hours)

**155. Neuroanatomy (4)**

Prerequisite: Phy 22 and 23, or permission of instructor. Macroscopic and microscopic study of the structure and functional relationships of the mammalian nervous system. (3 lecture, 3 lab hours)

**160. Neurophysiology (4)**

Prerequisite: Phy 1 or 22 and 23, or permission of instructor. Advanced regulatory physiology of the central and peripheral nervous systems including modern developments in neuron physiology and function. (3 lecture, 3 lab hours)

**170. Cell Physiology (4)**

Prerequisite: Organic chemistry. Molecular structure, function, and origin of cellular components and organelles. (3 lecture, 3 lab hours)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 Series.** Graduate courses are listed under *Biology*.

**ZOOLOGY (Zool)****1. General Zoology (5)**

Students with credit in Zool 10 will receive only 2 units of credit. Prerequisite to most upper division courses in zoology. Principles of animal biology and survey of major phyla. (3 lecture, 6 lab hours)

**10. Animal Biology (3)**

Not open to students with credit in Zool 1. Structural and functional comparison of animals; principles and human implications of inheritance, evolution, and ecology; physiology as applied to man. (2 lecture, 2 lab hours)

**103. Vertebrate Structure and Function (4)**

Not open to students with credit in Zool 164. Prerequisite: college zoology. Study of structure and function of vertebrates. Examples of living vertebrates from each class are studied in the laboratory. (3 lecture, 3 lab hours)

**108. Parasitology (2)**

Prerequisite: college zoology, Chem 1A or 2A-B. Micro 112A or concurrent enrollment in Zool 108L required for credit. Biology of parasites.

**108L. Parasitology Laboratory (2)**

Prerequisite: concurrent enrollment in Zool 108. Laboratory studies on the biology of parasites. (6 lab hours)

**113. Natural History of Vertebrates (4)**

Prerequisite: college zoology. Vertebrate classes; natural history of local species. (3 lecture, 3 lab or field hours \*)

**114. Invertebrate Zoology (3)**

Prerequisite: college zoology. Invertebrates exclusive of insects, parasitic protozoa and helminths. (2 lecture, 3 lab or field hours \*)

**115. Protozoology (3)**

Prerequisite: Biol 130, 140 or permission of instructor. The biology of protozoan organisms. (2 lecture, 3 lab hours)

**116. Zoological Microtechnique (3)**

Prerequisite: college zoology or equivalent. Methods of preparing zoological materials for microscopic examination, including tissue preparation, sectioning, staining, and photomicrography. (1 lecture, 6 lab hours)

**130. Animal Behavior (3)**

Prerequisite: college zoology or permission of instructor; recommended, one course in ecology or natural history. Principles of ethology with emphasis on mechanisms of behavior. (2 lecture, 3 lab hours \*)

**134. Wildlife Management (3)**

Prerequisite: Zool 103 or 113 or permission of instructor. Relation of vertebrates to human affairs. (2 lecture, 3 lab or field hours \*)

**135. Mammalogy (3)**

Prerequisite: Zool 103 or 113 or permission of instructor. Mammals of the world with emphasis on local species. (2 lecture, 3 lab or field hours \*)

**136. Fisheries Biology and Management (3) (Former Biol 185T)**

Prerequisite: Biol 140, Zool 103 or 113, and permission of instructor. Biology of fishes in relation to their environment; physiological population and community ecology of fishes emphasized and related to principles, problems, and techniques of managing aquatic systems. (2 lecture, 3 lab or field hours, including weekend field trips)

**137. Herpetology (3)**

Prerequisite: Zool 103 or 113 or permission of instructor. Reptiles and amphibians of the world with emphasis on local species. (2 lecture, 3 lab or field hours \*)

**138. Animal Ecology (3)**

Prerequisite: college biology, including zoology; or permission of instructor. Environmental relationships of local vertebrates. (2 lecture, 3 lab or field hours \*)

**140. Ichthyology (3)**

Prerequisite: Zool 103 or 113 or permission of instructor. Fishes of the world with emphasis on California fishes, freshwater and marine. (2 lecture, 3 lab or field hours \*)

\* Late afternoon, Saturday and/or overnight field trips may be required.

**157. Histology (4)**

Prerequisite: college zoology. Identification and study of vertebrate cells, tissues, and organs. (2 lecture, 6 lab hours)

**158. Hematology (4)**

Prerequisite: Phy 1 or Zool 157. Development, structure, function, and identification of the cellular elements of blood and of those plasma constituents involved in blood clotting. (2 lecture, 6 lab hours)

**160. Vertebrate Embryology (4)**

Prerequisite: college zoology. Morphogenesis of vertebrates from gamete formation through organogenesis, including physiological and experimental aspects of development. Laboratory emphasis on frog, chick and pig. (2 lecture, 6 lab hours)

**165. Ornithology (3)**

Prerequisite: Zool 103 or 113 or permission of instructor. Introduction to the identification and natural history of birds with emphasis on local species. (2 lecture, 3 lab or field hours \*)

**175. Vertebrate Evolution (3)**

Prerequisite: Biol 120; Zool 103 or 113 or permission of instructor. The course of evolution of the higher vertebrates including present concepts of speciation.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 Series.** Graduate courses are listed under *Biology*.

\* Late afternoon Saturday and/or overnight field trips may be required.

## MOSS LANDING MARINE LABORATORIES

## COURSES

**MARINE SCIENCES (M Sci)**

*Note: The following courses are offered at the Moss Landing Marine Laboratories. See Special Programs—Moss Landing Marine Laboratories; see also Geol 109, M Sci 101, 102, 103, and 104 usually recommended for first semesters of full-time students.*

*The Biology Department will accept only the following Moss Landing Marine Laboratories courses for major credit as indicated. Botany: M Sci 131, 132. Zoology: M Sci 111, 112, 113, 121, 122, 123. Biology elective: M Sci 103, 104.*

**101. General Oceanography (4)**

Prerequisite: college chemistry and biology. An interdisciplinary examination of physical and chemical characteristics of seawater, distribution and effects of ocean currents, geology of the ocean floor and relations of organisms to the marine environment. (3 lecture, 3 lab or field hours)

**102. Marine Science Techniques (3)**

Prerequisite: college chemistry and algebra. Introductory field and laboratory practice in the use of instruments for collection, analysis, and interpretation of data on the marine environment. (2 lecture, 3 lab hours)

**103. Marine Ecology (4) (Former M Sci 161)**

Prerequisite: ecology and statistics (or concurrent registration in M Sci 104), or permission of instructor. A field-oriented introduction to the interrelationships between marine and estuarine organisms and their environment with emphasis on quantitative data collection and analysis. (2 lecture, 6 lab or field hours)

**104. Quantitative Marine Science (3) (Former M Sci 185T)**

Prerequisite: college mathematics. The mathematical methods for analysis of biological, chemical and physical data from the marine environment; experimental design, parametric and non-parametric statistics. (2 lecture, 3 lab or field hours)

**105. Marine Science Diving (3) (Former M Sci 153) (Former M L 185.4)**

Prerequisite: upper division science major; ability to pass swimming test. Not applicable to Biology major. Skin and SCUBA diving course; five ocean dives include underwater sampling and survey techniques. Successful completion gives NAUI and MLML certification. (1½ lecture, 2½ pool and ocean hours, and 5 Saturdays)

**106. Scuba Marine Research (3) (Former M Sci 185T)**

Prerequisite: M Sci 105 or equivalent and approval of interviewing board. Not applicable to Biology major. SCUBA techniques for ocean and estuarine environmental research, instruction and field projects in underwater navigation and mapping, temporary and permanent transect installation and analysis, tagging of invertebrates and fishes, and general underwater work. (1 lecture, 6 lab or field hours)

**111. Zoology of Marine Vertebrates (4)**

Prerequisite: college zoology or equivalent; M Sci 103 recommended. Field-oriented study of the natural history, ethology, physiology, identification, and systematics of vertebrates living in or associated with marine, estuarine, and shore communities; interrelationships among organisms within these environments. (2 lecture, 6 lab or field hours)

**112. Marine Birds and Mammals (4) (Former M Sci 185T)**

Prerequisite: upper division vertebrate zoology or M Sci 111, or permission of instructor; M Sci 103 recommended. Systematics, morphology, ecology and general biology of marine birds and mammals. (2 lecture, 6 lab or field hours)

**113. Marine Ichthyology (4) (Former M Sci 185T)**

Prerequisite: M Sci 111, or permission of instructor. Taxonomy, morphology, and ecology of fishes. Both field and laboratory work concentrate on the structure, function and habits of marine fishes and the ecological interactions of these fishes with their biotic and abiotic surroundings. (2 lecture, 6 lab or field hours)

**121. Marine Invertebrate Zoology (4)**

Prerequisite: college zoology or permission of instructor; M Sci 103 recommended. A field-oriented introduction to the anatomy, embryology, systematics and evolution of the marine invertebrate groups; emphasis on field observation, identification and systematics. (2 lecture, 6 lab or field hours)

**122. Marine Invertebrate Embryology (4) (Former M Sci 185T)**

Prerequisite: M Sci 121, cell biology or biochemistry strongly recommended, or permission of instructor. Survey of principles of developmental biology, concentrating on experimental evidence obtained using invertebrate material. Laboratory observations will cover the embryology of lower invertebrates, molluscs, crustacea, echinoderms, and protochordates. (2 lecture, 6 lab or field hours)

**123. Marine Invertebrate Physiology (4) (Former M Sci 185T)**

Prerequisite: M Sci 121 and general physiology, or permission of instructor. Comparative physiology of the invertebrates; laboratory problems on nutrition, respiration, osmotic regulation, coordination, and other physiological functions. General principles of physiology discussed using examples from the invertebrate phyla. (2 lecture, 6 lab hours)

**131. Marine Phycology (4)**

Prerequisite: college botany; M Sci 103 recommended. The biology of marine algae with emphasis on identification, life histories, ecology, and systematics. (2 lecture, 6 lab or field hours)

**132. Introduction to Marine Plankton (4) (Former M Sci 124)**

Prerequisite: M Sci 101; M Sci 103 recommended. Identification, distribution and ecology of phytoplankton and zooplankton; introduction to sampling and analytical procedures. (2 lecture, 6 lab or field hours)

**141. Geological Oceanography (3)**

Prerequisite or concurrent: M Sci 101 and 102. Structures, physiography, and sediments of the sea bottom and shoreline. (2 lecture, 3 lab or field hours)

**142. Marine Biogenic Sedimentation (3) (Former M Sci 137) (Former M L 185.2)**

Prerequisite: M Sci 101 and college geology and biology, or permission of instructor. Interdisciplinary studies of the provenance, biologic and geologic composition of marine sediments and of the organisms contributing to their formation; sedimentary processes affecting these sediments. (2 lecture, 3 lab or field hours)

**143. Coastal Geomorphology (3) (Former M Sci 135) (Former M L 185.2)**

Prerequisite: physical geology or physical geography. A geologic history and formation of the shoreline. (2 lecture, 3 lab or field hours)

**151. Marine Meteorology (3) (Former M Sci 135) (Former M L 185.3)**

Prerequisite: M Sci 101. Introductory discussion of the interaction between ocean and atmosphere including exchange of heat, momentum and particles and their influence on waves and currents and on weather and climate. (2 lecture, 3 lab or field hours)

**171. Oceanographic Summer Cruise (4)**

Prerequisite: M Sci 101, 102, 103, 104. Oceanographic shipboard research in California coastal waters; preliminary selection of research topic, cruise logistics, shipboard instrumentation. Following one week cruise, samples analyzed and data interpretation presented as written reports. (1 lecture, 9 lab or field hours)

**172. Marine Environmental Group Research (3) (Former M Sci 185T)**

Prerequisite: M Sci 101, 102, 103, 104. Student involvement in scientific investigations; employment of scientific methodology and principles; literature surveys and experience in writing and presenting research findings on specific projects. (1 lecture, 6 lab or field hours)

**175T. Topics in Marine Sciences (1-6) (Former M Sci 185T)**

Topics in botany, zoology, chemistry, geography, geology, and other associated areas of the marine sciences; ichthyology, behavior of marine animals, chemical oceanography, physical oceanography, meteorology of the oceans.

**180. Independent Study (1-4)**

Prerequisite: permission of instructor. Open only to undergraduate students having adequate subject matter preparation for the selected problem. Faculty directed study of selected research problems in the marine sciences. (3 conference, lab, or field hours per unit)

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**201. Advanced Studies in the Marine Sciences (3) (Former M Sci 283)**

Prerequisite: M Sci 101 and 103, or permission of instructor. Study of major principles and concepts of marine sciences; analysis of outstanding research from recent scientific literature; development of laboratory exercises; for teachers-in-service or credential candidates; not open to science majors.

**202. Marine Instrumental Analysis (4)**

Prerequisite: M Sci 101 and 102 and quantitative analysis, or permission of instructor. Theory and use of advanced instrumentation; advanced field and laboratory techniques for the interpretation of data collected in marine science research. (2 lectures, 6 lab or field hours)

**203. Advanced Marine Ecology (3) (Former M Sci 262)**

Prerequisite: ecology and/or permission of instructor. Advanced considerations of marine populations, communities and ecosystems with emphasis on current literature. (2 lecture, 3 lab, field, or discussion hours)

**211. Behavior of Marine Animals (3) (Former M Sci 285T)**

Prerequisite: M Sci 104 or statistics, or permission of instructor. The causation, development, and evolution of the behavior of marine animals. (2 lecture, 3 lab or field hours)

**212T. Topics in Marine Vertebrates (4; max total 8)**

Prerequisite: M Sci 111 and either 112 or 113, and also permission of instructor. Advanced considerations of the ecology, physiology, and/or phylogeny of fishes, birds and/or mammals; emphasizes current literature and research. (2 lecture, 6 lab or field hours)

**221T. Topics in Marine Invertebrates (4; max total 8)**

Prerequisite: M Sci 121 and permission of instructor. Advanced considerations of the ecology, physiology, and/or phylogeny of the various invertebrate phyla emphasizing current literature and research. (2 lecture, 6 lab or field hours)

**222. Biology of the Mollusca (4)**

Prerequisite: M Sci 121 and permission of instructor. Systematics, functional morphology, ecology, and physiology of mollusca with emphasis on marine forms. (2 lecture, 6 lab or field hours)

**231. Advanced Marine Phycology (4)**

Prerequisite: M Sci 131 and permission of instructor. Algal development, reproduction, and ecology; review of literature; ecologically oriented individual research including laboratory culture and field experimentation. (2 lecture, 6 lab or field hours)

**232. Advanced Marine Plankton (4)**

Prerequisite: M Sci 132. Ecology and population dynamics of marine plankton, including physical and chemical factors. (2 lecture, 6 lab or field hours)

**241. Marine Micropaleontology (3)**

Prerequisite: college geology, M Sci 121 and permission of instructor. Study of fossil microorganisms and related extant forms with emphasis on environmental significance. (2 lecture, 3 lab or field hours)

**242. Continental Drift (3) (Former M Sci 285T)**

Prerequisite: M Sci 141 and permission of instructor. Historical background and modern theory of continental drift; sea-floor spreading and general considerations on plate tectonics.

**251. Marine Geochemistry (4) (Former M Sci 285T)**

Prerequisite: quantitative analysis, year of calculus, and M Sci 101. Geochemical processes in the oceans; thermodynamics of low temperature aqueous reactions, weathering, oxidation-reduction and biologically mediated reactions, processes occurring at the sea floor and air-sea interface. (2 lecture, 6 lab or field hours)

**252T. Topics in Marine Chemistry (4; max total 8)**

Prerequisite: M Sci 101 and permission of instructor. Selected advanced topics dealing with the biochemistry or geochemistry of the oceans. (2 lecture, 6 lab or field hours)

**261. Descriptive Physical Oceanography (4)**

Prerequisite: one year of calculus and M Sci 101, or permission of instructor. Mathematical description of the distribution of properties (e.g. density, dissolved oxygen) in the oceans relating to physical and biochemical processes; theory of distribution of variables, geostrophic method. (3 lecture, 3 lab hours)

**271. Population Biology of Marine Organisms (3) (Former M Sci 285T)**

Prerequisite: M Sci 103 and 104, or permission of instructor. Principles of the interaction among marine organisms which result in the alternation of population structures; techniques for assessment and management of animal populations. (1 lecture, 6 lab or field hours)

**273. Environment Studies of Monterey Bay (3) (Former M Sci 285T)**

Prerequisite: M Sci 103 and 104, or permission of instructor. Research course in the advanced aspects of marine sciences as applied to local marine problems; individual and joint research projects in laboratory and field. (2 lecture, 3 lab or field hours)

**275T. Advanced Topics in Marine Sciences (1-6; max total 8) (Former M Sci 285T)**

Prerequisite: graduate standing. Advanced topics in marine science (botany, zoology, chemistry, geography, geology, and other associated areas of the marine sciences).

**277. Human Ecology of Monterey Bay (3)**

Investigation and analysis of changes produced by human impacts on the coastal environment with emphasis upon physiographic alterations and ecological implications. (2 lecture, 3 field hours)

**282T. Seminar in the Marine Sciences (2)**

Prerequisite: graduate standing. Reviews and reports on recent literature and problems in marine science.

**285T. Seminar in Marine Biology (2; max total 4)**

Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in marine biology.

**286T. Seminar in Marine Geology (2; max total 4)**

Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in marine geology.

**287T. Seminar in Oceanography (2; max total 4)**

Prerequisite: permission of instructor. Reviews and reports on recent literature and problems in oceanography.

**298. Research in the Marine Sciences (1-4)**

Prerequisite: permission of instructor. Independent investigations of an advanced character for the graduate student with adequate preparation. (3 conference, lab, and field hours per unit)

**299. Thesis (1-4; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

## CHEMISTRY DEPARTMENT

### FACULTY

Stephen A. Rodemeyer, *Department Chairman*

Warren R. Biggerstaff ■ Sydney Bluestone ■ Dale C. Burtner ■ Richard P. Ciula ■ David E. Clark ■ David L. Frank ■ Helen J. Gigliotti ■ Barry H. Gump ■ Robert M. Kallo ■ George B. Kauffman ■ Donald K. Kunimitsu ■ Ronald L. Marhenke ■ William M. Miller ■ Howard K. Ono ■ Kenneth H. Russell ■ Kathleen M. Stelting ■ Joe D. Toney ■ Alexander Vavoulis ■ David L. Zellmer ■ Stanley M. Ziegler

The Chemistry Department provides (1) undergraduate training in chemistry for students planning professional careers in chemistry and allied professions and for those contemplating graduate work for advanced degrees; (2) participation in the preparation of teachers of chemistry and the other physical sciences in the teaching credential programs; (3) teaching of the basic chemical sciences required by students majoring in related fields such as physics, biology, nursing, engineering, geology, agriculture, home economics, and criminology; (4) stimulation of interest in and understanding of the achievements and contributions of chemistry to our civilization for nonscience students, as a part of general education; and (5) graduate instruction in chemistry for the master of science degree for students who intend to enter the chemical industry, pursue further advanced study, or who wish to improve their qualifications as teachers in secondary schools and community colleges.

The bachelor of science degree program in chemistry is approved by the American Chemical Society. Students who satisfactorily complete the program will be recommended by the department for certification as graduate chemists by the American Chemical Society. Students completing the bachelor of arts degree may be recommended for certification by completing additional requirements of the American Chemical Society.

Five of The California State University and Colleges, including CSU, Fresno cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs. Consult the chairmen of the Biology, Chemistry, and Geology Departments. See *Special Programs—Moss Landing Marine Laboratories*; for course descriptions see *Biology Department*.

### CHEMISTRY MAJORS

For the bachelor of arts degree a major in chemistry consists of 34–37 units as listed below. For the bachelor of science degree, a major in chemistry consists of 47–50 units as listed below. Upper division students having a grade average of B or higher in their major courses are encouraged to elect Chem 190, Independent Study, in order to acquire first-hand experience in a research project.

### HIGH SCHOOL PREPARATION

The high school preparation for majors in the Chemistry Department should include: algebra (2 years), plane and solid geometry, trigonometry; chemistry or physics; German (2 years).

Prospective students may elect to take the general chemistry placement test at college entrance. A satisfactory score in this test will permit the student to start the chemistry course sequence with Chem 1B or 4B.

### FOREIGN LANGUAGE REQUIREMENT

German 1A-B or equivalent is required for bachelor of science degree majors in chemistry. See the general statement under *Degrees and Credentials—Foreign Language Requirement* for equivalents and alternative ways of meeting the requirement. Any student planning advanced study is advised also to meet the foreign language requirement of the school he plans to attend.

**BACHELOR OF ARTS DEGREE IN CHEMISTRY**

	<i>Units</i>
Chemistry Major .....	34-37
Chem 1A-B or 4A-B, 28, 29, 102, 106, 110A-B, 111, 128, 129	
Additional Requirements .....	20
Math 75, 76, 77, Phys 2A-B	
General Education and Electives (See <i>Note</i> below) .....	66-69
Recommended: Chem 99	
	124

*Note: A student may orient his baccalaureate degree program in one of several directions by the proper selection of elective courses, as follows.*

*Agricultural Chemistry: Chem 155, 156; 9 units of approved electives in animal or plant science*

*Biochemistry: Chem 155, 156; two biological science electives from Phy 1, Micro 104, Biol 120*

*Clinical Chemistry: Chem 153, 154, 155, 156; Micro 104*

*Forensics Chemistry: Crim 105, 107, 113, 114*

*Physical Measurements: Chem 126, 190 (6 units)*

*Secondary Education: Chem 99, 123*

*Spectroscopy: Chem 115, 190 (6 units)*

*Additional programs may be constructed upon consultation with a departmental adviser.*

**BACHELOR OF SCIENCE DEGREE IN CHEMISTRY**

Chemistry Major .....	47-50
Chem 1A-B or 4A-B, 28, 29, 102, 106, 110A-B, 111, 123, 124, 128, 129, 155	
Elect 6 units from Chem 115, 126, 130, 156, 190, or one additional approved physics or mathematics course (recommended: Phys 102, 110, 120, Math 81, 171)	
Additional Requirements .....	24
Math 75, 76, 77, Phys 4A-B-C	
General Education and Electives .....	53-56
Germ 1A-B or equivalent required if not taken in high school	
	128

**CHEMISTRY MINOR**

A minor in chemistry for a bachelor's degree requires at least 21 units, of which at least 7 are upper division. Specific course requirements are General Chemistry (1A-B or 2A-B), Organic Chemistry (8 and 109), Quantitative Analysis (105), and one or more upper division chemistry courses (101, 107, 125, 150, 151, 153).

**CREDENTIAL PROGRAM**

For information on the current credential program consult departmental advisers and the School of Education; see the sections on *Public School Credentials*.

**MASTER OF SCIENCE DEGREE**

The graduate program for the master of science degree in chemistry is based on the equivalent of the undergraduate major at CSU, Fresno. Twenty of the 30 units required for the degree must be in chemistry. An option in agricultural chemistry is available in the School of Agricultural Sciences. For specific requirements, consult the chairman of the department; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**Foreign Language Requirement**

Advancement to candidacy for the master of science degree with a major in chemistry (except for those who have been certified as graduates in Chemistry by the American Chemical Society) requires the passing of an examination demonstrating the ability to read scientific German or Russian.

## COURSES

**CHEMISTRY (Chem)****1. Introduction to Science and Ideas (3)**

Not open to students with credit in college chemistry; for nonscience majors. Prerequisite: one year of high school algebra or equivalent. Qualitative introduction to principles and theories of chemistry and related physical sciences. Reading assignments dealing with history and philosophy of science, the interaction of science and society, and the nature of the scientific enterprise. (3 lecture-demonstration hours)

**1A-B. General Chemistry and Qualitative Analysis (5-5)**

Chem 1A not open to students with credit in Chem 2A-B. Prerequisite: high school chemistry or physics; advanced algebra or Math 29. Fundamental principles of chemistry; properties of common elements and their compounds; application of the principles of chemical equilibrium to separation and identification of ions. (3 lecture, 6 lab hours)

**2A-B. Introductory General Chemistry (3-3)**

Prerequisite: high school algebra, plane geometry. Composition of matter and physical and chemical changes; fundamental laws and principles; atomic and molecular structure, qualitative and quantitative techniques; introduction to organic chemistry and biochemistry. (2 lecture, 3 lab hours)

**2C. Introduction to Organic and Biological Chemistry (4)**

Primarily for students in the health-oriented professions; not a substitute for Chem 8. Prerequisite: Chem 2A. Introduction to the basic concepts of organic and biological chemistry. Structure and behavior of organic and biochemical compounds, metabolism, and regulation. (3 lecture, 3 lab hours)

**4A. General Chemistry (4)**

Not open to students with credit in Chem 1A or 2A-B. For chemistry majors and premedical students. Prerequisite: high school chemistry, advanced algebra, or Math 29. Stoichiometry, solutions, ionic equilibrium, gases, atomic structure and bonding, liquids and solids. (3 lecture, 3 lab hours)

**4B. Introduction to Inorganic Chemistry (3)**

Prerequisite: Chem 4A, 1A or permission of instructor. Introduction to bonding, reactions and structure of inorganic and coordination compounds. Preparation and characterization of simple inorganic compounds. (2 lecture, 3 lab hours)

**8. Elementary Organic Chemistry (3)**

Not open to chemistry majors. Recommended for students requiring a one-semester course in the field. Prerequisite: Chem 1A or 2A-B or 4A-B. Lectures, discussions, and demonstrations of fundamental principles; structure and chemical behavior of organic compounds.

**28. Introductory Organic Chemistry (3)**

For chemistry majors; recommended for premedical students and other science majors. Not open to students with credit in Chem 8. (Chem 28 and 128 together constitute a year sequence.) Prerequisite: Chem 1A-B or Chem 2A-B or 4A-B. Introductory survey of the reactions of principal functional groups.

**29. Introductory Organic Chemistry Laboratory (2)**

Chem 29 and 129 together constitute a year sequence. Prerequisite or concurrently: Chem 28. Laboratory study of properties and reactions of organic compounds and synthesis of representative compounds. (6 lab hours)

**99. Glass Blowing (1)**

Enrollment limited with preference to junior and senior chemistry majors. Elements of glass blowing; construction and repair of glass apparatus. (3 lab hours)

**101. Introductory Physical Chemistry (3)**

Not open to chemistry majors. Prerequisite: logarithms, elementary algebra; organic chemistry, quantitative analysis. Math 71 recommended. Basic Physical Chemistry for Earth and Life Sciences. Gas Laws, Thermodynamics, Equilibria, Electrolytes, Kinetics, Macromolecules and Nuclear Chemistry. (3 lecture-demonstration hours)

**102. Analytical Chemistry (5) (Former Chem 6)**

For chemistry majors; recommended for other science majors. Prerequisite: Chem 28. Introduction to principles and methods of analytical chemistry. (3 lecture, 6 lab hours)

**105. Quantitative Analysis Laboratory (4)**

Not open to chemistry majors. Prerequisite: Chem 8 (or concurrent). Laboratory study of principles and methods of quantitative analysis. (2 lecture, 6 lab hours)

**106. Analytical Measurements Laboratory (3)**

Prerequisite: Chem 102. May not be taken concurrently with 111. Principles and methods of analytical measurements of inorganic and organic substances by instrumental and non-instrumental techniques. (1 lecture, 6 lab hours)

**107. Introduction to Radiochemistry (3)**

Prerequisite: Phys 2B, Chem 8, 102, or 105. To introduce students in the physical and biological sciences to applications of radioisotopes, nuclear methods of analysis, and radiation safety. (3 lecture-demonstration hours)

**108A-B. Analytical Physical Measurements Lab (3-3)**

Prerequisite: Chem 102, 110A and 110B (or concurrently). Equivalent to Chem 106 and 111. Techniques of physical and analytical measurements and analysis of inorganic, organic and biological substances. Error analysis and statistics; introduction to instrumental analysis; kinetic, equilibrium, thermodynamic, spectroscopic and electrochemical measurements; separations; report writing. (1 lecture, 6 lab hours)

**109. Elementary Organic Chemistry Laboratory (3)**

Not open to chemistry majors. Prerequisite or concurrently; Chem 8 or 28. Laboratory study of the carbon compounds with coordinating lectures. (1 lecture, 6 lab hours)

**110A-B. Physical Chemistry (3-3)**

Prerequisite: Chem 1B, 8 or 28; Phys 4A and B, or 2A-B; Math 77. Mathematical treatment of the laws of thermodynamics, reaction kinetics, elementary statistical and quantum mechanics, properties of solutions, kinetic theory of gases, crystal structure, molecular structure, and nuclear chemistry.

**111. Physical Chemistry Laboratory (3)**

Prerequisite: Chem 110B (or concurrently), Chem 102 or 105. Techniques of physical measurements, error analysis and statistics; ultraviolet, infrared and nuclear magnetic resonance spectroscopy; dipole moments, viscosity, calorimetry, Kinetics, phase diagrams, thermodynamic measurements, and report writing. (1 lecture, 6 lab hours)

**115. Quantum Mechanics in Chemistry (3)**

Prerequisite: Chem 110A-B. Classical mechanics and vectors; postulates of quantum mechanics, square well, harmonic oscillators, rotor and hydrogen atom problems; approximation techniques; chemical bonding and spectroscopy.

**123. Advanced Inorganic Chemistry (2)**

Prerequisite: Chem 1B or 4B, 102, and 110A (or concurrently). Nonmathematical treatment of ionic and covalent bonding, atomic structure, molecular structure, and reaction mechanisms. Introduction to visible and infrared spectroscopy of transition metal complexes.

**124. Synthesis and Characterization (2)**

Prerequisite: Chem 123 (or concurrently). Techniques of preparation to include high temperature reactions, vacuum line and glove box preps, nonaqueous syntheses, solid state reactions. Emphasis on structural characterizations using instrumental methods. (1 lecture, 3 lab hours)

**125. Chemistry and Physics of Instrumentation (4)**

Prerequisite: Chem 8 or 28 and Chem 105. Structured to train bioscientists in the theory of electricity, basic electronics, light and optical systems and to apply this theory to the design and use of instrumentation typical to the bioscience laboratory. (2 lecture, 6 lab hours)

**126. Instrumental Design (3)**

Prerequisite: Chem 106. An in-depth study of electronics, optics, physical design, and limitations of instrumentation in analytical chemistry. (1 lecture, 6 lab hours)

**128. Intermediate Organic Chemistry (3)**

Prerequisite: Chem 28 or 8. Continuation of Chem 28. A thorough study of the reactions of aliphatic and aromatic compounds of carbon with emphasis on theory and mechanism.

**129. Intermediate Organic Chemistry Laboratory (2)**

Prerequisite: Chem 29 or 109. Continuation of Chem 29 with emphasis on more difficult laboratory techniques and syntheses; introduction to qualitative organic analysis. (6 lab hours)

**130. Organic Analysis (3)**

Prerequisite: Chem 102, 128, 129. Characterization of organic compounds through study of chemical and physical properties; application of spectroscopy, chromatography and functional group analysis to elucidation of structure. (1 lecture, 6 lab hours)

**140T. Topics in Chemistry (1-4; max total 6 if no area repeated)**

Prerequisite: permission of instructor. Seminar covering special topics in one of the areas of chemistry: analytical, biochemistry, inorganic, organic, physical.

**150. General Biochemistry (3)**

Prerequisite: Chem 8, 105, 109. Chemistry and metabolism of basic cellular constituents including carbohydrates, lipids, proteins, and nucleic acids.

**151. General Biochemistry Laboratory (2)**

Prerequisite: Chem 8, 105, 109, 150 (or concurrently). Chemical and physical properties of naturally occurring compounds; introduction to techniques of chromatography, polarimetry, electrophoresis, photometry, and enzymology. (6 lab hours)

**153. Physiological Chemistry and Metabolism (2)**

Prerequisite: Chem 150 or 155. Intensive discussion of the degradation and biosynthesis of major cellular constituents; energy metabolism; control of metabolic processes and pathological implications in mammalian systems.

**154. Clinical Biochemistry Laboratory (3)**

Prerequisite: Chem 151, 153 or 253 (or concurrently). Clinical laboratory methods of analysis of tissues and body fluids and their diagnostic value; emphasis on instrumental methods. (1 lecture, 6 lab hours)

**155. Fundamentals of Biochemistry (3)**

Primarily for chemistry majors; recommended for premedical students and graduate students in the sciences. Prerequisite: Chem 102 or 105, 128, 129. Structure, function, and metabolism of chemical entities in living systems.

**156. Biochemical Laboratory Techniques (1-4)**

Designed to be elected one unit at a time concurrently with Chem 153, 157, 158, or 159. Laboratory characterization of the physical and chemical properties of enzymes, nucleic acids and proteins; metabolism of living systems; applications of specific techniques for laboratory work in biochemistry. May be repeated up to a total of four units. (3 lab hours)

**157. Structure and Function of Enzymes (2)**

Prerequisite: Chem 150 or 155. Study of the isolation, characterization and mechanism of enzymes; enzyme-coenzyme complexes.

**158. Biochemistry of Nucleic Acids (2)**

Prerequisite: Chem 150 or 155. Study of the chemistry and biology of nucleic acids and their role in living systems.

**159. Protein Structure (2)**

Prerequisite: Chem 150 or 155; Chem 110A-B recommended. Applications of modern physical-chemical concepts and experimental methods in studying the structure, function, and interaction of proteins.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**211. Chemical Thermodynamics (3)**

Prerequisite: Chem 110A-B, 111. Principles of thermodynamics; application to chemical problems; introduction to statistical methods, calculation of thermodynamic functions from spectroscopic data.

**215. Quantum Chemistry (3)**

Prerequisite: graduate standing. Seminar on recent advances in quantum mechanics; chemical bonding, and atomic and molecular spectroscopy.

**220. Theoretical Inorganic Chemistry (3)**

Prerequisite: Chem 110A-B. Seminar on theoretical inorganic chemistry emphasizing structure and bonding of inorganic and coordination compounds; valence bond, molecular orbital and ligand field theories; correlation of structure and reactivity.

**225. Separation Methods in Chemistry (3)**

Prerequisite: Chem 106, 110A-B, 128, 129. Seminar and laboratory on the theory, application, and literature of various separation methods for organic and inorganic analysis. (2 lecture, 3 lab hours)

**226. Advanced Analytical Chemistry (3)**

Prerequisite: Chem 106, 110A-B, 111. Theory, application, recent developments and literature of organic and inorganic analysis.

**230. Advanced Organic Chemistry (3)**

Prerequisite: Chem 128, 129. Seminar on recent advances in organic chemistry including reaction mechanisms and synthetic applications with references to current literature.

**235. Physical Organic Chemistry (3)**

Prerequisite: Chem 110A-B, 128. Seminar in applications of modern theoretical concepts to the chemical and physical properties of organic compounds.

**240T. Topics in Advanced Chemistry (1-3; max total 6 if no area repeated)**

Seminar covering special topics in one of the areas of chemistry: analytical, biochemistry, inorganic, organic, physical.

**258T. Topics in Biochemistry (2-4; max total 8)**

Prerequisite: Chem 150 or 155. Seminar in a selected biochemical topic: intermediary metabolism, chemistry of proteins, biological catalysis, biochemistry of nucleic acids. At least one topic will be offered each semester.

**280. Seminar in Chemistry (1; max total 2)****290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**298. Research (2-6; max total 6)**

Prerequisite: permission of instructor. Independent investigations of an advanced character for the graduate student with adequate preparation. (May include conferences, laboratory, library.)

**299. Thesis (4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation completion and

## GEOLOGY DEPARTMENT

### FACULTY

Bruce A. Blackerby, *Department Chairman*

Jon C. Avent ■ S. Robert Bereskin ■ Eugene G. Cserna ■ Seymour Mack ■ Robert D. Merrill ■ Warren J. Nokleberg ■ Stanton M. White

The Geology Department offers a major in geology for the bachelor of arts degree. Geology offerings include undergraduate preparation for professional careers and for graduate work. The department offers courses for earth study as an avocation. The graduate program provides (1) courses of instruction and research leading to a master of arts degree, (2) graduate-level courses for students from other departments, particularly those undertaking work at Moss Landing Marine Laboratories, and (3) advanced course work for professional personnel within the CSUF service area.

Five of the California State University and Colleges, including CSU, Fresno, cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs, including courses in geological oceanography. Consult the chairmen of the Geology and Biology Departments. See *Special Programs—Moss Landing Laboratories*; for course descriptions see *Biology Department*.

### BACHELOR OF ARTS DEGREE

The bachelor of arts degree with a major in geology consists of a total of 124 units including 42 units of geology. For general degree requirements see *Degrees and Credentials*. A student planning graduate study is advised to meet the foreign language requirements of the institution he plans to attend. Students majoring in geology are strongly urged to take Geology 107 and make arrangements for Geology 108 during their junior year (see adviser).

### GEOLOGY MAJOR

	<i>Units</i>
Geol 1 and 1L or 10, 2, 12, and 13 concurrently, 100, 101, 104, 106, 107, 108 .....	32
Elect from upper division geology (See <i>Note</i> below) .....	10
	42

*Note: No more than 3 units of Geol 160. Recommended elective curriculum*

*Group A: Geol 105, 110, 120, 122. Select at least 1 course for 3-5 units.*

*Group B: Geol 122, 171. Select 1 course for 3-5 units.*

*Group C: Geol 115, 116, 117. Select at least 1 course for 2-3 units.*

*Group D: Geol 109, 112, 118, 130T, 189, 189L. Selection based on completion of 10-unit elective requirement and strength in field of interest.*

*Additional Requirements:* Zool 10; Chem 1A-B; Math 75, 76, or Math 71, 72, 76; Phys 2A-B. Strongly recommended: Math 20, 40, or equivalent courses.

### GEOLOGY MINOR

A minor in geology consists of 20 units. The following courses are recommended: Geol 1 and 1L or 10, 2, 3, 50 or 12 and 101, 105, 150T, 189, and 189L.

### CREDENTIAL PROGRAM

For information on the current credential program consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in geology is based on the equivalent of the undergraduate major at CSU, Fresno. Twenty of the 30 units required for the degree must be in geology. For specific requirements consult the chairman of the department; for general requirements see School of Graduate Studies. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

## COURSES

**GEOLOGY (Geol)****1. Physical Geology (3)**

Nature and properties of earth materials and processes involved in development of landscapes; work and effects of streams, waves, glaciers, volcanoes, mountain building, and earthquakes. May include field trips.

**1L. Physical Geology Laboratory (1)**

Prerequisite: Geol 1 (concurrently) or permission of instructor. Introductory laboratory study of minerals, rocks, topographic maps, and geologic maps; land forms and geologic structures as shown by maps and models. One-day field trips may be required. (3 lab hours)

**2. Historical Geology (3)**

Prerequisite: Geol 1 or equivalent. Origin and evolution of the earth as revealed by the rock record and by fossil remains. Special emphasis on the evolution of life and on the physical development of North America. May include field trips.

**2L. Historical Geology Laboratory (1)**

Prerequisite: Geol 1, 2 (concurrently) or permission of instructor. Introductory laboratory study of geologic time, geologic maps, regional geology and regional geologic history. (3 lab hours)

**3. Introductory Field Studies (1)**

Prerequisite: Geol 1 (concurrently) or permission of instructor. Weekend supervised field trips to areas such as Yosemite, Sequoia, San Joaquin Valley and the Coast Ranges.

**4. Field Investigations (1)**

Prerequisite: Geol 1 (concurrently) or permission of instructor. Weekend field trips to examine geologic features including those that affect man's usage of the earth; such regions as Monterey Bay, The Pinnacles, Death Valley, San Andreas Fault.

**5. Earth, Man and Environment (3)**

The relationship of man to the earth and environment, stressing the limits that the earth places on man and his surroundings. An alternate course in general geology for the liberal arts student. Topics may include energy, natural resources, earth processes and hazards. May include field trips. Primarily for the nongeology major.

**10. Introduction to Geoscience (4)**

Not open to students with credit in Geol 1 and 1L. Recommended for science and engineering majors. Detailed introduction to earth sciences, including earth materials and properties of soil and rock, surface processes, structural geology subsurface water, map and photo interpretation. Includes field trips. (3 lecture-discussion and 3 lab hours)

**12. Mineralogy (3) (Former Geol 12A)**

Geol 13 concurrent in the geology major. Prerequisite: high school chemistry. Properties, relationships, origin of minerals; determination of common minerals by chemical and other tests. May include field trips. (2 lecture, 3 lab hours)

**13. Crystallography (2) (Former Geol 12B)**

Prerequisite: high school chemistry, trigonometry. Form and structure of crystals. (1 lecture, 3 lab hours)

**15. The Earth and its History (5)**

Portion of *Man and the Natural Environment* Cluster (see p. 275). Physical and historical geology, including man's use of the earth and the impact of that use on the earth. Lecture, lab, and field work.

**50. Minerals and Rocks (3)**

Primarily for students who are not majoring in geology. Not a substitute for Geol 12 or 101 in the geology major. Recognition, origin, importance, and uses of common and significant minerals and rocks. (2 lecture, 3 lab hours)

**100. Optical Mineralogy (3)**

Prerequisite: Geol 13 or permission of instructor. Optical properties of minerals; identification of selected minerals by optical methods. Manipulation and use of petrographic microscope. (2 lecture, 3 lab hours)

**101. Petrology (4)**

Prerequisite: Geol 1, 12, 13, 100 (or concurrently with permission of instructor). Common rock-forming minerals; origin, classification, textures, and structures of igneous, sedimentary, and metamorphic rocks; examination of rocks in hand specimen and thin section. (3 lecture, 3 lab hours)

**104. Scientific Writing (1)**

Organization of the scientific paper, involving concise and logical presentation of data. Topics include analyses of abstract writing, bibliographical format, and scientific styles regarding punctuation and footnotes, preparation of illustrations. (3 lab hours)

**105. Geomorphology (3)**

Prerequisite: Geol 1, 1L, or permission of instructor. Land forms, climates, geologic processes and their interrelation in shaping the earth's surface today and in the geologic past. Interpretation of topographic maps and aerial photographs. May include field trips. (2 lecture, 3 lab hours)

**106. Structural Geology (3)**

Prerequisite: Geol 1, 1L, 2 or permission of instructor. Structural arrangements of rocks; intrusive and extrusive rock structures; folding and faulting; unconformities. Outcrop patterns, structure contours, projections, maps and aerial photographs, stereonet. May include field trips. (2 lecture, 3 lab hours)

**107. Field Geology Methods (4)**

Prerequisite: Geol 101, 104, 106. Field trips to introduce groups of students to methods and instruments used in geologic field work; observation and description of geologic phenomena; written presentation of observed data. (1 lecture, 9 lab hours, usually on week-ends)

**108. Field Geology (4)**

Prerequisite: Geol 107. Geologic reconnaissance and mapping in field groups. Written reports of areas selected for detailed study.

**109. General Oceanography (4)**

Prerequisite: college chemistry and biology, Geol 1 or permission of instructor. Interdisciplinary examination of physical and chemical characteristics of seawater; distribution and effects of ocean currents; geology of the ocean floor; relation of organisms to marine environment. See M Sci 101. (3 lecture, 3 lab and field hours)

**110. Invertebrate Paleontology (3) (Former Geol 110A)**

Prerequisite: Geol 2 and either Zool 1 or 10; or permission of instructor. Invertebrate structures and development of prehistoric animals; introduction to stratigraphic importance of fossils. May include field trips. (2 lecture, 3 lab hours)

**112. Paleocology of Marine Invertebrates (3) (Former Geol 110B)**

Prerequisite: Geol 110, Zool 114, or permission of instructor. Interpretation of ancient sedimentary environments using invertebrate fossils; use of index fossils for chronologic purposes. Includes field trips. (1 lecture, 6 lab hours)

**115. Ore Deposits (3)**

Prerequisite: Geol 101, 106, college chemistry, or permission of instructor. Geology, mineralogy, distribution and occurrence of common ore minerals essential in industry; genesis and localization of metallic minerals. May include field trips. (2 lecture, 3 lab hours)

**116. Petroleum Geology (3)**

Prerequisite: Geol 106. Theories of origin of petroleum, petroleum structures, prospecting, extraction methods, techniques used in exploration and development; selected petroleum fields. May include field trips. (2 lecture, 3 lab hours)

**117. Ground Water (2)**

Prerequisite: senior standing or permission of instructor. Geologic and hydrologic factors related to occurrence and utilization of ground water.

**118. Advanced Structural Geology (2)**

Prerequisite: Geol 106 or permission of instructor. Tectonic framework of Europe and North America; study of selected areas in the Western Alps, Appalachians, Rocky Mountains and Sierra Madre Oriental. Advanced problems in structural geology, structural interpretation of geologic maps and aerial photographs. May include field trips. (1 lecture, 3 lab hours)

**120. Marine Geology (4)**

Prerequisite: Geol 1, 1L, 2. Geomorphology of the ocean basins; marine processes affecting coastal areas; economic resources of the oceans. (3 lecture, 3 lab hours)

**122. Sedimentary Stratigraphy-Petrography (5) (Former Geol 111, 173)**

Prerequisite: Geol 100. Identification, classification, and genetic interpretation of sedimentary rocks; relationships of these rocks in space and time based on principles of stratigraphy. (3 lecture, 6 lab and/or field hours, minimum 45 field hours)

**124. Geochemistry (3)**

Prerequisite: Geol 101, one year of college chemistry. Application of chemical principles to geological processes. Chemical reactions involved in origin and alterations of rocks and minerals of the earth's crust. (2 lecture, 3 lab hours)

**130T. Advanced Problems in Geology (1-3; max total 6 if no topic repeated)**

Prerequisite: senior standing in geology. Topics or problems in the following fields: geology of North America, field geology, micropaleontology, advanced ground water geology, sedimentation and sedimentary rocks, geochemistry, geophysics, volcanic geology, and marine geology.

**140. Interpretation of Geologic and Topographic Maps (3)**

Prerequisite: Geol 105 or 106 or permission of instructor. Interpretation of geologic and topographic maps with respect to structure, stratigraphy, and processes. Some aerial photographs included. (2 lecture, 3 lab hours)

**150T. Studies in Earth Science (1-3; repeatable with different topics)**

Applicable to the geology major only with prior departmental approval. Prerequisite: Geol 1 or permission of instructor. Earth science topics designed for students minoring in geology, with an interest in earth science, in teacher training, and for elementary and secondary teachers.

**160. Field Studies (1-4; repeatable in different studies) (Former Geol 103)**

Prerequisite may be specified by instructor. Weekend or vacation field trips to geologically important and significant areas such as the Grand Canyon, Baja California, the Sierra Nevadas, Death Valley.

**169. Environmental Geology (3)**

Prerequisite: Geol 1 or permission of instructor. Examination of the interaction between man and earth, with emphasis on earth features and processes that are hazardous to man. Includes field trips. (2 lecture, 3 lab hours)

**171. Igneous Petrography (3) (Former Geol 113A-B)**

Prerequisite: Geol 100, 101. Identification, classification, and interpretation of igneous rocks, using the petrographic microscope and other techniques. May include field trips. (2 lecture, 3 lab hours)

**189. Geology of California (2)**

Prerequisite: Geol 1. Occurrence and origin of selected geologic features of the state. Study of three to five regions selected from the Sierra Nevadas, the Coast Ranges, the San Andreas fault, and others.

**189L. Geology of California Field Study (1)**

Field study of two selected regions such as the Sierra Nevadas and the Coast Ranges. Two supervised weekend field trips; written reports.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**209. Geology Seminar (3; max total 9 if no topic repeated)**

Research and reporting on theories, principles, experimentation, and methods of dealing with significant problems in geology.

**210. Geotectonics (3)**

Prerequisite: Geol 106 or permission of instructor. Theory and applications of continental drift, plate tectonics, and sea floor spreading to understanding continental geology. Special emphasis on geology of the Americas. Structural analysis of deformed plate margins. (2 lecture, 3 lab hours)

**212. Mineral and Rock Analysis (3)**

Prerequisite: Geol 100, Chem 1A-B, or permission of instructor. Principles and techniques of mineral and rock analysis using universal stage, X-ray diffractometer, X-ray fluorescence analyzer, atomic absorption and flame emission spectrometers, and other techniques. (1 lecture, 6 lab hours)

**222. Carbonate Petrology (3)**

Prerequisite: Geol 100. Chemistry and content of carbonate rocks; introduction to organic and inorganic constituents with emphasis on diagenetic alteration. May include field trips. (2 lecture, 3 lab hours)

**250T. Topics in Geology (1-3; max total 9 if no topic repeated)**

Prerequisite: Major or minor in geology; permission of instructor. Advanced studies in such areas as hydrology, regional stratigraphy, and marine geology.

**272. Metamorphic Petrology (3) (Former Geol 172)**

Prerequisite: Geol 100, 101, Chem 1A-B, or permission of instructor. Identification, classification, and interpretation of metamorphic and metasomatic rocks using the petrographic microscope and other techniques. May include field trips. (2 lecture, 3 lab hours)

**290. Independent Study (1-3; max total 6)**

See *General Information—Independent Study*.

**299. Thesis (2-6)**

Prerequisite: see *Master's Degrees-Thesis Requirements*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

## MATHEMATICS DEPARTMENT

### FACULTY

Burke Zane, *Department Chairman*

Mir K. Ali ■ Robert F. Arnold ■ Moses E. Cohen ■ Donald J. Donohue ■ Daniel J. Ewy ■ Noal C. Harbertson ■ Harold B. Haslam ■ Merrilee K. Helmers ■ Thomas C. Kipps ■ Anthony E. Labarre, Jr. ■ Detlev Lindae ■ Hussain S. Nur ■ Walter Read ■ Hugo S. Sun ■ Ronald L. Wagoner ■ Norman T. Woo ■ Henderson C. Yeung

Mathematics and related subjects play important dual roles in our culture. On the one hand mathematics is the study of pure thought in its own right; on the other, it furnishes a language for the expression of ideas in the various sciences. The courses offered by the department are designed to develop an appreciation of both roles, particularly for those who plan to continue in study, to teach, or to use mathematics in research or in applications in the various fields of pure and applied science. Certain courses are also suitable for students in other areas. See *Statistics and Probability*, below, and *Degrees and Credentials—General Education Requirements*.

### HIGH SCHOOL PREPARATION

Two years of algebra and courses in geometry and trigonometry or a sequence of mathematics courses containing their equivalents are prerequisite to entry into either a major or a minor program in mathematics. Such study should be completed before entrance into the university.

### DUPLICATION OF COURSES

No credit will be allowed for Math 29 or 30 if taken after completion of Math 71 or 75. No student transferring credit in calculus will receive more than a total of 12 units of credit for equivalents of Math 75, 76, and 77.

### ADVANCED PLACEMENT CREDIT

See *General Information—Advanced Placement*

### STATISTICS AND PROBABILITY

The Mathematics Department offers a series of courses in probability and statistics intended for students majoring in mathematics who plan to work toward a master's or doctor's degree in statistics, as well as for students in the life and physical sciences, social sciences, and engineering, who are interested in the rapidly increasing number of probabilistic methods in their fields. For further information, consult the Department Chairman.

### BACHELOR OF ARTS DEGREE

The department offers a program leading to the bachelor of arts degree. The program consists of a basic set of required courses giving a strong, well-rounded mathematical background, with an opportunity to elect additional courses according to individual interests. Courses are offered in the following areas; preparation for graduate study in mathematics, teaching mathematics, application in industrial or related fields. The attention of those interested in teaching mathematics in the elementary school is directed to the mathematics minor program.

### MATHEMATICS MAJOR

	<i>Units</i>
Math 75, 76, 77 .....	12
Math 151, 152, 161 or 162 or 165, 171, 172 .....	15
Elect from upper division mathematics or Math 81 .....	12–13

**MATHEMATICS MINOR**

The minor in mathematics includes 20 units of mathematics courses, of which at least 6 must be upper division. Math 75, or Math 71 and 72, or equivalent must be included. Math 29, 30 may not be applied on the minor.

**CREDENTIAL PROGRAM**

For information on the current credential program consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

**MASTER OF ARTS AND MASTER OF SCIENCE DEGREES**

For information about the Graduate program at CSU, Fresno, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**Foreign Language Requirement**

Any student preparing for graduate work in mathematics is advised to meet the foreign language requirement of the school he plans to attend. Proficiency in the reading of at least two languages selected from French, German, and Russian is required for most doctor's degree programs; however, most graduate programs do not leave time for language study. There is usually no language requirement for a master's degree.

**COURSES****MATHEMATICS (Math)****20. Introductory Computer Programming (2)**

Prerequisite: intermediate algebra and trigonometry. Introduction to FORTRAN programming and flow charts with applications to matrix algebra, integration, series and linear programming.

**29. Intermediate Algebra (3)**

Prerequisite: elementary algebra and geometry. Sets, functions, graphs, quadratic equations, inequalities, simultaneous equations, matrices and determinants, mathematical induction, binomial theorem, progressions, exponents and logarithms. (See *Duplication of Courses*.)

**30. Trigonometry (3)**

Prerequisite: intermediate algebra. Concept of a function, sine and cosine functions, tables and graphs, other trigonometric functions, identities and equations. Trigonometric functions of angles, solution of triangles. (See *Duplication of Courses*.)

**40. Elementary Statistics (3)**

Prerequisite: high school algebra. Illustration of statistical concepts: elementary probability models, sampling, descriptive measures, confidence intervals, testing hypotheses, chi-square, nonparametric methods, regression. It is recommended that students with credit in Math 72 or 75 take Math 105.

**41. Number Systems I (3)**

Not open to mathematics majors or to students with credit in Math 141; designed for elementary credential. Prerequisite: elementary algebra and geometry. Development of rational number system and its subsystems from the informal point of view; sets, relations and operations, equivalence classes; definitions of number systems and operations; algorithms for operations; prime numbers, divisibility tests; ratios.

**51. Elements of Modern Mathematics (3)**

Prerequisite: two years high school algebra or Math 29. Logic, set theory, vectors and matrices, linear programming, permutations and combinations, probability, Markov chains, applications to business and social sciences.

**52. Elementary Linear Algebra (3)**

Prerequisite: high school algebra. Elementary properties of matrices, determinants; systems of linear equations; linear transformations.

**70. Mathematics For Life Sciences (4)**

Prerequisite: high school algebra. Functions and graphs, limits, derivatives, antiderivatives, differential equations, and partial derivatives with applications in the Life Sciences.

**71. Elementary Mathematical Analysis I (3)**

Prerequisite: two years high school algebra, one year high school geometry. Review of algebra, analytic geometry, introduction to set theory, mathematical induction, vectors, complex numbers, limits, derivatives. (2 lecture, 1 discussion hour)

**72. Elementary Mathematical Analysis 2 (3)**

Prerequisite: Math 71 and trigonometry. Applications of differentiation, polynomials, rational functions, trigonometric functions, exponential and logarithmic function, conic sections, definite integral. (2 lecture, 1 discussion hour)

**75. Mathematical Analysis I (4)**

Not open to students with credit in Math 72; one unit allowed for students with credit in Math 71. Prerequisite: at least three and one-half years of high school mathematics including algebra, geometry, trigonometry. Inequalities, functions, graphs; limits, differentiation of algebraic functions, the definite integral.

**76. Mathematical Analysis II (4)**

Prerequisite: Math 72 or 75. Applications of the definite integral; transcendental functions, techniques of integration, improper integrals, arc length; conic sections; polar coordinates, vectors in the plane, three dimensional analytic geometry.

**77. Mathematical Analysis III (4)**

Prerequisite: Math 76. Vectors in three dimensions; infinite series; partial derivatives, multiple integrals; linear algebra.

**81. Applied Analysis (4)**

Prerequisite: Math 77. Introduction to ordinary linear differential equations; solutions by power series and Laplace transforms. Vector analysis; line, surface, and volume integrals. Solution of systems of linear equations by matrix methods. Introduction to Fourier series. Introduction to complex variables.

**103. History of Mathematics (3)**

Prerequisite: Math 72 or 75. History of the development of mathematical concepts in algebra, geometry, number theory, analytical geometry, and calculus from ancient times through the 17th century, and selected topics from more recent times.

**105. Statistical Methods (3)**

Prerequisite: Math 72 or 75. Practice in applying standard statistical procedures of data analysis to examples from biology, engineering, and the social sciences; one- and two-sample normal theory methods; chi-square, analysis of variance, and regression problems.

**107. Introduction to Probability and Statistics (3)**

Prerequisite: Math 77 (or concurrent). Basic concepts required for applications of probability theory; standard discrete and continuous models; random variables; conditional distributions; limit theorems.

**108. Statistics (3)**

Prerequisite: Math 107. Criteria used for selecting particular procedures of data analysis, derivation of commonly used procedures; topics from sampling, normal theory, nonparametrics, elementary decision theory.

**109. Applied Probability (3)**

Prerequisite: Math 107. Introduction to stochastic processes and their applications in science and industry. Markov chains, queues, stationary time series.

**110. Symbolic Logic (3)**

Prerequisite: Math 71 or 75 or permission of instructor. An informal treatment of the theory of logical inference, statement calculus, truth-tables, predicate calculus, interpretations applications.

**111. Theory of Sets (3)**

Prerequisite: Math 71 or 75 or permission of instructor. Set theory from an informal axiomatic foundation, relations and functions, cardinal numbers, ordinal numbers, applications.

**116. Theory of Numbers (3)**

Prerequisite: Math 72 or 75. Divisibility, greatest common divisor, Euler's function, continued fractions, congruences, quadratic residues, Diophantine equations, different forms of the Prime Number Theorem, Mobius inversion formula.

**121. Numerical Analysis (3)**

Prerequisite: Math 77. Finite difference and Lagrangian interpolation formulas; numerical solution of equations, systems of equations, and differential equations; principles of coding and programming computers.

**123. Topics in Applied Mathematics (3)**

Prerequisite: Math 77. Vector spaces and linear transformations, eigen values and eigen functions. Special types of linear and nonlinear differential equations; solution by series. Fourier transforms. Special functions, including gamma, hypergeometric, Legendre, Bessel, Laguerre and Hermite functions. Introduction to partial differential equations.

**131. Game Theory and Linear Programming (3)**

Prerequisite: Math 72 and permission of instructor; or Math 76. Games of strategy, normal form of a game, minimax theorem for two-person games, n-person games, solutions of n-person games and equilibrium points, linear programming, applications.

**141. Number Systems II (3)**

Not open to students with credit in Math 151 or 171. Prerequisite: Math 41 or 71. Especially recommended for prospective teachers and minors. Development of the real number system and its subsystems from the formal point of view. Mathematical induction and definition by recursion. Axiomatic development of the various number systems and their interrelation.

**151. Principles of Algebra (3)**

Prerequisite: Math 76 or 141. Rings, integral domains, fields, polynomials.

**152. Linear Algebra (3)**

Prerequisite: Math 77 or permission of instructor. Linear transformations, matrices, determinants, linear functionals, bilinear forms, quadratic forms, orthogonal and unitary transformations, selected applications of linear algebra.

**153. Modern Algebra (3)**

Prerequisite: Math 151. Group theory, field theory, elements of Galois theory.

**161. Principles of Geometry (3)**

Prerequisite: Math 72 or 75. The classical elliptic, parabolic, and hyperbolic geometries developed on a common framework of incidence, order and separation, congruence, coordinatization. Theory of parallels for parabolic and hyperbolic geometries. Selected topics of modern Euclidean geometry.

**162. Projective Geometry (3)**

Prerequisite: Math 77. Synthetic and analytic projective geometry; axioms; duality; perspective and projective correspondence; harmonic sets; coordinatization; projective collineations and correlations; polarities and conics; groups of projective, affine and Euclidean transformations.

**165. Differential Geometry (3)**

Prerequisite: Math 77. Study of geometry in Euclidean space by means of calculus, including theory of curves and surfaces, curvature, theory of surfaces, and intrinsic geometry on a surface.

**171. Intermediate Mathematical Analysis (3)**

Prerequisite: Math 77. The complete ordered field and its usual topology; extensions to the plane; continuity and uniform continuity; characterization of the differential; extended mean value theorem; intermediate value property of derivatives; characterization of Riemann integrable functions as functions continuous almost everywhere.

**172. Advanced Calculus I (3)**

Prerequisite: Math 171. The real number system; function theory, continuity, differentiability; partial differentiation.

**173. Advanced Calculus II (3)**

Prerequisite: Math 172. Multiple integrals; line and surface integrals; Fourier series and integrals; infinite series.

**174. Complex Analysis (3)**

Prerequisite: Math 77. Analytic functions of a complex variable, contour integration, series, singularities of analytic functions, the residue theorems with applications to the definite integral.

**181. Differential Equations (3)**

Prerequisite or concurrently: Math 81 or 123. Definition and classification of differential equations; general, particular, and singular solutions; existence theorems; theory and technique of solving certain differential equations; phase plane analysis; elementary stability theory; applications.

**182. Partial Differential Equations (3)**

Prerequisite: Math 81 or 123 and 171. Classical methods for solving partial differential equations including separation of variables, Green's functions, the Riemann-Volterra method and Cauchy's problem for elliptic, parabolic, and hyperbolic equations; applications to theoretical physics.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191T. Proseminar (3; max total 9)**

Prerequisite: permission of instructor. Presentation of advanced topics in mathematics in the field of the student's interest.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**202. Fundamental Concepts of Mathematics (3)**

Prerequisite: Math 151, 161 and 171. Fundamental notions regarding number theory, number systems, algebra of number fields; functions.

**210. Foundations of Mathematics (3)**

Prerequisite: Math 110 or 151. Formal introduction to theories of inference first order theories, completeness metatheorems, consistency metatheorems, decision problems.

**216. Topics in Number Theory (3; max total 6)**

Prerequisite: Math 116. An investigation of topics having either historical or current research interest in the field of number theory.

**221. Advanced Numerical Analysis (3)**

Prerequisite: Math 121. Linear equations and matrices; parabolic, hyperbolic, and elliptic differential equations; constructive function theory.

**223. Principles and Techniques of Applied Mathematics (3)**

Prerequisite: Math 123 or permission of instructor. Linear spaces and spectral theory of operators.

**251. Abstract Algebra I (3)**

Prerequisite: Math 153 or permission of instructor. Semi-groups, groups, groups with operators, rings, fields, lattices.

**252. Abstract Algebra II (3)**

Prerequisite: Math 153, 251. Vector spaces, linear transformations, sets of linear transformations, Euclidean and unitary spaces, infinite dimensional vector spaces.

**263. Point Set Topology (3)**

Prerequisite: Math 172. Basic concepts of point set topology, set theory, topological spaces, continuous functions; connectivity, compactness and separation properties of spaces. Topics selected from function spaces, metrization, dimension theory.

**265. Differential Geometry (3)**

Prerequisite: Math 165, 172. Study of geometry of curves and surfaces in Euclidean space; including an introduction to Riemannian geometry and theory of manifolds.

**271. Real Variables (3)**

Prerequisite or concurrently: Math 173. Theory of sets; cardinals; ordinals; function spaces, linear spaces; measure theory; theory of modern integration and differentiation.

**272. Functional Analysis (3)**

Prerequisite: Math 271. The Lebesgue-Stieltjes integral and its generalizations, integral equations, Hilbert and Banach spaces, linear transformations (bounded and unbounded).

**274. Functions of a Complex Variable (3)**

Prerequisite: Math 171, 174. Representation theorems of Weierstrass and Mittag-Leffler, normal families, conformal mapping and Riemann mapping theorem, analytic continuation, Dirichlet problem.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**291. Seminar (3)**

Prerequisite: graduate standing. Presentation of current mathematical research in field of student's interest.

**298. Research Project in Mathematics (3)**

Independent investigation of advanced character as the culminating requirement for the master's degree.

**299. Thesis (2-6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**302. Topics in Mathematics for Teachers (3; max total 6, if topic not repeated)**

## PHYSICAL SCIENCE

Some of the departments in the School of Natural Sciences offer courses in the physical science area. Some of these courses may be used to satisfy requirements for general education, credential programs, or professional development.

### PHYSICAL SCIENCE MINOR

The minor in physical science consists of 20 units including Geog 5, Geol 1, Phys 117 or 145, P Sci 21, 106. Chem 2A-B and Phys 1A-B or Chem 2A-B and Phys 2A-B are strongly recommended.

### COURSES

#### PHYSICAL SCIENCE (P Sci)

##### 10. Liberal Arts Physical Science (3)

Primarily for liberal arts students. Not open to students with credit or concurrent registration in college physics. Prerequisite: elementary high school algebra or equivalent. Elementary astronomy and physics; mechanical, electrical magnetic, and optical principles; application to everyday experiences. Lecture, demonstration, discussion.

##### 21. Elementary Astronomy (3)

Prerequisite: elementary algebra and geometry. Nontechnical fundamental principles and facts of astronomy; appreciation of the wonders of the universe.

##### 103. Extraterrestrial Life (3)

Contemporary astronomical theories of the evolution of galaxies, stars, and planetary systems with attention focused primarily on the question of whether or not life exists beyond the earth.

##### 106. History and Philosophy of Physical Science (3)

Prerequisite: permission of instructor. The development of great ideas and discoveries in physical science from antiquity to the present; special emphasis upon early Greek scientific thought.

##### 108. Impact of Science Upon Society (3)

Basic philosophical issues and social problems attending the growth of science; study of areas in the history of science which have posed important questions for man, with special attention to the writings of eminent scientists.

##### 168. Environmental Impact of Energy Demands by Society (3)

Prerequisite: elementary algebra. Analysis of energy crisis; introduction to various forms of energy, energy conversion processes and environmental effects; present energy supply and energy projections; alternatives to future energy demands and ways of evaluating alternatives.

##### 180T. Topics in Physical Science (3; max total 9)

Prerequisite: permission of instructor. Detailed discussion of special topics within the realm of physical science.

#### IN-SERVICE COURSES

(See *Course Numbering System*)

**305. Physical Science for Secondary School Teachers (3; max total 6 in any one field)**

**350. Physical Science for Elementary School Teachers (3-6; max total 6 in any one field)**

**PHYSICS DEPARTMENT**

**FACULTY**

Hugh A. Williamson, *Department Chairman*

Sheldon J. Brown ■ Jon R. Dews ■ John R. Donaldson ■ Donald E. Holmes ■ Floyd L. Judd ■ Brandt Kehoe ■ Samuel P. Lyles ■ Sukhbir Mahajan ■ Robert L. Shacklett ■ James T. Shockley ■ Michael J. Zender

The Physics Department offers programs leading to various degrees in physics, including the bachelor of arts, bachelor of science, master of arts, and master of science. These programs are designed to provide a sound scientific background leading to advanced study in physics or related disciplines, professional scientific careers or careers in teaching. In addition, the Physics Department offers courses in physics and physical science which fulfill general education requirements and basic requirements of related scientific majors.

**ADVANCED PLACEMENT CREDIT**

See *General Information—Advanced Placement*

**PHYSICS MAJORS**

The bachelor of arts degree major in physics consists of 36 units of which 24 must be upper division. The bachelor of science degree major in physics consists of 46 units as listed below. For general degree regulations see *Degrees and Credentials*. There is no language requirement for either of these degrees; however, students planning graduate study are advised to prepare for the language requirement of the school they plan to attend. Students majoring in physics are strongly encouraged to use their general education and elective units to develop competence in another scientific field or relevant area. See the department adviser for recommended areas of concentration.

**HIGH SCHOOL PREPARATION**

The high school preparation for majors in the Physics Department should include mathematics through trigonometry and physics and/or chemistry. Calculus is also strongly recommended if available. Language study in French, German, or Russian would be helpful for students planning graduate study.

**BACHELOR OF ARTS DEGREE IN PHYSICS**

	<i>Units</i>
Physics Major.....	36
Phys 4A-B-C, 102, 120 and Phys 105A, 107A, 130A or Phys 150A-B-C (26-27 units)	
Upper division electives in physics (9-10 units)	
Additional Requirements.....	27-28
Math 75, 76, 77, Chem 1A-B, P Sci 106 or Math 81	
Computer programming (Engr 70 or Math 20 or equivalent)	
General Education and Electives.....	60-61
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**BACHELOR OF SCIENCE DEGREE IN PHYSICS**

	<i>Units</i>
Physics Major.....	46
Phys 4A-B-C, 102, 105A-B, 107A-B, 115, 120, 130A-B, 140, 170A-B	
Additional Requirements.....	31
Math 75, 76, 77, 81, 123, Chem 1A-B	
Computer programming (Engr 70 or Math 20 or equivalent)	
General Education and Electives.....	51
	<hr/> 128

### SUGGESTED SEQUENCE OF COURSES FOR BACHELOR OF SCIENCE DEGREE IN PHYSICS

In addition to the specific courses listed below, general education requirements and electives should be included to bring total to 15–17 units per semester. A total of 128 units must be completed for the bachelor of science degree. (See *Degrees and Credentials*.)

1st Year: Phys 4A, Math 75, 76, computer programming

2nd Year: Phys 4B-C, Math 77, 81, Chem 1A-B

3rd Year: Phys 102, 105A-B, 120, 140, Math 123

4th Year: Phys 107A-B, 115, 130A-B, 170A-B  
or (assuming credit for Math 75)

1st Year: Phys 4A-B, Math 76, 77, computer programming

2nd Year: Phys 4C, 102, Math 81, 123, Chem 1A-B

3rd Year: Phys 105A-B, 120, 140, 170A-B

4th Year: Phys 107A-B, 115, 130A-B

### PHYSICS MINOR

A minor in physics for a bachelor's degree requires 18 units of which 6 must be upper division.

### CREDENTIAL PROGRAM

For information on the current credential program, consult departmental advisers and the school of Education; see the section on *Public School Credentials*.

### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in physics is intended for secondary school teachers or prospective teachers who desire more training in physics. For specific requirements, consult the chairman of the department; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program at CSU, Fresno, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies. There is no foreign language requirement for this degree.

### MASTER OF SCIENCE DEGREE

The master of science degree in physics is designed for graduates who desire further graduate study or industrial employment in physics and allied fields. Undergraduate preparation equivalent to a physics major at CSU, Fresno, is necessary for admission. For specific details of the program, consult the chairman of the department; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies. There is no foreign language requirement for this degree; however, candidates intending further study are advised to meet the language requirement of the prospective university.

## COURSES

### PHYSICS (Phys)

*Note: Math 77, Phys 4A-B-C are prerequisite to all upper division and graduate physics courses, except Phys 100A-B, 117, 125, 145, 148, 150A-B-C, 175T.*

#### 1A-B. Physics for Bioscientists (4-4)

Prerequisite: two years of high school algebra or Math 29 or permission of instructor. Essentially the same physical content as Phys 2A-B but with all theory, applications, and experimental techniques directed toward the investigation, description, and analysis of biological systems. (3 lecture, 3 lab hours)

#### 2A-B. General Physics (4-4)

Prerequisite: two years of high school algebra or Math 29 or permission of instructor. Mechanics, properties of matter, heat, sound, light, electricity and magnetism, and modern physics. (3 lecture, 3 lab hours)

**4A. Mechanics and Wave Motion (4)**

Prerequisite: Math 76 (or concurrently). Statics, forces, motion, properties of matter, wave motion. (3 lecture, 3 lab hours)

**4B. Electricity, Magnetism, Heat (4)**

Prerequisite: Phys 4A, Math 75, 76. Electrostatics, concepts of field and potential, capacitance, D.C. circuits, chemical and thermal effects, magnetic fields, induced current, alternating current circuits, temperature, calorimetry, heat flow, thermodynamics. (3 lecture, 3 lab hours)

**4C. Light and Modern Physics (4)**

Prerequisite: Phys 4B. Interference and diffraction phenomena, optical instruments, spectra, atomic structure, radioactivity, X-rays, and nuclear physics. (3 lecture, 3 lab hours)

**22A-B. General Astronomy (3-3)**

Prerequisite: Phys 1A, 2A or 4A or permission of instructor. Survey of astronomy including astronomical coordinate systems; telescopes, solar system, stars and stellar systems, galaxies and cosmology. (Occasional observation or lab hour)

**55. Sound (3)**

For music students and others interested in the physical basis of music. Vibrations and spectra of various musical instruments; harmony and discord, the tempered scale; acoustics; reproducing instruments; hearing.

**100A-B. Modern Physics (2-2)**

Prerequisite: Phys 2A-B or equivalent. Classical and quantum physics, electromagnetic spectrum, relativity, radiation and atomic structure, wave nature of matter, natural and artificial radioactivity, properties of nuclear radiations, structure of nucleus, fission process, fusion. Topics treated without use of calculus.

**102. Modern Physics (3)**

Fundamental concepts of atomic and nuclear structure, transitions and radiations. Includes discussions of relativistic mechanics, quantum mechanics, solid state physics and elementary particles. Special topics as they pertain to modern developments in physics, engineering, and chemistry.

**105A-B. Analytical Mechanics (3-3)**

(A) Analytical and vector treatment of the fundamental principles of statics, kinematics, and dynamics. (B) Advanced dynamics; harmonic motion, central force fields and Lagrange's equations.

**107A-B. Intermediate Electricity and Magnetism (3-3)**

Prerequisite: Phys 105A. (A) Mathematical analysis of electrostatics and magnetostatics, Gauss' law, solutions of Laplace's equation, images, theory of conduction, magnetic potentials. (B) Motion of ions in electric and magnetic fields, electromagnetic induction, Maxwell's equations and wave propagation, electron theory and magnetic properties.

**110. Physical Optics (3)**

Theory of optical phenomena; wave theory of light with applications to optical instruments; interference and diffraction phenomena, dispersion, polarization.

**115. Quantum Mechanics (3)**

Prerequisite: Phys 102, 105A or equivalent, Math 81. Historical background, postulates, meaning and methods of quantum mechanics; applications to atomic phenomena.

**116. Quantum Physics of Atoms (3)**

Prerequisite: Phys 115 or Chem 115. Quantum mechanics applied to atomic and nuclear physics.

**117. Atmospheric Science (3) (See Geog 117)**

**120. Electrical Measurements (3)**

Theory, operation and use of electrical and electronic instruments and circuits commonly used in science laboratories. (2 lecture, 3 lab hours)

**125. Physics and Chemistry of Instrumentation (4)**

Prerequisite: Chem 8 and Chem 105. Structured to train bioscientists in the theory of electricity, basic electronics, light and optical systems and to apply this theory to the design and use of instrumentation typical to the bioscience laboratory. (2 lecture, 6 lab hours)

**130A-B. Advanced Laboratory (2-2)**

Prerequisite: Phys 102, 120. Advanced experiments in mechanics, electricity and magnetism, atomic and nuclear physics. Opportunity for at least one individual project. (6 lab hours)

**140. Thermodynamics and Kinetic Theory (3)**

Prerequisite: Math 81. Fundamental concepts and laws of classical thermodynamics. Rudiments of kinetic theory and statistical thermodynamics with application to physical and chemical systems.

**145. Geophysics (3)**

Prerequisite: Phys 1A-B or 2A-B or 4A-B-C, Math 75. Basic principles of physics applied to the solution of geological problems, rotation and figure of the earth, the gravity field, seismology and the earth's interior, geomagnetism, and the thermal history of the earth.

**148. Atmospheric and Oceanic Motions (3) (See Geog 148)****150A-B-C. Modern Physical Theory (3-3-3)**

Physical theory at the intermediate level. Newtonian and Relativistic particle mechanics, rigid body mechanics, electromagnetism and physical optics; statistical mechanics, thermodynamics, thermochemistry, chemical equilibria, selected topics from nuclear physics. Emphasis on applications to fields such as chemistry and biology.

**162. Solid State Physics (3)**

Prerequisite: Phys 115 or Chem 115. Classification of solids; crystalline state and lattice vibrations; properties of metallic lattices and dielectrics; magnetic properties of solids; free electron theory and band theory of metals; semiconductors; imperfections.

**170A-B. Mathematical Physics (3-3)**

Application of mathematical methods to the solution of problems in physics.

**175T. Topics in Contemporary Physics (2-4; max total 12)**

Designed to provide students with special work in such areas of physics as plasmas, high energy physics, solid state, nuclear structure, astrophysics, low temperature phenomena.

**180. Seminar in Physics (1; max total 3)**

Prerequisite: senior or graduate physics major or permission of department chairman.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*.)

**203A-B. Theoretical Physics (3-3)**

Advanced treatment of classical analytical mechanics including Lagrange's and Hamilton's formulation of the laws of motion, special relativity, small oscillation theory, hydrodynamics.

**220A-B. Advanced Electricity and Magnetism (3-3)**

Electromagnetic theory and its applications; solutions of Laplace's equation; electromagnetic potentials; cylindrical and spherical waves; retarded potentials; Lienard-Wiechert potentials; special relativity and electron theory.

**221A-B. Atomic and Nuclear Physics (3-3)**

The nature of matter and radiation as deduced from the classical quantum and quantum mechanical theories; atomic and nuclear structure; the nature of the nucleus as deduced from classical, quantum and quantum mechanical theories; models of nuclear structure.

**222A-B. Quantum Mechanics (3-3)**

Nonrelativistic quantum theory; state vectors and Hermitian operators, quantum mechanical pictures and representations, angular momentum, perturbation theory. Application to central force problems; hydrogen and helium atoms, scattering. Foundations of quantum field theory. Application of Group Theory to Quantum Mechanics.

**223. Statistical Mechanics (3)**

Theoretical principles of classical and quantum statistics.

**253A-B. Astrophysics (3-3)**

Radiant energy, atomic spectra, excitation and ionization, positional astronomy, magnitude systems, binary and variable stars, colors and star temperatures and stellar spectra. Continuous stellar radiation, theory of line formation, stellar interiors, stellar evolution, interstellar matter, galactic structure and galaxies.

**275T. Topics in Contemporary Physics (1-3; max total 6)**

Advanced topics in such areas as plasma physics, high energy physics, solid state physics, astrophysics, nuclear physics, biophysics, relativity.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**299. Thesis or Project (2-4; max total 4)**

Prerequisite: See *Master's Degrees—Thesis Requirements*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

## PSYCHOLOGY DEPARTMENT

### FACULTY

Wayne B. Holder, *Department Chairman*

Ibrahim M. Abou-Ghorra ■ Barbara H. Basden ■ David R. Basden ■ Raul Betancourt ■ Thomas E. Breen ■ Benjamin B. Burton ■ Alan D. Button ■ William C. Coe ■ Arnold M. Cooper ■ M. Bruce Fisher ■ Samuel S. Franklin ■ Joel S. Grossman ■ Donald D. Kirtley ■ George S. Leavitt ■ Michael M. Levine ■ Robert V. Levine ■ Stanley E. Lindquist ■ Harrison E. Madden ■ Terry G. Newell ■ Denna J. Platzek ■ Frank V. Powell ■ Merry W. Salehi ■ Mitri E. Shanab ■ James Mitchell Smith

The Psychology Department offers work leading to the bachelor of arts and the master of arts and master of science degrees in psychology.

Required core courses provide the basic terminology, the empirical and conceptual knowledge, and the research experiences necessary to deal with psychological subject matter. Twelve additional units from outside the field of psychology are required to encourage breadth in the major. Students should work closely with their advisers in selecting the psychology electives which will best satisfy their individual needs and interests. Those students planning to pursue graduate work in psychology should check carefully with their advisers and the graduate schools of their choice regarding requirements for admission and should plan to use their electives within the major largely to satisfy such requirements.

An undergraduate advisory guide is available from the Psychology Department office on request.

### PREPROFESSIONAL PREPARATION

A psychology major is often used as preparation for other professions. For preprofessional programs in law, dentistry, medicine, and the ministry, see the *Preprofessional Preparation* section and consult an adviser in the Psychology Department.

### PSYCHOLOGY MAJOR

The major consists of a core of six course areas plus selected specialized courses. With departmental approval students may make adaptations in their programs to fulfill specific needs and career objectives.

<i>Program and Prerequisites</i>	<i>Units</i>
A. Elem. Stat. 25* or 142* .....	4
B. Applications	
Psych 165, 166, 173, 175, 176, 177, 178 .....	3-4
C. Basic Content Areas (Two courses)	
Psych 126, 154, (Prerequisite 10)	
Psych 124, 155, 156, (Prerequisite 25) .....	8
D. Basic Processes (Two courses)	
Psych 121, 122, 125, 127, 149 (Prerequisite 50) .....	8
E. Methodology 50 or 144 (Psych 10 is a prerequisite to all upper division Psych courses), Prerequisite 25 or 142 .....	4
F. History and Systems, Prerequisite 12 Psych units .....	4
G. Psych Electives .....	4-5

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(6 units of electives may be lower division psychology courses, excluding Psych 10; up to 6 units of electives may be substituted from Anth 102, 104, Soc 153, Biol 120, Phil 110.)

\* Math 105, Statistical Methods (plus a one unit laboratory), may be substituted for Psych 25 or 142. This course carries a prerequisite of Math 70 which, if the student should elect to take his statistics in the Mathematics Department, the Math 70 course can be credited under the 12 units required outside the major.

*Additional Requirements:* 12 units from the Schools of Natural Sciences, Social Sciences, or Humanities (from at least three different departments) are required. They must be upper division courses except when in foreign languages or mathematics and must be in addition to general education requirements. With the permission of the department

chairman six of these units may be psychology electives under certain conditions.

**PSYCHOLOGY MINOR**

**General Psychology Minor**

	<i>Units</i>
Psych 25* or 142*, 50 or 144, 112, 121 or 122 or 154 or 155 or 156 .....	16
Psychology electives .....	6
<i>Recommended: Math 51.</i>	—
	<b>22</b>

\**Math 105, Statistical Methods (plus a one unit laboratory), may be substituted for Psych 25 or 142. This course carries a prerequisite of Math 70 which, if the student should elect to take his statistics in the Mathematics Department, the Math 70 course can be credited under the 12 units required outside the major.*

**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and the School of Education; see section on *Public School Credential*.

**MASTER OF ARTS DEGREE**

The graduate program for the master of arts degree in psychology is based on the equivalent of the undergraduate minor in psychology at CSU, Fresno. To be classified as a graduate student in psychology the student must have an undergraduate average in psychology of B or better. The master's degree program in psychology may serve as preparation for community college teaching, for professional employment requiring a master's degree, or for additional work toward a doctorate. The program may be arranged to include interest areas such as clinical, general, and developmental, as well as special MA programs for individuals.

**MASTER OF SCIENCE DEGREE**

The Psychology Department offers a master of science degree in clinical psychology which will serve to prepare the student as a professional clinician or to pursue doctoral studies at another institution. The master of science degree is a 60 unit degree with, approximately, one-half of the total units devoted to practicum internship and field work.

Additional details pertaining to the master's degrees may be obtained from the chairman of the department; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies a graduate program guide to the master's degree is available from the Psychology Department on request.

**COURSES**

**PSYCHOLOGY (Psych)**

*Note: Psych 10 is prerequisite to all upper division psychology courses.*

**10. Introduction to Psychology (4)**

Not open to students with more than six units in psychology. Introduction to psychology as an empirical science; biological and social bases of behavior; scientific principles of psychology in perception, learning, motivation, intelligence and personality. (3 lecture, 2 lab hours)

**25. Elementary Statistics (4)**

Not open to students with credit in Psych 142. Prerequisite: two years high school algebra or Math 29; Math 51 recommended. Descriptive statistics and hypothesis testing with emphasis on analysis of data in the behavioral and life sciences. (3 lecture, 2 lab hours)

**36. Introduction to Psychophysiology (3)**

Functioning of the brain in learning, memory, motivation, and emotion; human physiological correlates of emotional states, pain, dreaming; control of brain waves and internal states.

**50. Research Design and Methods (4)**

Not open to students with credit in Psych 144. Prerequisite: Psych 10 and 25 or 142. Basic course in experimental psychology; research design statistics; introduction to scientific attitude and methods in psychology; emphasis on student participation in research and report writing. (3 lecture, 3 lab hours)

**60T. Psychology as Social and Behavioral Science (2-5; max total 6 if no topic repeated)**

Problems in approaching man as a social animal; sections in basic or applied processes in personality, interpersonal relations, social environment, and group participation. (Some sections may have lab hours.)

**61. Personal Adjustment (3) (Former Psych 60T section)**

Not open to students with credit in Psych 171. General adjustment behavior with regard to personal, academic and social problems.

**66. Individual Differences (3)**

Major dimensions of individual and group differences emphasizing intelligence, sex, race, class and personality factors.

**100T. Topics in Human Development (2-5; max total 12 if no topic repeated)**

Prerequisites may be stated for some sections. Sections may specify certain topics throughout the life span or a period such as infancy, childhood, adolescence, adulthood, or old age. (Sections may involve lab hours)

**101. Child Psychology (3) (Former Psych 119)**

For nonmajors. Not open to students with credit in Psych 155. The dynamics of infant and child development and adjustment.

**102. Adolescent Psychology (3) (Former Psych 120)**

Adjustment of youth to self and society.

**103. Maturity and Old Age (3) (Former Psych 123)**

Psychological study of maturity and old age; physiological and sociological considerations.

**110T. Topics in History and Theory (2-5; max total 12 if no topic repeated)**

Sections covering theoretical issues in psychology; topics in history of psychology and contemporary systems.

**112. History and Systems (4) (Former Psych 110T section)**

Prerequisite: 12 units in psychology or permission of instructor. Historical, philosophical and scientific background of psychology; current systems and theoretical issues.

**120T. Topics in General Psychology (2-5; max total 12 if no topic repeated)**

Prerequisite: Psych 25 or 142, 50 or 144 or permission of instructor. Empirical evidence and theoretical issues in learning, motivation, thinking, cognition, language, perception, sensory and physiological processes. Sections may be limited to animal or human studies; research and reporting. (Usual sections include lab hours)

**121. Learning (4) (Former Psych 125T section)**

Prerequisite: Psych 50 or 144. Empirical evidence and theoretical issues in learning; research activity and reporting. (3 lecture, 3 lab hours)

**122. Motivation (4) (Former Psych 125T section)**

Prerequisite: Psych 50 or 144 or permission of instructor. Initiation and continuation of behavior; acquisition and modification of motives. (3 lecture, 3 lab hours)

**124. Perception and Cognition (4) (Former Psych 130T section)**

Prerequisite: Psych 25 or 142, or permission of instructor. Study of sensory perceptual and cognitive processes and their role in learning, memory, motivation and social behavior. (May involve lab hours)

**125. Physiological Psychology (4) (Former Psych 135T section)**

Prerequisite: Psych 25 or 142, 36, or permission of instructor. Nervous systems structures and physiological processes underlying behavior; anatomical and physiological bases of learning, motivation, emotions and emotional disorders, and biological feedback. (3 lecture, 3 lab hours)

**126. Language, Thought, and Culture (4)**

Not open to students with credit in Psych 120T section. An introduction to theory and research in psycholinguistics: recognition, production and comprehension of language; language as related to thought processes; problem solving, reasoning, and creativity.

**127. Animal Behavior (4)**

Not open to students with credit in Psych 120T section. Prerequisite: Psych 50 or 144, or permission of instructor. Causal factors for instigation, acquisition and maintenance of behavior in animals. Genetic, ethological, ecological and physiological approaches are considered. (3 lecture, 3 lab hours, including some field trips)

**130T. Topics in Special Areas (2-5; max total 12 if no topic repeated)**

Prerequisite: Psych 25 or 142. Basic psychological processes such as sensation, and comparative psychology; conceptual and empirical issues. (Sections usually include lab hours.)

**132. Psychology of Sexuality (3) (Former Psych 170T section)**

Prerequisite: upper division standing. Psychological aspects of human sexual behavior: influence on personality, various behavioral manifestations and pathologies.

**134. Introduction to Social Psychology (3) (Former Psych 145)**

For nonmajors. Not open to students with credit in Psych 156. Interaction of individuals in groups.

**136. Human Learning Applications (3)**

Not open to students with credit in Psych 121. Prerequisite: Psych 10. Open to majors and non-majors. Application of learning principles to all aspects of human behavior including enhancement, correction and modification of existing habit patterns and training methods.

**140T. Topics in Quantitative Psychology (2-5; max total 12 if no topic repeated)**

Prerequisite: Psych 25 or 142, 50 or 144, or permission of instructor. Sections on measurement, statistics, mathematical applications, computer applications, and instrumentation. (Sections usually have lab hours.)

**142. Introductory Statistics (4) (Former Psych 140T section)**

Not open to students with credit in Psych 25. Prerequisite: two years high school algebra or equivalent such as Math 29; Math 51 recommended. Basic statistical methods for analysis of data: parametric tests of significance; linear regression and correlation; analysis of variance; introduction to non-parametric techniques. (Usually 3 lecture, 2 lab hours)

**143. Intermediate Statistics (4) (Former Psych 104, 140T section)**

Prerequisite: Psych 25 or 142 or equivalent. Statistical concepts and models for multivariate data; analysis of variance and covariance; multiple comparisons; nonlinear regression; extension of chi-square methods; measures of association. (3 lecture, 3 lab hours)

**144. Experimental Methods (4) (Former Psych 140T section)**

Not open to students with credit in Psych 50. Prerequisite: Psych 25 or 142. Basic course in experimental psychology; research design statistics; introduction to scientific procedures and methods in psychology; participation in research and report writing. (3 lecture, 3 lab hours)

**149. Psychological Testing (4) (Former Psych 140T section, 163)**

Prerequisite: Psych 25 or 142 or equivalent. Theory of psychological measurement with emphasis on group testing. (3 lecture, 3 lab hours)

**150T. Problems in Personality, Developmental, and Social Psychology (2-5; max total 12 if no topic repeated)**

Prerequisite: Psych 25 or 142, or permission of instructor. Wholistic levels of analysis in psychology such as personality, social, and developmental; conceptual and empirical issues. (Some sections include lab hours)

**154. Personality (4) (Former Psych 150T section)**

Major contemporary theories of personality; techniques for research in personality. (May involve lab hours)

**155. Developmental Psychology (4) (Former Psych 150T section)**

Prerequisite: Psych 25 or 142, or permission of instructor. Empirical and theoretical treatment of human development throughout the life span; genetic, physiological, and socio-cultural influences upon development; physical, emotional, motivational, intellectual-cognitive, and social facets of development. (May involve lab hours)

**156. Social Psychology (4) (Former Psych 150T section)**

Prerequisite: Psych 25 or 142, or permission of instructor. Theories and research about human functioning in social systems. (May involve lab hours)

**160T. Topics in Clinical Processes (2-5; max total 12 if no topic repeated)**

Prerequisite: permission of instructor. Examination of individual behavior and small-group processes; includes such topics as clinical psychopathology, sensitivity training, and intragroup dynamics.

**162. Encounter Group (4) (Former Psych 160T section)**

Prerequisite: permission of instructor. Exploration and analysis of interpersonal relations, group processes, and other social interactions through the clinical process in a small group setting; enhancement of interpersonal competence by a variety of methods.

**164. Humanistic Psychology (4) (Former Psych 160T section)**

Prerequisite: permission of instructor. Examination of "third force" psychology, its philosophical-religious-psychological background (existentialism, phenomenology, theologies of Tillich, Buber) and current applications (Gestalt and other therapies), sensory awakening, Eastern influences (Zen, Yoga). Individual and group participation. (3 lecture, 2 lab hours)

**165. Interpersonal Dynamics (4) (Former 160T section)**

Explores personality, social and situational factors in interpersonal relations, with emphasis on two-person relationships. Uses clinical process approach requiring student's participation in personal and social interaction exercises.

**166. Abnormal Psychology (3) (Former Psych 152)**

Theoretical examination of origins, symptoms, and treatments of personality disturbances.

**167. Mental Retardation (3)**

Psychological aspects of mental retardation; parent-child problems, etiology, nosology, school placement, institutionalization, treatment and recognition of all types; parent and child counseling.

**168. Exceptional Children (3)**

The atypical child; etiology, symptomatology, nosology, recognition and recommendations.

**169. Problems of the Handicapped and Exceptional (3)**

Examination of the psychological, sexual, learning and social adjustments of handicapped and exceptional persons.

**170T. Topics in Psychological Applications (2-5; max total 12 if no topic repeated)**

Applications of psychology; human factors; clinical psychology, learning applications, creativity, psychology of religion, and other elective topics. (Some sections include labs)

**171. Adjustment and Mental Hygiene (3) (Former Psych 111)**

Not open to students with credit in the Psych 60T section or Psych 61. Basic processes in adjustment; mental health and social problems; applications of principles of emotional health, prevention of personal problems.

**172. Psychology of Women (3) (Same as WS 172)**

Prerequisite: permission of instructor. Examination of sex differences and sex roles: biological, cognitive, social, and motivation.

**173. Environmental Psychology (4) (Former Psych 170T section)**

Man-environmental relations, psychological and behavioral effects of various ecological conditions including crowding, housing, urbanization, and space.

**174. Principles and Techniques in Guidance (3) (See A S 174)****175. Family Counseling (3)**

Psychodynamic treatment of family problems; methods of counseling; psychotherapy.

**176. Industrial Psychology (3) (Former Psych 181)**

Occupational assessment, training procedures, production efficiency, morale determinants, human engineering, decision processes, organization theory.

**177. Behavior Modification (3)**

Introduction to learning principles and their applications to behavior. Modification methods and techniques used for problems of children, adolescents, and adults.

**178. Culture, Social Class and Development (4)**

Not open to students with credit in Psych 170T section entitled *Culture, Social Class and Development*. An introduction to theory and research on race, prejudice, culture and social class, and the results of these on the intellectual and social development of the child.

**180T. Seminar in Psychology (1-5; max total 12 if no topic repeated)**

Prerequisite: 9 units in psychology, permission of instructor. Undergraduate seminar in specialized areas or new developments in psychology.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**199. Senior Thesis (2-4)**

Concentrated empirical or theoretical study of specific topic in psychology; emphasis on independent and creative activity. Copy of thesis required for Psychology Department file.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**200T. Seminar in Developmental Psychology (2-4)**

May be repeated with different topics. Prerequisite: permission of instructor. Seminars in development and genetic psychology, special topics for particular age ranges and problem areas.

**210T. Psychological Theory (2-4) (Former Psych 209)**

Prerequisite: permission of instructor. Current psychological literature; theoretical emphases, special topics.

**220T. Seminar in Learning and Related Problems (2-4) (Former Psych 207)**

Prerequisite: undergraduate core in psychology or equivalent. Advanced current developments in learning, sensation and perception, language, physiological and comparative psychology. (May include lab hours)

**231. Readings in Psychology (1-3; max total 8 if no topic repeated) (Former Psych 205)**

Prerequisite: permission of instructor. Individually directed readings in areas of interest or need; appropriate reports and evaluations required. Individual conferences.

**243. Seminar in Advanced Statistics (3) (Former Psych 204)**

Prerequisite: Psych 143 or equivalent. Advanced parametric and non-parametric statistics and their applications in psychological research. (2 lecture, 3 lab hours)

**244. Seminar in Experimental Methods (3) (Former Psych 201)**

Prerequisite: permission of instructor. Measurement and analysis in behavioral research. (2 lecture, 3 lab hours)

**249. Seminar in Human Research and Psychometrics (3) (Former Psych 202)**

Prerequisite: Psych 143 or permission of instructor. Survey and test design and analysis in behavioral research. (2 lecture, 3 lab hours)

**250T. Seminar in Personality and Related Areas (2-4) (Former Psych 208)**

Prerequisite: undergraduate core in psychology or equivalent. In-depth examination of the recent developments in personality, clinical, genetic, social, community, and psychometric psychology.

**261. Clinical Intervention Techniques I (3-6) (Former Psych 262, 263, 271)**

Prerequisite: Psych 166 and permission of instructor. Principles and techniques of clinical interviewing and history taking; theory and application of individual psychotherapeutic techniques. Field work under supervision.

**262. Clinical Intervention Techniques II (3-6)**

Prerequisite: Psych 166 and permission of instructor. Principles and applications of group psychotherapy. Theory and techniques of behavior modification. Field work under supervision.

**265. Clinical Assessment I (3-6) (Former Psych 264 and AS 255)**

Prerequisite: Psych 149 and permission of instructor. Administration, scoring, and interpretation of individual and group verbal and non-verbal measures of intelligence and achievement; case studies on children and adults will be developed. Field work under supervision.

**267. Field Work in Clinical Methods (3-12; max total 12)**

Prerequisite: Psych 261, 262, 265, 268, and permission of instructor. Supervised field work in clinical assessment, intervention and case study techniques. Field placements will include hospitals, schools and clinics, depending on students needs. Regular conferences and critiques with supervising faculty.

**268. Clinical Assessment II (3-6)**

Prerequisite: Psych 149 and permission of instructor. Administration, scoring, and interpretation of measurement instruments used for learning problems, physical-motor development, vocational aptitude, social maturity and emotional and personality appraisal; development of prescriptive and rehabilitative statements in case studies on children and adults. Field work under supervision.

**269F. Field Work in the Psychology of Assessment (1-3)**

Prerequisite: concurrent registration in specified courses and permission of instructor. Clinical field experience in the application and interpretation of selected psychological assessment techniques.

**270T. Seminar in Applied Behavioral Science (1-6; max total 15 if no topic repeated)**

Topics in applied behavioral research; conflict management, group dynamics, organization development, sensitivity training, and related processes. For students in the fields of business, communications, education, psychology, and the social sciences.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**299. Thesis (2-6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree in compliance with Psychology Department regulations.

**IN-SERVICE COURSES**

See *Course Numbering System*.

**302. Selected Topics in Psychology (1-3; max total 9 if no topic repeated)**



## **SCHOOL OF PROFESSIONAL STUDIES**

**Aerospace Studies Department**

**Criminology Department**

**Home Economics Department**

**Industrial Arts and Technology Department**

**Journalism Department**

**Music Department**

**Physical Education and Recreation Department**

**Radio-Television Department**

**Theatre Arts Department**



# SCHOOL OF PROFESSIONAL STUDIES

Arthur Margosian, Dean

Assistant Dean ..... Octavio J. Tocchio

<i>Department</i>	<i>Chairperson</i>
Aerospace Studies.....	Lt. Col. Paul G. Logsdon, Jr.
Criminology .....	John R. Quinn
Home Economics .....	Gwen C. Cooke
Industrial Arts and Technology .....	Frank E. Schroeter
Journalism.....	Dayle H. Molen
Music .....	James H. Winter
Physical Education and Recreation .....	J. Gene Bourdet
Men's Physical Education.....	Jack Wilcox (Coordinator)
Women's Physical Education.....	Patricia Thomson (Coordinator)
Recreation .....	Daniel B. Sawyer (Coordinator)
Radio-Television .....	John P. Highlander
Theatre Arts.....	Gaylord O. Graham

The departments of the School of Professional Studies provide programs leading to the bachelor of arts, the bachelor of science, the master of arts, and the master of science degrees. Preparation is offered for professional careers in the specialized areas of law enforcement and corrections, manufacturing and construction, dramatic arts, home economics, journalism, music, physical education and recreation, and radio-television and in the general areas of teaching, business, and military, public, or governmental service. For specific degrees and programs, refer to the individual departmental information on the following pages.

In addition, the School of Professional Studies offers the bachelor of vocational education degree in those occupational fields which qualify under the State of California Swan Act.

## AEROSPACE STUDIES DEPARTMENT

### FACULTY

Paul G. Logsdon, Jr., *Department Chairman*

Paul J. Halterlein ■ Aubry J. McAlpine ■ Stephen H. Rowe

### AEROSPACE MINOR

A minor in aerospace studies consists of satisfactory completion of the AFROTC program (19 units). Open to men and women.

### AIR FORCE RESERVE OFFICER TRAINING CORPS PROGRAM

This four-semester program is designed to provide students with the opportunity to develop professional, academic, and leadership attributes essential to their progressive advancement to positions of responsibility as officers in the United States Air Force. Successful completion of the program leads to a reserve commission as a Second Lieutenant in the United States Air Force upon graduation.

Students enrolled in AFROTC receive \$100 a month nontaxable financial assistance during the two-year program. In addition, Air Force scholarships are available which cover full tuition, allowance for books, laboratory fees, and incidental fees. All AFROTC payments and other benefits are in addition to those a veteran is entitled to under the GI Bill, other laws, or scholarships.

A 25-hour flight instruction program is offered to pilot candidates at government expense. Applications should be submitted to the Professor of Aerospace Studies during the sophomore year or the fall semester preceding anticipated enrollment in AFROTC.

Students with prior military service should consult the Professor of Aerospace Studies for applicable entrance requirements.

Students with any academic major may apply for admission to AFROTC. To be eligible a student must

- (1) Be a citizen of the United States and not less than 17 years of age.
- (2) Be physically, mentally, and morally qualified in accordance with standards established by the Department of the Air Force and have a minimum of four semesters, either undergraduate or graduate, remaining to be completed at California State University, Fresno.
- (3) Successfully complete the Air Force Officer Qualifying Test.
- (4) Successfully complete the Air Force physical examination.
- (5) Be not more than 26½ years of age, if programmed for flying training; or 30 years of age, if programmed for other than flying training, at date of graduation and commissioning.
- (6) Be approved for AFROTC training by the Professor of Aerospace Studies and the President of the University.

## COURSES

### AEROSPACE STUDIES (A 5p)

#### 14. General Aviation: Private Pilot (2)

Fundamentals of flight and aerodynamics, aircraft controls and maneuvers, powerplants and systems, meteorology, navigation and Federal Aviation Regulations. Prepares student for FAA private pilot written examination.

#### 25. Air Force ROTC Field Training (3)

For all nonprior-service applicants. Taken during summer preceding entry into AFROTC. Six-week field training to acquaint student with Air Force life; basic military skills; Air Force weapons and support systems; and discipline essential to military environment. The Air Force provides meals, housing, \$432 pay, and travel pay to and from designated Air Force base.

**103A-B. National Security Forces in Contemporary American Society (3-3)**

Prerequisite: satisfactory completion of A Sp 25, or equivalent military training. Role of the military manager in contemporary society; societal attitudes towards the military; requisites for maintaining adequate armed forces; political and economic constraints on the national defense system; impact of technological and international developments on strategic preparedness and policy making.

**103C. Air Force ROTC Field Training (3)**

Required for prior-service cadets only. One month's military training taken during the summer at designated Air Force installations. Physical training, drill, weapon familiarization, flying, field exercises, orientation in United States Air Force base activities, and equipment. The Air Force provides meals, housing, \$267 pay, and travel pay to and from designated Air Force Base.

**104A-B. The Professional Officer (3-3)**

Prerequisite: A Sp 103A-B. Systematic study of published research on leadership theories and group dynamics; introduction to military law and the role of the military officer; review of the principles and functions of management with emphasis on problem solving and practical application of management tools.

**113. Leadership Laboratory (1; max total 4)**

Prerequisite: A Sp 25, or equivalent military training. Must be taken each semester. Cadets experiment with and develop their leadership skills and techniques.

## CRIMINOLOGY DEPARTMENT

### FACULTY

John R. Quinn, *Department Chairman*

Herman S. Bailey ■ Edward T. Fitzgerald ■ Max D. Futrell ■ Barbara S. James ■ John F. Kallam ■ Ruth Masters ■ Robert F. Perez ■ Lester D. Pincu ■ D. N. Ray ■ Robert D. Saake ■ Octavio J. Tocchio ■ Ernest K. Tsukuda ■ Erle L. Wilber

The Criminology Department provides educational opportunities in the areas of law enforcement and corrections. The law enforcement program is designed for students interested in careers in law enforcement and related areas at the federal, state, and local levels of government, or in allied occupations in government, business, and industry. The corrections program is designed for students interested in careers in probation, parole, penal and correctional institutions, and other affiliated forms of work.

The department offers the bachelor of science and master of science degrees.

### BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN CRIMINOLOGY

The bachelor of science degree with a major in criminology with options in law enforcement or corrections is granted upon completion of a four-year curriculum consisting of 128 semester units. The general degree requirements must be completed, see *Degrees and Credentials*. Each student desiring to major in criminology must select and complete one of the options listed below.

#### CRIMINOLOGY MAJOR

##### Law Enforcement Option

	<i>Units</i>
Crim 4, 73, 102, 105, 106, 107, 113, 114, 128, 132, 140 .....	34
Electives (upper division), approved by the adviser, in any of the following disciplines: criminology, ethnic studies, journalism, psychology, public administration, social welfare, sociology .....	12
	46

##### Corrections Option

Crim 74, 105, 125, 132, 133, 135, 137, 140 .....	24
Elect from: S Wel 20, 121, 122T, 124, 127 .....	6
Electives (upper division), approved by the adviser, in any of the following disciplines: criminology, ethnic studies, journalism, psychology, public administration, social welfare, sociology .....	15
	45

#### MASTER OF SCIENCE DEGREE

The graduate program for the master of science degree in criminology is based on the equivalent of the undergraduate major in criminology at CSU, Fresno. An area of occupational specialization, such as corrections or law enforcement, is required. For specific requirements consult the chairman of the department; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

### COURSES

#### CRIMINOLOGY (Crim)

##### 1. Crime in America (3)

Not open to students majoring in criminology who have more than 60 units. Social justice and criminal law; state vs accused; crime and criminals; police function; prosecution; correctional process; prevention.

**4. Police Operations (3)**

Open only to criminology majors. Not open to students with credit in Crim 4A-B. Basic theories, objectives, and activities of police patrol and field operations.

**7. Firearms (2)**

Open only to criminology majors. Prerequisite: permission of department. Use and care of firearms; explanation of situations warranting use of firearms; legal provisions and restrictions; policy covering use in performance of duty; safety precautions; nomenclature; dry firing and familiarization firing. (1 lecture, 3 range field hours)

**73. Police Report Writing (3)**

Not open to students with credit in Crim 72 or 74; open only to law enforcement students. Principles of effective preparation of technical and narrative law enforcement reports.

**74. Correctional Report Writing (3)**

Not open to students with credit in Crim 72 or 73; open only to corrections students. Principles of effective preparation of technical and narrative reports in correctional institutions, community service, or probation and parole agencies.

**101. Police Supervision (3)**

Analysis and evaluation of sound human relations and supervisory techniques as related to effective policy performance: discipline; motivation, problem handling, personnel policies; supervisory relationships; wages; grievances; morale and safety; instruction; training.

**102. Police Organization and Administration (3)**

Not open to students with credit in Crim 2. Fundamentals of police organization and administration applied to field operations; records and reports, patrol; traffic; investigation; vice, crime prevention; public relations; police ethics; allied problems.

**103. Middle Management in Law Enforcement (3)**

Relationship to the organization, internal-external interpersonal relationships. Role in supervision; leadership; effective communication; personnel management; research, planning and analysis; deployment and utilization of personnel; fiscal planning, execution, and control; community relations; information management; training program management; conference leadership.

**104. Current Issues in Police Management (3)**

Analysis of current major police management problems from the viewpoints of both the administrator and the line operations officer which seeks the integration of established scientific knowledge with practical police experience in the various areas of police functioning.

**105. Criminal Law (3)**

Not open to students with credit in Crim 105A. Theory, concepts, and philosophy of substantive law and criminal offenses; analysis of court decisions and opinions through case-study method.

**106. Criminal Procedure (3)**

Not open to students with credit in Crim 105B. Prerequisite: Crim 105 or 105A. Criminal procedure from arrest to appeal, utilizing California materials as well as United States Supreme Court decisions binding on California courts; analysis of court decisions and opinions through case study method.

**107. Criminal Evidence (3)**

Not open to students with credit in Crim 105B. Prerequisite: Crim 105 or 105A. Fundamental questions of evidence and theory of proof through analysis of court decisions and opinions by case study method: judicial notice; hearsay and exceptions, business records, documentary proof, privileged communications, self-incriminations, relevance, and presumptions.

**108. Directed Policing (3; max total 15)**

Open only to criminology majors who are members of the College Student Police Unit. Prerequisite or concurrently: Crim 4, permission of instructor and sponsoring agency. Supervised field experience in police work for interpreting theories developed in parallel criminology courses. Purchase of uniform required. (Minimum of 6 field hours per unit.)

**109. Comparative Police Systems (3)**

Study of selected police systems in other jurisdictions; examination of the organization; administration and operations of police agencies in the United States, Europe, the United Kingdom, and Asia.

**110. Criminal Justice Information Systems (3)**

Open only to criminology majors. Not open to students with credit in Crim 10. Organization and installation of police records systems; use of computer technology in records, traffic, uniform crime reporting, manpower allocation, wanted persons file checking, and communications.

**113. Criminalistics I (4)**

Open only to criminology majors. Advanced study of scientific crime investigation and detection methods. (3 lecture, 3 lab hours)

**114. Criminalistics II (3)**

Open only to criminology majors. Criminal identification systems; identification of persons and property; physical evidence; scientific resources and techniques.

**120. Juvenile Delinquency (3)**

The problem of juvenile delinquency; portrait of delinquency; causal factors; agencies of justice; treatment process; programs for control and prevention.

**121. Delinquency Prevention (3)**

Not open to students with credit in Crim 136.3. An analysis of the role of the police, correctional agencies, the courts, group and community oriented programs of the prevention and control of juvenile delinquency.

**125. Correctional Law (3)**

Not open to students with credit in Crim 136.2. Prerequisite: Crim 105 (or concurrently). Basic legal theories, concepts, and laws affecting juveniles and adults in the correctional process; case studies.

**126. Legal Rights of Women (3) (Same as W 5 126)**

Legal rights of women: constitutional law, employment legislation, family law, property rights, criminal law, and women's legal rights in other countries.

**128. Interviewing and Interrogation (3)**

Not open to students with credit in Crim 136.6. The elements of police interviews and interrogations.

**129. Detection of Deception (3)**

Open only to criminology majors. Historical, physiological, psychological and legal aspects of the analysis of detection of deception techniques; theory and practice of instrumental detection of deception and other interrogation aids; laboratory experiments in the use of the polygraph. (2 lecture, 3 lab hours)

**132. Criminology (3)**

Theories of criminal behavior; sociological factors; organized crime; professional criminals; selected types of social deviants and criminal offenders.

**133. Institutional Treatment of Offenders (3)**

Modern philosophy and methods in the treatment of adult offenders and juvenile delinquents in correctional institutions.

**135. Probation and Parole (3)**

Principles and practices in probation and parole.

**136T. Topics in Criminology (3; max total 12 if no topic repeated)**

Analysis of selected areas of criminology; deviant behavior; institutional and noninstitutional treatment; corrections; administration and management; law enforcement; criminalistics.

**137. Small Groups (3)**

An examination of theories and techniques of group dynamics and group therapy.

**138. Correctional Counseling (3)**

Prerequisite: Crim 137 or permission of instructor. Methods of orientation, guidance, and treatment by which a leader may counsel a group of individuals, direct and facilitate constructive interpersonal relationships; group approach to social reintegration in the correctional setting.

**139. Counseling Techniques (3)**

Individual counseling techniques and methods used in the field of corrections.

**140. Community Relations (3)**

Nature and causes of complex problems in people-to-people relations; related role of community agencies.

**153. Psychology of the Criminal (3)**

Psychological bases of crime; motivation, alcoholism, economic and cultural pressures; forms of crime; criminal careers.

**169. Statistics (3)**

A study of elementary statistical techniques with special reference to criminological problems.

**170. Research in Criminology (3)**

Research methodology; use of library resources; preparation and handling of materials in criminology; written report required.

**180. Internship in Law Enforcement (1-6; max total 6)**

Open only to criminology majors without law enforcement experience. Prerequisite: permission of instructor and sponsoring agency. Relates student's classroom studies with occupational and professional experiences. Weekly conference with field supervisor. (Minimum of 3 field hours per unit)

**181. Internship in Corrections (1-6; max total 6)**

Open only to criminology majors without correctional work experience. Prerequisite: permission of instructor and sponsoring agency. Relates the student's classroom studies with occupational and professional experiences. Weekly conference with field supervisor. (Minimum of 3 field hours per unit)

**183. Counseling Practicum (3; max total 6)**

Professional experience in individual and group counseling in a correctional or related agency. (Minimum of 6 supervised field hours)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**201. Seminar in Criminology (3)**

Prerequisite: Crim 132 or permission of instructor. Theories and research in the etiology of juvenile delinquency and criminal behavior.

**210. Seminar in the Administration of Justice (3; max total 9 if no topic repeated)**

Prerequisite: permission of instructor. Developments and trends in the administration of justice; constitutional, statutory, and procedural problems; the police function; criminalistics; prosecution of criminal offenses; correctional administration and management.

**227. Seminar in Crime and Delinquency Prevention Programs (3)**

Prerequisite: permission of instructor. Policies and programs for prevention and control of delinquency and crime; evaluation of specific programs; principles of prevention and control.

**233. Seminar in the Treatment of Offenders (3; max total 12 if no topic repeated)**

Prerequisite: Crim 133 or permission of instructor. Detention; community-centered correctional programs; probation; institutional treatment of deviants and offenders; group approach to social reintegration; parole and post institutional guidance of released persons.

**270. Problems in Criminology (1-6; max total 12 if no topic repeated)**

Prerequisite: permission of instructor. Special problems in law enforcement or corrections; individual research in laboratory, library, or field work; formal written reports. Weekly conference with instructor.

**281. Supervised Professional Experience (1-6; max total 6)**

Open only to criminology majors. Prerequisite: permission of instructor. Supervised professional experience in law enforcement or correctional work.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**298. Directed Research (3-6; max total 6)**

Prerequisite: Crim 169, 170. Directed research in criminological problems; preparation, completion, and submission of an acceptable individual project leading to the master's degree. Individual conferences, oral defense of study.

**299. Thesis or Project (2-4; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**302. Topics in Criminology (1-3)**

## HOME ECONOMICS DEPARTMENT

### FACULTY

Gwen C. Cooke, *Department Chairwoman*

Ann S. Bauer ■ Richard D. Berrett ■ Shirley J. Bowden ■ Ann L. Burrows ■ Nancy F. Cadenazzi ■ Joanne N. Caid ■ Jan L. Cummins ■ David E. Goldbloom ■ Frances H. Harkins ■ Patricia L. Hennings ■ Nina J. Henry ■ Katherine J. Karikka ■ Michele M. Kilner ■ Elena F. Kissick ■ Vivian Y. Kunimitsu ■ Ratana S. Newsome ■ William C. Rice ■ Carlene M. Rose ■ Laurence E. Smardan ■ Edna A. Smith ■ Alice J. Sollie ■ Louise P. Turner ■ Nancy J. Winston ■ Patricia C. Yeary

The Home Economics Department offers programs of study leading to a major and a minor in home economics for the bachelor of arts degree and a master of science degree. The curricula provide for the general or liberal education of the student as a person, a citizen, and family member, and for the education of the student for a variety of professional opportunities. Four core courses provide basic principles, concepts and synthesis of knowledge concerned with the betterment of family life upon which the professional programs are based. Programs of study cover the various areas of the home economics discipline: Child Development and Family Relations, Clothing and Textiles, Food and Nutrition, Consumer Sciences and Management, Housing and Interior Design.

The Home Economics Department has a cooperative relationship with The Merrill-Palmer Institute. Students may undertake a period of undergraduate or graduate off-campus study at Merrill-Palmer and these courses will apply toward graduation at CSUF.

Each student is expected to meet with his adviser at least once a semester. Advisers assist with individually designed programs of study in preparation for specific career objectives. Upon completion of 90 units, a program of study must be approved by and filed with the department chairwoman.

### Community College Preparation

Students from Community Colleges should check suggested general education courses and prerequisites for the various options in order to facilitate transition into the home economics program at CSUF.

### HOME ECONOMICS AJOR

The bachelor of arts degree with a major in home economics consists of 124 units. Forty units are to be chosen from general education and elective units. The home economics core is required of all majors and consists of 12 units. Students may select a program of study developed for the (1) general home economics major, (2) dietetics option, (3) careers in business, (4) home economics teaching credential program.

	<i>Units</i>
General Home Economics Major Requirements	12
H Ec Core, H Ec 3, 5, 7, 8 .....	6
Lower division home economics electives.....	3
Upper division, H Ec 131 .....	15
Home economics electives (upper division) to be selected from courses indicated in each of the areas listed below (3 units from each area) .....	
Child Development and Family Relations	
Clothing and Textiles	
Food and Nutrition	
Consumer Sciences and Management	
Housing and Interior Design	
Additional home economics electives, upper division .....	6
Recommended courses: Soc 1, Anth 2, Psych 10, Hist 1, Spch 3, Art 1, Eng 1.	

### Dietetics and Food Administration Option

The dietetics and food administration meets the requirements of the American Dietetic Association for admission to their internship program.

H Ec Core, H Ec 3, 5, 7, 8 .....	12
H Ec 50, 52, 54, 113, 150, 153, 159, 160, 165 .....	27

**Additional Requirements:** Chem 2A–B, 8; Micro 20, 21; Phy 1; Soc 1 or Psych 10; Econ 1A; Mgmt 110A; Engl 1; E Ed 130 or S Ed 152. Consult advisers in dietetics for requirements of each specialization: General, Management, Clinical, Community Dietetics.

Career programs for Home Economics in Business have been developed in the areas of Child Development and Family Relations, Fashion Design and Merchandising, Food Services and Nutrition, Consumer Sciences and Management, and Housing and Interior Design. The curriculum is designed for students who wish to seek a career as a professional home economist in business. It gives broad training in specialized areas of home economics with required subjects from the School of Business and other related fields. Students should consult with a departmental adviser in determining their area of emphasis.

### HOME ECONOMICS MINOR

The minor in home economics consists of a minimum of 21 H Ec units, including the core plus 9 units upper division. Each student is expected to consult with a home economics faculty adviser.

### CREDENTIAL PROGRAM

For information on the current credential program consult departmental coordinator and the School of Education; see the section on *Public School Credentials*.

### MASTER OF SCIENCE DEGREE

The graduate program leading to the master of science degree in home economics is based on undergraduate preparation in home economics and/or related fields. For specific requirements consult the department graduate adviser; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program at California State University, Fresno, see the Graduate Bulletin, available in the School of Graduate Studies Office.

## COURSES

### HOME ECONOMICS (H Ec)

#### 1. Contemporary Home Economics (2)

Home economics in America; past and present professional needs, successes and weaknesses; future of the field. Academic preparation for a variety of occupations; participation in the worlds of work, marriage, family, and community.

#### 3. Individual, Family and Near Environment (3)

Analysis of concepts in the area of food, clothing and shelter that are basic to the rapid changes in our society. Values and goals that are operative in interrelationships of these three basic family needs are explored.

#### 5. Decision Making and Problem Solving (3) (Former H Ec 51, 110)

Management concepts related to individual careers and family living. Analysis of values, goals, and standards and their relationship to decision making in the allocation of human and nonhuman resources with case studies in problem solving.

#### 7. Applied Color and Design (3)

Introduction to the application of color and design to all areas of Home Economics; properties of color, simple graphic methods, and three dimensional design. Studio work and discussions. (6 lab hours)

#### 8. The Individual and Family Interaction (3)

Individual and family development and family interaction throughout the family life cycle. Diversity of family life styles and forces that influence family relationships and the quality of life will be among the topics examined. For home economics majors only.

#### 10. Management for Effective Living (2) (Former H Ec 42)

Not open to home economics majors and minors. Human relationships, housing, family finance, consumer problems, meal management and nutrition as they relate to individual and family living.

**20. Beginning Textiles (3) (Former H Ec 11)**

Fiber classification; methods of production; fabric construction; mechanical finishes. Selection, use, and care of fabrics in relation to consumer needs.

**22. Fashion Analysis (1) (Former H Ec 12)**

Factors influencing trends in dress. Selection of color, line and form related to individual needs.

**24. Clothing Construction I (3) (Former H Ec 14)**

Pattern and fabric selection; basic construction techniques, use of commercial patterns; application of these factors to consumer buying. Color line and design in apparel selection. (6 lab hours)

**26. Clothing Construction II (3) (Former H Ec 24)**

Prerequisite: H Ec 24 or experience in clothing construction. Individualization of basic and designer patterns; alteration principles; techniques of handling new fabrics. Selection of color, line and form related to individual and family needs. (6 lab hours)

**32. Preparation for Marriage (2)**

Competencies needed to create home environment conducive to achieving marriage and family goals; socialization for marriage and courtship as preparation for marriage.

**39. Child Development (3)**

Study, with an interdisciplinary perspective, of the psycho-social development of the child from birth through adolescence, in the cultural context of the family. Observation of children in nursery school required.

**50. Basic Food Study (3) (Former H Ec 10)**

Introduction to food preparation and standards determining quality of food. (1 lecture-discussion, 4 lab-demonstration hours)

**52. Dietetics (3) (Former H Ec 31)**

Elements of nutrition and diet in disease.

**54. Elementary Nutrition (3) (Former H Ec 40)**

Elementary knowledge of high school chemistry and biology strongly recommended. Scientific principles underlying normal nutritional requirements.

**70. Housing and Interior Design (3) (Former H Ec 38)**

Social, psychological, economic, and aesthetic aspects of housing selection and interior design. Integration of design principles; creative expression, and consumer information pertaining to living space.

**71. Interior Design Laboratory (1; max total 3)**

Prerequisite: H Ec 7 and H Ec 71 or concurrently. Introductory experience in interior design processes. Studio work; floor plans, spatial arrangements, graphics and design presentation techniques. (2 lab hours)

**111. Household Equipment (3) (Former H Ec 50)**

Selection, methods of operation, and care of household appliances; testing electrical equipment for efficiency and cost of operation; kitchen planning, arrangement of work, preparation and serving units. (2 lecture, 2 lab hours)

**112T. Topics in Home Management, Equipment, and Family Economics (3; max total 12 if no topic repeated) (Former 152T)**

Effective home management and contemporary family economics.

**113. Economics for Consumers (3) (Former H Ec 101)**

Consumer spending related to social and psychological factors influencing consumers. Legislation that protects and relates to the consumer on local, state, and federal level.

**114. Home Management Laboratory (3) (Former H Ec 111)**

Required for credential candidates. Prerequisite: H Ec 5, 50, 54, 111 or permission of instructor. Integrated experience in various phases of home economics provided by residence in the home management house. Preregister in department office by spring for the following year. (6 lab hours)

**115. Family Finance (3) (Former H Ec 132)**

Financial activities of the individual and family; planned spending, bank services, consumer credit, insurance savings, investments, taxes; financial aspects of home ownership and estate planning.

**116. Field Experience in Home Management (3) (Former H Ec 154)**

Prerequisite: permission of instructor. Supervised field experience in teaching home management to various socio-economic and ethnic groups. (1 lecture, 4 lab hours)

**120. Social and Psychological Aspects of Clothing (3) (Former H Ec 20)**

The psychological, social, and economic aspects of clothing as related to the individual, family, and society. An understanding of fashion, its development and distribution.

**121. Tailoring (3) (Former H Ec 100)**

Prerequisite: H Ec 22, 24, or 26. Tailoring a woman's suit or coat using various tailoring techniques. (6 lab hours)

**122T. Topics in Clothing and Textiles (3; max total 12 if no topic repeated)**

Prerequisite: H Ec 20, 22, 24 and/or 26, or permission of instructor.

**123. Pattern Design (3) (Former H Ec 102)**

Prerequisite: H Ec 22, 24, and/or 26. Application of flat pattern method to apparel design. (6 lab hours)

**124. Advanced Textiles (3) (Former H Ec 103)**

Prerequisite: H Ec 20, Chem 2A-B or 2A-C. New developments in man-made fibers; chemical finishes; dyes and dyeing; physical testing of fabrics. (2 lecture, 2 lab hours)

**126. Personalized Clothing Design (3) (Former H Ec 106)**

Prerequisite: H Ec 22, 24 or 26, 123. Creative design through the medium of flat pattern and/or draping. Social implications of clothing. (6 lab hours)

**127. Fashion Merchandising (3) (Former H Ec 122T section)**

Factors influencing fashion demand and the changing pattern of fashion production and distribution. The nature and scope of fashion and fashion related careers. Resource personnel and field trips. Expenses for required off-campus visits are incurred by the student.

**131. Family Relationships (3)**

Interpersonal relationships within the family; needs, values, and goals of the family at various stages of its life cycle.

**132T. Topics in Child Development and Family Relationships (4; max total 12 if no topic repeated) (Former H Ec 162T)**

Prerequisite: H Ec 39 and/or 131, Psych 10, Soc 1 or Anth 2, or permission of instructor.

**133. Children and Family Crises (3) (Former H Ec 160)**

Prerequisite: H Ec 39, H Ec 131, Psych 10, Soc 1 or Anth 2, or permission of instructor. Crises experienced by children and their families; separation, dissolution, divorce, remarriage and the consequent formation of step-relationships, death, alcoholism, and drug abuse included.

**134. Cultural Aspects of Child Rearing (3) (Former H Ec 161)**

Prerequisites: H Ec 39, H Ec 131, Psych 10, Soc 1 or Anth 2, or permission of instructor. Cultural and subcultural aspects of child rearing; survey of research studies and findings on cultural child-rearing attitudes and practices. Small group presentations focusing on a particular culture, including development of cultural resource unit for use with children.

**136. Middle Childhood and Adolescence (3) (Former H Ec 162T section)**

Prerequisite: H Ec 39 or permission of instructor. Family influences on the physical, intellectual, social and emotional development of children in middle childhood and adolescence. Emphasis on the search for identity, heterosexual development, vocational choice and interpersonal relations.

**139. Child Development Practicum (3)**

Prerequisite: H Ec 39 or permission of instructor. Observation of and planning a variety of experiences for young children, understanding the child as a member of his family and as he relates to his peers and adults in the laboratory setting. (2 lecture, 3 lab hours)

**148. Occupational Home Economics Program Planning (3) (Former H Ec 149T section)**

Individualized modules concerning the design, development, implementation and evaluation of home economics related occupational programs.

**149T. Topics in Home Economics Education (3; max total 12 if no topic repeated)****150. Advanced Foods (3) (Former H Ec 105)**

Prerequisite: H Ec 50, Chem 2A-B or 2A-C and Biol 10. Application of the behavioral, biological, chemical, physical, and social sciences to the study of foods. (1 lecture, 4 lab hours)

**151. Experimental Food Study (3) (Former H Ec 130)**

Prerequisite: H Ec 150. Structure and composition of foods, their behavior during processing; food research. (1 lecture, 4 lab-demonstration hours)

**153. Advanced Nutrition (3) (Former H Ec 137)**

Prerequisite: H Ec 54, Chem 2A-B or 2A-C, Biol 10. Present knowledge of the metabolism of carbohydrates, fats, proteins, vitamins and minerals. Dietary study and evaluation.

**154. Nutrition in Disease (3) (Former H Ec 152.2, 138)**

Prerequisite: H Ec 153 or permission of instructor. Nutritional aspects and dietetic treatment of disease. (2 lecture, 2 lab hours)

**155. Food Service Management I (3) (Former H Ec 141)**

Prerequisite: Mgt 110A, permission of instructor. Organization and operation of food services; management principles; food service personnel; food cost control; record keeping.

**156. Food Service Management II (3) (Former H Ec 142)**

Prerequisite: H Ec 150, 155, 160, permission of instructor. Work simplification; plant layout and equipment; materials, construction, specification, maintenance of equipment and furnishings for food service units.

**158. Food Service Management III (4) (Former H Ec 145)**

Prerequisite: H Ec 156, permission of instructor. Quantity food purchasing; menu planning; quantity food production and management; food merchandising and catering. (2 lecture, 4 lab hours)

**159. Institution Experience (3) (Former H Ec 143)**

Prerequisite: H Ec 154, 155, 156, permission of instructor. Supervised work experience in hospital dietary departments. (1 lecture, 4 lab hours)

**160. Meal Management (3)**

Prerequisite: H Ec 50. Principles of foods and nutrition applied to meal planning, preparation, and service. Economic, aesthetic, nutritional, and managerial aspects of meal planning. (2 lecture, 2 lab hours)

**161. Scientific and Creative Food Experiences (3)**

Prerequisite: H Ec 39. Emphasis on structuring experiences in food through scientific and creative activities.

**162T. Topics in Food, Nutrition and Dietetics (3; max total 12 if no topic repeated) (Former H Ec 182T)**

Prerequisite: H Ec 50, 54, or permission of instructor.

**163. Food Service Education (3) (Former H Ec 184)**

Prerequisite: S Ed 161. Curriculum development and methods of instruction in programs preparing high school students for entry-level jobs in the food service industry. (2 lecture, 2 lab hours)

**164. Child Nutrition (3) (Former H Ec 182T)**

Prerequisite: H Ec 39 and 54. Prenatal nutrition; nutritional requirements during different periods of growth; malnutrition and mental development; improving nutritional status of children.

**165. Cultural Foods (3) (Former H Ec 185)**

Prerequisite: H Ec 50, 54, Anth 2 recommended, permission of instructor. Dietary and nutritional practices in different cultures, as influenced by cultural and economic conditions. (2 lecture, 2 lab-demonstration hours)

**169. Nutrition and the Consumer (3) (Former H Ec 182T)**

Prerequisite: H Ec 50, 54, 113 or permission of department chairwoman. Consumer's viewpoint on nutrition and food choices; factors influencing consumer's food choices; new approaches in nutrition education for the consumer.

**170. Contemporary Interior Design (3)**

Prerequisite: H Ec 70 or permission of instructor. Study of the emergence and development of contemporary furniture and interior accessories. Major designers and their contributions to interior environments.

**171. Housing and Society (3)**

Housing requirements of individuals, families, and special groups. Analysis of human factors related to the design of housing and neighborhoods. Examination of current social problems related to housing. (2 lecture, 2 lab hours)

**172T. Topics in Housing and Interior Design (3; max total 12 if no topic repeated)**

Prerequisite: H Ec 70 or permission of instructor.

**173. Interior Design Tours (3) (Former H Ec 172T section)**

A sampling of architecture and interior space. Tours include northern, central, and southern California architecture. Residential and contract showrooms visited. Expenses for required off-campus visits incurred by the student. Students may anticipate transportation charges up to \$50.

**174. Contemporary Architecture and Housing (3) (Former H Ec 172T section)**

Prerequisite: H Ec 70 or permission of instructor. Emergence of contemporary architecture, forces and architects responsible; emphasis on human factors in designed space and recent housing alternatives. (2 lecture; 2 lab hours)

**175. History of Architecture and Home Furnishings (3) (Former H Ec 133)**

Styles of architecture and furnishings from prehistoric times to the present; sociological, physical, economic and religious influences.

**176. Interior Design Materials (3) (Former H Ec 172T section)**

Prerequisite: H Ec 20 or permission of instructor. Interior design materials available for the residential and commercial market. Consumer and specifier considerations: production, distribution, installation, evaluation and use. Lecture, small group research and field trips. (2 lecture, 2 lab hours)

**177. Professional Interior Design Practices (3) (Former H Ec 172T section)**

Prerequisite: H Ec 7, 70, 176 (or concurrently) and Acct 3. Basic principles, procedures and office systems necessary to professionally organize and carry through a creative interior design project from the original client contact to final billing and collecting. (1 lecture, 4 lab hours)

**178. Applied Interior Design (3; max total 6) (Former H Ec 173)**

Prerequisite: H Ec 70, 175 or 170 concurrently. Creative problems in interior design intended to develop the analytical approach including emphasis on integration with architecture and allied arts. Field trips, design projects, and critiques. (6 lab hours)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**192. Readings and Conference (1-3)**

Individually directed readings; reports and evaluation. (hours arranged)

**193. Supervised Work Experience (1; max total 6)**

Open only to home economics majors. Prerequisite: second semester junior standing and permission of instructor. Supervised work experience in business and industries, and Federal and Community Service Agencies in all related areas of Home Economics; weekly conference analyses.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**200. Research Methods in Home Economics (3)**

Prerequisite: graduate standing. Methods, techniques of research; locating and formulating problems; collection and interpretation of data; preparation of research reports; analysis of professional literature.

**260T. Seminar: Family Economics (3; max total 12 if no topic repeated)**

Prerequisite: permission of instructor. Analytical study in an area of family economics: personal use of credit, intercultural approach to consumer education, economic aspects of family living, media and consumers in an intercultural society, field testing of school programs. Preparation, presentation, and defense of individual project.

**280T. Seminar in Food, Nutrition, and Dietetics (3; max total 12 if no area repeated)**

Prerequisite: H Ec 200, professional requirements in the field, permission of instructor.

**281T. Seminar in Home Economics (3; max total 12 if no topic repeated)**

Prerequisite: H Ec 200, permission of instructor.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**292. Readings in Home Economics (2-3; max total 6 if no topic repeated)**

Prerequisite: H Ec 200, 280T or 281T and permission of instructor. Individually directed readings in a field of special concern to students in the graduate program; appropriate reports and evaluations required; individual conferences, no formal class meetings.

**299. Thesis (2-6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

See *Course Numbering System*

**380. Topics in Home Economics (1-3; max total 9 if no area repeated)**

## INDUSTRIAL ARTS AND TECHNOLOGY DEPARTMENT

### FACULTY

Frank E. Schroeter, *Department Chairman*

Merle S. Adrian ■ Leslie L. Aldrich ■ Ronald L. Blanton ■ William H. Bliss ■ Glen H. Blomgren ■ Chester E. Christison ■ Cliff C. Cullen ■ Samir S. M. El Sadek ■ Arthur L. Foston ■ Edward A. Gaiser ■ Manuel R. Garcia ■ Frank H. Goishi ■ Gary E. Grannis ■ Norman A. Gullickson ■ Randolph L. Gysler ■ Roy A. Hartman ■ Richard S. Jenne ■ William A. Livingston ■ Ray D. Loyd ■ Wayne L. McComas ■ Kenneth D. Moshier ■ Darwin B. Musselman ■ Richard F. Newcomb ■ Gary B. Paglierani ■ James H. Rockwell ■ Lawrence E. Smith ■ Gary H. Winegar

The Industrial Arts and Technology Department offers a major and minor in industrial arts for the bachelor of arts degree, a major in industrial technology for the bachelor of science degree, and a program for the master of arts degree. The department chairman also advises majors for the bachelor of vocational education degree (see page 70). Individual programs are planned to provide for professional careers in teaching and in business and industry. The industrial technology major emphasizes physical science and industrial management as well as the subject fields within the industrial arts for students seeking technical and managerial positions in industry.

### BACHELOR OF ARTS DEGREE IN INDUSTRIAL ARTS

The bachelor of arts degree in industrial arts consists of 124 units. The general requirements for the bachelor of arts degree must be completed (see *Degrees and Credentials*). Students majoring in industrial arts must complete a minimum of 40 units of industrial arts courses, 16 of which must be upper division, excluding Ind A 196, 199. Students may elect to do the major part of their work in certain specific areas of concentration: automotive, drafting-design, electricity-electronics, general metal, graphic arts, industrial crafts, machine tool metal, and woodworking.

#### INDUSTRIAL ARTS MAJOR

	<i>Units</i>
Ind A 12, 41, 51, 60, 70, 80 .....	18
Ind A electives (include at least 16 upper division) .....	22
	40

#### INDUSTRIAL ARTS MINOR

One of the eight groups listed below should be selected for a minor in Industrial Arts.

##### Automotive

Ind A 12, 71, 120, 122, 124, 129 .....	18
Industrial arts electives .....	2
	20

##### Drafting/Design

Ind A 41, 42, 140, 143, 146, 148 .....	18
Industrial arts electives .....	2
	20

##### Electricity/Electronics

Ind A 52, 70, 152, 153, 156, 158 .....	18
Industrial arts electives .....	2
	20

<b>General Metal</b>	Units
Ind A 41, 70, 71, 74, 170, 178 .....	18
Industrial arts electives (include at least 2 upper division) .....	2
	<hr/> 20
<b>Graphic Arts</b>	
Ind A 60, 160, 161, 162, 165.....	15
Industrial arts electives .....	5
	<hr/> 20
<b>Industrial Crafts</b>	
Ind A 70, 80, 133 (4 un), 146, 162, 178 .....	18
Industrial arts electives .....	2
	<hr/> 20
<b>Machine Tool Metal</b>	
Ind A 41, 70, 71, 74, 170, 174 .....	18
Industrial arts electives .....	2
	<hr/> 20
<b>Woodworking</b>	
Ind A 41, 80, 82, 111, 184.....	15
Industrial arts electives .....	5
	<hr/> 20

**BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL TECHNOLOGY**

The bachelor of science degree with a major in industrial technology is granted upon completion of a curriculum consisting of 128 units. The general requirements for the bachelor of science degree must be completed (see *Degrees and Credentials*). An option consisting of a core program of industrial arts and technology courses, courses in related areas, and the specific requirements in one or more of the emphases must be completed for the degree. Each student majoring in industrial technology must also complete Econ 1A-B; Physics 2A-B or Chem 2A-B; and one additional course from Physics 2A-B, Chem 2A-B, Biology, or Geology; a minimum of 4 units from Math 71, 72, 75.

**INDUSTRIAL TECHNOLOGY MAJOR**

**MANUFACTURING INDUSTRIES OPTION**

<b>Required Core Program</b>	Units
Ind A 41, 74, 101, 103, 106, 146, 166, 198, 199.....	25
Acct 3, QM 60, Mgt 110A-B, 124, .....	15
	<hr/> 40

**Technical Emphases**

*Electricity/Electronics*

Ind A 101L, 102, 104, 105, 151, 154, 155, 156, 157, 158, 159.....	31
Electives in related areas approved by department.....	10
	<hr/> 41

*Graphic Communications*

Ind A 51, 60, 139, 160, 161, 162, 163, 168 .....	24
Electives in related areas approved by department.....	17
	<hr/> 41

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*Metals*

Ind A 51, 70, 71, 170, 171, 172, 173, 174, 175, 176 .....	30
Electives in related areas approved by department.....	11
	41

*Drafting/Design*

Ind A 30, 44, 51, 71, 140, 141, 144, 145, 148, 171 or 174 .....	30
Electives in related areas approved by department.....	11
	41

*Transportation*

Ind A 12, 51, 71, 101L, 102, 104, 105, 120, 122, 124, 129 .....	31
Electives in related areas approved by department.....	10
	41

*Wood Products*

Ind A 51, 80, 82, 182, 184, 185, 187 .....	21
Chem 8 .....	3
Electives in related areas approved by department.....	17
	41

**CONSTRUCTION OPTION**

**Required Core Program**

Ind A 42, 101, 101L, 105, 110, 115, 116, 118, 119 .....	25	<i>Units</i>
Acct 3, Mgt 110A-B, QM 60, CE 120, 120L .....	16	
	41	

**Technical Emphasis**

*Light Building Construction*

Ind A 52, 111, 159 .....	9
Ag Me 91 or C E 1 and 1L, Mktg 150, B A 18 .....	9
Electives in related areas approved by department.....	22
	40

*Heavy Building Construction*

Ind A 44, 52, 112, 158, 159.....	15
Ag Me 91, or C E 1 and 1L .....	3
Electives in related areas approved by department.....	22
	40

*Architectural Drafting*

Ind A 43, 44, 51, 117, 143, 145, 147 .....	21
Electives in related areas approved by department.....	19
	40

*Building Materials Industries*

Ind A 51, 166 .....	6
QM 65, Mgt 124, Mktg 100, 150.....	12
Electives in related areas approved by department .....	22
	40

*Real Estate*

Ind A 51 .....	3
B A 18, 118, 184; Fin 180, 181, 183 .....	18
Electives in related areas approved by department.....	19
	40

**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and see the sections on *Public School Credentials* and *School of Education*.

**MASTER OF ARTS DEGREE**

The graduate program for the master of arts degree in industrial arts is based on the equivalent of the undergraduate major at California State University, Fresno. Twenty of the 30 units required for the degree must be in industrial arts. For specific requirements, consult department graduate adviser; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**COURSES****INDUSTRIAL ARTS AND TECHNOLOGY (Ind A)**

*Note: Students may be expected to purchase supplementary materials for use in laboratory and activity classes.*

**101. Energy Conversion and Utilization (3) (Former 1A 197)**

Prerequisite: Ind A 51 or 52 or permission of instructor. Fundamental sources of energy including the following energy converters: direct mechanical, external combustion, internal combustion, conventional and direct electrical, and atomic. (field trips)

**101L. Energy Conversion and Utilization Laboratory (1)**

Prerequisite: Ind A 101 or permission of instructor. Experiments and demonstrations on energy converting devices; direct mechanical, external combustion, internal combustion, electrical and transactional systems. (3 lab hours)

**102. Industrial Process Control and Instrumentation (3)**

Prerequisite: Ind A 52. Industrial process control system principles and components; computers, controllers, transducers, and actuators; mechanical and electrical instrumentation. (field trips)

**103. Industrial Materials and Processes (3)**

Chemical and physical properties of metals, plastics, wood, ceramics, lubricants, and other industrial materials. Structural properties, wear, corrosion, destructive and nondestructive testing; fabrication applications and potentials, cutting, fusion, casting, forming, and other industrial processes. (2 lecture, 3 lab hours)

**104. Fluid Power (3)**

Prerequisite: Ind A 51 or 52. Selective study of fluid power principles and applications; hydraulics, pneumatics and vacuum; includes pumps, controls, transmission systems, actuators and fluidics. In-depth study of air conditioning-heating theory and applications. (field trips)

**105. General Building Construction (3)**

Principles of general building construction including classes and requirements of occupancy; fire zone; type of construction; properties and uses of masonry, wood, concrete and steel; contracts and specifications. (field trips)

**106. Production Operations (3)**

A survey of production manufacturing operations: quality assurance, work sampling, testing, time and motion study; routing, scheduling and inventory control; flow processes, material handling, and automation. (field trips)

**CONSTRUCTION AREA****110. Estimating and Bidding (3)**

Basic methods used to evaluate, fix cost, calculate worth, make accurate quantity take-offs and labor time estimates; preparing bids for prospective buyers.

**111. Light Building Construction (3) (Former 1A 181)**

Principles of light frame construction including foundations, framing, exterior finish and related areas of layout; estimating and ordering materials; conventional and modular component systems. (field trips)

**112. Heavy Building Construction (3)**

Problems and methods of solution in the construction of heavy buildings; site, excavations, foundations, framework, heavy timber, reinforced concrete, structural steel, masonry construction, and related elements. (field trips)

**115. Materials of Construction (3)**

Properties and functional applications of basic building materials: wood, steel, concrete, ceramics, plastics, adhesives, sealants. Recent developments in new materials and applications. (field trips)

**116. Scheduling and Control (3)**

Prerequisite: QM 60, senior standing. Critical path method; planning, scheduling, and control of construction projects including logic, time assignment and computation, analysis, replanning, diagramming practices, monitoring and updating, computer utilization; role of management. (field trips)

**117. Construction Detailing (3)**

Prerequisite: Ind A 143. Standard structural details for buildings constructed of wood, concrete, masonry, and steel. Graphic communication between architects, engineers, contractors. (field trips)

**118. Construction Contracts and Specifications (3)**

Prerequisite: Ind A 42. Principles and methods for developing and applying construction contracts and specifications.

**119. Construction Laws (3)**

Laws, acts, orders, bulletins, rules and regulations affecting the contracting business.

**AUTOMOTIVE AREA**

**12. Basic Automotive Systems (3)**

Design, construction and mechanical functions of automotive engines, fuel systems, electrical systems, power transmission, brakes, and wheel suspension; proper use and safety of tools and equipment.

**120. Automotive Engine Systems (3)**

Prerequisite: Ind A 12, 51, or 52. Advanced study of automotive engines and support systems. Includes piston and rotary engine theory, fuel systems and fuel technology, electrical systems, small engines, diesel, gas turbine, emission control and diagnostic center power analysis. (field trips)

**122. Automotive Chassis Analysis (3)**

Prerequisite: Ind A 12. Advanced study of automotive chassis components including power transmission, brake systems, wheel suspension, air conditioning, lubricants theory and testing, body repair and refinishing. (field trips)

**124. Automotive Diagnosis and Correction (3)**

Prerequisite: Ind A 12. Automotive testing, servicing and repair processes applied to engine, power transmission, and chassis components. (technical reports)

**129. Automotive Systems Repair Procedures (3)**

Prerequisite: Ind A 12. Technology of engine rebuilding, carburetor and electrical service, power transmission, brakes and wheel suspension, body work and tuneup. (technical reports)

**CRAFTS AREA****30. Plastics Technology (3)**

Introduction to the plastics field. Technical information on composition, characteristics and uses of plastics; equipment design principles and manufacturing processes. (field trips)

**34. Theatre Craft (3) (See Drama 34)****133. Industrial Crafts (2; max total 4)**

Creative and recreational experiences in craft media including plastics, leather, wood, metal, enamels; historical, cultural, technological information.

**134A-B. Advanced Theatre Craft (3-3) (See Drama 134A-B)****DRAFTING-DESIGN AREA****41. Industrial Design Graphics (3)**

Application of the fundamentals of industrial design graphics. Sketching, lettering, orthographic projection, working drawings, auxiliary views, dimensioning, developments, pictorial drawings, duplication; interrelationship to the design process.

**42. Architectural Drawing (3)**

Architectural drafting techniques and standards; progress from fundamentals to completing light construction working drawings, floor plans, elevations, details; application of city and county codes.

**43. Theory of Environmental Design (3)**

Environmental design theories and practices applied to architecture. Design process and elements of design used to analyze visual phenomena created by man-made structures. Critical evaluations as a basis for the formulation of value judgments in designing structures.

**44. Descriptive Geometry (3)**

Prerequisite: Ind A41 or equivalent. Descriptive geometry as related to design processes. A nonmathematical approach to geometric magnitudes and the relationship between points, lines and planes in space. Application of these principles in solving a variety of technological design problems.

**136. Manufacturing Illustration (3)**

Prerequisite: Ind A 41 or permission of instructor. Practical application of the fundamentals of developing perspectives, isometric drawings, isometric projections, dimetric drawings, trimetric drawings, and the rotation of views in the preparation of detailed pictorial assembly drawings of machines and machine parts from a set of working drawings.

**138. Advanced Rendering (3; max total 6)**

Prerequisite: Ind A 147. Advanced rendering for industrial design, architecture, interior commercial art and illustration. Includes limited and full color problems with emphasis on professional presentation. Individual exploration encouraged.

**139. Advertising Design (3; max total 6)**

Advertising and illustration problems from rough sketches to finished art work. Emphasis on good design and professional techniques. Preparation of art work for reproduction including overlays, art type, photo mechanical procedures and advertising production methods.

**140. Machine Design Graphics (3)**

Prerequisite: Ind A 41 or permission of instructor. Graphics as it applies to advanced technical drawing and design. The use of dimensioning and tolerancing standards, handbooks, material selection and application of various machining and forming methods in the investigation and completion of design problems.

**141. Design for Industry (3)**

History and appreciation of design related to industrial design concepts; vocabulary of design terminology. Procedures to facilitate the development, selection, and organization of space, form and color.

**142. Advanced Design for Industry (3)**

Prerequisite: Ind A 141 or permission of instructor. Design principles; analysis of the design structure of forms, their variations, and derivations; color and three-dimensional projects.

**143. Architectural Drawing (3)**

Prerequisite: Ind A 41 or permission of instructor. Mechanical perspective, its theory and practical application to architectural and industrial problems.

**144. Tool Design Graphics (3)**

Prerequisite: Ind A 140 or permission of instructor. Graphics, as it applies to industrial work holding devices; their application, drawing and design. Construction of working drawings aided by standards, company catalogs, and handbooks. Final designs subjected to student presentation and evaluation.

**145. Technical Illustration (3)**

Principles and practice of drawing and laws of light and shade; subject matter ranges from the simplest basic shapes to more complex real forms including renderings in pencil and opaque color of industrial products, interior, architectural, and automotive projects.

**146. Materials of Product Design (3)**

Prerequisite: Ind A 41 or permission of instructor. Origins, kinds, properties, and uses of materials of product design and development in modern industry; mechanical and nonmechanical functions of materials; experimentation with industrial materials of significance in the design of industrial products.

**147. Rendering (3)**

Prerequisite: Ind A 145 or permission of instructor. Theory and practice of rendering techniques for all phases of industrial and advertising design; from pencil sketches to composition stressing appeal and quick reading; in black and white, full color chalk, water color, and tempera.

**148. Product Design (3; max total 6)**

Prerequisite: Ind A 146 or permission of instructor. Fundamentals of product planning. Research analysis, synthesis, construction, and testing of solutions to problems in creative design of industrial products. Presentation and evaluation of research findings, drawings, and models created in relation to industrial and consumer needs.

**149. Perspective for Industrial Design (3)**

Theory of one, two- and three-point perspective, followed by extensive application involving industrial design objects. Laws of perspective and light and shade as applied to increasingly complex subject matter.

**ELECTRICITY-ELECTRONICS AREA**

**51. General Electricity and Electronics (3)**

Not open to students with credit in Ind A 52 or Industrial Arts and Industrial Technology majors with an emphasis or area of concentration in electricity/electronics. Nature of electricity with an emphasis on its application in electrical and electronic devices.

**52. Basic Electricity (3)**

Not open to students with credit in Ind A 51. Open to Industrial Arts and Industrial Technology majors pursuing an emphasis or area of concentration in electricity/electronics. Introduction to electricity including fundamentals of electrostatics, alternating and direct current electrical circuits, electrical calculations, magnetics, circuit applications, electrical measuring and test equipment.

**151. Elements of Digital Computers (3)**

Electrical-electronics fundamentals and types of computer; elements of digital computers; digital computer systems and installations. (field trips)

**152. Fundamentals of Electronics (3)**

Prerequisite: Ind A 52. Basic electronic components and circuits including inductors, capacitors, alternating current circuits; resonance and filters; vacuum tubes and transistors; power supplies; measuring devices; oscillators; amplifiers.

**153. Fundamentals of Electronic Communication Systems (3)**

Prerequisite: Ind A 152 or equivalent. Electronic systems and applications including basic transmitters, amplitude and frequency modulation transmitters and receivers; transistor applications; antennas; television. (field trips)

**154. Industrial Electronics (3)**

Prerequisite: Ind A 102, 153, 156, 158 or permission of instructor. Industrial electronics systems analysis; applications of electronic circuits and devices to industrial process and machine control. (field trips)

**155. Basic Electronics Miniaturized Circuits (3)**

Prerequisite: Ind A 152. Thin- and thick-film circuits techniques and processes; manufacturing, packaging, and testing; types, classifications, and applications of integrated circuits. (field trips)

**156. Fundamentals of Electric Motors (3)**

Prerequisite: Ind A 52, 158, or permission of instructor. Application, operation and control of alternating and direct current motors. (field trips)

**157. Fundamentals of Electromagnetic Waves and Antenna Systems (3)**

Prerequisite: Ind A 153 or equivalent. Electromagnetic wave theory, propagation, and spectrum; antennas, transmission lines, wave-guides, and coupling circuits; and antenna constructions and measurements. (field trips)

**158. Fundamentals of Electrical Power Generation, Transmission (3)**

Prerequisite: Ind A 52, 101, or permission of instructor. Equipment and systems for electrical power generation, transmission and distribution. (field trips)

**159. Building Electrical Systems (3)**

Prerequisite: Ind A 52 or equivalent. Electrical systems for power, light, heat, signals, and communications in commercial, industrial and residential buildings. (field trips)

**GRAPHIC ARTS AREA****60. Basic Graphic Arts (3)**

Introduction to the graphic arts: letterpress, photo offset lithography, screen printing; layout, composition, imposition, presswork, bindery. (field trips)

**61. Typography (1)**

For journalism students only. Printing processes, printing equipment, type faces, hand composition, paper, color printing, and format. (field trips)

**160. Advanced Graphic Arts (3)**

Prerequisite: Ind A 60 or equivalent. Advanced techniques in letterpress and offset printing. Completion of printed booklet, involving copyfitting, composition, layout, printing and bookbinding. Bookbinding projects, including hand-sewn case-bound books will be completed. (field trips)

**161. Advanced Photo Offset Lithography (3)**

Prerequisite: Ind A 60. Photo offset lithography techniques and processes: design, layout, cold type composition, and paste-up, line, and half-tone copy, multicolor printing, photographic screen printing. (field trips)

**162. Graphic Arts Crafts (3)**

Various processes and media used in graphic arts; creative and recreational aspects for the student; silk screen, linoleum block, intaglio, papermaking, thermographs, marbling, bookbinding, student projects. (field trips)

**165. Typographical Layout (3)**

Theory and practice utilized by the printing industry in designing, producing, and selling printed matter. Typographical principles, properties, elements, techniques, processes, and media, with aesthetic and psychological implications. (field trips)

**166. Reproduction Techniques (3)**

Prerequisite: upper division student. Survey of all reproduction methods found in business and graphic reproduction industries. Methods discussed are: microfilm, C.R.T., holography, xographs, photographic, electrostatic, thermographic, xerographic and up-to-the-minute advancements. Technical publishing and yearbook production. (field trips)

**168. Photography for Industry and Technology (3)**

Prerequisite: upper division standing. Introduction to basic black and white photography with emphasis on industrial and technical applications, including microphotography, photogrammetry and engineering drawing reproduction. Films and papers, tray and tank developing, enlarging and contact printing. (field trips)

**METALS AREA****General Metalworking****70. Basic Metalworking (3)**

Introduction to and exploration in various metal areas including sheet metal, bench metal, art metal, wrought iron, foundry and forging.

**170. Advanced Principles of Metalworking (3)**

Prerequisite: Ind A 70 or equivalent. Study and experience in the technological, scientific, and historical aspects of nonferrous metal casting, core-making; forging; principles of metal spinning.

**Welding****71. Metallurgical Processes (3)**

Fundamentals of metallurgy; properties and characteristics of metals; survey of metal welding processes, equipment, and procedures; theory-discussion and laboratory experience in oxygen-fuel welding, cutting, brazing, and shielded metallic arc welding.

**171. Advanced Metallurgical Processes (3)**

Prerequisite: Ind A 71. Lecture-discussion and laboratory experiences in advanced shielded metallic arc welding, gas tungsten arc welding, gas metal arc welding, plasma arc cutting, air arc cutting, and automated oxygen-fuel cutting; weld specimen preparation, testing (destructive/non-destructive), and welding metallurgy.

**Sheet Metalworking****172. Fluid Metal Processes (3)**

Prerequisite: Ind A 70 or permission of instructor. Theory and practice in processes of industrial casting, casting design considerations, pattern making, core making, sand mold casting, permanent mold casting, die casting, centrifugal casting, and related processes.

**173. Metal Fabrication Processes (3)**

Sheet metal pattern drafting and layout applicable to parallel, radial, and triangulation methods using light gauge metals; individual problems in planning, using, and maintaining hand and machine tools.

**Machine Tool Metalworking****74. Basic Machine Tool Metalworking (3)**

Basic methods of machining metals, including drilling, turning, boring, milling, grinding, and shaping; hand tools, precision measuring instruments, and layout; speeds and feeds; steel and its heat treatment.

**174. Advanced Machine Tool Metalworking (3)**

Prerequisite: Ind A 74. Advanced machining and tooling, special machine tools, and precision measuring instruments; laboratory experiences in use of ferrous and nonferrous metals, cast iron and semisteel castings; coolants related to modern manufacturing process.

**175. Machine Tool Technical Problems (3)**

Prerequisite: Ind A 74. Technical problems in design, layout fabrication and machinability of metals, tooling and gearing principles; maintenance, adjustment and repair of machine tools; introduction to numerical control.

**176. Advanced Machine Tool Problems (3)**

Prerequisite: Ind A 174. Advanced technical work in metals area; introduction to tool and die work; jig and fixture principles and practices; heat treatment, specifications of materials and equipment; experimental work and technical reports.

**Metal Craft****178. Jewelry and Metalsmithing (3; max total 6)**

Design, fabrication techniques, and properties of materials as related to jewelry, gemology, and metalsmithing. Historical, contemporary, and creative emphasis. Designing and constructing articles of jewelry and hollow ware by hand and machine processes.

**WOODWORKING AREA****80. Basic Woodworking (3)**

Basic woodworking processes and materials; use and care of hand tools and portable electric tools; design, construction, and finishing of simple wood products; wood turning; basic operations on light woodworking machinery; basic information units in wood technology.

**82. Wood Machining (3)**

Prerequisite: Ind A 80 or permission of instructor. Development of proficiency in the operation and maintenance of modern woodworking machinery and spray finishing equipment; safety education, cutting principles and techniques, machine design and capabilities.

**182. Advanced Wood Machining (3)**

Prerequisite: Ind A 82. Construction of furniture, cabinet work and millwork design, construction details, production methods; analysis of cutting processes.

**184. Woodworking Specialties (3)**

Prerequisite: Ind A 82. Specialized activities related to field of woodworking; wood finishing and paint technology, upholstery, inlaying and veneering, advanced wood turning, furniture restoration.

**185. Wood Technology (3)**

Not open to students with credit in Ind A 186. Prerequisite: Ind A 82. Structure, characteristics, and physical properties of wood; strength values, grading, moisture relationships, fire resistance, wood destroying organisms, thermal insulation.

**187. Wood Processing (3)**

Not open to students with credit in Ind A 186. Prerequisite: Ind A 82. Lumber and wood products manufacturing; seasoning and preserving glue and glued products, laminated wood, plywood, fiber and particle boards. (field trips)

**PROFESSIONAL COURSES****190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**193. Supervised Work Experience (3-6; max total 6) (Former Exp 181)**

Open only to Industrial Arts and Industrial Technology majors. Prerequisite: junior standing and permission of instructor. Supervised work experience in all technological fields relating to the various industries. Periodic consultations with instructor.

**196. Graphic Communications (2)**

Preparation and use of instructional aids, including models, mockups, cutaways, charts, instructional films, slides, overlays; photographic processes; planning, construction, classroom demonstration and evaluation.

**198. Technical Report Writing (2)**

Prerequisite: senior standing in industrial technology. Technical writing for the industrial technologist; preliminary organization and development of the senior problem.

**199. Senior Problem in Industrial Technology (2)**

Prerequisite: Ind A 198, permission of instructor. Approved problem or research project in the area of the student's option and emphasis.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**224T. Professional Topics in Industrial Education (2-3; max total 6 on master's degree with no area repeated)**

Advanced study in professional industrial education; administration, supervision, vocational guidance, economic, and sociological implications.

**225. Seminar on Philosophy of Industrial Arts Education (2)**

Philosophy of industrial arts education within a democratic, industrial society; objectives of industrial arts education, and relationships to other subject areas.

**226. Seminar on Innovative Programs in Industrial Arts (2)**

Study of selected innovative and experimental programs in industrial arts; philosophic and curricular implications, recent developments and trends.

**227. Seminar on History of Industrial Education (2)**

Development of industrial education in the United States; European influences, philosophical concepts, issues, leaders, movements, and trends.

**228. Evaluation in Industrial Education (3)**

Techniques and philosophy of evaluation in industrial education; types of test items, item analysis, and interpretation of test results; evaluation of research, facilities, textbooks, and evaluative criteria.

**270. Technical Problems (2-3; max total 6 if no area repeated)**

Technical work in selected areas; research under supervision of instructor.

**280. Problems in Industrial Arts Research (2)**

Seminar in research procedures in the industrial arts; basic bibliography, research form and method.

**281. Research Design in Industrial Education (3)**

Research formats and applied experimentation techniques; critical path analysis and program evaluation review techniques.

**284T. Topics in Industrial Technology (2-3; max total 9 on master's degree if no area repeated)**

Advanced study in technical areas; current industrial practices, developments, and trends related to design, materials, and processes.

**285. Planning Industrial Arts Facilities (2)**

Planning and organizing various types of school shops; architectural considerations, selection and specifications of equipment. (field trips)

**286. Safety and Related Problems (2)**

Research and study of safety problems in industrial education; planning and evaluation of specific safety programs.

**287. Planning and Organizing Industrial Arts Curriculum (3)**

Prerequisite: S Ed 161, or S Ed 153, or permission of instructor. Modern industrial arts curriculum; organization and management; recent trends concerned with equipment, supplies, content, safety, and methods.

**288. Seminar in Industrial Arts and Technology (2-3; max total 6 on master's degree)**

Advanced individual and group study of selected problems: organizational relationships, effective communication of ideas, technological trends and developments, economic and social considerations.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**299. Thesis or Project (2-4; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**IN-SERVICE COURSE**

(See *Course Numbering System*.)

**341. Problems in Industrial Arts (2-3; max total 6 if no area repeated)**

## JOURNALISM DEPARTMENT

### FACULTY

Dayle H. Molen, *Department Chairman*

Edmond D. Boles ■ Douglas L. Dill ■ James A. Flanery ■ Harvey L. Gotliffe ■ William J. Ingenthron ■ Arthur H. Margosian ■ B. Schyler Rehart, Jr. ■ Bernard A. Shepard ■ H. Roger Tatarian ■ James B. Tucker

The program leading to a bachelor of arts degree in journalism prepares students for communications and editorial employment with newspapers, magazines, radio and television stations, and for related types of work in public relations, industrial journalism, technical journalism, general publishing, advertising, and teaching. A broad general education is required in addition to special study in journalism. Majors are advised to take electives in various areas and keep journalism units near the minimum required for a major. An interdisciplinary graduate program for the master of arts degree in Mass Communication is jointly offered by the journalism and radio-television faculties. See *School of Graduate Studies and Graduate Bulletin*.

The Journalism Department is accredited by the American Council on Education for Journalism. The news-editorial sequence is specifically accredited by the Council. The department is a member of the American Association of Schools and Departments of Journalism and the American Society of Journalism School Administrators.

### JOURNALISM MAJOR

In preparation for the field of journalistic communication, students may follow a program in one of several sequences. The department offers study in news-editorial, advertising, public relations, radio-television news communication, magazine journalism, and photocommunication. All of the sequences are related by fundamental skills, and each major requires a basic core program. The sequences, however, vary in their individual requirements, and students who wish to specialize in these areas must complete those courses listed under the specified headings.

The journalism major consists of 36 units, 24 of which must be in upper division courses. In addition to the specific journalism courses, each sequence has requirements which must be courses other than those in general education. All sequences also require passing a basic editing qualification test or successful completion of Journalism 5.

#### REQUIRED CORE PROGRAM

	<i>Units</i>
Jour 1, 8, 114 .....	9
<b>News-Editorial</b>	
Jour 100, 110, 181, 184, 188 .....	15
Additior. journalism courses approved by department .....	12
	27

*Additional Requirements* (not used for general education; excluding journalism): Ind A 61, 12 units approved by department.

#### Advertising

Jour 113, 145, 146 (2 semesters), 155, 175.....	18
Additional journalism courses approved by department .....	9
	27

*Additional Requirements* (not used for general education; excluding journalism): Ind A 61, 6 units in sociology and psychology, 6 units in approved subject field.

<b>Public Relations</b>	<i>Units</i>
Jour 100, 113, 145, 173 .....	12
Additional journalism courses approved by department .....	15
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*Additional Requirements* (not used for general education; excluding journalism): Ind A 61, 12 units approved by department, including 6 units in a specific area.

<b>Radio and Television News Communication</b>	
Jour 100, 110, 128, 129, 130 .....	15
Additional journalism courses approved by department .....	12
	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> 27

*Additional Requirements* (not used for general education; excluding journalism): 12 units approved by department, including R-TV 40 plus at least two additional radio-television courses.

<b>Magazine Journalism</b>	
Jour 100, 106, 110, 124, 132 (2 semesters), 186 .....	18
Additional journalism courses approved by department .....	9
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*Additional Requirements* (not used for general education; excluding journalism): Ind A 61, 12 units approved by department.

<b>Photocommunication</b>	
Jour 17, 100, 116, 117, 187 .....	15
Additional journalism courses approved by department .....	12
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*Additional Requirements* (not used for general education; excluding journalism): IA 61, R-TV 129, 170; 6 units from Art 30, 46, 70, 146 ABCD, E Ed 135, 1A 60, 145, 161, Theater Arts 180A, 182A

**JOURNALISM MINOR**

A minor in journalism consists of 20 units including a required core of 6 units and 14 units in one of the areas of concentration.

<b>REQUIRED CORE PROGRAM</b>	<i>Units</i>
Jour 8, 114 .....	6

<b>News-Editorial</b>	
Jour 100, 110, 188 .....	9
Journalism electives .....	5
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<b>Advertising</b>	
Jour 145, 146, 155 .....	9
Journalism electives .....	5
	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> 14

<b>Photocommunication</b>	
Jour 17, 100, 117 .....	9
Journalism electives .....	5
	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> 14

	<i>Units</i>
<b>Public Relations</b>	
Jour 100, 113, 173 .....	9
Journalism electives .....	5
	<hr/> 14
<b>Radio and Television News Communication</b>	
Jour 100, 128, 130 .....	9
Journalism electives .....	5
	<hr/> 14

## MASTER OF ARTS DEGREE

The graduate program leading to the master of arts degree in Mass Communication with emphasis in the print media is based upon undergraduate work in journalism. For requirements, consult the department chairman; for courses see *School of Graduate Studies—Interdisciplinary Courses*. Detailed information about the graduate program may be obtained from the Office of the School of Graduate Studies.

## CREDENTIAL PROGRAM

For information on the current credential program consult the School of Education; see the section on *Public School Credentials*.

## COURSES

### JOURNALISM (Jour)

#### 1. Mass Communications (3)

Survey of the mass media of communication, including newspapers, magazines, radio and television; related agencies and fields of communicative enterprise, such as press associations, feature syndicates, advertising, and public relations.

#### 2. Interpreting Current Events (2)

Analysis, from the reader's point of view, of current information in news media; what constitutes news, breadth and depth of news coverage of various media, reliability of sources, influence of policy, methods of emphasis, objectivity and coloration.

#### 5. Basic Editing (1)

Open only to Journalism majors. Required for all journalism majors who fail to pass the basic editing qualification test. Review of basic language skills and editing practice.

#### 8. News Writing (3)

Prerequisite: Jour 5 or pass basic editing qualification test, at least second-semester freshman standing. Preparation of varied news stories with speed and accuracy; introduction to basic news sources; techniques of interviewing; problems encountered by reporters; ethical and legal considerations. (2 lecture, 2 lab hours)

#### 17. Introductory and Publications Photography (3)

Survey and instruction in beginning publications photography; use of camera equipment for black-and-white pictures; pictures taken and films and prints processed in laboratory sessions. (2 lecture, 3 lab hours)

#### 100. Reporting (3)

Prerequisite: Jour 8 or equivalent course, pass basic editing qualification test. Analysis of news sources; techniques of interviewing applied to specific reporting situations; coverage of campus and community functions in the preparation of articles for publication. (2 lecture, 2 lab hours)

#### 106. Industrial Journalism (2)

Survey and analysis of internal and external company publications; of association; and of industrial and trade publications.

**109. Contemporary Problems of the American Press (3)**

Prerequisite: Jour 8 or permission of instructor. Advanced reporting problems; news policies and ethics; specialized reporting.

**110. Advanced Reporting (3)**

Prerequisite: Jour 100. Practice in handling advanced news writing and reporting assignments in a newsroom environment; preparation of interpretative and investigative articles for publication. Department newspaper used for laboratory purposes. (12 hours arranged)

**112. School Public Relations (3) (Same as AS 112)**

Organization and analysis of a public relations program for elementary and secondary schools.

**113. Public Relations (3)**

Development of public relations practice; principles and methods; application in business, education, and other fields.

**114. Editing of Publications (3)**

Prerequisite: Jour 8. Editing copy; writing headlines; using type effectively; handling telegraph copy; making up newspapers, lab use of department newspaper. (2 lecture, 2 lab, 3 hours arranged)

**116. Photo Editing (3)**

Study of the use and potential use of photographs in various types of publications. Instruction in how to identify and to obtain quality photographs for publication.

**117. Advanced Press Photography (3)**

Prerequisite: Jour 17 or permission of instructor. Use of news cameras for photographic reporting; evaluation and preparation of pictures for publication; field and laboratory experience in flash and extension lighting, filters; advanced uses and processing of high speed films, efficient processing methods. (2 lecture, 3 lab hours)

**118. Advanced Photojournalism (2; max total 4)**

Prerequisite: Jour 17 or permission of instructor. Field and laboratory work in the production of the picture story and essay; magazine and news reporting on assignment; press and investigative photography. (1 lecture, 3 lab hours)

**120. Newspaper Workshop (3; max total 6)**

Prerequisite: Jour 110. Practice in comprehensive, depth reporting and executive news work; use of Journalism Department newspaper for laboratory purposes. (6 lab hours)

**124. Magazine Feature Writing (3)**

Writing and marketing varied kinds of feature material used by magazines, Sunday newspaper supplements, and syndicates.

**126. Critical Writing (3)**

Prerequisite: Jour 110, 188. Critical analysis of structure and content of editorials, other opinion pieces, and interpretative articles. Practice in writing editorials and critical essays. (2 lecture, 2 lab hours)

**128. Radio and Television News Writing (3)**

Prerequisite: Jour 8 or permission of instructor. Gathering, writing, editing news for radio and television.

**129. Field Work in Broadcast News (3)**

Prerequisite: Jour 8, 128, and permission of instructor. Gathering, writing, and editing broadcast news in live studio situations.

**130. Problems of Broadcast Journalism (3)**

Prerequisite: upper division standing. Sociological and journalistic study, including evaluation of historical development, legal problems, and traditional and contemporary criticism of broadcast journalism.

**132. Magazine Production (2; max total 4)**

Layout practice, writing of copy, and organization of magazines. College publications used for laboratory purposes (4 hours arranged)

**139T. Topics in Journalism (1-3; max total 6)**

Analysis and investigation of selected areas in mass communications including current developments in advertising, public relations, broadcast news, print media, photocommunications, and journalism education.

**142. Radio and Television News Broadcasting (3) (See R-TV 142)****145. Advertising Procedures (3)**

Overview of all aspects of the field of advertising. Study of history, agent-client relationships, all media, relationship to the behavioral sciences, production of copy and layouts, and advertising legislation and responsibility.

**146. Newspaper Advertising Staff (3; max total 6)**

Prerequisite: Jour 145 or permission of instructor. Newspaper advertising staff designed to give students practice in selling and servicing accounts, creating and producing advertisements: department paper used as a laboratory.

**155. Print Advertising Copy Writing (3)**

Prerequisite: Jour 145. Print media advertising copy writing and design. Print media in relationship to advertising and society.

**160. Advertising Media (3)**

Prerequisite: Jour 145. Analysis of strengths and weaknesses of all media and their relationship to advertising. Market research, media research and the effect of the medium on the message.

**165. Broadcast Copywriting (3) (Former Jour 147)**

Prerequisite: Jour 145 and 155 or permission of instructor. Broadcast media in relationship to advertising and society. Writing and production of commercials for radio and television.

**173. Public Relations: Programs and Problems (3)**

Prerequisite: Jour 8, 113 or permission of instructor. Development, assessment, and evaluation of public relations in business, education, philanthropy, and other field practice.

**175. Advertising Campaigns (3)**

Prerequisite: Jour 145, 155, or 160. Background, planning, and preparation of advertising campaigns. Term campaign, in advertising agency groups, with client-agency setup; analysis of campaigns and their effectiveness.

**181. Laws of Communication (3)**

Libel, right of privacy, right of confidence, contempt by publications, property rights in manuscripts, infringement, copyright, postal laws.

**182. The Press and World Affairs (3)**

Not open to students with credit in Jour 102. The role of the international press in collecting and disseminating national and foreign news.

**184. History of Journalism (3)**

Not open to students with credit in Jour 104. Historical backgrounds of American press; development from colonial to modern times; newspapers and allied media as political and social forces.

**185. Mass Media and Social Control (3)**

Not open to students with credit in Jour 149. Theories of social control as they are utilized in the mass media. Special emphasis on various propaganda techniques as practiced in times of war and peace.

**186. Media of Communication (3)**

Not open to students with credit in Jour 150. Impact of mass media on society. Includes problems, contributions, criticisms and contemporary issues of the mass media.

**187. Photocommunication Projects (3; max total 6)**

Prerequisite: Jour 17, 117 or equivalent. Designed to allow students to pursue in-depth and individualized study and practice in advanced photographic skills related to the field of photocommunication; to include special lighting effects, posing, advanced darkroom skills, action photography, candid photography and color.

**188. Reporting of Public Affairs (3)**

Prerequisite: Jour 100. Methods and field work in reporting courts and municipal, county, state and federal governments. (2 lecture, 2 lab hours)

**189. Reporting Public Opinion (3)**

Not open to student with credit in Jour 185 prior to fall 1972. Study of the nature, effects, and measurement of U.S. public opinion; various theories on relationships between voter attitudes and public opinion polls; the practice of selected polling techniques.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**193. Field Work in Public Relations (3)**

Prerequisite: Jour 8, 113 and permission of instructor. Supervised work experience in public relations; analyses in periodic meetings and reports.

**196. Public Relations Practice (2-4; max total 4)**

Prerequisite: permission of instructor. Internship in public relations with agencies, institutional offices, organizations or other media. Reports made regularly to instructor.

**197. Photocommunication Practice (2-4; max total 4)**

Prerequisite: permission of instructor. Internship on regional newspapers, television stations, advertising agencies, or other media which use photocommunication. Reports made regularly to instructor.

**198. Newspaper Practice (2-4; max total 4)**

Prerequisite: permission of instructor. Internship on regional newspapers and radio and television stations. Reports made regularly to instructor.

**199. Advertising Practice (2-4; max total 4)**

Prerequisite: permission of instructor. Internship in advertising departments of regional mass media and with advertising and public relations agencies. Reports made regularly to instructor.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

See *Mass Communication, School of Graduate Studies—Interdisciplinary Courses*.

**IN-SERVICE COURSE**

(See *Course Numbering System*.)

**353. Topics in Journalism (1-3; max total 9 if no topic repeated)**

## MUSIC DEPARTMENT

### FACULTY

James H. Winter, *Department Chairman*

Benjamin M. Bakkegard ■ Bob L. Bennett ■ W. Ritchie Clendenin ■ Wilson W. Coker ■ Fred E. Dempster ■ Jack R. Fortner ■ Peter A. Gena ■ Robert G. Gerster ■ Steven E. Gilbert ■ Albert Gillis ■ John R. Heard ■ Russell S. Howland ■ Arthur E. Huff ■ Rolland W. Hurst ■ Phyllis A. Irwin ■ Philip M. Lorenz ■ Werner Lywen ■ John H. Martin ■ Gene Jon Pollart ■ Ralph C. Rea ■ Dorothy Renzi ■ Allen B. Skei ■ L. Harriet Stranding ■ Lawrence R. Sutherland

The Music Department provides (a) undergraduate instruction in music for those planning professional careers as performers and composers as well as those preparing for advanced degrees in performance, composition, and musicology; (b) preparation for the teaching credential programs in or involving music; (c) graduate training for students planning professional and academic careers or seeking professional growth as teachers in junior colleges or other school systems; (d) broad acquaintance with musical art for the layman and nonmusic major. Two degree programs are offered: the bachelor of arts and the master of arts, each with concentrations in performance, composition, musicology, or music education.

The department is a member of the National Association of Schools of Music.

### BACHELOR OF ARTS DEGREE

Each student seeking a bachelor of arts degree with a major or minor in music must fulfill all the requirements listed under *General Degree Regulations, General Education, and Other Departmental Requirements*.

#### MUSIC MAJOR

**Option I.** *Preparation for performance, composition, musicology and other nonteaching careers in music.*

Music 40, 41, 42, 43, 61A-B, 161A-B; pass piano proficiency test; complete concentrations a, b, or c below.

- a. Performance: 8 units in Music 31-131 through 39-139 (instrument or voice) with advanced standing; 5 units in Music 142, 143, 145, 148.
- b. Composition: 9 units in Music 48, 145; 6 units of Music 148, 149 with advanced standing in composition; 1 unit in Music 199; 4 units in Music 36-136 after passing Piano Jury Examination, Level I.
- c. Musicology: Music 142, 148, 6 units in Music 76T-176T, 1 unit in Music 190.

**Option II.** *Recommended for students preparing for a career in teaching. Consult departmental advisers and the School of Education for specific credential requirements.*

8 units in Music 31-131/39-139, 4 with advanced standing; Music 40, 41, 42, 43, 58, 144, 158, 171, 181; 2 units elected from 182, 183, 184; Music 199. Additional requirements for the credential: Music 155, 169, 179; proficiency examinations in woodwinds, brass, percussion, strings, voice, theory and appreciation (examination areas may be satisfied by completion of the appropriate section of Music 119T). See the section on Public School Credentials.

### OTHER DEPARTMENTAL REQUIREMENTS

1. Each student majoring in music must declare an area of concentration (i.e., an instrument, voice, composition, musicology, or music education).
2. At the close of his first semester, each student must pass the preliminary jury examination in his area of concentration before being permitted to continue his major. A further examination must be passed for advanced standing.
3. A proficiency test on piano must be taken at least one year before graduation by each student whose concentration is in performance, composition, musicology, or music education. Those failing the test must take Music 36-136 (piano) until the proficiency test is passed.
4. During the orientation period prior to their first registration, all transfer students take a placement test.

5. Every semester each student must participate in a major performing organization appropriate to the student's major performance area, to wit: concert choir, band, or orchestra, with eight semesters of one-unit credit required toward the degree; assignment will be made by advisement after audition. Piano majors may substitute two semesters of keyboard ensemble, chamber music, or accompanying. Candidates for the teaching credential in music who are wind and percussion specialists must include two semesters of Marching Band. The student will normally enroll in the same organization both semesters of an academic year.
6. Participation in all rehearsals and performances of the performing organizations (Music 2-102 through 18-118, 20-120 through 27-127, 100T, 130T) for which the student registers must take precedence over any conflicting activity.
7. Students in Music 31-131 through 39-139 series courses will appear in student recitals when assigned.
8. Each student majoring in music must attend the departmental recitals on Thursday at 2:00 p.m.
9. A senior project is required of each student during his final year. For those whose area of concentration is voice or an instrument the project will be a public recital, of which at least one-half must be performed by memory. A student concentrating in composition will compose a work of major proportions during his final year and will either perform or supervise a prepared reading of the work. Those concentrating in musicology or music education will present an original research paper, which may also require special performance. The senior project must be approved in advance of preparation by the instructor concerned and the department chairman. On presentation, the project must be accepted by the designated faculty committee before the candidate may be recommended for the degree. Appropriate courses are Music 198 and 199.

#### MUSIC MINOR

The minor in music requires completion of at least 20 units of music courses, 6 units of which must be upper division. The program must be approved by the department adviser and the department chairman. Required units usually include: Music 9 (or 40 and 41); 6 units of Music 31-131 through 39-139; 6 to 9 units in music literature. In addition, students minoring in music must enroll in Music 102 through 127 each semester of the junior and senior years.

#### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in music is based upon the undergraduate major in music at CSU, Fresno or the equivalent. For specific requirements, consult the chairman of the departmental graduate committee and the *Music Department Graduate Bulletin*, as well as the university *Graduate Bulletin*. For general requirements, see *School of Graduate Studies*.

#### COURSES

##### MUSIC (Music)

##### PERFORMING ORGANIZATIONS

*All performing organization courses may be repeated for credit and are open to both lower and upper division students.*

The courses below include the technical, stylistic, and aesthetic elements of musical literature; rehearsal and public performance.

**2-102. Community Chorus (1) (Former Music 100T section)**

**3-103. Concert Choir (2) (Former Music 101.1)**

**4-104. Chamber Singers (1-2) (Former Music 101.2)**

**5-105. Opera Workshop (1-2) (Former Music 101.3)**

**6-106. Collegiate Chorale (1) (Former Music 101.4)**

- 7-107. Men's Chorus (1) (Former Music 101.5)  
 8-108. Women's Chorus (1) (Former Music 101.6)  
 11-111. Brass Ensemble (1) (Former Music 102.1)  
 12-112. Percussion Ensemble (1) (Former Music 102.2)  
 13-113. String Ensemble (1) (Former Music 102.3)  
 15-115. Woodwind Ensemble (1) (Former Music 102.4)  
 16-116. Keyboard Ensemble (1) (Former Music 102.5)  
 18-118. Orchestra (2) (Former Music 102.6)  
 20-120. Band Workshop (1-2) (Former Music 102.7)  
 21-121. Concert Band (1-2) (Former Music 102.8)  
 22-122. Jazz Workshop (1-2) (Former Music 102.9)  
 23-123. Contemporary Ensemble (1) (Former Music 102.10)  
 25-125. Marching Band (1-3) (Former Music 102.11)  
 27-127. Collegium Musicum (1)

**100T. Topics in Vocal or Instrumental Organizations (1-2) (Former Music 101T-102T)**

Technical, stylistic, and aesthetic elements of musical literature; rehearsal and public performance.

**130T. Topics in Performance (1-2); repeatable for credit**

Special studies in vocal or instrumental music, including topics such as accompanying, electronic instruments, mixed chamber music, lyric diction.

**INSTRUMENTAL AND VOCAL LESSONS**

The courses listed below include studies in technical, stylistic, and aesthetic elements of artistically performing repertory from the standard literature of etudes, solo, chamber, and large ensemble music. Repeatable for credit.

- 31-131. Brass (2) (Former Music 110.1)  
 32-132. Percussion (2) (Former Music 110.2)  
 33-133. Strings (2) (Former Music 110.3)  
 35-135. Woodwinds (2) (Former Music 110.4)  
 36-136. Piano (2) (Former Music 110.5)  
 37-137. Harp (2) (Former Music 110.7)  
 38-138. Organ (2) (Former Music 110.8)  
 39-139. Voice (2) (Former Music 110.10)

**THEORY AND COMPOSITION**

**40. Comprehensive Musicianship I (5) (Former Music 4.1, 4.2, 40A-41A)**

Prerequisite: Music 9 or the ability to read music. Fundamentals of music. Tonal species counterpoint in two and three voices. Development of aural skills correlative to written work.

**41. Comprehensive Musicianship II (5) (Former Music 4.3, 4.4, 40B, 41B)**

Prerequisite: Music 40. Harmonic and contrapuntal practice of the 17th and 18th centuries, with development of pertinent written and aural skills.

**42. Comprehensive Musicianship III (5) (Former Music 14.1, 14.2, 42A, 43A)**

Prerequisite: Music 41. Continuation of Music 41, with emphasis on 19th century harmonic and contrapuntal practice. Introduction to analytic-reductive techniques.

**43. Comprehensive Musicianship IV (5) (Former Music 14.3, 14.4, 42B, 43B)**

Prerequisite: Music 42. Survey of the compositional practice of the 20th century, with analysis of selected works. Development of more advanced aural and written skills.

**48. Composition (3; max total 9)**

Prerequisite: permission of instructor. Aural-analytic introduction to and study of origins and developments of major compositional concepts and genres in Western music; assigned exercises and creative writing in a variety of styles and idioms; the problems of concepts in notation.

**58. Basic Conducting (2)**

Prerequisite: Music 41 or equivalent. Fundamentals of conducting and score-reading; standard patterns and stick technique. Required of all Single Subject Teaching Credential candidates.

**140T. Topics in Theory and Composition (3; max total 9)**

Prerequisite: Music 40, 41, 42, 43. Technical, stylistic, and aesthetic elements of theory and composition.

**141. Seminar in Modal Counterpoint (3)**

Prerequisite: Music 42, 43. Polyphony of the 15th and 16th centuries; analysis and composition of melodic lines, simple counterpoint, types of imitation; writing motets with text in two or more parts.

**142. Seminar in Canon and Fugue (3)**

Prerequisite: Music 42, 43. Polyphony of the 17th and 18th centuries; analysis and composition of melodic lines, imitative, strict and invertible counterpoint, canon and fugue.

**143. Seminar in Contemporary Counterpoint (3)**

Prerequisite: Music 42, 43. Polyphony of the 20th century; analysis and composition of melodic lines and counterpoint using modern procedures.

**144. Form and Analysis (2)**

Prerequisite: Music 40, 41, 42, 43. A study of musical style and structural analysis. Examples for analysis from "Western Art Music" of the 14th-20th centuries with emphasis on the solidified, formal designs of the 18th and 19th centuries.

**145. Orchestration and Band Arranging (3; max total 6)**

Prerequisite: Music 42, 43. Problems in scoring for instrumental ensembles; idiomatic writing for instruments singly and in combinations.

**148. Seminar in Advanced Composition (3; max total 9)**

Prerequisite: Music 42, 43 or permission of instructor. Seminar in original composition of a thoroughly contemporaneous nature in media, forms, and styles of student's choice.

**149. Jazz Composition and Arranging (3)**

Prerequisite: Music 42, 43 or permission of instructor. Special problems in composing and arranging for jazz ensembles.

**150A. Seminar in Electronic Music I (3) (Former Music 140T section, 150)**

Prerequisite: Music 40, 41, and permission of instructor. An introduction to history, literature, and instruments of electronic music; with a systematic approach to the CSUF Electronic Music Studio.

**150B. Seminar in Electronic Music II (3)**

Prerequisite: Music 150A and permission of instructor. An in-depth study of electro-acoustical, analog-synthesis, and computer-assisted applications to musical composition; with emphasis on employing the CSUF Electronic Music Studio for artistic realization.

**158. Advanced Conducting (2)**

Prerequisite: Music 58 or equivalent. Advanced conducting and score reading; rehearsal techniques; problems in tempo, balance, style, and phrasing; mixed meters and other contemporary problems. Assigned projects in conducting. Required of all Single Subject Credential candidates in Music.

**181. Instrumentation (1)**

Prerequisite: Music 43 or permission of instructor. Ranges, transposition, technical capabilities of band and orchestra instruments and the voice. Required of Single Subject Credential candidates in music.

**182. Band Arranging (2)**

Prerequisite: Music 181 or concurrent enrollment. Scoring and arranging for the Band and Wind Ensemble; problems in idiomatic writing for individual instrument and sonorities of instruments in combination.

**183. Choral Arranging (2)**

Prerequisite: Music 181 or concurrent enrollment. Scoring and arranging for various sizes and types of choral ensembles; problems in idiomatic writing for the voice and sonorities of voices in combination *a capella* and with accompaniment.

**184. Orchestral Arranging (2)**

Prerequisite: Music 181 or concurrent enrollment. Scoring and arranging for orchestral ensembles; problems in idiomatic writing for the instruments and sonorities of instruments in combination.

**MUSIC HISTORY AND LITERATURE****60T. Topics in Music History, Literature, and Appreciation (3)**

Study of selected music literature from the Middle Ages to the present.

**61A. Music Literature I (1)**

Introductory course in music literature, primarily for music majors and minors. Masterpieces of Western music from the Middle Ages through the 18th Century.

**61B. Music Literature II (1)**

Introductory course in music literature, primarily for music majors and minors. Masterpieces of Western music of the 19th and 20th Centuries.

**76T-176T. Topics in Music Appreciation (3; repeatable for credit)**

Listeners' guide to music appreciation; structure and expression, formal designs, stylistic tendencies; musical literature; analysis of representative works. Topics include: Choral, Wind, Brass, and Percussion, String, Chamber, Keyboard, Orchestral, Vocal Recital, Operative, Avant-Garde, Folk and Ethnic, Jazz and Rock, and Musical Theatre.

**161A. Seminar in Musical Literature I (3)**

Prerequisite: Music 40, 41, or permission of instructor; Music 162A (concurrent). Individual research projects and reports on music from the early Middle Ages to approximately 1750.

**161B. Seminar in Musical Literature II (3)**

Prerequisite: Music 40, 41, or permission of instructor; Music 162B (concurrent). Individual research projects and reports on music from approximately 1750 to present.

**163. Women in Music (3) (Same as W S 163)**

Historical study of women in music; special attention given to contemporary women in all areas of music including the concert world, folk, jazz, rock, and music education.

**171. Music of Non-Western Cultures (2)**

Music of Africa, native North and South America, and the East; required of all Single Subject Teaching Credential candidates in Music.

**MUSIC EDUCATION****9. Introduction to Music (3)**

Not open to music majors or students with credit in Mus 40. Theory necessary for the reading, playing and understanding of music by the layman and the elementary credential candidate.

**119T. Topics in Pedagogy (2; max total 16)**

Prerequisite: Music 40, 41. Principles, playing and teaching procedures, and materials for teaching specialized music topics in the elementary school, high school, and community college. Topics include: Brass, Percussion, Strings, Woodwinds, Keyboard Instruments, Children's Instruments, Voice and Chorus, Theory and Appreciation.

**155. Sound, Rhythm, and Song (3)**

Prerequisite: Music 40, 41 for students majoring in music; Music 9 for others. Individual research on the place and functions of music in the pre-school and elementary school curriculum; selection, discussion, and analysis of musical materials including state texts; planning activities that enable children to develop aesthetic sensitivity, musical skills, and understanding.

**169. Instrumental Techniques and Materials (3)**

Prerequisite: Music 41 or equivalent; concurrent registration in Music 25-125 required. Instrumental music programs in the public schools; principles, procedures, literature and materials, including band pageantry. Expenses for off-campus visits will be incurred by student. Required of all Single Subject Teaching Credential candidates in Music.

**179. Choral Techniques and Materials (2)**

Prerequisite: Music 41, 58. Vocal music programs in the public schools; principles, choral techniques, literature and materials. Expenses for off-campus visits will be incurred by student. Required of all Single Subject Teaching Credential candidates in Music.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191. Readings in Music (1-3)**

Prerequisite: permission of instructor. Readings in depth and discussions in individual conferences; subject to be selected by student and his adviser. May be preliminary research in connection with thesis topic.

**198. Senior Recital (1-2)**

Prerequisite: Senior standing, approval of major applied music instructor. Preparation and presentation of a satisfactory senior recital. Required of all graduating performance majors; see *Other Departmental Requirements*.

**199. Senior Project (1-2)**

Prerequisite: Senior standing, approval of major adviser. Preparation, completion and submission of a suitable research paper, study, or composition. Required of all graduating seniors in Options Ib, Ic, II.

**GRADUATE COURSES**

(See *Course Numbering System—Definition and Eligibility*)

**205. Seminar in Analysis, I: Tonal Music (3) (Former Music 204)**

Principles of musical form and analysis as applied to representative works of the eighteenth and nineteenth centuries.

**206. Seminar in Analysis, II: Nontonal Music (3) (Former Music 204)**

Development of a descriptive vocabulary suitable for the music of the twentieth century, with special reference to works by Schoenberg, Berg, Webern, and selected American composers.

**210. Studies in Performance (2; max total 6)**

Open only to master's degree students majoring in performance. Prerequisite: Music 220 and permission of department chairman. Individually directed studies in performing or conducting instrumental or vocal music; historical and theoretical interpretation applied in preparation for public recitals and concerts of works from the standard literature of all periods in the student's major performance area.

**214T. Seminar in the History of Music Theory. (3; max total 9)**

Prerequisite: Music 220 or permission of instructor. Critical survey of a selected topic in the history of music theory. Topics include: Theories of Harmony, Theories of Musical Form, History of Musical Notation, Musical Aesthetics, Contemporary Theoretical Systems.

**219T. Seminar in Music Education (3; max total 9 if no course repeated)**

Prerequisite: Music 155, S Ed 161 or equivalents and permission of the instructor. Topics of special concern to the teacher or administrator. Individual research projects and discussion of problems in the area of literature, philosophy, and practices of teaching, administration, and curriculum planning.

**220. Seminar in Research Methods and Bibliography (3)**

Prerequisite: Music 161A, B, or equivalent. Bibliography, sources, and research techniques necessary for graduate study in music. Individual projects and research. Required of all students working for the master's degree in music.

**234. Studies in Composition (3; max total 9)**

Open only to Master's Degree students majoring in composition. Prerequisite: Music 220. Individually directed studies in composition with contemporary techniques of an extended work equivalent in substance to a sonata, cantata, or other composition of major proportions.

**237. Seminar in the Music of the Renaissance (3)**

Prerequisite: Music 220, the equivalent, or permission of instructor. Critical and analytical study of the historical sources, selected works and composers of the period from approximately 1425 to 1600 A.D.

**247. Seminar in the Music of the Baroque (3)**

Prerequisite: Music 220, the equivalent, or permission of instructor. Critical and analytical study of the historical sources, selected works and composers of the period from approximately 1600 to 1750 A.D.

**257. Seminar in the Music of the Classic and Early Romantic Eras (3)**

Prerequisite: Music 220, the equivalent, or permission of instructor. Critical and analytical study of the historical sources, selected works and composers of the period from approximately 1750 to 1850 A.D.

**267. Seminar in the Music of the Late Romantic and Contemporary Eras (3)**

Prerequisite: Music 220, the equivalent, or permission of instructor. Critical and analytical study of the historical sources, selected works, and composers of the period from approximately 1850 A.D. to the present.

**277. Seminar in American Music (3)**

Prerequisite: Music 220, the equivalent, or permission of instructor. Critical and analytical study of the historical sources, selected works and composers in the United States from 1620 A.D. to the present.

**287. Seminar in Interpretation of Earlier Music (3)**

Prerequisite: Music 220, the equivalent, or permission of instructor. Historical study of performance practices from the Middle Ages to the early classic era. Individual research projects and class discussions centered on primary theoretical and musical sources.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**291. Readings in Music (1-3)**

Prerequisite: permission of instructor. Readings in depth and discussions in individual conferences; subject to be selected by student and his adviser. May be preliminary research in connection with thesis topic.

**298. Graduate Recital (1-3, max total 3)**

Prerequisite: permission of department chairman.

**299. Thesis or Project (2-6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**IN-SERVICE COURSES**

See *Course Numbering System*

**307. Musical Instrument Repair (1; max total 3)****309T. Workshop: Vocational and Avocational Music Topics (1-3)**

## PHYSICAL EDUCATION AND RECREATION DEPARTMENT

### FACULTY

J. Gene Bourdet, *Department Chairman*

#### MEN

R. Jack Wilcox (Coordinator) ■ William A. Baird ■ O. Duane Ballard, Jr. ■ Bob G. Bennett ■ J. R. Boone ■ Robert C. Burgess ■ Frank J. Carbajal ■ Peter W. Conrad ■ Gene L. Estes ■ Richard W. Francis ■ Kenneth C. Gleason ■ John L. Godden ■ Eddie J. Gregory ■ Ara Hairabedian ■ Birger L. Johnson ■ Laurence A. Pape ■ John R. Patnott ■ Paul M. Schechter ■ Daniel L. Stockton ■ Robert B. Van Galder ■ Cornelius A. Warmerdam ■ Ernest S. Wild

#### WOMEN

Patricia L. Thomson (Coordinator) ■ Clifford B. Andrews ■ Sally L. Ayer ■ Roberta Jo Baumann ■ Bonnie Jo Bevans ■ Rhita Flake ■ Shelley N. Freydonc ■ Melva E. Irvin ■ Rose M. Lyon ■ R. Elaine Mason ■ Mary L. Mott ■ Leilani Overstreet ■ Lola B. Owensby ■ Donna Rae Pickel ■ Billie L. Poston ■ Joanne W. Schroll ■ Shirley M. Thompson ■ Lois M. Trostle

#### RECREATION

Daniel B. Sawyer (Coordinator) ■ Audrey M. Fagnani ■ Paula S. Guzman ■ George O. Sappenfield

#### ACTIVITIES

Physical education courses may count as upper division credit upon completion of 45 units; for other provisions see *Courses—Note*. Students majoring or minoring in physical education may count a maximum of twelve units of upper and lower division activity courses toward the total units required for the bachelor's degree; other students may apply a maximum of eight units to the total degree requirement. Candidates preparing for elementary teaching or minoring in physical education are advised to have experience in rhythmic activities.

Up to 4 units of physical education activity courses may be applied for credit in Area V. Courses may not be repeated for general education credit.

#### PHYSICAL EDUCATION MAJORS

##### MEN

A major in physical education for the bachelor of arts degree consists of 50 units listed below, exclusive of the general education requirement.

	<i>Units</i>
PE 30, 35A-B-C, 45A-B-C-D .....	16
PE 106A, 108, 152, 153, 154, 156A-B-C, 159.....	25
Elect from: PE 125 A-B-C-D .....	9
	50

*Additional Requirements:* Phy 22, 23, H Ec 54 or 10.

##### WOMEN

A major in physical education for the bachelor of arts degree, with two options available, consists of 46 units listed below, exclusive of the general education requirement.

	<i>Units</i>
<i>Option I. General</i>	
Foundations: PE 30, 31, 44 .....	5
Performance laboratories: PE 45A-B-C-D, 115A-B-C-D-E .....	17
Conceptual interpretations: PE 144, 152, 153, 154, 156A-B-C, 159 .....	21
Approved electives.....	3
	46

*Additional Requirements:* Phy 22, 23.

<i>Option II. Dance</i>	<i>Units</i>
CPE 117D, C58B.....	4
PE 59, 65A-B-C, 156A-B, 164T, 166A-B-C, 171.....	27
Approved electives (at least 10 upper division; consult with adviser. Requirement for secondary credential PE 30, 153).....	<u>15</u>
	46

*Additional Requirements:* Phy 22, 23.

**PHYSICAL EDUCATION MINORS**

**MEN**

The minor in physical education consists of 24 units which permits, with guidance, a selection of courses to satisfy special interests and needs.

PE 30; elect from 35A-B-C; 45A-B-C.....	12
PE 153.....	3
Elect from: PE 125A-B-C-D.....	<u>9</u>
	24

**WOMEN**

The minor in physical education, with two options, consists of 21 units of which at least 12 must be upper division.

<i>Option I. General</i>	<i>Units</i>
PE 30, 31, 45D.....	6
PE 115B or 115C, 152.....	5
Approved physical education electives.....	<u>10</u>
	21

<i>Option II. Dance</i>	
CPE 17C, 59, PE 59, 65A-B.....	10
PE 166A-B, 164T, 171.....	10
Electives (approved ud).....	<u>1</u>
	21

**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and the School of Education, see the section on *Public School Credentials*.

**MASTER OF ARTS DEGREE**

The graduate program for the master of arts degree in physical education is based on the equivalent of the undergraduate major at CSU, Fresno. At least 24 of the 30 units required for the degree must be in graduate courses in physical education. For specific requirements, consult the chairman of the department graduate committee; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**COURSES**

*Note: Activity courses may be repeated for credit except as noted. Upper division credit will be given for activities, with exception of WPE 28, taken after the completion of 45 units.*

**COEDUCATIONAL (CPE)**

**1. Adapted Body Mechanics (1)**

May be repeated with permission of instructor. Medical referrals.

**3A. Swimming (1)**

**3B. Swimming (1)**

Prerequisite: C3A or permission of instructor.

**3C. Swimming (1)**

Prerequisite: C3B or permission of instructor.

**3D. Swimming (1)**

Prerequisite: C3C or permission of instructor.

**4. Synchronized Swimming (1)**

Prerequisite: intermediate swimming skill.

**5. Senior Lifesaving (1)**

Prerequisite: permission of instructor. 450 yd. timed swim with max time of 9:30.

**6. Water Safety Instructor Course (2; not repeatable for credit)**

Prerequisite: current lifesaving certificate. 450 yd. timed swim with max time of 9:00.

**7. Swim for fitness (1)**

**8A. Tennis (1)**

**8B. Tennis (1)**

Prerequisite: C8A or permission of instructor.

**8C. Tennis (1)**

Prerequisite: C8B or permission of instructor.

**8D. Tennis (1)**

Prerequisite: C8C or permission of instructor.

**9A. Gymnastics (1) (Former C9)**

**9B. Gymnastics (1) (Former C10)**

Prerequisite: C9A or permission of instructor.

**11A. Folk Dance (1) (Former C11)**

**11B. Folk Dance (1) (Former C12)**

Prerequisite: C11A or permission of instructor.

**14A. Social Dancing (1) (Former C14)**

**14B. Social Dancing (1) (Former C15)**

Prerequisite: C14A or permission of instructor.

**16. Introduction to Contemporary Dance (1)**

**17A. Contemporary Dance Technique (1)**

Prerequisite: C16 or permission of instructor.

**17B. Contemporary Dance Technique (1)**

Prerequisite: C17A or permission of instructor.

**17C. Contemporary Dance Technique (1)**

Prerequisite: C17B or permission of instructor.

**17D. Contemporary Dance Technique (2; max total 8)**

Prerequisite: C17C or permission of instructor.

**21A. Archery (1) (Former C21)**

**21B. Archery (1) (Former C22)**

Prerequisite: C21A or permission of instructor.

**21C. Archery (1)**

Prerequisite: C21B or permission of instructor.

**24A. Bowling (1) (Former C24)**

(Lane rental, \$1.45 per week)

- 24B. Bowling (1) (Former C25)**  
 (Lane rental, \$1.45 per week) Prerequisite: 24A or permission of instructor.
- 27A. Ice Skating (1) (Former C27)**  
 (Skate and rink rental, \$15 per semester)
- 27B. Ice Skating (1) (Former C28)**  
 (Skate and rink rental, \$15 per semester) Prerequisite: 27A or permission of instructor.
- 27C. Ice Skating (1) (Former C29)**  
 (Skate and rink rental, \$15 per semester) Prerequisite: 27B or permission of instructor.
- 31A. Badminton (1) (Former C31)**
- 31B. Badminton (1) (Former C32)**  
 Prerequisite: C31A, M34A, or W31, or permission of instructor.
- 31C. Badminton (1)**  
 Prerequisite: C31B or permission of instructor.
- 31D. Badminton (1)**  
 Prerequisite: C31C or permission of instructor.
- 37A. Golf (1)**  
 (Greens charge)
- 37B. Golf (2) (Former C37)**  
 (Greens charge) Prerequisite: C37A or permission of instructor.
- 37C. Golf (2)**  
 (Greens charge) Prerequisite: C37B or permission of instructor.
- 37D. Golf (2)**  
 (Greens charge) Prerequisite: C37C or permission of instructor.
- 39. Jogging (1)**
- 40. Skiing (2)**  
 Limited to novice skiers. (Resort rental charge)
- 41. Sailing (2)**
- 42. Skin and Scuba (2; not repeatable for credit)**  
 (Equipment and field trip expense, \$30 per semester) Prerequisite: permission of instructor.
- 43A. Western Riding (1) (Former C43)**  
 (Stable charge, \$45 per semester) Prerequisite: permission of instructor. Limited to novice riders.
- 43B. Western Riding (1)**  
 (Stable charge, \$45 per semester) Prerequisite: permission of instructor.
- 45A. Fencing (1) (Former C45)**
- 45B. Fencing (1)**  
 Prerequisite: C45A or permission of instructor.
- 50. Square Dance (1; not repeatable for credit)**
- 55A. Modern Jazz Dance (1) (Former C55)**
- 55B. Modern Jazz Dance (2) (Former C56)**  
 Prerequisite: C55A, C58A or permission of instructor.

**58A. Ballet (1) (Former C58)**

**58B. Ballet (2; max total 8) (Former C59)**

Prerequisite: C58A or permission of instructor.

**67A. Volleyball (1) (Former C67)**

**67B. Volleyball (1)**

Prerequisite: C67A or permission of instructor.

**80. Synchronized Swim Show Production (2; max total 8)**

Prerequisite: C4 or permission of instructor.

**82. Hatha Yoga (1; not repeatable for credit) (Former EXP 185)**

**83. Fly Casting and Fly Fishing (1)**

**84. Bicycling (2)**

Introduction to bicycling as a lifetime sport. Bicycle selection, care, and maintenance. Traffic laws and bicycle safety. Student must provide his own ten-speed bicycle. Two all-day rides on Saturday. "A" medical clearance required.

**85. Basic Mountaineering (2; not repeatable for credit) (Former EXP 102)**

(Equipment charge \$16 per semester)

**Men Only (MPE)**

**2. Group Games (1)**

**3. Soccer (1)**

**7. Basketball (1)**

**10A. Swimming (1) (Former M10)**

**10B. Swimming (1) (Former M11)**

Prerequisite: M10A or permission of instructor.

**13. Boxing (1)**

**16A. Wrestling (1) (Former M16)**

**16B. Wrestling (1) (Former M18)**

Prerequisite: M16A or permission of instructor.

**19A. Tennis (1) (Former M19)**

**19B. Tennis (1) (Former M20)**

Prerequisite: M19A or permission of instructor.

**19C. Tennis (1) (Former M21)**

Prerequisite: M19B or permission of instructor.

**22A. Handball (1) (Former M22)**

**22B. Handball (1) (Former M23)**

Prerequisite: M22A or permission of instructor.

**22C. Handball (1) (Former M24)**

Prerequisite: M22B or permission of instructor.

**25. Golf (1)**

(Greens charge, \$2 per semester)

**28. Archery (1)**

**29A. Racketball (1) (Former M29)**

**29B. Racketball (1)**

Prerequisite: M29A or permission of instructor.

**34A. Badminton (1) (Former M34)**

**37A. Volleyball (1) (Former M37)**

**40A. Body Building (1) (Former M40)**

**40B. Body Building (1) (Former M41)**

**45. Self-Defense (1)**

**Intercollegiate—Coeducational (CPES)**

(Courses may be repeated.)

**2. Badminton (1)**

**Intercollegiate—Men (MPES)**

(Courses may be repeated.)

**12. Baseball (1)**

**13. Basketball (1)**

**14. Cross Country (1)**

**15. Football (1)**

**16. Golf (1)**

**19. Swimming (1)**

**20. Tennis (1)**

**21. Track and Field (1)**

**23. Soccer (1)**

**24. Water Polo (1)**

**25. Wrestling (1)**

**Intercollegiate—Women (WPES)**

(Courses may be repeated.)

**3. Basketball (1)**

**6. Swimming (1)**

**7. Tennis (1)**

**8. Gymnastics (1)**

**9. Volleyball (1)**

**Women Only (WPE)**

**1A. Swimming (1) (Former W1)**

For nonswimmers.

**1B. Swimming (1) (Former W2)**

Prerequisite: W1A or permission of instructor.

**1C. Swimming (1) (Former W3)**

Prerequisite: W1B or permission of instructor.

**6A. Tennis (1) (Former W6)**

**6B. Tennis (1) (Former W7)**

Prerequisite: W6A or permission of instructor.

**10B. Gymnastics (1)**

**21. Archery (1)**

**26. Conditioning Exercises and Figure Control (1)**

**28. Movement Fundamentals (1; not repeatable for credit)**

**29. Racketball (1)**

**31. Badminton (1)**

**33. Track and Field (1)**

**36. Golf (1)**

**39. Personal Defense for Women (1) (Former EXP 39)**

**46. Soccer, Hockey, or Flag Football (1)**

**48. Volleyball, Basketball, or Softball (1)**

**CPE, MPE, WPE, CPES, MPES, WPES Upper Division Activities Courses**

*(See Courses—Note.)*

**Physical Education (PE)**

**11A. Officiating Volleyball (1) (See PE 111A)**

Women only. Not open to students with credit in PE 111A. Prerequisite: experience in volleyball. Rules, officiating techniques, practice in officiating. Students may elect to take national theoretical (50¢) and practical (\$1.00) examinations given by the San Joaquin Board of Women Officials.

**11B. Officiating Basketball (1) (See PE 111B)**

Women only. Not open to students with credit in PE 111B. Prerequisite: experience in basketball. Rules, officiating techniques, practice in officiating. Students may elect to take national theoretical (50¢) and practical (\$1.00) examinations given by the San Joaquin Board of Women Officials.

**30. History and Foundations of Physical Education (2)**

Coeducational. History and foundations of the physical education program in secondary schools; personal, social, and professional requirements; demands on the physical education teacher.

**31. Concepts of Human Movement (2)**

Coeducational. Concurrent enrollment in W P E 28 suggested. Concepts and experience in selected aspects of human motor performance: mechanical principles, perceptual theory, cultural effects, aesthetic and rhythmical effects, and individual patterns of learning.

**35A. Theory and Analysis of Team Sports (2)**

Men only. Limited to physical education and recreation majors and minors. Analysis and practice of skills. (1 lecture, 2 lab hours)

**35B. Theory and Analysis of Combatives (2)**

Men only. Limited to physical education and recreation administration majors and minors. Analysis and practice of skills. (1 lecture, 2 lab hours)

**35C. Theory and Analysis of Gymnastics (2)**

Men only. Limited to physical education and recreation administration majors and minors. Analysis and practice of skills. (1 lecture, 2 lab hours)

**44. Instructional Laboratory I (1)**

Coeducational. Limited to physical education major and minor students. Designed to provide an opportunity to work in an instructional situation.

**45A. Theory and Analysis of Aquatics (2)**

Coeducational. Limited to physical education and recreation administration majors and minors. Prerequisite: intermediate skill. Study and practice of beginner's skills and swimming strokes; elements of diving and skills basic to lifesaving; skill progression for various levels; water polo, scuba diving. (2 2-hour labs)

**45B. Theory and Analysis of Racquet Sports (2)**

Coeducational. Limited to physical education and recreation administration majors and minors. Prerequisite: intermediate skill. Study and practice of strokes and tactics; rules; history; skill progression for various levels. (2 2-hour labs)

**45C. Theory and Analysis of Golf and Archery (2)**

Coeducational. Limited to physical education and recreation majors and minors. Prerequisite: M25 or W36. Study and practice of values and fundamentals in golf and archery; organization and conduct in the secondary school physical education program. (2 2-hour labs)

**45D. Theory and Analysis of Folk, Square and Social Dance (2)**

Coeducational. Limited to physical education and recreation administration majors and minors. Prerequisite: C11A. Study and practice of elementary leadership in folk, square, and social dance. (2 2-hour labs)

**59. Music as Dance Accompaniment (3)**

Coeducational. Kinds of accompaniment: live and recorded music, percussion scores, spoken word. Student selection and preparation of accompaniment: dance technique and composition.

**63. Dance Performance (2; max total 8) (Same as PE 163)**

Coeducational. Students with fewer than 45 units register for PE 63; those with more than 45 units register for PE 163. Prerequisite: C17A, PE 65A, B, or C, or permission of instructor. Group laboratory experience in presentation of major productions for public performance.

**65A. Elementary Dance Composition: Musical Forms (2) (Former PE 65)**

Coeducational. Prerequisite: C16 or 116 and C17A or B concurrently. Exploration of composition through musical forms with emphasis on increasing ability to use original movement.

**65B. Elementary Dance Composition: Preclassic Forms (2) (Former PE 65)**

Coeducational. Prerequisite: C16 or 116 and C17A or B concurrently. A continuing study of dance with emphasis on pre-classic forms and improvisations.

**65C. Elementary Dance Composition: Modern Forms (2)**

Coeducational. Prerequisite: 65A or B, C17A or 17B taken concurrently. Exploration of modern forms with emphasis on original choreography.

**106A. Care and Prevention of Athletic Injuries (3) (Former 106)**

Coeducational. Prerequisite: permission of instructor. Designed for prospective coaches, trainers, health and physical educators; to aid in the recognition, evaluation, and care of athletic injuries. Techniques in taping, prevention, and rehabilitation of injuries.

**106B. Advanced Care and Prevention of Athletic Injuries (3)**

Coeducational. Prerequisite: PE 106A, Physiology 22 and 23, PE 156A, 156B. Designed for certification of athletic trainers. Advanced study in all phases of athletic training.

**107. Field Work in Care and Prevention of Athletic Injuries (1-2; max total 6)**

Coeducational. Prerequisite: PE 106A. May be taken concurrently with 106B. Practical experience in the field of athletic training.

**108. Organization of Intramural Sports (2)**

Coeducational. For physical education and recreation administration majors. Organization, administration, and motivation of a program of intramural activities in secondary schools.

**110. Women in Sport (3) (Same as WS 110)**

Open only to upper division students. Role of women in athletics with emphasis on history and current events; inquiry into the development and perpetuation of female stereotypes in sport.

**111A. Officiating Volleyball (1)**

Women only. Not open to students with credit in PE 11A. Prerequisite: experience in volleyball. Rules, officiating techniques, and practice in officiating. Students may elect to take national theoretical (50¢) and practical (\$1.00) examinations given by the San Joaquin Board of Women Officials. (2 1-hour lecture labs)

**111B. Officiating Basketball (1)**

Women only. Not open to students with credit in PE 11B. Prerequisite: experience in basketball. Rules, officiating techniques, and practice in officiating. Students may elect to take national theoretical (50¢) and practical (\$1.00) examinations given by the San Joaquin Board of Women Officials. (2 1-hour labs)

**112A. Officiating Football (1)**

Men only. Scheduled second 8 weeks of semester. Prerequisite: varsity squad experience in football or PE 125A; PE 112B concurrent, or permission of instructor. Analysis and interpretation of rules for football; procedures, mechanics and practice in officiating.

**112B. Officiating Basketball (1)**

Men only. Scheduled first 8 weeks of semester. Prerequisite: varsity squad experience in basketball or PE 125B. Analysis and interpretation of rules for basketball; procedures, mechanics, and practice of officiating.

**112C. Officiating Track and Field (1)**

Men only. Prerequisite: varsity squad experience in track or PE 125C. Analysis and interpretation of rules for track; procedures, mechanics, and practice in officiating.

**112D. Officiating Baseball (1)**

Men only. Prerequisite: varsity squad experience in baseball or PE 125D. Analysis and interpretation of rules for baseball; procedures, mechanics, and practice in officiating.

**115A. Theory and Analysis of Modern Dance (2)**

Coeducational. Prerequisite: C16. Practice and analysis of body movement in dance, rhythmic, space and quality elements. Practice in planning and presenting teaching techniques, movement progressions, and group studies; elementary composition; brief history of dance. (2 2-hour labs)

**115B. Theory and Analysis of Team Sports I (2)**

Women only. Emphasis on the performance, presentation and analysis of techniques and strategies of basketball, softball, and volleyball.

**115C. Theory and Analysis of Team Sports II (2)**

Women only. Emphasis on performance, presentation and analysis of techniques and strategies of soccer, speedball, speed-a-way, field hockey, and flag football.

**115D. Theory and Analysis of Gymnastics (2)**

Women only. Prerequisite: C9A. Analysis and performance of elementary and intermediate stunts in tumbling, free exercise, apparatus, trampoline, and rhythmic gymnastics. Theory of skill progressions, class organization, spotting techniques, judging, analysis and development of routines, and organization of gymnastic competition. (2 2-hour lecture labs)

**115E. Theory and Analysis of Track and Field (1)**

Women only. Prerequisite: W33. Analysis and performance of track and field events. Theory of skill progressions, class organization, officiating; planning, promoting, and conducting meets; purchase and care of equipment and facilities.

**125A. Theory and Analysis of Football (3)**

Men only. Limited to physical education majors and minors. Principles underlying participation in competitive interscholastic athletics.

**125B. Theory and Analysis of Basketball (3)**

Men only. Limited to physical education majors and minors. Principles underlying participation in competitive interscholastic athletics.

**125C. Theory and Analysis of Track and Field (3)**

Men only. Limited to physical education majors and minors. Principles underlying participation in competitive interscholastic athletics.

**125D. Theory and Analysis of Baseball (3)**

Men only. Limited to physical education majors and minors. Principles underlying participation in competitive interscholastic athletics.

**144. Instructional Laboratory II (1)**

Coeducational. Limited to major and minor students. Designed to provide an opportunity to work in an instructional situation.

**146. Movement Education Practicum and Clinical Experience with Educationally Handicapped Children (3-9; max total 9; repeatable for credit)**

Prerequisite: permission of instructor. Clinical experience in diagnosis and evaluation of movement skills and needs of educationally handicapped children followed by individual prescriptive program development and instruction. Experience to include program planning, execution and ongoing evaluation.

**152. Elementary School Physical Education (3)**

Coeducational. Activities, materials, and techniques related to learning experiences for elementary school children through the medium of human movement. (2 2-hour lecture-labs)

**153. Proseminar in Principles of Physical Education (3)**

Coeducational. Prerequisite: PE 30. Principles basic to sound philosophy of physical education; appraisal of historical development; relationship to health education, recreation, and other areas; foundation and functions of physical education in contemporary American society.

**154. Proseminar in Organization and Administration (3)**

Coeducational. Prerequisite: PE 30, 153. Organization and administration: classification, scheduling, planning facilities for instruction and recreation; role of the physical education teacher in recreation, equipment, budget, co-curricular program, student leadership, community relationship, legal liabilities.

**156A. Kinesiology (3)**

Coeducational. Prerequisite: Phy 1, 22 and 23 or equivalent. Human movement: biological and mechanical bases, application of skeleto-muscular considerations and principles of mechanics to human movements.

**156B. Physiology of Exercise (3)**

Coeducational. Prerequisite: Phy 22 and 23 or equivalent. Physiologic bases of movement, work and exercise; physiologic concepts related to such processes as respiration, circulation, muscle function, metabolism, heat regulation, and to their roles in physical activity.

**156C. Adapted Physical Education (2)**

Coeducational. Prerequisite: Phy 22 and 23 or equivalent, PE 156A. Anomalies and physical divergencies among elementary and high school students, their etiology and consequences; development of special provisions to meet the needs of atypical students.

**159. Tests and Measurements (3)**

Coeducational. Prerequisite: PE 30. Scientific testing in physical education; analysis, study, and construction of tests; diagnosis of physical efficiency and physiological reactions to exercise, sports, and games.

**163. Dance Performance (2; max total 8) (See PE 63)****164T. History of Dance (3; max total 12 if no topic repeated)**

Coeducational. Evolution of dance as an art form; cultural implications; changing concepts in dance style and form. Topics may include the following periods: Primitive to Renaissance, Baroque to 20th Century, 20th Century.

**166A. Intermediate Dance Composition: Theater Forms (2)**

Coeducational. Prerequisite: PE 65A, 65B, C17C or 17D concurrently. Choreography with emphasis on the theatrical environment and contemporary forms. Analysis of styles and trends of compositional form with experience in development of individual and group dance studies.

**166B. Intermediate Dance Composition: Chance Forms (2)**

Coeducational. Prerequisite: PE 65A, 65B, C17C or 17D concurrently. Choreography with emphasis on the use of chance methods, group compositions and a synthesis of previous dance experience.

**166C. Intermediate Dance Composition: Improvisational Forms (2)**

Coeducational. Prerequisite: PE 65A-B-C, C17D concurrently. Choreography with emphasis on improvisation leading to solo compositions and small group compositions.

**167. Dance in Education (3)**

Coeducational. Prerequisite: permission of the instructor. A study of the unique potential found in movement for the development of creativity through the teaching of dance.

**168. Elementary Dance Notation (3)**

Coeducational. Prerequisite: CPE 16, PE 65A, B, or C. Designed to study the system of Labanotation. Will include experience in recording and interpreting dance scores.

**171. Philosophical Bases and Trends in Dance (3)**

Coeducational. A study of the elements and principles common to all arts and their relationship to dance.

**172. Dance Therapy (3)**

Prerequisite: permission of instructor. Dance movement as related to rehabilitation in a therapeutic setting.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**199. Supervised Work Experience (2; max total 4)**

Coeducational. Open only to physical education majors. Prerequisite: upper division status, GPA 2.5 last 30 units, consent of department coordinator and instructor.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**221. Body Mechanics (3)**

Open to men and women. Prerequisite: PE 156A or permission of instructor. Analysis of posture and body mechanics; methods and techniques for the examination and treatment of faulty body mechanics and other anomalies; and exercises for achieving and maintaining correct body mechanics.

**222. Analysis of Athletic Performance (3)**

Open to men and women. Prerequisite: PE 156A and 156B or permission of instructor. Consideration of the factors affecting performance in various sports. Application of laws of physics, principles of exercise, physiological, and psychological considerations to human performance. Intensive research in the analysis of sports skills.

**223. Scientific Basis of Motor Learning (3)**

Seminar in the study of human movement from a physio-psychological perspective. Emphasis on learning theories, motor educability, and kinesthetic awareness in human movement via sport, dance, and games.

**230. Statistical Inference in Physical Education (3)**

Theory and nature of statistical inference; seminar in the study of statistical methodology relating to the selection of the most appropriate statistical method, the correct application of the statistical technique, and the interpretation of findings.

**231. Research in Physical Education and Recreation (3)**

Seminar in research methodology; identification of researchable problems in physical education and related areas; use of library resources, data gathering and analyses, critiquing of recorded research, writing of research reports.

**232. Quantitative Measurement in Exercise Physiology (3)**

Prerequisite: PE 156A or permission of instructor. Use of instruments and devices for measuring physiological factors related to exercise. Measurement of these factors under experimental conditions in the human performance laboratory.

**240. Facilities and Equipment in Physical Education (3)**

Open to men and women. Functional planning of indoor and outdoor facilities for schools and recreation centers. Design and layout of school physical education-athletic facilities. Evaluation of school plants in the Fresno and valley area. Budget considerations in planning for the purchase of equipment.

**241. Administration in Physical Education (3)**

Examination of innovative ideas in the fields of education and physical education which relate to physical education administration. Emphasis on discovering ways to incorporate recent information to establish programs.

**242. Program Development in Physical Education (3)**

Study of the current education scene to provide students with an understanding of the role that school physical education plays in today's education. Identification of sound procedure and practice in organizing and conducting relevant programs of physical education.

**250T. Topics in Physical Education (3; max total 6 if no topic repeated)**

Prerequisite: permission of instructor. Advanced studies in theoretical research in selected topics.

**260. Historical Concepts of Physical Education (3)**

Interpretation of exercise and sport in western thought and practice, from 3000 B.C. to the present.

**261. Philosophical Concepts in Physical Education (3)**

Exposure to philosophical thought as conceived by traditional and contemporary philosophers. Exploration of the techniques utilized to bring specific philosophical positions to action; examination of relationships between individual philosophies and philosophies from which current practices and problems in the field of physical education emerge.

**262. Psycho-Socio Implications of Sport (3)**

Investigation of the nature of man, the player; cultural factors leading to the development of the symbolic field of sport; and sport as an agent of change.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**299. Thesis or Project (2-6; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**310. Analysis of Team Activities (2-3; max total 12 if no area repeated)**

**320. Analysis of Individual Activities (2-3; max total 12 if no area repeated)**

## RECREATION ADMINISTRATION

The Physical Education and Recreation Department offers a bachelor of science degree with a major in recreation administration for students who are preparing for leadership and supervisory responsibilities in recreation service. The curriculum offers each student an opportunity to select course material in public, private, and therapeutic settings. Curriculum experiences are designed to serve as a foundation for graduate education in recreation administration.

### BACHELOR OF SCIENCE DEGREE

The bachelor of science degree with a major in recreation is granted upon completion of 128 units including the courses listed below. The general degree regulations and general education requirements must also be fulfilled.

#### RECREATION MAJOR

##### CORE PROGRAM

	<i>Units</i>
Rec 55, 73, 73L, 171, 172, 173, 173L .....	17

##### GENERAL OPTION (Private-Public)

Rec 160, 168, 177, 185 or 186 .....	21
Approved electives: (See below) .....	12
Recommended electives: Art 65; B A 18, 118; Crim 120, 121, 132, 133; Drama 137; Ind A 133; Jour 113; Mgt 110A; O Ad 105; PE 108; Plant 15, 25, 55; Pl Si 181; Psych 101, 160T; Rec 167, 169; S Ed 135; Spch 167; S Wel 124, 127; U R P 100; Music 9; CPE 11A	33

##### THERAPEUTIC OPTION

Rec 165, 166, 187 .....	18
Psych 166, 168 .....	6
Recreation elective .....	3
Elect from: Psych 101, 102, 103, 134, 155, 167, 171; Crim 120, 132, 137, 139; C D 100, 102, 136, 137; Soc 143, 147, 162, 181; PE 156C; A S 114, 170; H S 110 .....	6
Phy 22, 23 .....	8
	41

#### RECREATION MINOR

The minor in recreation for the bachelor of science degree consists of 23-24 units of which 6 must be upper division and permits, with guidance, a selection of courses to satisfy special interests and needs. The recreation minor offers training in activities suitable for use in recreation programs of communities, schools, youth agencies, and clubs.

	<i>Units</i>
Rec 60, 73, 73L, 171, 173, 173L .....	14
Recommended electives: PE 108, 156B; Art 65; Music 9; Drama 137;	
Rec 80, 160, 165, 166 .....	9-10
	23-24

#### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in physical education with an option in recreation administration is based upon undergraduate work in recreation administration. At least 12 of the 30 units required for the degree must be in graduate courses in recreation administration. For specific requirements, consult the departmental chairman or the graduate committee; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program, see the Graduate Bulletin, available in the Office of the School of Graduate Studies.

## COURSES

**RECREATION (Rec)****55. Principles of Recreation (3)**

Philosophical, theoretical, and historical base for recreation service in contemporary American society; development of a personal philosophy of recreation through education information, and stimulation.

**60. Recreation in American Society (3)**

Nonmajors only. Development of recreation service in the United States; recreation service provided by governmental, commercial, private and therapeutic agencies.

**73. Leadership in Recreation Service (2)**

Theoretical and philosophical basis for leadership. Social dynamics of participation in recreative activities.

**73L. Leadership in Recreation Service Laboratory (2)**

Concurrent with Rec 73. Practical leadership experience in supervised recreation settings.

**80. Outdoor Recreation (3)**

History, development, and trends of organized camping; nature and conservation; outdoor recreation. Practical skills in camp counseling, firecraft, outdoor cooking, and back packing. Laboratory and field trips, including camping and hiking activities. (1 field trip; approximately \$5 camp trip expense).

**160. Camp Management (3)**

Prerequisite: Rec 55, 73, 73L or permission of instructor. Organization, supervision, and management of various types of camp. (2 field trips; approximately \$10 camp trip expenses).

**165. Foundations of Therapeutic Recreation Service (3)**

Prerequisite: Rec 55, Phy 22, 23. Concentrated study of recreation service for the ill and disabled. Individual practical experience in the community in the area of special interest: mental retardation, physical disability, aging, emotionally disturbed.

**166. Therapeutic Recreation Settings (3)**

Prerequisite: Rec 165. Concentrated study of the therapeutic value of recreation for individuals who are ill, disabled, handicapped or aged. Individual or group practical experience in working with handicapped persons.

**167. Private Recreation Resources (3)**

Prerequisite: Rec 55. Evaluation of private recreation resources including membership organizations, private clubs, college union, and commercial recreation endeavors; problems include program content, leadership, facilities, funding, and organizational structure.

**168. Legal and Financial Aspects of Recreation Service (3)**

Prerequisite: Rec 171, Acct 3, or permission of instructor. Legal and financial aspects of recreation service; budget analysis, legal terminology, and their role in recreation administration.

**169. Development and Management of Commercial Recreation (3)**

Prerequisite: Rec 55. Evaluations of commercial recreation enterprises; problems include the establishment, organization, and management of commercial recreation.

**171. Community Recreation (3) (Former Rec 161A)**

Prerequisite: Rec 55. Analysis of community agencies offering recreation services.

**172. Organization and Administration of Leisure Services (3)**

Prerequisite: Rec 55, 73, 173, or permission of instructor. Preparation for the role of administrator of recreation services; activity programs, the provision of sites and facilities, management of personnel and finances, volunteer personnel.

**173. Programs of Recreation (2)**

Prerequisite: Rec 55, 73, 73L. Principles and procedures of planning programs for various age groups and settings.

**173L. Programs of Recreation Laboratory (2)**

Prerequisite: Rec 173 (concurrently). Practical program experience in supervised recreation settings.

**177. Analysis of Leisure and Park Resources (3)**

Prerequisite: Rec 55. Concentrated study of park planning, designs, and other resources for recreation purposes. Group projects in the area of special interest: public, private, or therapeutic.

**185. Internship in Private Recreation (12)**

Prerequisite: completion of core and option requirements; 2.5 GPA in courses applied on the major. Directed supervisory experience with a private recreation agency. Individual development in administration, supervision, program planning, and community and public relations; reports and conferences required.

**186. Internship in Public Recreation (12)**

Prerequisite: completion of core and option requirements; 2.5 GPA in courses applied on the major. Directed supervisory experience with a public recreation agency. Individual development in administration, supervision, program planning, community and public relations; reports and conferences required.

**187. Internship in Therapeutic Recreation (12)**

Prerequisite: completion of core and option requirements; 2.5 GPA in courses applied on the major. Supervised, directed full-time experience in the field of therapeutic recreation; reports and conferences required.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**201. Trends and Issues in Recreation Administration (3)**

Prerequisite: permission of instructor. Investigation and analysis of current trends, issues, and problems in related areas of municipal, county, and state Recreation and Park Services.

**203. Construction and Design of Recreation Facilities (3)**

Prerequisite: permission of instructor. Standards for site selection, development, facilities and equipment; operation and maintenance of buildings and grounds.

**204. Seminar in Recreation Supervision (3)**

Prerequisite: permission of instructor. Investigation and analysis of supervisory techniques in modern recreation programs: relationship, department and agency organizations, policies, regulations, and related problems. Special emphasis on major staff responsibilities such as those of the department head, administrator, and business manager.

**205T. Recreation for Special Groups (3)**

Prerequisite: permission of instructor. Analysis of therapeutic recreation settings for special groups such as the handicapped and the aging. Examination of regular programs in convalescent homes, senior citizen centers, retirement villages, day treatment centers, and rehabilitation centers: study of program results.

**231. Research in Physical Education and Recreation (3) (See PE 231)**

**IN-SERVICE COURSES**

*(See Course Numbering System)*

**313. Recreation Activities (1-3; max total 6)**

May be repeated for credit. Prerequisite: permission of instructor. Open to personnel working in recreation, students and teachers. Design, application and adaptation of activities and skills to various recreational settings.

**330T. Topics in Recreation (1-3; max total 6)**

May be repeated for credit provided different fields are covered. Prerequisite: permission of instructor. Study and critical analysis of problems relating to organization, administration, supervision and management of agencies engaged in recreational/leisure services.

**RADIO-TELEVISION DEPARTMENT**

**FACULTY**

John P. Highlander *Department Chairman*

Robert C. Adams ■ H. Lee Alden ■ Merlyn D. Burriss ■ Howard D. Gross ■ Philip J. Lane ■ Robert Larka ■ Patrick J. McInerney ■ William N. Monson

The Radio-Television Department offers courses of study for those who seek professional careers in the media or in teaching. Career potentials in media include commercial as well as educational broadcasting or cinema. Departmental programs are based on the study of the social, educational, and economic significance of the media and provide for professional preparation in a variety of specialized areas.

The department offers courses leading to the Bachelor of Arts degree in Radio-Television and the Master of Arts degree in Mass Communication.

**RADIO-TELEVISION MAJOR**

The radio-television-broadcasting major combines the study of media theory and practice with laboratory experience. A core of required courses provides a foundation upon which a student, in consultation with his faculty adviser, builds a program of study in areas of special interest. Such areas include criticism, performance, production, management, and script writing as well as the application of media in education. The student is encouraged to include courses of study in other fields relevant to this major interest.

<b>Radio-Television Broadcasting</b>	<i>Units</i>
R-TV 25, 40, 41, 44, 115, 140, 141, 160 .....	23
Approved electives (Minimum 12 units upper division) .....	17
	—
	40

**RADIO-TELEVISION MINOR**

<b>Radio-Television Broadcasting</b>	
R-TV 40 or 140, 41 or 44, 141 .....	9
Approved electives (Minimum 6 units upper division) .....	11
	—
	20

**CREDENTIAL PROGRAM**

For information on the current credential program consult the departmental advisers and the School of Education; see the section on *Public School Credentials*.

**MASTER OF ARTS DEGREE IN MASS COMMUNICATION**

The graduate program for the master of arts degree in mass communication is an interdisciplinary degree program jointly offered by the journalism and radio-television faculties of the university. See *Special and Interdisciplinary Programs-Interdisciplinary Graduate Study—Mass Communication*.

**COURSES**

**RADIO-TELEVISION (R-TV)**

**25. Fundamentals of Broadcast Performance (3)**

Primarily for students with a major or minor in Radio-TV. Basic theories and techniques of broadcast-cinema performance. Study of vocal and visual aspects of performance, analysis, and preparation of program material for performance. (2 lecture, 2 lab hours)

**40. Foundations of Broadcasting (3)**

Basic theories of mass communication as the framework for the study of radio, television, and cinema. Historical development, regulation, social influences, and contemporary standards of evaluation in the contexts of theory and practice.

**41. Radio Production (3)**

Prerequisite: R-TV 40. Lecture and laboratory experiences in program development and production techniques as they apply in radio broadcasting and other sound media. (2 lecture, 2 lab hours)

**44. Television Production (3)**

Prerequisite: R-TV 40. Lecture and laboratory experiences in program development and production techniques as they apply in television. (2 lecture, 2 lab hours)

**115. Advanced Broadcasting Laboratory (2; max total 6)**

Prerequisite: R-TV 41 or 44 or permission of instructor. Individual and group laboratory experience in major productions for closed-circuit or broadcast distribution. (2 lab, 6-8 arranged hours)

**127. Broadcast Program Appreciation (3)**

A study of the development and forms of broadcast programming; the contributions and effects of radio-television on society; critical analysis of recordings and scripts of significant broadcasts. A consideration of the media as popular cultural arts.

**128. Motion Picture Appreciation (2)**

History and development of motion pictures; criteria for motion picture selection; use of reviews and judgment by critics and organizations; critical observation; evaluation. (2 lecture-lab and arranged hours)

**129. Motion Picture Production (3)**

Theory and techniques of film production. Laboratory practice in the basic uses of motion picture production equipment. Group and individual film projects. (2 lecture, 2 lab, and arranged hours)

**140. Broadcasting and the Public (3)**

Critical study of both the real and potential cultural, economic, and political impact of broadcasting; factors which shape the structure, standards, and procedures of broadcasting.

**141. Broadcast and Film Writing (3)**

Prerequisite: R-TV 41 or 44 or permission of instructor. Continuity types; theory, writing, and evaluation of announcements, commentaries, and program formats; adapting the spoken word to the media.

**142. Radio and Television News Broadcasting (3) (Same as Jour 142)**

Prerequisite: R-TV 41 or 44 or permission of instructor. Characteristics of electronic news media; local and national broadcast news operations; news sources and resources; social influence; policy and control; planning and producing news and public affairs programs. (2 lecture, 2 lab, and arranged hours)

**143. Producing the Educational Broadcast (3) (Same as A S 143)**

Objectives and uses of radio and television in education; place of radio and television in the curriculum, classroom utilization; advantages and limitations of the media; evaluation of school broadcasts; program production experiences. (2 lecture, 2 lab hours)

**144. Advanced Television Production (3)**

Prerequisite: R-TV 44 or permission of instructor. Development of creative and critical skills; study of production theory and practice; participation in organization, planning, and production activities. (1 lecture, 4 lab hours)

**147. Directing the Broadcast Program (3; max total 6)**

Prerequisite: R-TV 41 or 44, permission of instructor. Theories and practices in producing and directing radio and television programs; planning and production for the directorial function. Laboratory goal to create airworthy products for closed-circuit or broadcast distribution. (1 lecture, 4 lab and arranged hours)

**149. Advanced Broadcast Performance (3)**

Prerequisite: R-TV 25, 41 or 44, or permission of instructor. Theories of performance in cinema and broadcasting; refinement of professional skills and standards; laboratory, closed-circuit or broadcast performance. (2 lecture, 2 lab and 2 arranged hours)

**160. Broadcast Regulation (3)**

Prerequisite: R-TV 40 or permission of instructor. Theories of mass communication-control and their application to the electronic media. Development of regulatory patterns in U. S. broadcasting; social responsibility of the broadcaster.

**170. Cinematography (3)**

Prerequisite: R-TV 129 or permission of instructor. Advanced study of problems of camera and sound; production organization and equipment; laboratory projects in film production. (2 lecture, 2 lab and arranged hours)

**173. Philosophy and Theory of Educational Broadcasting (3)**

Theoretical constructs essential to broadcasting for instruction; student development of relevant and contemporary philosophy of broadcasting and its potential in education.

**181. Radio-TV-Cinema Script (3) (Former R-TV 141B)**

Prerequisite: R-TV 141 or permission of instructor. Study of content and writing techniques in scripts for radio, television and cinema; development of creative projects.

**185. Proseminar in Station Management (3)**

Prerequisite: R-TV 160, permission of instructor. Organization, programming, and operation of radio and television stations; correlation of department functions.

**186. Internship in Broadcasting and Film (1-6; max total 6)**

Prerequisite: permission of instructor. Applied practice in area broadcasting and film operations and allied agencies. On-the-job and department supervision. Reports and conferences required.

**187T. Topics in Film Studies (3; max total 9)**

Selected subjects of study to include: Techniques of Film Editing, the Documentary Film, Aesthetics, Criticism, Film History, Educational and Industrial Films, Directors and their works, and Experimental Films.

**188T. Topics in Broadcasting (3; max total 9)**

Selected timely and relevant topics of study including broadcast measurement and evaluation, media criticism, economics, broadcasting in politics, film editing, international broadcasting, documentary programming.

**189. Projects in Production (3; max total 6)**

Prerequisite: senior standing, permission of instructor. Creative group projects in broadcasting or film; public showing or distribution of product required. (6-8 hours arranged)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**200 series.**

Graduate courses are listed under *Special and Interdisciplinary Programs—Mass Communication*.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**305T. Topics in Radio-TV-Cinema (1-3; repeatable with different topics)**

## THEATRE ARTS DEPARTMENT

### FACULTY

Gaylord O. Graham, *Department Chairman*

Jeanette P. Bryon ■ Edward F. Emanuel ■ Robert J. Jansen ■ Ronald D. Johnson ■ Janet Loring ■ Paul J. McGuire ■ Terry C. Miller ■ Charles H. Randall ■ Dale A. Van Dalsem ■ Phillip N. Walker

The Theatre Arts Department offers majors leading to the bachelor of arts degree for those who seek professional qualifications in one or more of the theatre arts. It provides training for actors, directors, designers, teachers, technicians, playwrights, and historians. Students may choose, with guidance, areas of experience to satisfy special needs. For those who intend to make teaching their profession, the department offers programs for both the elementary and secondary teaching credentials. A master of arts degree is available (consult departmental adviser).

### MAJOR AND MINOR IN THEATRE ARTS

The theatre arts major and minor are designed to provide competencies in the theatre arts for students who intend to pursue study beyond the bachelor of arts degree, who are preparing for careers in teaching or for the professional theatre. With the assistance of their advisers and with departmental approval, students may, by proper selection of electives, prepare themselves for service in one or more of the following specializations: acting/directing, arts administration, dramatic literature and theatre history, child drama, oral interpretation, technical/design, elementary or secondary teaching credential. These patterns of development should be determined in consultation with advisers.

#### THEATRE ARTS MAJOR

	<i>Units</i>
Drama 22 or 122, 31, 32 or 33, 34, 134A-B, 135, 139, 163, 185, 186 .....	33
Drama 15-115 .....	8
Approved Electives (Credential candidates must include Drama 137) .....	<u>6</u>
	47

*Special Requirements:* (Students majoring in theatre arts are advised to enroll in no more than two production courses per semester.)

1. Audition for each departmental production and accept any role or production responsibility assigned. (May be waived only by written consent of a majority of the theatre arts faculty.)
2. Obtain specific approval from the department chairman for participation in nondepartmental production activities, extra-curricular, or noncollege responsibilities. Majors are expected to be available for full participation in departmental production activities.

#### THEATRE ARTS MINOR

	<i>Units</i>
Drama 31, 32 or 33, 34, 133 .....	12
Drama 15-115 .....	2
Approved electives.....	<u>6</u>
	20

### CREDENTIAL PROGRAM

For information on the current credential program consult departmental advisers and School of Education; see the section on *Public School Credentials*.

### SPEECH TEST

For credential candidates. See *General Information—Entrance Examinations*.

### MASTER OF ARTS DEGREE IN SPEECH

The graduate program for the master of arts degree in speech is based on the equivalent of the undergraduate major or minor in theatre arts at CSU, Fresno. From 18 to 24 of the 30 units required for the degree must be in speech. For specific requirements, consult the

head of the department; for general requirements see *School of Graduate Studies* and the *Graduate Bulletin*.

## COURSES

### THEATRE ARTS (Drama)

#### 1. Theatre Appreciation (1; max total 4)

Open to non-majors. Understanding elements of theatre production through observation of a wide variety of staged productions. Discussion will stem directly from productions observed during the semester.

#### 15. Dramatic Arts Laboratory (1-2; max total 6)

Prerequisite: permission of instructor. Group laboratory experience in presentation of major productions for public performance.

#### 22. Fundamentals of Interpretation (3)

Discovering and communicating intellectual and emotional meaning of the printed page through preparation and presentation of selected readings from prose, poetry, and drama.

#### 31. Fundamentals of Voice and Articulation (3)

Primarily for students with majors and minors in the speech arts. Principles of voice and articulation with demonstration in various aspects of oral communication.

#### 32. Stage Techniques (3)

Coordination, gesture, and stage business training for student actors, singers, and directors; development and improvement of creativity, awareness, and body control.

#### 33. Fundamentals of Acting (3)

Prerequisite: Drama 31 or permission of instructor. Fundamental techniques and theories of acting; development of individual insight, skill, and discipline in the presentation of dramatic materials.

#### 34. Theatre Crafts (3) (Same as IA 34)

Introduction to the crafts in technical theatre; scene construction, scene painting, property selection, stage lighting, sound production; costume construction and make-up; laboratory experience in preparing major plays for public performance.

#### 62. Theatre Today (3)

Not open to students with drama or theatre arts majors. Attendance and discussion of theatre productions, participation in staging and performing scenes. Critique of the various theatre arts.

#### 83. Touring Theatre (1-3; max total 6) (Same as Drama 183)

Prerequisite: permission of instructor. Experience in touring major productions for public performance.

#### 89. Projects in Production (1-3; max total 9) (See Drama 189)

#### 101. Theatre Appreciation (1; max total 4)

Open to non-majors only. Understanding elements of theatre production through observation of a wide variety of stage productions. Discussion will stem directly from productions observed during the semester.

#### 115. Advanced Dramatic Arts Laboratory (1-2; max total 9)

Prerequisite: permission of instructor. Group laboratory experience in presentation of major productions for public performance.

#### 122. Oral Interpretation of Literature (3)

Prerequisite: permission of instructor. Analysis and communication of selected readings from prose, poetry, and drama.

**123. Oral Studies in Poetry (3; max total 6)**

Prerequisite: Drama 22. Appreciation and communication of types of poetry, lyric, narrative, dramatic, emphasizing their differentiation for oral presentation; problems of content, structure, and style.

**128. Oral Studies in Prose (3; max total 6)**

Prerequisite: Drama 22. Appreciation and communication of types of prose, emphasizing problems of content, structure, and style as they relate to oral presentation.

**129. Oral Studies in Drama (3; max total 6)**

Prerequisite: Drama 22. Appreciation and communication of types of dramatic literature, emphasizing problems in structure and content from the point of view of the oral interpreter.

**130. Choral Reading (3)**

Selection and presentation of literature appropriate for choral reading on various educational levels; role of choral reading in speech teaching.

**131. Fundamentals of Playwriting (3; max total 9)**

Play analysis, exploration of folk material, fundamentals of playwriting, critical analysis and revision of manuscripts, experimental production of completed scripts.

**133. Advanced Acting (3; max total 6)**

Prerequisite: Drama 33 or permission of instructor. Advanced techniques of emotion, timing, characterization, and style, developed by study and evolution of characters from the classic plays through the body of contemporary literature.

**134A-B. Advanced Theatre Craft (3-3) (134A Former Drama 134) (Same as IA 134A-B)**

Prerequisite: Drama 34 or permission of instructor. (A) Advanced training in scenic techniques and allied technology. Laboratory application to major public productions. (B) Advanced training in costumes crafts; fabrics, patterns, costume construction, armor, etc. Laboratory application to major public performances.

**135. Make-up for Theatre (3)**

Theory and practice of make-up for theatre; techniques for characterization, style, and technical processes; aesthetics, analysis of characters for make-up. Preparing plays for major public performances.

**136. Puppetry (3)**

Introduction to the art of puppetry: history, construction of various types of puppets and theatre, practice in manipulation, script writing, use of puppets in education and recreation.

**137. Creative Dramatics (2; max total 6) (Same as E Ed 137)**

Basic techniques for the use of dramatization in elementary education; socio-drama, dramatization of school subjects, creative dramatic play; simplified staging techniques.

**138. Children's Theatre (3; max total 6) (Former Drama 159)**

Theories of children's theatre and application to problems in production; preparing plays for major public performance.

**139. Fundamentals of Play Direction (3)**

Not open to students with credit in Spch 133 prior to fall 1967. Prerequisite: Drama 33 or permission of instructor. Fundamental techniques and theories of stage direction; function, responsibility, movement, analysis, style; practice in directing scenes.

**140. Advanced Play Direction (3)**

Prerequisite: Drama 139 or permission of instructor. Advanced techniques of play direction: prerehearsal problems and procedures; structural analysis of plays, composition, picturization, pantomimic dramatization, movement, rhythm.

**145. Women in the Theatre (3) (Same as W S 145)**

Historical and contemporary perspectives and attitudes applied to women in the theatre arts including study of female artists, actresses, dancers, theatrical designers and technicians, directors and teachers.

**150. Theatre Management and Promotion (3)**

Principles of organization, operation, and administration of educational, community, and professional theatre; box office operation, accounting procedures, ticket manipulation, house management, fund raising, promotional media. Supervised practical experience in dramatic art area production.

**155. Sound in the Theatre (3)**

Theory, techniques, and procedure necessary to develop and integrate sound, music, and effects in theatre production; hearing, acoustics, environment, sources, transducers, control, systems, equipment; organization and planning. Laboratory experience in preparing plays for a major public performance.

**157. Theatre Graphics (3; max total 6)**

Technical sketching, drafting working drawings, other graphic skills essential to the development of design for the theatre.

**160. Field Studies in Theatre (1-6; max total 8)**

Supervised off-campus study of the theatre arts: observation and evaluation of significant theatrical presentations, conducted tours of important theatrical sites and institutions, field lectures, discussions, laboratory experiences and demonstrations. Submission of project or term paper required.

**163. Dramatic Literature (3) (Former Drama 63)**

Critical analysis of various types and styles of plays with respect to their form, meaning and theatricality.

**175. Readers' Theatre Direction (3)**

Presentational elements in theatre, their effect in shaping readers' theatre conventions. Fundamental techniques and theories of readers' theatre. Selection and preparation of scripts, staging, practice in directing.

**178. Oral Studies of Shakespeare (3)**

Prerequisite: Drama 22, 140, 185, or 186. Appreciation and communication of representative histories, comedies, and tragedies; problems of content and structure from the point of view of the oral interpreter.

**179. Readers' Theatre (1-2; max total 6)**

Prerequisite: permission of instructor. Directed study of spoken literature for presentation resulting in a major public performance.

**180A-B. Scene Design for Theatre (3-3)**

Prerequisite: Drama 34 or 134A-B or permission of instructor. (A) Styles, techniques and methods of scene design; history. Laboratory application, material for major public performance. (B) Scenery design; design problems of a complicated play; experimental ideas; new materials. Laboratory application, material for major public performance.

**181A-B. Costume Design for Theatre (3-3; 181B max total 6)**

Prerequisite: permission of instructor. (A) History of costume design; design project using historical sources. Costume construction for major public performance. (B) Emphasis on design process using works of major playwrights. Laboratory application for major public performance.

**182A-B. Stage and Television Lighting (3-3)**

Prerequisite: Drama 34 or 134A-B or permission of instructor. (A) Instruments, control, color, electro-mechanical factors and simplified design and planning lighting leading to and resulting in a major public performance. (B) Lighting as an art, design concepts; lighting plots, projections, sequential cue relationships. Laboratory application, material for major public performance.

**183. Touring Theatre (1-3; max total 6) (See Drama 83)****184. Readings in Dramatic Literature (3; max total 6)**

Open to upper division students of all departments. Prerequisite: permission of instructor. Reading and discussion of great plays of history.

**185. History of the Theatre and Drama I (3) (Former Drama 185A)**

Prerequisite: upper division standing or permission of instructor. History of European theatre and component arts from ancient Greece through the mid-nineteenth century; analysis of representative examples.

**186. History of the Theatre and Drama II (3) (Former Drama 185B)**

Prerequisite: upper division standing or permission of instructor. From Ibsen to the present; analysis of representative examples.

**187. History of the American Theatre (3)**

Prerequisite: upper division standing or permission of instructor. History of the theatre in America from colonial times to the present; analysis of representative examples.

**188T. Seminar: Topics in Dramatic Art (1-6; max total 9)**

Prerequisite: permission of instructor. Selected topics may include: acting, children's theatre, creative dramatics, play direction, technical theatre, theatre history, dramatic literature.

**189. Projects in Production (1-3; max total 9) (Same as Drama 89)**

Prerequisite: permission of instructor. Group projects in all phases of production in laboratory theatre.

**190. Independent Study. (1-3; max see reference)**

See *General Information—Independent Study*.

**194. Shakespeare (4) (See Engl 189)****GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**200. Introduction to Graduate Study (3) (See Spch 200)****201. Graduate Survey in Theatre Arts (1; max total 4)**

Prerequisite: graduate standing. Required of all classified graduate majors each semester until advancement to candidacy. Seminar in review and analysis of advanced literature in the theatre arts.

**211. Advanced Readings in Theatre Arts (2)**

Prerequisite: Drama 201 or permission of instructor. Individually directed readings based on student's need, interest and area of specialization. Comprehensive examination.

**213. Seminar in Dramatic Analysis (3)**

Prerequisite: graduate standing and Drama 163, or permission of instructor. Advanced analysis of dramatic literature as an aspect of theatrical production.

**215. Seminar in Speech and Drama (3; max total 9) (See Spch 215)****220T. Seminar in Theatre Arts (3; max total 9 if no area repeated)**

Prerequisite: graduate standing and permission of instructor. Principal theories and research in the phases of the theatre arts: directing, history, criticism, aesthetics, playwrighting, scene design, costume design, sound, lighting, architecture, theatre administration, oral interpretation.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*

**299. Thesis or Project (2-6; max total 6)**

Prerequisite: See *Master's Degrees—Thesis Requirements*. Preparation, completion, and submission of an acceptable thesis or project for the Master's degree.





## **SCHOOL OF SOCIAL SCIENCES**

**Anthropology Department**

**Economics Department**

**Ethnic Studies Program**

**Asian-American Studies**

**Black Studies**

**Native American Studies**

**Geography Department**

**History Department**

**La Raza Studies Program**

**Political Science Department**

**Social Science Major**

**Sociology Department**

**Speech Communication Department**

**Urban and Regional Planning Department**



## SCHOOL OF SOCIAL SCIENCES

Charles F. Denton, Dean

<i>Department</i>	<i>Chairman</i>
Anthropology .....	Dirk van der Elst
Economics .....	Robert Allison
Ethnic Studies Program	
Black Studies .....	Lester Riggins (Coordinator)
Geography .....	Chester F. Cole
History .....	Stephen Benko
La Raza Studies Program .....	Adolfo Ortega (Coordinator)
Political Science .....	Don Broyles
Sociology .....	S. John Dackawich
Speech Communication .....	David Quadro
Urban and Regional Planning .....	Harold H. Tokmakian

The School of Social Sciences offers a variety of degree, credential, and certificate programs at both the undergraduate and graduate levels, as the materials under department and program headings on the succeeding pages indicate. The School is stongly committed to traditional liberal arts educational programs and maintains a varied and strong participation in the university general education program. At the same time constant attempts are being made by the faculty to develop innovative curricula for the 1970's. Professional employment preparation is available for nongovernmental situations and for service in public and private education as well as city, county, state, federal, and other governmental services. Preparation for graduate study and professional degrees is likewise a concern of the school's departments and programs.

The School engages in many interdisciplinary programs (see *Special and Interdisciplinary Programs*). Special attention is invited to the social science major as a method for obtaining elementary and secondary teaching credentials and in prelegal training. Faculty and students of the school are involved in community services, research, and other professional activities. The faculties of the various departments engage in credit and noncredit offerings through the Extension Program (see *Extension Bulletin*).

## ANTHROPOLOGY DEPARTMENT

### FACULTY

Dirk H. van der Elst, *Department Chairman*

William C. Beatty ■ Thomas G. Bowen ■ Shien-min Jen ■ Roger M. LaJeunesse ■  
Sydney R. Story ■ Dudley M. Varnier

The department offers a major for the bachelor of arts degree in anthropology and a minor for students majoring in other departments. The major is designed to provide a broad liberal arts background, as well as an adequate basis for graduate education.

The department cooperates with other departments in providing for a concentration in Asian Studies and Latin American Studies. (See *Special Programs—Asian Area Courses, Latin American Studies*)

### ANTHROPOLOGY MAJOR

The following degree major requirements are in addition to general education requirements.

	<i>Units</i>
Anth 1, 2, 3, 4, 104, 115 .....	18
Anthropology electives, upper division .....	18
Elementary statistics .....	3
	39

### ANTHROPOLOGY MINOR

The following minor requirements are in addition to the general education requirements.

	<i>Units</i>
Anth 1, 2, 3, 104.....	12
Electives in anthropology, upper division .....	9
	21

## COURSES

### ANTHROPOLOGY (Anth)

#### 1. Introduction to Physical Anthropology (3)

Relation of man and the animals; evolution of man, fossil man, race and racial classification; racial theories.

#### 2. Introduction to Cultural Anthropology (3)

The nature of culture; culture growth and history; survey of cultural phenomena; cultural theory; applied anthropology.

#### 3. Introduction to Archaeology (3)

Development of archaeology and its basic concepts; general sequences of cultural development in the Old and New Worlds.

#### 4. Introduction to Linguistic Anthropology (3)

Linguistic influences on anthropological theory. Linguistic models in anthropology. Language in human evolution. Infrahuman communication systems.

#### 15. Man's Place in the Natural Environment (5)

Portion of *Man and the Natural Environment* Cluster (see p. 275). The nature of aboriginal societies and their relationship to the environment from prehistoric times to the present. Lecture, discussion, and field work.

#### 102. Ethnology (3)

Prerequisite: Anth 2 or permission of instructor. Major theories of culture; survey of culture types and their distribution; culture history.

**103. Anthropology of Modernization (3)**

Prerequisite: Anth 2 or permission of instructor. Acculturation studies; impact of western civilization upon nonwestern societies.

**104. History and Theory of Anthropology (3)**

Prerequisite: Anth 2 or permission of instructor. The place of anthropology in the social sciences; theories and schools in social anthropology; community studies, integration, functionalism, psychological aspects, neo-evolution.

**110. Archaeological Method and Theory (4)**

Prerequisite: Anth 3 and permission of instructor. Detailed examination of the basic data collection, analytical, and interpretive techniques of archaeology. Application of these techniques to the solution of specific archaeological problems. (3 lecture, 3 lab hours)

**111. Field Archaeology (3; max total 9)**

Prerequisite: Anth 3 and permission of instructor. Practical work in anthropological field research; participation in excavation and/or reconnaissance projects.

**112. Comparative Social Organization (3)**

Prerequisite: Anth 2. Cross-cultural sampling of organizational variability from kin-grouping through bureaucracy, from band egalitarianism to mass stratification. Culture and complexity; principles of kinship, specialization, institutionalization, and change.

**113. Introduction to Psychological Anthropology (3)**

Prerequisite: grade of C or better in Anth 2; plus either Anth 1 or Psych 10 or permission of instructor. Culture and personality, stress, and perception. Enculturation for different roles, strata, and societies. Autonomy, worldview, perception, and cognition.

**115. Seminar in Cultural Anthropology (3)**

Prerequisite: Anth 2, 104. Method and theory in cultural anthropology; reading and analysis of major contributions to modern cultural anthropological thought.

**116. Problems in the Definition of Man (3)**

Prerequisite: Anth 2 and upper division standing, or permission of instructor. A scientific and philosophical examination of human nature. Comparison of behavioral and social aspects of human and animal societies; discussion of relevant evidence and concepts drawn from several disciplines.

**120. Peoples and Cultures of North America and Meso-America (3)**

Prerequisite: Anth 2 or permission of instructor. American Indian peoples and cultures north of the Isthmus of Panama.

**121. Peoples and Cultures of South America (3)**

Prerequisite: Anth 2 or permission of instructor. South American cultures from the contact period to the present; emphasis on cultural ecology and historical change.

**122. Peoples and Cultures of the Pacific Islands (3)**

Prerequisite: Anth 2 or permission of instructor. The peoples of Polynesia, Melanesia, and Micronesia. Migration theories; contemporary social and political systems; European contacts and culture change.

**123. Peoples and Cultures of Southeast Asia (3)**

Prerequisite: Anth 2 or permission of instructor. The peoples and culture of Southeast Asia.

**124. Peoples and Cultures of East Asia (3)**

Prerequisite: Anth 2 or permission of instructor. The peoples and cultures of China, Japan, and Korea.

**125. Peoples and Cultures of the Middle East (3)**

Prerequisite: Anth 2 or permission of instructor. Historical backgrounds and contemporary cultures of the Middle East.

**126. Peoples and Cultures of Africa (3)**

Prerequisite: Anth 2 or permission of instructor. Historical backgrounds and contemporary cultures of Sub-Saharan Africa; modern social forces and cultural change.

**127. Afro-American Cultures and Societies (3)**

Prerequisite: Anth 2 or permission of instructor. The cultural continuum from tribal societies through peasantry to urbanization. Examination of culture-historic factors such as slavery, stratification and change, especially in Latin American and Circum-Caribbean Negro societies.

**128. Peoples and Cultures of the Southwest (3)**

Prerequisite: Anth 2 or permission of instructor. Historical backgrounds and contemporary cultures of the southwestern United States and northwestern Mexico.

**130. Meso-American Prehistory (3)**

Prerequisite: Anth 3 or permission of instructor. Evolution of native New World cultures from hunting and gathering to the rise of theocratic states in the area between northern Mexico and the Isthmus of Panama.

**131. North American Prehistory (3)**

Prerequisite: Anth 3 or permission of instructor. Archaeology of native American culture in what is now known as Canada, the United States and northern Mexico.

**132. South American Prehistory (3)**

Prerequisite: Anth 2, 3, or permission of instructor. Aboriginal cultural developments south of the Isthmus of Panama from Early Man to the Spanish Conquest. Special emphasis is given to the high cultures of the Andean region.

**140. Political Anthropology (3)**

Prerequisite: Anth 2 or permission of instructor. Comparison and analysis of political structure, behavioral organization and operational systems among selected peoples at the aboriginal and local level. Emphasis on leadership, authority, power, and forms of primitive government, relevance of primitive political behavior and organization to anthropology theory.

**141. Cultural Ecology (3)**

Prerequisite: Anth 2 or permission of instructor. Interdisciplinary approach to human adaptations. Examination of cultures, both past and present, in interaction with their differing environments. Emphasis on cultural process and explanation of observed patterns.

**142. Anthropology of War (3) (Former Anth 150T section)**

Prerequisite: Anth 2. Theories on the causes and evolution of aggression. Definitions and implications of conventional warfare at different levels of cultural complexity. The ecology and ethics of combat, feud, guerrillaism, terrorism, saturation bombing, etc.

**145. Comparative Religion (3)**

Prerequisite: Anth 2 or permission of instructor. Religious systems of nonliterate, peasant, and sectarian groups; anthropological theories of religion and magic.

**150T. Seminar in Anthropology (3; max total 9)**

Prerequisite: permission of instructor. Subspecialties current in anthropology: e.g., ethnohistory, cultural ecology, human population genetics.

**161. Fossil Man (3)**

Prerequisite: Anth 1 or permission of instructor. Critical examination of fossil evidence for hominid forms from the Pliocene and Pleistocene epochs; analysis of those factors that led to the emergence of man.

**162. Primates (3)**

Prerequisite: Anth 1 or permission of instructor. The evolutionary development of the order Primates during the Tertiary. Relevance of primate behavior for the understanding of human behavior.

**190. Independent Study (1-3; max see reference)**  
See *General Information—Independent Study*.

**192. Directed Readings (1-3)**

No more than 12 units may be counted toward major. Directed readings in a selected field of anthropology.

## ECONOMICS DEPARTMENT

### FACULTY

Robert J. Allison, *Department Chairman*

P. Dale Bush ■ James M. Cypher ■ Don R. Leet ■ Robert A. Minick ■ Grady L. Mullennix ■ Christopher J. Niggle ■ Louis F. Pisciotoli ■ Charlotte P. Reeder ■ John A. Shaw, Jr. ■ Richard C. Spangler ■ Izumi Taniguchi ■ Edwin F. Terry

The Economics Department prepares students to fill the role of citizens well informed on the economic problems confronting a modern society. Majors in economics are offered training for careers in government, business, and the teaching profession. Those going on to graduate work are given training in sufficient depth and breadth to enable them to pursue their studies in satisfactory fashion.

The department cooperates with other departments in providing for a concentration in Asian Studies (See *Special Programs—Asian Area Courses*)

### ECONOMICS MAJOR

The following bachelor of arts degree major requirements are in addition to the general education requirements. Econ 1A and 1B are prerequisite to all upper division courses in economics except those offered in extension. Any student planning graduate work is advised to take some calculus and econometrics and to meet any foreign language requirement of the school he plans to attend.

	<i>Units</i>
Econ 1A–B, 100A–B, 120 .....	16
Economics electives (at least 14 units upper division) .....	18
	34

### ECONOMICS MINOR

The minor in economics requires 18 units as listed below; 20 units are required for use in a credential program.

	<i>Units</i>
Econ 1A–B .....	6
Elect from: Econ 100A, 100B, 101 .....	3
Economics electives (11 units required for credential program) .....	9–11
	18–20

### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in economics does not require an undergraduate major in economics. For specific requirements, consult the departmental chairman or the graduate committee; for general requirements, see *School of Graduate Studies*. For detailed information about the graduate program at CSU, Fresno, see the *Graduate Bulletin*, available in the Office of the Dean, School of Graduate Studies.

## COURSES

### ECONOMICS (Econ)

#### 1A. Principles of Economics (3)

Introduction to macro-economics; levels of income, production, employment; economic role of government and banking system in the United States.

#### 1B. Principles of Economics (3)

Introduction to micro-economics; price determination via supply and demand; resource allocation under pure competition, monopolistic competition, monopoly, oligopoly; fundamentals of distribution theory and international trade.

**10. Principles of Political Economy (3)**

Prerequisite: permission of instructor. Principles of political economy; political nature of applications of economic theory.

**12. Consumer Economics (3)**

Examination of some fairly specific cases of buyer complaints about consumer products. Presentation of arguments on both sides. Consideration of corrective social policies.

**15. Development of the American Economy (3)**

European background; evolution of market capitalism; development of American economic institutions; recent trends and economic issues.

**76. Economics Through Classic Films and Documentaries (3)**

A study with emphasis on an integrated series of classic films and documentaries such as *Grapes of Wrath*, *Hunger in America*, etc. Students will develop a germinal appreciation and understanding of economics concepts. Issues and institutions through the film medium.

**100A. Economic Theory: Price Analysis (3)**

Prerequisite: Econ 1A–B. Price mechanism and resource allocation under conditions of pure competition, monopolistic competition, oligopoly; theories of consumer's choice, cost, production, income distribution; nature of economic generalizations.

**100B. Economic Theory: National Income Analysis (3)**

Prerequisite: Econ 1A–B. Classical, Keynesian and post-Keynesian theories on level of income and employment; elements of national income accounting, flow-of-funds analysis; relationship of rate of interest to level of investment; alternative theories of inflation; warranted rates of economic growth.

**101. History of Economic Thought (3)**

Prerequisite: Econ 1A–B. Evolution of economics as a science; doctrines of different schools of thought—Mercantilists, Physiocrats, Historical School, Classical Economists; contributions of outstanding economists.

**102T. Contemporary Economic Problems (3; max total 6)**

Prerequisite: upper division standing and permission of instructor. Analysis of economic problems and issues which are of public interest and importance at the time the course is given.

**103. Economics of Inflation, Unemployment and Growth (3)**

Prerequisite: Econ 1A or permission of instructor. A theoretical and empirical analysis of the various types of inflation and unemployment in the United States economy.

**105. Marxian Economic Theory (3)**

Prerequisite: Econ 1A–B or permission of instructor. Marxian economic theory and its relevance for modern economic theory and analysis; Marx's value, production and distribution theory; modern developments of Marxian models.

**107. Institutional Economics (3)**

Prerequisite: Econ 1A–B or permission of instructor. Study of the literature of American institutionalism, e.g., Veblen, Commons. Systematic study of the process of institutional adjustments; interplay of ceremonial and technological aspects of economic activity; application of institutionalist theory to specific fields in economics.

**108. Radical Traditions in Economics (3)**

Prerequisite: Econ 1A–B or permission of instructor. Economic philosophies of the Utopian, Anarchist, Anti-Materialist, Marxist, and Fabian Socialist schools. Intensive examination of contemporary radical economic ideas and the radical critique of modern neo-classical economics.

**110. Economic History of the United States (3)**

Prerequisite: Econ 1A–B. Exploration and colonization to the present; economic factors in development of the United States; relationships of economic forces to historical, political, and social change.

**111. Economic Development of Europe (3)**

Prerequisite: Econ 1A-B. European expansion, fifteenth century to the present; present economic conditions and trends in Europe; interest of United States in European economy.

**114. Economics of Underdeveloped Areas (3)**

Prerequisite: Econ 1A-B or permission of instructor. Survey and analysis of developmental problems of emergent economies.

**115T. Topics in US Economic History (1-3; max total 6)**

Detailed investigation of developments in the United States economy. Topics vary with the needs and interests of students and faculty.

**117. Economics of Ecology (4)**

Prerequisite: Econ 1A-B or permission of instructor. Investigation into the economics of resource use. Development and creation of resources through the application of technology and the destruction of resources through misuse and pollution of the environment.

**119. Regional Economic Analysis (3)**

Prerequisite: Econ 1A-B or permission of instructor. Techniques of economic analysis of geographic regions; study of differing definitions of a region, economic base studies, input-output analysis, location theory, and multiplier analysis.

**120. Economic Statistics (4)**

Prerequisite: Econ 1A-B and Math 29 or equivalent. Introduction to the use of statistics in economics; consideration of measures of central tendency and dispersion, index numbers, time series analysis, tests of hypotheses and simple regression analysis. (3 lecture, 2 lab hours)

**131. Public Finance (3)**

Prerequisite: Econ 100A or permission of instructor. Governmental revenues and expenditures at federal, state, and local levels of jurisdiction.

**134. Financial History of the United States to 1913 (3)**

Prerequisite: Econ 1A-B or Econ 15. Analysis of fiscal and monetary institutions before the enactment of the Federal Reserve Act.

**135. Money and Banking (3)**

Not open to students with credit in Fin 135. Prerequisite: Econ 1A-B or permission of instructor. Survey of the monetary and banking system of the United States and analysis of its role in economic growth and stabilization.

**136. Monetary and Fiscal Policy (3)**

Prerequisite: Econ 1A-B or permission of instructor. An examination of monetary and fiscal policy as tools for influencing economic growth and stability.

**140. The Political Economy of the Military-Industrial Complex (3)**

Prerequisite: Econ 1A or permission of instructor. Economic effects of military expenditures in historical perspective. Economic effects of World War II, Korea and Vietnam. The Military-Industrial Complex, war profiteering, and the economic effects of disarmament.

**150. Labor Economics (3)**

Prerequisite: Econ 1A-B or permission of instructor. Alternative theories of wages, employment and structure of labor market; impact of collective bargaining on level of wages, employment and labor's share of national income; history and philosophies of labor movement, structure and functioning of labor unions.

**151. History of Labor in the United States (3)**

Prerequisite: Econ 1A-B or permission of instructor. Analytical topics from historical viewpoint; evolution of unions and labor legislation interpreted in terms of economic theory.

**161. Population Economics (3)**

Prerequisite: Econ 1A-B or permission of instructor. Development of an economic framework for studying components of population growth: fertility, mortality, and migration. Analysis of relationship between population change and modern economic growth in both developed and lesser developed nations.

**162. Medical Economics (3)**

Prerequisite: Econ 1A-B or permission of instructor. Examination of several aspects of the health care situation in the United States from the viewpoint of economic analysis.

**170. Transportation (3)**

Prerequisite: Econ 1A-B or permission of instructor. Economics of rail, water, motor, air, and pipeline transportation.

**174. Government Regulation of Economic Activity (3)**

Prerequisite: Econ 1A-B or permission of instructor. Justification for regulation, constitutional limitations, public utility regulation, regulation of monopoly; competitive practices; government policy in other areas of economic activity.

**178. International Economics (3)**

Prerequisite: Econ 1A-B or permission of instructor. International economic relations; problems and policies in the light of fundamental economic theory.

**179. Imperialism (3)**

Analysis of the development and extension of imperialistic behavior since the Industrial Revolution. Examination of economic literature on imperialism from Hobson to the present.

**180. Comparative Economic Systems (3)**

Prerequisite: Econ 1A-B or permission of instructor. Comparative study of economic systems of the modern world; capitalism, socialism, communism, fascism, and the problems which arise within each.

**181. Political Economy of Central Planning (3)**

Prerequisite: Econ 1A-B or permission of instructor. Theory, history, and institutional application of central planning; examination of existing centrally planned economies, feasibility of central planning in the underdeveloped economies, welfare criteria for nonmarket economies.

**185. Directed Readings (1-3)**

Prerequisite: Econ 1A-B and permission of instructor. Directed readings in the literature of economics. Intensive reading of economic literature on special topics under faculty supervision.

**188T. Special Topics (1-3; max total 6)**

Prerequisite: Econ 1A-B or permission of instructor. Consideration in depth of special topics in political economy; systematic, detailed study into issues not possible in survey courses. Topics vary with the needs and interest of students and faculty.

**189T. Topics in Public Policy (1-3; max total 6)**

Prerequisite: Econ 1A-B or permission of instructor. Detailed analysis of questions of economic policy. Areas of investigation include social welfare policy, farm policy, environmental quality policy, and others. Topics to be varied with the interests and needs of students and faculty.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

*(See Course Numbering System—Definitions and Eligibility)*

*Note: A master's degree in economics requires the completion of either Econ 298 or 299.*

**200T. Seminar in Economic Theory (4; max total 8) (Former Econ 201)**

Consideration of advanced theoretical propositions in micro and macro economic theory.

**210T. Seminar in Economic History (4; max total 8) (Former Econ 210)**

Critical examination of, and reports on, selected topics in economic history.

**220T. Seminar in Research Methodology (4; max total 8) (Former Econ 200)**

Development of deductive and inductive quantitative inference techniques in economics.

**230T. Seminar in Monetary and Fiscal Economics (4; max total 8) (Former Econ 230)**

Examination of advanced topics in the operation of the government and the money system.

**240T. Seminar in Urban and Regional Economics (4; max total 8)**

Issues and analytic techniques of regional economics and survey of empirical literature. Independent study with subject matter and technique determined by preparation and professional objectives of student.

**250T. Seminar in Labor Economics (4; max total 8) (Former Econ 250)**

Advanced topics in employment theory, trade union philosophy, and collective bargaining.

**260T. Seminar in International Economics (4; max total 8) (Former Econ 278)**

Preparation of papers and oral reports on current problems in international trade.

**274T. Seminar in Industrial Organization (4; max total 8)**

Consideration of effects of industrial organization on the functioning of an economy.

**280T. Seminar in Economic Policy (4; max total 8)**

Examination of problems and issues in formulating and implementing economic policy.

**285. Directed Reading (1–4)**

Reading list compiled in consultation with graduate adviser, not necessarily of the specialized nature required for independent study.

**290. Independent Study (1–3; max see reference)**

*See General Information—Independent Study.*

**298. Critique (2–4; max total 4)**

The preparation, completion, and submission of a paper showing proficiency in some significant problem or area in economics.

**299. Thesis (2–4; max total 4)**

Prerequisite: *See Master's Degrees—Thesis Requirement.* Preparation, completion, and submission of an acceptable thesis for the master's degree.

**IN-SERVICE COURSES**

*See Course Numbering System.*

**365T. Economics for Teachers (1–6)**

## ETHNIC STUDIES PROGRAM

The Ethnic Studies Program is designed to promote academic and professional knowledge of, and sensitivity to, historical and cultural developments important to ethnic groups in the United States. Offered through the program are courses in Asian-American Studies, Black Studies, and Native-American Studies, as well as courses of more general and comparative nature. Many of these courses are team taught so that the students may benefit from the multi-ethnic perspective provided by the Ethnic Studies team of teachers. Many of the Ethnic Studies courses may be used in the social science major. Minors are offered in Ethnic Studies and Black Studies. Ethnic Studies is an ideal minor for those persons planning to enter the teaching profession. A major thrust of the Ethnic Studies offerings is to sensitize university students pursuing careers in criminology, nursing, social work, sociology, education, liberal studies, business, agriculture, communicative disorders, health science and recreation.

### ETHNIC STUDIES MINOR

The minor in Ethnic Studies consists of 21 units, of which 9 must be upper division.

	<i>Units</i>
Eth 1, 2 .....	6
Approved electives in one of the areas listed below .....	9
(Asian American, Black Studies, La Raza and Native American)	
Approved Asian American, Black Studies, La Raza and Native American electives from one of the areas not used above .....	6
	21

A student intending to pursue a minor in Ethnic Studies should see the Coordinator for assignment to a faculty adviser who will assist him in planning his program.

### BLACK STUDIES MINOR

	<i>Units</i>
Eth S 1 or 2 .....	3-6
Approved Black Studies Career oriented courses (upper division) .....	9
Approved Black Studies electives .....	6-9
	21

## COURSES

### ETHNIC STUDIES (Eth S)

#### 1. Ethnic Experience (3)

Comparative study of the situations of ethnic minorities in the United States, combining the perspectives of history, sociology, and psychology.

#### 2. Ethnic Expression (3)

Comparative study of the characteristic ways in which ethnic minorities in the United States think and feel about themselves and the world, as reflected in literature, art, and music.

**ASIAN-AMERICAN STUDIES****FACULTY**

Stephen N. Thom

Asian-American Studies is an academic program designed to serve students in extending their knowledge and understanding of the unique Asian-American historical and contemporary experience. The courses present the cultural, sociological and psychological stresses on the Asian-American in this cultural pluralistic society in order to sensitize and prepare students for positions of service and leadership in occupations related to public service in fields such as education, criminology, social work, etc.

**COURSES****ASIAN-AMERICAN STUDIES (As Am)****10. Asians in America (3)**

Historical study of Asian immigrants coming to the United States as compared to other Asian immigrants throughout the world. Those Asian groups to be covered are the Japanese, Filipino, Korean and Chinese.

**15. Asian-American Status and Identity (Intro.) (3)**

Historical, social and psychological factors which have formed the role of the Asian-American as a minority, questioning one's identity in a society of conflicting values.

**30. The Japanese-American in the United States (3)**

Historical and sociological development of the Japanese-American in the United States. Racial stereotypes of the Issei, Nisei, and Sansei; their values, degree of marginality, assimilation, and acceptance into American society.

**56. The Chinese-American in the United States (3)**

Historical survey of family heritages, social traditions, and cultural patterns of Chinese-Americans and their adaptation to American life.

**70. Asian-American Literature (3)**

Analysis of Asian-American short stories, novels, poetry, and drama from cultural perspective of history and contemporary thought. Development of critical thinking through discussion, written expression.

**90T. Topics in Asian-American Studies (3; max total 6)**

Social and historical approach to the Asian-American experience in the United States. Special emphasis on the contemporary situation of Asians in America, including community knowledge and involvement. Development of Asian-American writers and their literary works.

**110. Asian-American Race Relations (3)**

Contemporary comparative study of Asian-American minorities to other minorities in the United States. Attitudes of racial interrelationships, cultural stresses, stereotypes and movement ideologies.

**115. The Asian-American Family (3)**

Japanese, Chinese, Filipino, and Korean family system, philosophy and structure as developed in the United States; family role in assimilation, establishment of values; problems of Asian-American families and their future.

**140. The Wartime Relocation of the Japanese (3)**

WW II relocation of Japanese from the points of view of the internees; evacuation, responses by the Japanese, legality of the relocation, effects upon three generations of Japanese-Americans.

**150. Asian-American Expression (3)**

The study of Asian and Asian-American expression in music, art, literature and dance; development of creative expression through group projects.

**180T. Topics in Asian-American Studies (3; max total 6)**

In-depth research and writing on the past and contemporary situation of Asian Americans. Emphasis on small group discussions on selected topics.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

## BLACK STUDIES

### FACULTY

Lester Riggins, *Coordinator*

Deanna V. Holland ■ William R. Love ■ Robert S. Mikell ■ Richard L. Mitchell, Jr. ■  
Issac Okin ■ Lily B. Small ■ Alroy E. Thomas ■ Sidney F. Walton

Black Studies program represents a new field of study and research based on vigorously innovative educational processes. The courses offered are interdisciplinary in nature, and address themselves to problems that pertain to minorities in the American society. The program is structured to provide better service to the minority oriented student population at CSUF. This includes the historical contributions and the sociological, psychological and economic problems that confront Blacks in the American society.

This program establishes concepts and tools for the survival of Black people and presents to all university students the understanding of the uniqueness of minority heritage, culture and life styles.

The Black Studies program philosophy and academic curriculum is developed through a special relationship (mutual understanding and cohesiveness) established between the communities, students and its faculty.

The Black Studies program includes improved career counseling, cluster advising, experimentation and computer technology, curriculum development, increased use of mathematics offerings and science courses, professional education orientation, and extended day, evening and Saturday courses.

Through counseling and advising, students are urged to select courses from the Black Studies offerings which may be of special value in meeting their education and professional career programs.

For students interested in the general dimensions of the Black experience, the following courses are recommended: Bl S 30, 36, 38, 135, 137, 140, 143.

For students interested in the following careers, the following courses are recommended:

Education .....	Bl S 38, 42, 110, 150, 162, 175
Performing Arts .....	Bl S 20, 22, 27, 35, 40, 143, 160
Business .....	Bl S 132, 136, 147, 148, 149, 172, 175, 190
Pre-Professional.....	Bl S 144, 146, 147, 156, 170, 175, 190
(Nursing, Criminology, Pre-law, etc.)	
Writing .....	Bl S 25, 60, 125, 190
Social Sciences.....	Bl S 38, 115, 135, 140, 178

These selected courses will also assist Black Students to become "qualifiable" for entrance into those professions (professional, and career oriented) opened by Affirmative Action Programs.

## COURSES

### BLACK STUDIES (BI S)

#### 15. Basic Composition and Communication (3)

Basic composition and communication skills to help minority students develop facility in self-expression.

#### 20. Black Drama and Dance (3)

Comprehensive study of the nature of Black drama and dance and its relation to society. Performance of plays, dances, and dramas written by Blacks. Emphasis on communicative functions of Black drama and dance, technical and theoretical.

#### 22. Black Dialect (3)

Linguistic course designed to explore the origin, impact, historical background, and problems created by Blacks in using the Black dialect derivative of English and the African language.

**25. Black Literature (3)**

Major authors, their works, themes and movements in Black literature in America from colonial times to the present.

**27. The Black Image (3) (Former BLST 22)**

Analysis of Black roles as they have appeared in American Literature from slavery through the American romantic period to the present.

**30. History of Civil Rights (3)**

History of the Civil Rights movement in the United States; influence of the movement on practical life (Black-White) in the United States. Special emphasis on analysis of problems concerning Civil Rights Activists throughout the century.

**35. Art and Music of Africa (3)**

Comprehensive study of African artistry and music.

**36. Contemporary African Societies (3)**

Evaluation and analysis of cultural structures of the Black nations of Africa and their relation to Black life in America.

**38. Ethnic Sociology (3)**

Basic principles of sociology from the perspective of the Black experience.

**40. Introduction to African Languages (3)**

History of the formation, location, and similarity of the major African languages.

**42. Ethnic Psychology (3)**

Introduction to psychology as an empirical science; biological and social basis of behavior; evaluation of concepts or general psychology and personality theories; emphasis on perception, learning, motivation and intelligence; applicability to behavioral patterns of Black Americans.

**56. The Black Family (3)**

This course deals with the origin, development and adaptations the Black Family has created to sustain itself as a viable institution. Emphasis is on problems encountered and created by the American society and how the Black family handles these adversities.

**60. Introduction to Contemporary African Literature (3)**

Survey of the general characteristics, main currents, and representative works by contemporary African authors writing in English and French; African novels, poetry, drama, and oral literature.

**110. Education in the Black Community (3)**

Analysis of the economic, sociological, and political foundations of education in the Black community. Aims, methods, and leaders of Black education with special emphasis upon the interrelationship between the Black school, Black values, and Black community.

**115. American Poverty (3) (Former Eth S 4)**

Multi-ethnic and interdisciplinary perspective. Characteristics of widespread poverty worldwide, emphasis on America; a geographic analysis of poverty and migration to urban ghettos, barrios, reservations and sectional pockets, suggested tools and socio-economic alternatives to eliminate poverty.

**125. Advanced Black Literature (3)**

Major authors of the 1920's and their contribution to American Literature: Rudolph Fisher, Jean Toomer, Claude McKay, James Weldon Johnson, Countee Cullen, Langston Hughes, Arna Bontemps.

**130T. Topics in Black Studies (3; max total 9)**

Major social problems confronting Blacks in America today; emphasis on welfare, education, legal systems, religious institutions, and economic institutions; effect on the Black segment of the population.

**132. Economy of Black Africa (3)**

Review of the various economic structures and problems of the emerging Black nations of Africa.

**135. American Black Ghettos (3)**

Analysis of the various life styles and cultural patterns of the large Black ghettos of America.

**136. Black Economic Development in the United States (3)**

Introduction of Black economic problems and issues with special emphasis on the analysis of Black economics from early slave trade to present day. Relationship of economic forces to historical, political, and social change pertaining to Black Americans.

**137. Black Women (3) (Former BI S 130T) (Same as W S 137)**

An overview of the accomplishments of Black women in the United States; their contributions to American culture; African influence; Black women as defined by a dominant society vs. legitimate definition designed to encourage a positive self-concept. (field trips)

**140. Sociology of Religion in the Black Community (3)**

History of the formation and development of Afro-American religious institutions (Christianity, Islam, Judaism) in the Black community; their effect on the Afro-American personality.

**143. Psychology of Race Roles (3)**

Prerequisite: BI S 42 or permission of the instructor. Group dynamics through the examination of various psychological roles the Black man assumes or falls heir to in his struggle to cope with the exigencies impressed upon him by a white environment.

**144. Race Relations (3)**

Tactics, strategy, and behavior used in the resolution of racial conflict; philosophical and psychological investigation involving analysis of the past and projection for the future.

**145. The Black Man and the World (3)**

Experience and status of the Black man in the numerous Black colonies of the non-Black world.

**146. Law and the Black Community (3)**

Critical analysis of the foundation and changing structure of law in the Black community. Review of consumer practices; legal actions pertaining to property, merchandise, credit practices; what can be done to effect change and assure equal protection for minorities.

**147. Black Community Relations (3)**

Analysis of problems and strengths of the Black Community of Fresno; field work and placement in agencies providing services to the West Fresno community.

**148. Minority Business Management (3)**

Topics in marketing, management, accounting and finance for small businesses with emphasis on minority ownership. Discussions will also focus on "Blacks as Managers" and "Management of Minority Employees."

**149. Minority Consumer Economics (3)**

Study of consumer economic organizations, emphasis on selection of the structure best suited to minority needs and conditions; personal and group financial situations of the minorities, services of the financing companies.

**150. Problems in Ghetto Schools (3)**

Problems inherent in ghetto schools with emphasis on the family, community and socio-economic factors which determine the quality of educational programs and experiences; their effect on Black values, schools, and community.

**151. African Tribal Life and American Culture (3) (Former BLST 150)**

Study of African music and dances. Comparison and contrast of the Black experience in Africa and America as exemplified in the respective cultures.

**156. Black Urban Politics (3)**

American politics, effect on Black Americans. Political thought and organization of Black Americans, including Civil Rights, Black Power movements, reconstruction, and the rise of Black militants.

**160. Ghetto Rhetoric and Standard Speech (3)**

Relationship of Black rhetoric and standard speech set in the context of both the ghetto and mass society; emphasis on use, meaning, and equation with English being taught in public schools.

**162. Black Curriculum, Problems and Design (3)**

Identification and analysis of the special problems associated with the development of a curriculum appropriate to students from the Black community; minority tutorial programs.

**170. Black Mass Communication (3)**

Analytical study of the world of mass communication (radio, TV, film, journalism) from a Black perspective. Team teaching with students participating in various aspects of mass media production. (field trips)

**172. Blacks in Agriculture (3)**

History of the idea of land as a Pan African cultural concept; geographic areas of blacks concentration in agriculture; employment opportunities in the United States for blacks in agri-business; economic considerations, and international implications.

**175. Minority Oriented Statistics (3)**

Emphasis on the location, analysis, interpretation and application of statistical data that specifically concern Black people; "packaging" of data concerning Black people. Case studies in the use and misuse of data concerning Black people.

**178. History of Black Americans (3) (See History 178)****190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

## NATIVE AMERICAN STUDIES

### FACULTY

Evan J. Norris

### COURSES

#### NATIVE AMERICAN STUDIES (NAS)

**9T. Topics in Native American Studies (1-3; max total 9 if no area repeated)**

Selected topics at an introductory level in Native American studies.

**50. Contemporary Life of the Native American (3)**

Current problems of American Indians resulting from acculturation, minority status, and legislative action; detailed study of health, education, social welfare legislation, tribal leadership, and other areas.

**60T. Topics in Indian Education (3; max total 9)**

Foundations and history of Indian education, methods of teaching Indian children, curriculum and practices for Indian education, guidance for the Indian student, problems of teachers of Indian children, education of Indian adults.

**100. Native American Indian Religion (3)**

Religious systems of the American Indian, including beliefs, myths, the social structure of religion, types of ritual activities, and functions of religion in Indian societies as perceived by the American Indian.

**101. Native American Indian Law (3)**

Concepts of laws on Indian reservations, termination, litigation and complaints, strengthening tribal governments. Law related to Indian land and resources.

**103. Indians of California (3)**

Indians of California: population, customs, beliefs, arts of life.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

## GEOGRAPHY DEPARTMENT

## FACULTY

Chester F. Cole, *Department Chairman*

Michael J. Biechler ■ John A. Crosby ■ Roger E. Ervin ■ E. Frank Koller ■ James S. Kus ■ Robert E. Lee ■ Charles G. Markham ■ Richard C. Montgomery ■ Donald L. Morgan ■ George N. Nasse ■ Stanley F. Norsworthy ■ Merrill M. Stuart ■ Jerry C. Towle ■ Paul Vander Meer

The Geography Department offers a major and a minor in geography for the bachelor of arts degree and a graduate program for the master of arts degree. Geography offerings include undergraduate preparation for careers in regional and urban planning (land use surveys, market area analysis); teaching; map intelligence, real estate, cartography, weather; management of the environment; and preparation for graduate work.

Geography, because it integrates much information from the social and natural sciences and because of the diversity of subject matter from which it obtains data, offers a broad, liberal education applicable to many fields of employment. Geography provides much insight of direct application to teaching various courses of study in the elementary and secondary schools.

The department cooperates with other departments in providing for a concentration in Asian Studies and in Latin American Studies. (See *Special Programs—Asian Area Courses, Latin American Studies*)

Five of The California State University and Colleges, including CSU, Fresno, cooperate in the management of the Moss Landing Marine Laboratories on Monterey Bay, an establishment which offers regular course work and opportunities for research which are applicable to graduate and undergraduate programs. Consult the chairmen of the Geography and Biology Departments. See *Special Programs—Moss Landing Marine Laboratories*; for course descriptions see *Biology Department*.

## BACHELOR OF ARTS DEGREE

The bachelor of arts degree with a major in geography consists of 124 units. See requirements listed below. For general degree requirements see *Degrees and Credentials*. Students who intend to enter the graduate program at California State University, Fresno should consult the following section, *Master of Arts Degree*.

	<i>Units</i>
General Education .....	40
Prerequisites to Major .....	12
Geog 5, 7, and two of the following: Geog 2, 3, 4.	
Major in Geography .....	30
Select 6 units from Geog 111, 112, 113, 115, 135T, 181.	
Select an area of interest in geography of 24 upper division or graduate units. (See note below)	
Electives .....	42

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Recommended courses offered by other schools in the University of special interest to Geography Majors: Agri 161, C E 3, 106, Engr 70, Q M 60.

**Note:** All students *must* regularly consult with their academic adviser, and all programs must be approved in advance by the Geography Department. A student may orient his baccalaureate degree program in one of several directions by the proper selection of courses within the major in consultation with his adviser, as follows:

**Geographic Studies:** Designed for the student interested in the world and its spatial patterns. Traditional study which may lead to graduate work and a career in higher education.

**Environmental Studies:** Course work to develop competence in environmental techniques, with particular emphasis on such topics as pollution, environmental protection, and man-environment relationships. May lead to graduate work in geography or employment in various state and federal agencies dealing with environmental problems.

**Environmental Design:** Course work in the human use of the environment, encompassing design theory, policy and application with attention to planning problems and processes, including such underlying concepts as man-environment relations and physical and cultural influences.

### GEOGRAPHY MINOR

	<i>Units</i>
Elect from: (2 courses) Geog 2, 3, or 4; and either Geog 5 or 7 .....	9
Elect from Geography systematic courses (upper division) .....	6
Elect from upper division Geography .....	6
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### CREDENTIAL PROGRAM

For additional information on the credential program, consult departmental advisers and School of Education; see the sections on *Public School Credentials*.

### MASTER OF ARTS DEGREE

The graduate program for the master of arts degree in geography is based on undergraduate preparation in geography and/or approved related fields. One year of a foreign language or the equivalent and Geog 115, 135T, and 181 are required for advancement to candidacy for the Thesis Plan, Master of Arts Degree. They are not required for the Nonthesis Plan. For specific requirements consult the departmental graduate adviser; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies. Assistantships available.

### COURSES

#### GEOGRAPHY (Geog)

##### 2. Introduction to Cultural Geography (3)

General background to cultural geography, including origins of cultural landscapes, man's modification of the natural environment, and problems of population and settlement geography.

##### 3. Man's Economic Environment (3)

World distribution of significant commodities, their uses in cultures; agricultural and mineral resource patterns; regionalization of economic activity; implications for contemporary society.

##### 4. World Geography (3)

Cultural and physical features; economic development; resources; man-land relationships. The approach is by continents and/or cultural regions.

##### 5. Physical Geography I: Global Concepts, Weather and Climate (3)

The earth as a planet, map projections, location on the earth's surface, time, oceans, weather and climate.

##### 7. Physical Geography II: The Earth's Surface (3)

A survey of the fundamentals of biogeography and landform analysis.

##### 100T. Topics in Geography (1-3; max total 9)

Selected topics in cultural, physical, and economic geography.

##### 101. Agricultural Geography (3)

Analysis of areal distribution of agricultural (crops and livestock) patterns of the world. Interactions with the environment, role in economics.

##### 102. Transportation Geography (3)

Analysis of areal distribution of transport networks of the world (road, rail, water, and air) and the interaction of these networks with other phenomena.

**103. Industrial Geography (3)**

Study of form and function; internal, interregional and extraregional connections of the world's industrial regions.

**104. Cultural Landscapes (3)**

Spatial aspects of the development of cultural landscapes, particularly the evolution of agriculture and urbanization. Emphasis on the cultural landscapes of Central California.

**105. Man's Environment: Atmospheric Processes (3)**

Not open to students with credit in Geography 117. Interactions of meteorological and other physical factors in producing characteristic climates.

**106. World Landform Regions (3)**

A systematic analysis of types of world landform regions.

**107. Geography of Natural Resources (3)**

Study of the spatial distributions and relationships of natural resources, including land, water, minerals, plants, and animals; form, inherent characteristics, and external relations with the regions in which they are found; use and misuse.

**108. Man's Environment: World Climates (3)**

Climates as they exist in various parts of the world and their effects upon man and his activities.

**109. Plant Geography (3)**

World floras, plant dispersal, effect of environment on plant form and distribution, vegetation classification, regional analysis, and regional vegetation of western United States.

**110. United States Landform Regions (3)**

Prerequisite: Geog 106 or Geol 105. Natural regions of the United States based on surface features and their interrelationships.

**111. Map Interpretation (3)**

Prerequisite: Geol 1, 1L, permission of instructor. Interpretation of foreign and domestic maps; symbols, scale, methods of showing topography, vegetation, culture, land use; soils, water and water levels; characteristics of projections. (2 3-hour labs)

**112. Aerial Photograph Interpretation (3)**

Prerequisite: Geol 1, permission of instructor. Aerial photographs as a means of determining culture, topography, and vegetation; scale, use of index, vertical and oblique photographs, and stereoscopes. (2 3-hour labs)

**113. Advanced Aerial Photo Interpretation and Remote Sensing of Environment (3)**

Prerequisite: Geog 112. Interpretation of air-borne and orbital imagery: panchromatic, color, infrared, color infrared, radar, multispectral. (2 3-hour labs)

**114. Agricultural Climatology (3) (Same as Plant 170T Section)**

Prerequisite: Geog 5 or equivalent, or permission of instructor. Climatic factors influencing agriculture with specific reference to the San Joaquin Valley. Course designed for anyone interested in the relations between climate and agriculture, regardless of major.

**115. Cartography (3)**

Emphasis is on compiling and drawing a publishable map through the use of drafting instruments, various types of lettering, construction and use of standard map projections, and the proper use of symbols and patterns for thematic maps. (2-3 hour labs)

**116. Political Geography (3)**

Systematic treatment; nature and structure of states, boundary problems, territorial waters, international power, air space.

**117. Atmospheric Science (3) (Same as Physics 117)**

Prerequisite: Math 75 and Phys 1A-B or 2A-B or equivalent. Meteorological instruments and measurements; atmospheric energy budgets; transfer of heat, moisture, and momentum within the atmosphere; general circulation of the atmosphere. Structure and dynamics of midlatitude weather systems, hurricanes, thunderstorms, clouds, precipitation, and local disturbances such as tornados.

**118. Minority Peoples (3)**

Spatial analysis of minority groups in the world, in the United States, and in Central California. Historical and modern distribution of minority peoples, based on racial, ethnic, cultural, and economic characteristics.

**119. Population Geography (3)**

Geographical analysis of the causes and consequences of global population growth, migrations, distributions, and relationships to natural resources.

**120. Urban Geography (3)**

The region as a geographic unit; urban settlements as regional centers; city-region relationships; morphology and structure of villages, towns and cities, and their internal functional relationships; case studies.

**124. Geography of the USSR (3)**

Comprehensive study of the economic, cultural, physical and political geographic foundations of the Soviet state, followed by intensive study of selected regions within the country.

**125. Geography of the Middle East (3)**

Comprehensive study of the physical features of the Middle East and the cultural traits of its people. The area under consideration extends from the Turkish Straits to the Pamir knot, and from the Caucasus to the Sudan.

**126. Australia, New Zealand, and Pacific Islands (3)**

Geographic relationship of natural and cultural features to social and economic development.

**127T. European Regions (3; max total 9, if no area repeated)**

Geographic regions of Europe emphasizing the relation of human activities to physical factors areal in their distribution and influence. Regions to be discussed include Mediterranean lands, Western Europe, Eastern Europe, Central Europe, North Europe, the British Isles.

**128T. Asian Regions (3; max total 9, if no area repeated)**

Geographic regions of Asia emphasizing physical and cultural features. Regions to be discussed include Southeast Asia, South Asia, and the Far East.

**129T. African Regions (3; max total 9 if no region repeated)**

Study of major African regions relating to basic physical, cultural, economic, and political geographic conditions and problems. Regions to be discussed include Subsaharan Africa, Developing Black Africa, North Africa, West Africa, East Africa, Central Africa and Southern Africa.

**130. Seminar in Geographic Literature (3)**

Primary and secondary source materials; literary background of geography. Papers required.

**131. Spatial Structure of Society (3)**

Location factors and principles—theory and reality. Spatial systems in historical cultural context. Models.

**135T. Topics in Quantitative Techniques (3; max total 9 if no topic repeated)**

Application of quantitative techniques to geographic problems; spatial analysis related to economic location, circulation, politico-geographic relationships, landform patterns, climatic data, and vegetation distributions. Topics include basic, advanced, and applied quantitative techniques. (1 unit may be scheduled as a 2-hour lab.)

**140. Canada and Alaska (3)**

Comprehensive analysis of the physical, economic, and cultural geographic foundations of the northern half of the North American continent.

**141. Conterminous United States (3)**

Systematic and regional study of the physical, economic, and cultural geographic foundations of the United States excepting Alaska and Hawaii.

**142. South America (3)**

Relationship of natural and cultural features; economic and social development; man-land relationships. Countries considered individually.

**143T. Topics in Mexico, Central America and West Indies (1-3; max total 6)**

Relationship of natural and cultural features in Mexico, Central America, and West Indian islands and countries; social and economic development; man-land relationships.

**144. Environmental Factors in the Geography of Man (3)**

Elements of the physical environment in their effects on man and his activities; physiologic climates, climatic stress, spatial relationships, and the role of soil and water in human activity.

**145. Man's Modification of the Natural Environment (3)**

Ways in which man's activities have altered climate, landforms, soil and water conditions, and natural vegetation.

**146. Environmental Pollution (3)**

Investigation into those activities of man which are altering the environment in ways which are deleterious to his existence.

**147T. Topics in Environment (3; max total 9)**

Selected topics relating to man in his environment. May include wilderness problems, recreational geography, physical environment of urban areas.

**148. Atmospheric and Oceanic Motions (3) (Same as Physics 148)**

Prerequisite: Math 76 and Physics 4A or Math 72 and Physics 2A and permission of instructor, or Geography-Physics 117. Application of basic physical principles to develop a unified theory describing spatial and temporal distributions of important features of atmosphere and oceanic circulation. Topics include midlatitude cyclogenesis, hurricanes, sea breezes, wind driven and tidal currents in the ocean.

**153T. Environmental Regions (3; max total 9, if no area repeated)**

Systematic and regional investigation of the physical and cultural complexes of various environmental regions. Regions to be discussed include the Humid Tropics, Arid Lands, Polar Lands, Coastal Lands, Mountain Lands.

**171. Soils Geography (3)**

Prerequisite: A course in chemistry, Geol 1 desirable. Properties of soil, factors of soil genesis, soil types of the world and their distribution.

**177. Historical Geography of the United States (3)**

Regional settlement of the United States; peopling of physiographic regions, creation of economic (cultural) regions, and geographic factors related to broad trends in American history.

**180. Field Geography (1-6; max total 6)**

Prerequisite: permission of instructor. Week-end, semester break, or summer field trips.

**181. Technical Field Geography (3)**

Gathering and analysis of rural land use data—crop distribution related to topography, climate, soils, water, markets; urban land use—delineation of central business district (CBD), foot and automobile traffic flows, housing quality, retail and wholesale trade territories, population concentrations and ethnic groupings. (Saturdays 4–8 hours)

**189. Geography of California (3)**

Natural and cultural patterns of California; historical and regional geography of the state.

**190. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**192. Directed Readings (1–3; max total 6)**

Prerequisite: permission of instructor. Supervised readings in a selected field of geography. Combined units of Geog 190 and 192 may not exceed 6 units.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**200. Methods in Geographic Research and Writing (3)**

Prerequisite: permission of instructor. Bibliographic technique with emphasis on statistical, map, aerial photograph sources; research writing; preparation of manuscripts including illustrative material.

**203T. Seminar in Economic Geography (3; max total 6 if no topic repeated)**

Prerequisite: permission of instructor. Theory, concepts, and methods in economic geography. Each offering will be chosen from the fields of transportation, industrial, agricultural or resource geography.

**206T. Seminar in Physical Geography (3; max total 9)**

Prerequisite: permission of instructor. Principles, concepts, and theories in the systematic study of physical geography and its methodology. Each offering chosen from the fields of geomorphology, climatology, biogeography, water, or soils.

**230. Seminar in Contemporary Geographic Thought (3)**

Prerequisite: permission of instructor. Current theories of geography and their evolution.

**260T. Seminar in Human Geography (3; max total 9)**

Prerequisite: permission of instructor. Principles, concepts, and theories in the systematic study of a field of human geography and its methodology: political, cultural, urban, historical or population and settlement geography.

**270T. Seminar in Selected Regions (3; max total 12 if no region is repeated)**

Prerequisite: undergraduate course dealing with the region under study or permission of instructor. Study of geographic conditions in relation to economic, social and political problems in a selected region of the world.

**280T. Advanced Field Studies in Selected Regions (1–3; max total 6)**

Prerequisite: permission of instructor. Intensive field study emphasizing selected cultural, economic, political and/or physical geographical phenomena. The study region may vary with each offering.

**290. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**292. Directed Readings in Geography (1–3; max total 6)**

Prerequisite: graduate standing. Supervised independent reading in a selected geographical topic.

**299. Thesis (2–6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

## HISTORY DEPARTMENT

### FACULTY

Stephen Benko, *Department Chairman*

Norman A. Baxter ■ D. Loy Bilderback ■ Roger C. Bjerk ■ John W. Bohnstedt ■ James M. Brouwer ■ Jose C. Canales ■ Sidney H. H. Chang ■ Robert G. Comegys ■ Carlos A. Contreras ■ Robert J. Dinkin ■ James P. Echols ■ Janet R. Fireman ■ Warren E. Gade ■ H. Marshall Goodwin, Jr. ■ David C. Hudson ■ David N. Jones ■ John C. Kendall ■ W. Hudson Kensel ■ Peter J. Klassen ■ Virgil L. Matthew, Jr. ■ Clair E. Nelsen ■ Robert M. Smetherman ■ Ephraim K. Smith, Jr. ■ Francis A. Wiley

A primary function of the History Department is to give students a liberal education in world and American civilization. It proposes to bring to them an understanding of modern society by reviewing the achievements of the past. Thus the department expects to prepare students to be enlightened citizens equipped with the broad cultural background essential to studies in the fields of education, philosophy, literature, law, government, journalism, public service, and business; all of which today demand a grasp of vital domestic and foreign problems.

The department offers a major and a minor in history for the bachelor of arts degree, a graduate program in history for the master of arts degree, courses for use in teaching credential programs as well as in the nondepartmental Asian Area Studies, the Social Science, and Latin American Studies majors. (See *Special Programs—Asian Area Courses, Classical Studies Courses, Latin American Studies*)

### THE AMERICAN HISTORY REQUIREMENT

The American history requirement for graduation may be fulfilled by taking (a) the Advanced Placement Examination (See *General Information—Advanced Placement*), (b) the no-credit departmental examination, (c) Hist 11 or 12, or (d) one of the following upper division courses: Hist 167, 168A, 168B, 171, 172, 173, 174A or B, 176, 177. No course used to fulfill the American history requirement may be used to satisfy the general education requirements.

### ADVANCED PLACEMENT

See *General Information—Advanced Placement*.

### HISTORY MAJOR

The bachelor of arts degree with a major in History consists of 124 units.

	<i>Units</i>
General Education .....	40
Lower division history prerequisites	
Hist 1, 2, 3; and 3 units from Hist 6 or 8 .....	12
(may be used to meet general education requirements)	
Upper division history courses	
Hist 101 .....	3
27 units of upper division history electives .....	27
6 units approved upper division electives in related fields	
such as other social sciences or literature .....	6
Other upper and lower division electives, including	
those necessary to meet the foreign language requirement.....	36
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No upper division history course for the history major nor any of the 6 units of approved upper division electives in related fields may be used to fulfill the general education requirements.

The upper division history electives must be selected from the 3 fields listed below. At least 1 course must be selected in each field, but no more than 18 units in any one field. At least 1 course must deal primarily with history prior to 1700.

*Fields*

Western Hemisphere: Hist 100, 118, 156, 157, 158, 159, 161, 162, 163, 164, 165A, 165B, 167, 168A, 168B, 169T, 170, 171, 172, 173, 174A, 174B, 175, 176, 177, 178, 179T, 180, 181, 182, 183, 184, 186, 187, 188, 189, 190, 192HD, 193HD, 195, 196.

European: Hist 111, 112, 113A, 113B, 119T, 120, 121, 122, 123, 131, 132, 134, 138A, 138B, 139A, 139B, 140, 141, 142A, 142B, 143A, 143B, 144A, 144B, 145, 146, 147A, 147B, 148A, 148B, 149T, 150, 151, 152, 155, 160, 190, 191HD.

Oriental and African: Hist 103, 104, 105, 107, 108, 109T, 110, 114, 133A, 133B, 134, 136, 155, 190, 194HD.

**Foreign Language Requirement or Alternative**

Select one: (1) Give evidence of a satisfactory degree of competence in one foreign language. Students may meet this requirement by completing two years of satisfactory collegiate study (or equivalent), passing a departmental reading examination, or completing a two-semester reading course in the Department of Foreign Language. (2) Students who choose not to take a foreign language may substitute 15 units, of which at least 9 must be upper division, in courses approved by the Department of History. This 15 unit substitute is to be worked out in conjunction with the student's adviser and approved by the Department Chairman. Students may be permitted to use these 15 units as a partial fulfillment of a minor in other fields and/or general education requirements. A student may also elect to take up to 6 of these 15 units in history. If a student's overall history units are heavily concentrated in one area, it is expected that these 6 units would be completed in other fields of study.

See the general statement in section on *Degrees and Credentials—Foreign Language Requirement* for equivalents and alternative ways of meeting the requirement. Any student planning advanced study is advised also to meet the foreign language requirement of the school he plans to attend.

**HISTORY MINOR**

The following minor requirements are in addition to the general education requirement in social science.

	<i>Units</i>
Hist 1, 2, 3, 6, 8, 11, 12.....	6-12
Elect from: Oriental and African .....	3-6
Elect from: Western Hemisphere .....	6-9
Elect from: European .....	6-9

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**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

**HONORS PROGRAM IN HISTORY**

The department offers a special program that permits superior students to graduate with honors in history. These honors will appear on the student's transcript. Admission to the program is limited to students having a GPA of 3.25 or better and who have completed 45 units. These limitations may be waived in exceptional cases.

Graduation with honors in history requires 12 units of upper division honors work in the department as well as at least 3 units of all-college honors work. History honors are designed to be sufficiently flexible to allow students to be directly involved in planning their own programs. The 12 units may be selected from the following categories: Upper division honors seminars (3-9 units); graduate seminar (up to 3 units); independent study (3-6 units).

Six units of lower division honors courses may be substituted for 3 units of upper division honors seminars. At least 3 units of work in an upper division honors seminar as well as a minimum of 3 units of independent study, are required of all students in the program.

Students who wish to take advantage of this program should consult the departmental honors adviser in order to provide for their special interests and abilities. Application forms for admission to the program are available in the office of the department.

**MASTER OF ARTS DEGREE**

Admission criteria for entrance into the master's degree program in History are currently under review. For details consult the Department of History.

**Foreign Language Requirement**

For details of the foreign language requirement in the History master's program, consult the Department of History.

**COURSES****HISTORY (Hist)****1. Western Civilization to 1650 (3)**

Foundations of western civilization; interdependence of cultures and peoples; cultural development from prehistoric times to 1650.

**1HD. Western Civilization to 1650 (3)**

Honors section of Hist 1. Open only to honors students at the invitation of the instructor.

**2. Western Civilization Since 1650 (3)**

Survey of modern Europe in global perspective. Impact of industrialization and urbanization upon European life; political revolutions and ideologies; intellectual, artistic and religious movements; European imperialism; the two world wars and Europe's altered role in world affairs.

**2HD. Western Civilization Since 1650 (3)**

Honors section of Hist 2. Open only to honors students at the invitation of the instructor.

**3. Colonial America (3)**

Western Hemisphere history from discovery to independence.

**6. East Asian Civilization (3)**

Survey of the history and cultures of China, Japan, Korea, Southeast Asia and India. Examination of the Oriental mind as reflected in Taoism, Buddhism, and The Hundred Schools of Thought.

**8. Republics of Latin America (3)**

Rise of the modern Hispanic American states since 1800; political, social, and economic development.

**11. American History to 1865 (3)**

Meets the American history requirement. The formation of the Union and the development of American society to 1865.

**11HD. American History to 1865 (3)**

Honors section of Hist 11. Open only to honors students at the invitation of the instructor.

**12. American History from 1865 (3)**

Meets the American history requirement. The development of American society since 1865.

**12HD. American History from 1865 (3)**

Honors section of Hist 12. Open only to honors students at the invitation of the instructor.

**100. The American Experience (3)**

Designed for elementary and secondary teachers. In-depth review of major historical themes, problems, and incidents of United States history as covered in the curriculum of California public schools.

**101. Introduction to Historical Method (3) (Former Hist 199)**

Prerequisite: upper division standing, preferably first-semester junior. (Consult department for more specific requirements of individual instructors.) Introduction to the theory and practice of historical inquiry. Students receive careful guidance and criticism in preparing papers on historical subjects. Emphasis is placed on research techniques, evaluation of evidence, documentation, bibliography, organization, style and mechanics of writing.

**103. History of China**

From pre-historic times to the Revolution of 1911 and the fall of the Ch'ing (Manchu) Dynasty in 1912 AD.

**104. Recent China (3)**

Not open to students with credit in Hist 104B prior to Fall 1974. Political, social, economic, and cultural development of China—Communist as well as Nationalist from 1912 to the present.

**105. Japan and Korea (3)**

History and culture of Japan and Korea from the 1860's (the introduction of Western Civilization) to the present.

**107. Southeast Asia and the Modern World (3)**

Analysis of the history and cultures of Southeast Asia in modern times, focusing on the problems created by western expansion and the conflicts between colonialism, imperialism, nationalism, and communism in traditional societies.

**108. Ancient Israel (3) (Former Hist 109T.1)**

History of the Jewish people from earliest times to the fall of Jerusalem in 70 A.D.

**109T. Studies in Oriental, Armenian, and African History (3; max total 6 if no area repeated)**

Intensive study of special topics.

**110. Ancient Fertile Crescent (3)**

Ancient civilization of the Middle East from the dawn of history to the ascendance of Greece.

**111. Ancient Greece (3)**

The Hellenic and Hellenistic periods of Greek history to the dissolution of Alexander's empire.

**112. Ancient Rome (3)**

Evolution of Rome through the republican and imperial periods.

**113A. History of Early Christianity (3)**

Early Christianity from the first century to Constantine the Great and the legalization of Christianity (313 AD). Origin of Christian movement from Judaic roots and its spread in the Graeco-Roman world. Development during the early patristic period.

**113B. History of Medieval Christianity (3)**

Medieval Christianity from its legalization to eve of Reformation. Christian institutions and ideas, their impact upon society; reform movements and decline of Christian influence; gradual secularization of society.

**114. The Ancient Mediterranean (3)**

Culture and history of ancient inhabitants of the Southern and Western coast of the Mediterranean: the Egyptians, Carthaginians, Iberians, Celts and Phoenicians.

**118. Women in History (3) (Same as W S 118)**

Historical survey of women's roles in history, with an emphasis on the emergence of the feminist movement.

**119T. Studies in Ancient and Medieval History (3; max total 6 if no area repeated)**

Intensive study of special topics.

**120. Byzantine History (3)**

Eastern Roman Empire from Justinian to the fall of Constantinople; the role and development of the Church, internal development, and its relations with the Islamic, Latin, and Slavic worlds.

**121. Formation of the Medieval Order (3)**

Influences of Neoplatonism, Universalism, and Christianity in the development of thought and institutions; Monasticism, Feudalism, Crusading, and the Papacy.

**122. Medieval Culture (3)**

Selected aspects of medieval life and culture such as warfare, commerce, art and architecture, learning and the University presented as manifestations of the medieval mind and value system. Extensive use of visual materials.

**123. Dissent and Repression (3)**

Directed readings and group discussions of instances of political, religious, and social dissent and its repression throughout Western history from Roman times to Hitler and Stalin. Discussion of fictional accounts of repression by Kafka, Dostoevsky and others.

**129T. Studies in Intellectual and Social History (3; max total 6 if no area repeated)**

Topics concerned with ideas and movements that have significantly shaped the course of history.

**131. Renaissance (3)**

Social, intellectual, political and economic factors that shaped Europe in the 14th and 15th centuries; humanism; foundations of the state; secularization and dissent within the church.

**132. Reformation (3)**

Analysis of the political, social, and intellectual movements associated with the 16th century religious upheaval.

**133A. Armenian History (3) (Former Hist 133)**

Economic, political, social, religious, and cultural history of Armenia from earliest times to the present.

**133B. Soviet Armenia (3)**

Origin and development of the Armenian Soviet Socialistic Republic with emphasis on its culture, institutions, and minorities.

**134. Islam to 1500 (3) (Former Hist 119T section)**

Rise of Islam, its territorial expansion, teachings, and cultural contributions. Emergence of the Umayyad and Abbasid Caliphates and appearance of Seljuk and Ottoman Turks.

**136. Africa (3)**

Major movements in African history from ancient times to the present. Emphasis is given to the development of African civilization, relations between Africa and other continents, and Africa's rise in modern times to a position of prominence in world affairs.

**138A. Russia 862-1689 (3)**

Not open to students with credit in History 137 prior to Fall 1974. The Vikings, the Kievan state and Byzantium; the Mongol invasion; Ivan the Great and the unification of Muscovy; Ivan the Terrible; Boris Godunov and the Time of Troubles; the culture and civilization of medieval Muscovy.

**138B. Russia 1689-1855 (3)**

Not open to students with credit in History 138 prior to Fall 1974. Peter the Great and Westernization; the Russian Enlightenment and Catherine the Great; Napoleon and Russia; The Decembrists; Pushkin, Gogol and the birth of the Russian novel; Herzen, Bakunin and the early revolutionary movement; the Crimean War.

**139A. Russia 1855–1928 (3)**

Not open to students with credit in History 139 prior to Fall 1974. The emancipation of the serfs and industrialization; Dostoevsky and Tolstoy; Nicholas and Alexandra; Lenin, Trotsky and the revolutionary movement; World War I and the Revolution of 1917; Civil War and Intervention; the NEP, Lenin's death and the rise of Stalin.

**139B. Russia since 1928 (3)**

Not open to students with credit in History 139 prior to Fall 1974. The five-year plans and peasant collectivization; the purges and the concentration camps; Hitler and Stalin; World War II and the Grand Alliance; the Cold War; Khrushchev and de-Stalinization; Brezhnev, Kosygin and the space age; Solzhenitsyn and the liberal underground.

**140. European Military History: Napoleon to Hitler (3)**

Examination of strategic planning, tactical innovation, military systems, and campaigns from the time of Napoleon to Hitler. World wars of the 20th century with particular attention on their causes and consequences.

**141. Europe in the 17th Century (3)**

European culture, society, and politics from 1600 to the Glorious Revolution.

**142A. Europe in the Age of Enlightenment (3)**

Not open to students with credit in Hist 142. Intellectual, social, and political development of Europe from Louis XIV to the Seven Years' War.

**142B. Europe in the Age of Revolution (3)**

Not open to students with credit in Hist 142. Enlightened Despotism, the French Revolution, and Napoleon discussed in their European context.

**143A. Germany: From Bismarck to Hitler**

Rise of German nationalism; wars of Bismarck, triumph of Prussian militarism; industrial expansion; social and ideological conflicts; imperialism and power politics of Kaiser Wilhelm II; World War I and its aftermath; Hitler's rise to power.

**143B. Germany: The Third Reich and After (3)**

Examination of the failure of German democracy in the 1920's and the reason for Adolf Hitler's success. Domestic and foreign policies of Hitler's Third Reich. Political, economic and social development of East and West Germany since 1945.

**144A-B. Modern France (3-3)**

Not open to students with credit in Hist 144 prior to September, 1970. Prerequisite: Hist 1 or 2 or permission of instructor. (A) Culture, politics, and society of France from Francis I to Napoleon. (B) Political, social, and economic history of France in the nineteenth and twentieth centuries.

**145. Europe in Upheaval, 1815–1871 (3)**

The modernization of life and thought, particularly in Britain, France, Germany, Austria and Italy. Social effects of industrialization and urbanization; liberal and nationalist movements; power politics of Napoleon III, Cavour and Bismarck. Innovative, artistic, intellectual and religious movements.

**146. Europe in Tension, 1871–1914 (3)**

Origins of contemporary Europe, with emphasis upon Britain, France, Germany and Austria. Emergence of the mass society; rise of democracy, socialism and extreme nationalism; European imperialism and world dominance; causes of World War I. New intellectual, artistic and religious movements.

**147A. Europe from 1914 to 1945 (3)**

Not open to students with credit in Hist 147 prior to Fall 1974. Examination of European society and politics in the Age of Violence. Causes and course of two World Wars. Rise of Nazism, Communism and Fascism, and the struggle of the liberal democracies. Intellectual impact of Freud, Lenin, and Hitler.

**147B. Europe Since 1945 (3)**

Not open to students with credit in Hist 147 prior to 1974. Spectacular recovery of Europe from the devastation of the Second World War. The problems of decolonization and their impact on Europe and its place in the world. The Cold War. The problems of achieving European unity.

**148A. Ideas That Shaped the World: 18th and 19th Centuries (3)**

European ideas that have exerted a lasting and worldwide influence upon our modern way of life. The roots of modern political ideologies (conservatism, liberalism, socialism, nationalism, racism); rise of rationalism, romanticism and materialism; innovative, artistic and religious movements.

**148B. Ideas That Shaped the World: the 20th Century (3)**

European ideas which have exerted a major and worldwide influence upon our contemporary way of life. Roots of contemporary natural and social sciences. Examination of European political ideologies (Fascism, Leninism, Socialism, Liberalism) and European movements in literature and philosophy.

**149T. Studies in Modern European History (3; max total 6 if no area repeated)**

Intensive study of special topics.

**150. European Social History (3)**

Changing customs and social conflicts in Europe from late 18th century to present. Main themes: population growth, Agricultural and Industrial Revolutions, decline of nobility, rise of the middle classes, emergence of the industrial working class, churches and social order.

**151. England to 1688 (3)**

Structure of the British government, society, and economic life from Roman times to the Glorious Revolution.

**152. England Since 1688 (3)**

Changing structure of the British government, economy, and society from the Glorious Revolution to the present.

**155. British Empire Since 1783 (3)**

Political and economic development of the British Empire, including the development of the Commonwealth, colonial nationalism, and changes in British colonial policy.

**156. The Arctic Frontier (3)**

Four hundred years from silence to sound; quest for the Northwest passage and Ultima Thule; exploration, development, strategy and resources of northern North America.

**157. Canadian-American Relations (3)**

Historical evolution from common traditions; struggle for border, continentalism; impact of the United States from the Revolution to present.

**158. Canada (3)**

Discovery, growth and expansion of Canada; social, economic and political institutions from the French regime through British rule to the Transcontinental Dominion.

**159. 20th Century Canada (3) (Former Hist 179T section)**

Historic and contemporary facets of evolving "Canadianism," from Laurier to Trudeau; internal and external challenges; war, depression, political protest; British Empire to American Community; search for identity. 1896 to present.

**160. Spain and Portugal (3)**

Not open to students with credit in Hist 160A-B prior to Fall 1974. Development of the Iberian Peninsula from prehistoric to modern times.

**161. Colonial Latin America (3)**

The age of discovery, European and American background; political, social and economic institutions of the Spanish and Portuguese empires in America.

**162. Platine Countries and Brazil (3)**

Not open to students with credit in Hist 162 and 166 prior to Fall 1975. History of Eastern South America since 1800. Disintegration of the Viceroyalty of LaPlata and the formation of Argentina, Paraguay and Uruguay. Transition of Brazil from colony to empire to republic. Emphasis on major political, economic and social development.

**163. Caribbean America (3)**

Not open to students with credit in Hist 163A or Hist 163B prior to Fall 1975. Origins and evolution of the Greater Antilles, Venezuela and Colombia, their struggle for self-determination and sovereignty from 1800 to the present.

**164. Western South America (3)**

Development of the countries which once formed the bulk of the Viceroyalty of Peru: Ecuador, Peru, Bolivia, and Chile, 1800 to the present.

**165A. Nineteenth Century Mexico (3)**

Not open to students with credit in Hist 165. Development of Mexican nationality and culture from 1800-1910.

**165B. Twentieth Century Mexico (3)**

Forging of modern Mexican nationality and culture through the political, social, and economic changes created by the Mexican Revolution.

**167. American Diplomatic History to 1898 (3)**

Principles, ideals, and policies of the United States in diplomatic relations from 1775 to 1898.

**168A. American Diplomatic History 1898-1941 (3) (Former Hist 168)**

Not open to students with credit in Hist 167 prior to September 1970. Principles, ideals, and policies of the United States in foreign relations from 1898 to 1941.

**168B. Cold War Diplomacy (3)**

History of American foreign policy from 1942 to present. Principles, ideals, and policies of the United States in the Cold War.

**169T. Studies in Latin American History (3; max total 6 if no area repeated) (See L A 5 110T)**

Prerequisite: permission of instructor.

**170. United States-Latin American Diplomacy (3)**

History of the relations between the United States and Latin America, ranging from the Monroe Doctrine to Nixon Doctrine. Development of the inter-American system, resulting in the creation of Organization of American States.

**171. Early American History, 1607-1783 (3)**

Meets the American history requirement. First of a sequence of four courses covering the full period of history of the United States; colonial foundations; political and economic factors; social and cultural development through the American Revolution.

**172. United States History, 1783-1850 (3)**

Meets the American history requirement. Political, economic, social, and cultural developments of the early agrarian republic.

**173. United States History, 1850-1914 (3)**

Meets the American history requirement. The Civil War and Reconstruction; problems of an increasingly urban and industrialized society.

**174A. United States History, 1914-1945 (3) (Former Hist 174)**

Meets the American history requirement. The United States in world affairs; political, economic, social, and cultural developments and problems from 1914 to 1945.

**174B. United States History, 1945–Present (3) (Former Hist 174)**

Meets the American history requirement. The United States in world affairs; political, economic, social, and cultural developments, and problems from 1945 to present.

**175. Representative Americans (3)**

Biographical sketches of leading characters in American history from Revolution to present. Lectures and reading from standard biographies.

**176. Cultural History of the United States to 1865 (3)**

Development of the American people; leading ideas and values in a predominantly rural and agrarian society.

**177. Cultural History of the United States Since 1865 (3)**

Impact of industrialization and urbanization upon American society; leading ideas and values.

**178. History of Black Americans (3) (Same as BI S 178)**

Evolution of American Black society from 1619 to the present; developments in the twentieth century.

**179T. Studies in United States History (3–4; max total 6 if no area repeated)**

Prerequisite: permission of instructor. Intensive study of special topics.

**180. United States Military History (3) (Former Hist 179T.2)**

History of America's wars encompassing both military aspects and the social impact of war, beginning with the American War for Independence.

**181. Westward Movement to 1848 (3)**

The challenge of free land; development of British and United States western policies; problems of American migration to the interior, effects of the frontier environment upon the culture of the West.

**182. Westward Movement Since 1848 (3)**

Patterns of exploitation; role of the federal government in the West: land policy, Indian policy; problems of communication; economic growth.

**183. The Hispanic Southwest (3)**

Exploration, conquest, and settlement of the Spanish Borderlands from 1513 to the Mexican War; contributions of Hispanic culture to the Southwest.

**184. Politics of Affluence and Poverty (3) (Former Hist 179T.5)**

Major elements in America's material successes and failures. The influence of political decisions in the production and distribution of wealth and power in the United States.

**186. American Ethnic History (3)**

The immigration of peoples from Europe, Asia, Africa and Latin America to the United States and the life they created here.

**187. The American Indian (3)**

A survey of representative American Indian tribes within the continental limits of the United States from the seventeenth to the twentieth century. Emphasis placed on the development of British and United States Indian policies and their impact upon tribal life.

**188. Early California (3)**

Discovery, exploration, and early settlement of Alta California; founding of the missions; the Spanish, Mexican, and American periods; government, customs, habits, and influences of the various peoples who occupied California.

**189. Modern California (3)**

Social, cultural, economic, and political development of California from the 1860's to the present.

**190. Independent Study (1–3; max see reference)**

See *General Information—Independent Study*.

**191HD. European History Honors Seminar (3; max total 6 if no area repeated)**

Undergraduate honors seminar in selected topics in European history.

**192HD. North American History Honors Seminar (3; max total 6 if no area repeated)**

Undergraduate honors seminar in selected topics in North American history.

**193HD. Latin American History Honors Seminar (3; max total 6 if no area repeated)**

Undergraduate honors seminar in selected topics in Latin American history.

**194HD. Oriental, Armenian, and African History Honors Seminar (3; max total 6 if no area repeated)**

Undergraduate honors seminar in selected topics in Oriental, Armenian, and African history.

**195. American History in Film (3)**

Analysis of significant films and documentaries on controversial aspects of American History. Emphasis given to placing film content in an historiographical framework. Offered especially, but not exclusively, for prospective teachers.

**196. The Great American Civilizations: Maya, Aztec, Inca (3)**

Historical examination of the rise and fall of the Maya, Aztec, and Inca empires. Social organization, religion, technology, art, and scientific achievements of the pre-Columbian great American civilizations.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**200. Seminar in Historiography (3)**

Prerequisite: major or minor in one of the social sciences. Advanced studies in a field of history; North American, Latin-American, European; writings and philosophies of great historians; development of historiography.

**201. Reading Seminar (3)**

Open only to second-semester seniors and graduates majoring in history. Prerequisite: see instructor. Extensive, individually directed readings in history.

**205. Seminar in Far Eastern History (3; max total 6)**

Prerequisite: Hist 101 or permission of instructor. Research in specific areas of Far Eastern history and culture.

**210. Seminar in Ancient History (3; max total 6)**

Prerequisite: Hist 101 and related undergraduate course (Hist 110, 111, or 112). Research in special problems in the Ancient Fertile Crescent, Ancient Greece, Ancient Rome.

**220. Seminar in Medieval History (3; max total 6)**

Prerequisite: Hist 101, 120, 121, 122. Research on special problems in medieval history.

**230. Seminar in Renaissance and Reformation (3; max total 6)**

Prerequisite: Hist 101, 131, 132. Research in special problems of the renaissance and reformation period.

**233. Seminar in the Middle East (3)**

Prerequisite: Hist 101, 133A-B. Research in specific areas of Middle Eastern history and culture.

**236. Seminar in Africa (3)**

Prerequisite: Hist 101, 136. Research in specific areas of African history.

**240. Seminar in Modern Europe (3; max total 6)**

Prerequisite: see instructor. Selected research topics in modern European history.

**250. Seminar in Canada (3; max total 6)**

Prerequisite: see instructor. Selected research topics in Canadian history.

**260. Seminar in Latin America (3; max total 6)**

Prerequisite: see instructor. Selected research topics in Latin American history.

**270. Seminar in United States (3; max total 6)**

Prerequisite: see instructor.

**278. Recent Interpretations of American History (3; max total 6)**

Prerequisite: see instructor. Examination of selected problems in American history in the light of new research discoveries; extensive use of scholarly journals.

**289. Seminar in California History (3; max total 6)**

Prerequisite: Hist 101, 188, 189. Research on special problems in California history.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**299A-B. Thesis (3-3)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree. A. Thesis design. B. Thesis writing. A and B may be taken concurrently.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**300. Topics in History (2; max total 8 if no topic repeated)**

## LA RAZA STUDIES PROGRAM

### FACULTY

Adolfo A. Ortega (*Coordinator*)

Arturo Avina ■ Jesus Luna ■ Ernest A. Martinez ■ Teresa R. Perez ■ Tony Roque ■ Manuel K. Valdez

The La Raza Studies Program is designed, first, to promote in academic and professional areas an awareness, knowledge, and sensitivity to the historical and cultural factors that distinguish the Chicano as a unique group in the United States; second, to promote a better understanding among people and to stimulate an awareness among Chicano students of their importance in La Raza and its movement for justice and self-determination. The courses offered in La Raza Studies are interdisciplinary in nature, and reflect the various areas of study that will give students an understanding and appreciation of the substance and diversity of La Raza. The program emphasizes Social and Community Studies, History and Culture, Art, Music and Literature. Students are encouraged to choose courses from the La Raza program which may be of special value in meeting their education and professional career plans. For students interested in a general knowledge of the Chicano experience, recommended courses are: La R 3, 5, 8, 116, 118, 124.

For students interested in the following careers, the following courses are recommended:

Education .....	La R 109, 110, 118.
Arts. ....	La R 7, 9, 102, 103, 104, 121, 122, 130.
Nursing, Health Science ....	La R 6, 117, 118.
Journalism.....	La R 108, 132.
Social Welfare .....	La R 3, 5, 6, 105, 116, 117, 118, 124, 142, 145.
Politics .....	La R 6, 114B, 116, 133, 142.
Counseling .....	La R 3, 109, 124.
Criminology .....	La R 3, 5, 6, 105, 116, 117, 118, 124, 142, 145.

### LA RAZA MINOR

A student intending to pursue a minor in La Raza Studies should see the Coordinator of the La Raza Studies Program for assignment to a faculty adviser who will assist him in planning his program.

	<i>Units</i>
Ethnic Studies 1 or 2 .....	3
Elect from La R 3, 5, 6, 8, 9.....	9
(Eth S 2 may be substituted for La R 9)	
Approved La Raza electives (upper division) .....	<u>9</u>
	21

### COURSES

#### LA RAZA (La R)

##### 3. Issues in the Socialization of the Chicano (3)

Social, cultural, and psychological aspects of being a minority as reflected in the diversity of the Chicano and his self-concepts.

##### 5. Chicano Culture (3)

Values, attitudes, and life concepts of La Raza; their origins.

##### 6. Community Studies (3)

Factors involved in the dynamics of the Chicano community; patterns of settlement, economic development, segregation, immigration, and urbanization.

##### 7. Chicano Art Forms I (3)

Traditional and contemporary art forms as they relate to Chicano art.

**8. Aztlan: Chicano History (3)**

Historical trends in the formation of a Chicano consciousness. Background of the Chicano in the context of American history.

**9. Chicano Arts Orientation (3)**

Literature, drama, and arts of the Chicano and their common themes: indianismo, social protest, self-discovery, liberation.

**10A. Chicano Directed Writing (3)**

Theory and practice of composition; research methods; emphasis on sentence structure, grammar, punctuation as related to the Chicano language abilities.

**10B. Chicano Writing I (3) (Former La R 10)**

Beginning workshop in creative writing, including poetry, fiction; discussion and analysis of poems and stories submitted by students; occasional readings by advanced writers from the community.

**40A-B. Spanish—Intensive Reading and Composition (3-3) (See Spanish 40A-B)****100. Bilingual Studies (3) (See Ling 100)****101. Advanced Chicano Art Forms (3; max total 6)**

Prerequisite: La R 7 or permission of instructor. Studio for advanced students, emphasis on individual development of artistic and technical expression.

**102. Contemporary Chicano Art (3)**

Prerequisite: permission of instructor. Study and appreciation of current Chicano art through discussion and analysis of artists' works; personal interviews and field trips. Group or individual inquiry.

**103. Origins of Chicano Art (3)**

Prerequisite: permission of instructor. Influences on Chicano art from pre-Columbian motifs to the Mexican muralists.

**104. Chicano Arts and Crafts (3)**

Crafts of the Indio: ceramics, weaving, sculpture, sand painting, and other creative works relating to the heritage of the Chicano.

**105. Advanced Chicano Culture (3)**

Examination of the contemporary life style of the Chicano as contrasted with the Anglo-American population; values, socialization processes, historical and philosophical developments, economic history of the Chicano.

**108. Chicano Writing II (3)**

Prerequisite: La R 10B or permission of instructor. Advanced creative writing.

**109. The Chicano and the Educational System (3)**

Principal elements of the educational system and their effect on Chicano students.

**110. Bicultural Education (3) (Former La R 125T)**

Investigation into what it means to be bilingual and bicultural; review of programs scaled toward a more meaningful education for the Chicano child.

**112. Pre-Hispanic Civilizations (3)**

Aspects of pre-Columbian cultures; their influence on the Chicano habits, customs, values, and behavior.

**114A. La Raza 1845-1910 (3)**

Interaction between La Raza and the cultures of the Southwest; development of La Raza during the period between Mexico's independence from Spain and the Mexican Revolution.

**114B. La Raza 1910-Present (3)**

The Southwest after the Mexican Revolution; impact of Mexican immigration; attempts of the Mexican and his descendants to overcome oppression.

**116. Movimiento (3)**

In-depth treatment of the Chicano Movement through an historical analysis of its intellectual foundation and its evolution to the present.

**117. Chicano Health (3) (Former La R 125T)**

Values, characteristics and roles of Chicanos in public health.

**118. La Familia (3) (Same as W S 119)**

Not open to students with credit in La R 125T, Mexican-American Family. Traditional and changing relationships in the family structure of the Chicano; interaction with wider institutional social system.

**120. Folklore of Mexico and the Southwest (3)**

Indian folklore of Mexico and the Southwest and its fusion with Chicano and Hispanic folklore.

**121A-B. Music and Dance of La Raza (3-3)**

La R 121B not open to students with credit in La R 125T, Advanced Mexican-American Folklore. Development and performance of Mexican folk music and dance; Indian, Negro, Spanish, and European influences; contemporary relationships to Chicano culture.

**122. Music of Mexico and the Southwest: Comparsa (1-3; repeatable up to 16 units)**

Examination of origins, composition, and performance of various type of music of La Raza; corridos, boleros, huapangos, sones, cumbias; emphasis on historical and cross-cultural influences on music of La Raza.

**124. Psychology of the Chicano Child (3)**

General principles of growth and development; theories of learning; specific application to maturation of the Chicano child.

**125T. Topics of Mexican-American Society (1-3; repeatable with different topics)**

Culture, art forms, economy, and societal organization.

**126. Economics of Chicano Farm Labor (3)**

Numbers, distribution, income levels, output, relation to California economy.

**130. Chicano Theatre (1-3; repeatable up to 12 units)**

Production of Chicano Theatre for major performances. *Comedia del Arte*, Passion Plays, Theatre of the Absurd, Socially Popular Theatre: *Teatro Compesino*.

**131. Barrio Spanish (3)**

History and culture as they have affected the language of the barrio; the evolutionary process of Barrio Spanish; development of misconceptions; social significance.

**132. Chicano Literature (3)**

Emerging Chicano literature: poetry, novels, essays.

**133. Contemporary Political Issues (3)**

Political philosophies, goals, and strategies of Chicanos as reflected in their attempts to gain political power.

**140. Economics of La Raza (3)**

Economics of the Chicano community and its relationship to the wider economic system.

**142. Chicano Community: Issues and Development (3)**

Prerequisite: La R 6 or permission of instructor. Exposure and analysis of the existing problems in the Chicano community in the Central Valley. Development of methods of problem solving.

**143. Community Research (3)**

Prerequisite: permission of instructor. Methods of scientific investigation and data collection; theories of research interviewing on issues affecting the Chicano community.

**145. Field Work in Community Studies (3; max total 6)**

Prerequisite: La R 6 or permission of instructor. Observation, orientation, and participation in the operations of the Chicano community.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

## POLITICAL SCIENCE DEPARTMENT

### FACULTY

Don R. Broyles, *Department Chairman*

Philip F. Beach ■ Marn J. Cha ■ Gholam H. Dargahi ■ Charles F. Denton ■ Alfred B. Evans ■ Max B. Franc ■ Lyman H. Heine, Jr. ■ William A. Kolstad ■ Bernard E. McGoldrick ■ David H. Provost ■ John A. Rotstan ■ Karl A. Svenson

The Political Science Department offers courses leading to a bachelor of arts degree with a major or minor in political science or public administration, a certificate in public administration, and the master of arts degree. In addition to curricula designed to prepare students for careers in teaching, government or related fields, the department offers courses for the nonmajor to meet general education requirements and to provide insight into the field of politics for the student concerned with his role as a citizen in a democracy.

The department cooperates with other departments in providing a concentration in Asian Studies and Latin American Studies. (See *Special Programs—Asian Area Courses, Latin American Studies*)

### UNITED STATES CONSTITUTION REQUIREMENT

The United States Constitution (including California State Constitution and local government) requirement for graduation should be fulfilled by Pl Si 2 or 101. Pl Si 1 and 3 do not fulfill the United States Constitution requirement.

### BACHELOR OF ARTS DEGREES

The department requires that students majoring in political science or public administration complete a course in quantitative political analysis. Political Science 90 or an equivalent course meets this requirement.

<b>POLITICAL SCIENCE</b>	<i>Units</i>
General Education .....	40
Political Science Major .....	33
Pl Si 3, 110 or 111, 120, 140, 150	
Political Science electives (upper division), excluding Pl Si 101, 102, 130, 187	
Electives .....	51
	124

The department highly recommends that the student select upper division electives in at least three of the following disciplines: Anthropology, Economics, English, Ethnic Studies, Geography, History, Philosophy, Psychology, or Sociology. Consult adviser for specifically recommended courses.

<b>PUBLIC ADMINISTRATION</b>	<i>Units</i>
General Education .....	40
Public Administration Major .....	33
Pl Si 3, 181, 182 (9 units)	
Elect from: Pl Si 110, 111, 114, 170 (3 units)	
Pl Si 150, 151, 156T, 159T (3 units)	
Pl Si 160, 163, 169T (3 units)	
Pl Si 183, 188T, 189T (9 units)	
Pl Si 187, 190, 191 (6 units)	
Electives .....	51
	124

The department highly recommends that the student take upper division electives in at least three of the following disciplines: Anthropology, Economics, English, Ethnic Studies, Geography, History, Philosophy, Psychology, or Sociology. Consult adviser for specifically recommended courses.

**MINORS**

The following minor requirements are in addition to the general education requirement in social science.

<b>POLITICAL SCIENCE</b>	<i>Units</i>
Pl Si 3, 110 or 111 .....	6
Political science electives (ud), excluding Pl Si 101, 102, 130, 187 .....	9
Electives (ud) in Anthropology, Economics, English, Geography, History, Philosophy, Psychology, or Sociology .....	6
	21
 <b>PUBLIC ADMINISTRATION</b>	
Elect from Pl Si 3, 181, 182, 188T .....	12-13
Elect from Pl Si 110, 111, 114, 150, 151, 170 .....	3-4
Elect from Pl Si 160, 163, 183, 189T .....	3
Electives (upper division) in Anthropology, Economics, English, Geography, History, Philosophy, Psychology or Sociology .....	3
	21-23

**CERTIFICATE IN PUBLIC ADMINISTRATION**

A certificate program in public administration is offered for persons interested in training for public service who are not in a position to meet the requirements for a degree. This certificate will be offered to public service personnel and others without reference to previous academic experience. Candidacy will be established with the approval of the Political Science Department. The candidate must complete a minimum of 23 units with a grade point average of 2.5 (20 units, if the candidate has completed an acceptable course in American government on the college or university level).

All candidates for the certificate must complete a core requirement of 12-15 units of political science and public administration in Group A and 8 units in Group B. With the approval of the Political Science Department substitutions may be made for courses already completed. Prerequisite requirements to advanced courses must be met.

**Group A. Political Science and Public Administration:** Pl Si 101, 160, 163, 181, 182.

**Group B. Related Courses:** Psych 10, 176, Pl Si 188T, Econ 131, Ind R 150, Jour 113.

**CREDENTIAL PROGRAM**

For information on the current credential program, consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

**MASTER OF ARTS DEGREE**

The graduate program for the master of arts degree in political science provides concentrations in government and public administration. For prerequisites and specific requirements consult the department chairman; for general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

**Foreign Language Requirement**

Advancement to candidacy for the master of arts degree with a major in political science (government concentration) requires competence in a foreign language.

## COURSES

**POLITICAL SCIENCE (PI SI)****1. Elements of Political Systems (3)**

General Education Area II; not open to students with credit in PI Si 3. Introduction to the major disciplinary areas of political theory, comparative systems, political parties, public opinion and interest groups, public administration, and international relations through focus on ideologies and the structures, functions, and processes of governmental and political institutions.

**2. American Government and Institutions (3) (Former Pol Sc 11)**

Meets the United States Constitution requirement and the federal, California state and local government requirement. Not open to students with credit in PI Si 1A-B or 101. The development and operation of government in the United States; study of how ideas, institutions, laws, and people have constructed and maintained a political order in America.

**3. Political Analysis (3)**

For Political Science and Public Administration majors; not open to students with credit in PI Si 1. Classical and contemporary political analysis of the structures, functions, and processes of macro- and micro-political systems; fields of political science; research techniques.

**10T. Contemporary Issues in Politics (1-3; max total 9 if no topic repeated)**

Significant contemporary uses in political theory, world politics, comparative government, American government, local government, or public administration.

**90. Methods of Quantitative Political Analysis (3)**

A quantitative approach to hypothesis testing and problems of evidence and inference in political science. Methods of acquisition of quantitative political data, including aggregate data analysis, content analysis, elite studies, and survey research. Basic statistical analysis.

**101. American Constitution, Institutions and Ideals (3)**

Meets the United States Constitution requirement. Not open to students below second semester sophomore or with credit in PI Si 1A-B, 2, 11, or equivalent. Executive, legislative, and judicial functions of our government under the constitution; federal, California state and local governmental relationships.

**102. California Government and Institutions (1)**

Not open to students with credit in PI Si 1A-B, 2, 11, 101, or equivalent. Open only to students who have satisfied United States Constitution requirement but have not satisfied California state and local government requirement. Examination of legislative, executive, judicial, and local government problems in California.

**POLITICAL THEORY (PI SI)****110. Seminar in History of Political Thought to Machiavelli (3)**

Prerequisite: PI Si 2, and 1 or 3, or permission of instructor. Development of political thought from Plato to Machiavelli: law, justice, the state, authority, forms of government, and church-state relations in light of the philosophy of history.

**111. Seminar in History of Political Thought Since Machiavelli (3)**

Prerequisite: PI Si 2, and 1 or 3, or permission of instructor. Freedom and individual rights, democracy, majority rule, equality, law and authority, power, constitutionalism, property, social class and structure, and revolution traced through the writings of Hobbes, Locke, Rousseau, Hume, Burke, Bentham, Hegel, Tocqueville, Mill, and Dewey.

**114. Seminar in American Political Thought (3)**

Prerequisite: PI Si 2, and 1 or 3, or permission of instructor. Analysis of democracy, majority rule and minority rights, constitutionalism, federalism, representation, pluralism, property, separation of powers, and judicial review based on the perspectives of representative early and contemporary American thinkers.

**115. Seminar in Modern Political Analysis (3)**

Prerequisite: Pl Si 2, and 1 or 3, or permission of instructor. Theoretical approach to contemporary methods of analysis; systems, functions, processes, culture, decision making, conflict theory, power, elitism, model building and cybernetics. Relation of theories of knowledge to the above methods and their applicability to a science of political development.

**118T. Topics in Political Thought (1-4; max total 8)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. Possible topics include democratic political thought, Soviet political thought, pluralism, socialism, classical liberalism, and conservatism.

**119T. Topics in Political Theory (1-4; max total 8)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. Analysis of Marxism (Hegel, pre-Marxian socialists, emphasis on text of Marx), or radical political theology (christian religious consciousness as permanent revolution), or Medieval political thought (church-state theory as legal and political philosophy, emphasis on Augustine, Aquinas).

**INTERNATIONAL RELATIONS (Pl Si)****120. International Relations (3)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. Analytical introduction to international relations; nationalism; imperialism; racial, population, and economic factors; war; settlement of international disputes by methods other than war; foreign policies of the major powers.

**121. American Foreign Affairs (3)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. Formulation and execution of American foreign policy; constitutional framework; role of the President and the executive branch, Congress, pressure groups and public opinion; contemporary problems and policies.

**122. Contemporary World Politics (3)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. World affairs from 1914 to the present; present foreign policies of the major powers from historical, political, and economic viewpoints; events leading to World War II and United Nations organizations.

**125. Soviet Foreign Policy (3)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. Sources of Soviet foreign policy, historical and ideological; continuity and change in methods, strategy and tactics; policy formulation and application in specific geographic and subject matter areas.

**126. International Organizations (3)**

Prerequisite: Pl Si 120 or permission of instructor. Developing role of international organizations; historical roots of organized cooperation; League of Nations, United Nations, regional pacts; political and organizational issues confronting the United Nations.

**128T. Topics in International Relations (1-4; max total 8 if no topic repeated)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. Nationalism, imperialism, communism, balance of power concepts, the superpowers (United States and USSR).

**129T. Seminar in International Politics (1-4; max total 8 if no topic repeated)**

Prerequisite: Pl Si 1 or 3 or permission of instructor. Neutralism and nonalignment, regionalism, foreign policies of underdeveloped countries and of communist states (excluding USSR).

**130. Contemporary International Problems (3; max total 6)**

Prerequisite: Pl Si 2, and 1 or 3 or permission of instructor. Projects involve current international problems; e.g., organization and participation in Model United Nations conference on-campus or at other colleges. Research on multilateral vs bilateral international problem solving.

**COMPARATIVE GOVERNMENT (PI Si)****140. Approaches to Comparative Politics (3)**

Prerequisite: PI Si 1 or 3 or permission of instructor. Exploration of theories, models, and conceptual frameworks for the comparative study of political systems and subsystems; methodological rather than an area emphasis.

**141T. Area Studies in the Commonwealth (1-4; max total 8 if no topic repeated)**

Prerequisite: PI Si 1 or 3 or permission of instructor. Government and politics of England and the Commonwealth Countries or government, politics, and institutions of selected countries.

**142T. Area Studies in Western Europe (1-4; max total 8 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Government and politics of Western Europe (France, Germany, Italy), Northern European Countries (Finland, Denmark, Norway, Sweden); or government, politics, and institutions of selected countries.

**143T. Area Studies in Eastern Europe (1-4; max total 8 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Government and politics of Soviet Union, Eastern Europe; or government, politics, and institutions of selected countries.

**144T. Area Studies in Africa and Middle East (1-4; max total 8 if no topic is repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Government and politics of Sub-Sahara Africa, Middle East; or government, politics, and institutions of selected countries.

**146T. Area Studies in Latin America (1-4; max total 8 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Possible topics include politics of South America; politics of Central America and Caribbean countries; roles of selected groups in Latin American politics.

**149T. Seminar in Comparative Government (1-4; max total 8 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Parliamentary systems, problems and goals of developing nations, federal systems, comparative local government, parties and pressure groups, and multi-party systems.

**AMERICAN GOVERNMENT (PI Si)****150. Politics: Public Policy Making (4)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. The relationship of persons, groups, and institutions to the making and implementing of public policy in the United States; consideration of the participants and the modes of analysis and thought influencing public policy.

**151. Politics: Electorate and Political Parties (4)**

Prerequisite: PI Si 2 or permission of instructor. Political parties; nature and extent of citizen political activity; election of public officials; political organization of government.

**156T. Topics in Political Behavior (1-4; max total 8 if no topic repeated) (Section same as W S 156T)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Voting behavior, political alienation, leadership, political perceptions and knowledge, environmental effects on political participation, group processes, and political socialization.

**159T. Seminar in American Government and Politics (1-4; max total 8 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Congressional committee operations, policy making by the courts, political implications of civil service, executive initiation of legislation, minority groups and politics, political implications of news reporting; jurisprudence and legal philosophy; legal institutions.

**LOCAL GOVERNMENT (PI SI)****160. State and County Government (3)**

Prerequisite: PI Si 2 or permission of instructor. The organization, structure, powers, and functions of state and county governments.

**163. Municipal Government (3)**

Prerequisite: PI Si 2 or permission of instructor. Organization, powers, and functions of city government; types of city charters, relationship between city and state government; police and fire protection, education, water supply, health and sanitation, city planning, debts and taxation, public utilities.

**169T. Seminar in Metropolitan Government and Politics (1-4; max total 8 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Regional and area intergovernmental relations, urban renewal, human relations agencies, and taxation methodologies.

**PUBLIC LAW (PI SI)****170. United States Constitution: Growth and Development in Theory and Practice (3)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Law of the Constitution and its underlying political theory, with leading cases.

**179T. Seminar in Public Law (1-4; max total 8)**

Prerequisite: PI Si 2, and 1 or 3. Administrative law, international law, judicial administration, jurisprudence, legal institutions.

**PUBLIC ADMINISTRATION (PI SI)****181. Public Administration (3)**

Prerequisite: PI Si 2 or permission of instructor. General analysis of the field of public administration; administrative theories; policy and administration; behavioralism; budgeting, planning, and legal framework.

**182. Administrative Analysis: Management and Organization (3)**

Prerequisite: PI Si 181 or permission of instructor. Administrative organization; methods and procedures; problem solving; reports and records; resource management.

**183. Comparative Administration (3)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Theories of comparative public administration; cross-national comparisons of administrative processes; institutions, policy formation, and behavior with consideration of cultural, social, and economic environments.

**187. Internship in Public Administration (2-6; max total 6)**

Maximum credit toward public administration major, 3 units. Prerequisite: PI Si 2, and 1 or 3 and permission of instructor. Supervised experience in government-in-action; work assignments in public agencies; written projects. (1 weekly seminar; minimum of 4 field hours per unit)

**188T. Topics in Public Administration (1-4; max total 9 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. Treatment of current topics and problems in fiscal administration, personnel management, and planning.

**189T. Seminar in Public Administration (3; max total 6 if no topic repeated)**

Prerequisite: PI Si 2, and 1 or 3 or permission of instructor. The values and philosophy of administration; management and dynamics of change; public relations and communication problems in public administration; planning problems and techniques; systems approach to resource management.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**191. Directed Readings (1)**

Directed readings and supplemental and original source material for enrichment of regular offerings in the subdiscipline.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**200. Seminar: Introduction to Graduate Studies (3)**

Prerequisite: permission of instructor. Concepts and problems in political philosophy and political science; major theoretical systems or analysis of comparative politics, political systems, and developmental change; cross-cultural problems.

**210. Seminar in Political Theory (3; max total 6 if topics not repeated)**

Prerequisite: permission of instructor. Advanced research and analysis of problems of sovereignty; relationships between the individual and the state; limitations of governmental authority; effect of crisis and challenge in international relations.

**220. Seminar in International Relations (3; max total 6)**

Prerequisite: Pl Si 120, permission of instructor. Research and analysis in an area of international politics: theory, law, organization, conflict resolution, foreign policy formulation.

**249. Seminar in Comparative Government (3; max total 6)**

Prerequisite: Pl Si 120, 140, and permission of instructor. Advanced level synthesis of basic concepts, issues, and problems of comparative government.

**250. Seminar in American Government (3; max total 6)**

Prerequisite: Pl Si 2, permission of instructor. Research and analysis of issues, concepts, and problems in the field of American Government; federalism, political parties, pressure groups, electoral behavior, legislative process, constitutional law.

**270. Seminar in Public Law (3; max total 6 if topic not repeated)**

Prerequisite: Pl Si 114, 170, and permission of instructor. Role and function of the judiciary and judicial systems in the formulation of governmental policy; problems in constitutional law, administrative law, international law, judicial process, and judicial administration.

**280. Seminar in Public Administration (3; max total 6 if topic not repeated)**

Prerequisite: permission of instructor. Problems in administrative analysis and organization, tools and techniques of administrative research, interpretation and application of research findings.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**299. Thesis (3-6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.

## SOCIAL SCIENCE MAJOR

The major consists of a minimum of 39 units of approved upper division courses selected in such a way as to insure a breadth of exposure to the Social Sciences. Students electing the major must satisfy all the requirements listed below.

### **Preparatory Work**

Since the major is comprised of upper division courses, some of which, in addition, have prerequisites, the student must have some exposure to introductory work in the Social Sciences. And, while no specific number of units are mandated, it is assumed that such preparation will encompass more than the minimal exposure guaranteed by the General Education requirements.

Courses appropriate for this purpose include, but are not limited to: Anth 2, Econ 1A, 1B, Eth S 1, Geog 2, Hist 1, 2, Pl Si 1, and Soc 1.

### **Statistics Requirement**

All Social Science majors shall complete 3 units of statistics or quantitative methods in any one of the following courses: Econ 120, Math 40, Pl Si 90, Psych 142, Soc 25, or Spch 106.

### **MAJOR**

In satisfying the unit requirements listed below, students shall arrange their programs to insure completion of a minimum of 6 units in at least 4 but no more than 6 disciplines, and no more than 15 units in any one. These disciplines include Anthropology, Economics, Ethnic Studies (Black Studies, La Raza, etc.), Geography, History, Political Science, Psychology, Sociology, and Speech Communication.

	<i>Units</i>
I. <i>The Record of Human Societies</i>	
A. Western Societies.....	6
Anth 127	
Econ 110, 111	
Geog 124, 127T, 141, 142, 177	
Hist 111, 112, 120, 121, 122, 131, 132, 139, 141, 145, 146, 147, 150, 155, 161, 166, 171, 172, 173, 174A, 174B, 176, 177, 178, 186	
Pl Si 142T, 143T, 146T, 170	
B. Non-western Societies.....	6
Anth 102, 120, 121, 122, 123, 124, 125, 126, 131, 132, 133	
Econ 114	
Ethnic Studies: Bl S 132, 145; La R 112	
Geog 125, 128T, 129T	
Hist 104, 107, 110, 134, 136	
Pl Si 144T, 145T	
II. <i>Social Processes</i> .....	6
Anth 103, 112, 113, 140, 141, 145	
Econ 117, 131, 150, 161, 174, 178, 179, 180	
Ethnic Studies: Bl S 144; La R 116, 118	
Geog 101, 104, 116, 118, 120, 145	
Hist 125, 184	
Pl Si 120, 150, 151, 181	
Psych 121, 122, 134, 154, 166	
Soc 111, 122, 131, 143, 145, 151, 157, 158, 159, 161, 162, 163, 164, 165	
Spch 108, 160, 162, 163	
III. <i>Social Theory</i> .....	6
Anth 104	
Econ 100A, 100B, 101, 108	
Geog 130	
Hist 148A, 148B	
Pl Si 110, 111, 114, 115, 140	
Psych 112	
Soc 152, 153	

IV. *Methods and/or Techniques in the Social Sciences*..... 3

- Hist 101
- Pl Si 199
- Psych 144
- Soc 175
- Spch 166

V. *Special Topic* ..... 12

The special topic shall consist of a program of upper division Social Science courses, approved by a Social Sciences adviser, which, as a unit or in conjunction with courses taken to satisfy the above requirements, explores a single topic of interest to the student. With the exception of those listed below, all upper division courses offered in Anthropology, Economics, Ethnic Studies (Black Studies, La Raza, etc.), Geography, History, Political Science, Psychology, Sociology, and Speech Communication may be employed to satisfy this requirement.

Courses which may not be applied to the Social Science Major:

- Anth 161, 162, 190, 192
- Econ 120, 185, 190
- Ethnic Studies: As Am 150, 190; Bl S 125, 127, 148, 160, 162, 170, 190; La R 100A, 100B, 101, 102, 103, 108, 121A, 121B, 130, 132, 190; NAS 190
- Geog 105, 106, 108, 109, 110, 111, 112, 113, 114, 115, 117, 171, 190, 192
- Hist 190
- Pl Si 130, 190, 191
- Psych 100T, 101, 102, 103, 110T, 120T, 124, 125, 130T, 132, 140T, 142, 143, 148, 149, 150T, 155, 160T, 162, 164, 167, 168, 170T, 171, 174, 175, 176, 180T, 190, 199
- Soc 190
- Spch 103, 106, 114, 115, 134, 135, 137, 140, 142, 165, 189, 190

**SOCIOLOGY DEPARTMENT**

**FACULTY**

S. John Dackawich, *Department Chairman*

Milton L. Barron ■ William C. Beatty ■ Joel G. Best ■ Alfred J. Claassen ■ Robert D. Fischer ■ Julius H. Marlowe ■ Albert I. McLeod ■ Edward E. Nelson ■ Elizabeth N. Nelson ■ John N. Tinker ■ Chandler Washburne ■ Robert B. Weber ■ William L. York

The department offers a major for the bachelor of arts degree and a minor for students majoring in other departments. The major is designed to provide a broad liberal arts background, as well as an adequate basis for graduate education. Cooperation is given to other departments in providing for students with such majors as social science and child-development.

**SOCIOLOGY MAJOR**

The following degree major requirements are in addition to general education requirements.

<b>Sociology</b>	<i>Units</i>
Soc 1, 25, 152, 153, 175.....	15
Sociology electives, upper division .....	24
	—
	39

**SOCIOLOGY MINOR**

The following minor requirements are in addition to general education requirements.

<b>Sociology</b>	<i>Units</i>
Soc 1, 25 .....	6
Electives in sociology, upper division .....	15
	—
	21

**COURSES**

**SOCIOLOGY (Soc)**

**1. Principles of Sociology (3)**

Basic principles and concepts of sociology; scientific study of society, important group types, and primary social processes; norms, roles, interaction, social systems, socialization, stratification, and social control.

**2. Social Problems (3)**

Analysis of those prevalent conditions in American society considered undesirable and remediable.

**25. Elementary Statistics (3)**

Required of students majoring in sociology. Prerequisite: Soc 1 or permission of instructor. Techniques for describing and analyzing quantitative data specifically related to sociology. Tabular and graphic presentation; commonly used measure of association; samples and sampling error; commonly used statistical tests.

**111. Sociology of Minority Relations (3)**

Prerequisite: Soc 1 or Anth 2, permission of instructor. Social processes involved in minority relations in the United States in terms of race, class, caste, ethnicity, politics, and religion; sources of minority attitudes; patterns of minority adjustment; trends in minority relations.

**112. Collective Behavior (3)**

Prerequisite: Soc 1 or permission of instructor. Theoretical and systematic treatment of episodes of collective behavior: panic, craze, hostile outburst, norm-oriented movements, and value-oriented movements. Collective behavior as a type of social phenomenon and an aspect of modern society.

**122. Social Movements (3)**

Prerequisite: Soc 1 or permission of instructor. Theoretical and empirical analysis of significant social movements; their social roots, processes, leadership, ideology and organizational patterns; politics, religion, economics, ethnic and race relations, and other areas considered.

**130. Contemporary Social Issues (3)**

Study in depth of current social issues on which the attention of the society is focused.

**131. Sociology of Sex Roles (3) (Same as W S 131)**

Prerequisite: Soc 1 or permission of instructor. The significance of differences in roles assigned to women and men for the social system; their effects upon socialization and social interaction; their relationship to major social institutions.

**135. Sociological Perspectives on the American Past (3)**

Prerequisite: Soc 1 or permission of instructor. Sociological analysis of long-term social developments and changes in the United States.

**142. Sociology of Popular Culture (3)**

Prerequisite: Soc 1 or permission of instructor. Processes of creation and consumption of popular culture; its significance within the social system; implication of current trends.

**143. Deviation and Control (3)**

Prerequisite: Soc 1 or permission of instructor. Deviance as a social phenomenon; positive and negative consequences; theories of deviance; formal and informal social control of deviance.

**145. Social Organization (3)**

Prerequisite: Soc 1 or permission of instructor. Factors related to social organization: complex organization, bureaucracy, formal and informal processes, authority systems; open-systems theory.

**146. Sociology of Work (3)**

Prerequisite: Soc 1 or permission of instructor. Formal and informal character of work relations and their significance in the context of the larger community.

**147. Medical Sociology (3)**

Prerequisite: Soc 1 or permission of instructor. Social relations and culture as factors affecting health; illness, prevention and treatment.

**148. Sociology of Education (3)**

Prerequisite: Soc 1 or permission of instructor. A sociological examination of education as an institution, including its social determinants, functions, and consequences.

**150T. Special Topics Seminar (1-3; max total 9)**

Prerequisite: permission of instructor. Topics include those areas of advanced theoretical and empirical studies that will orient the student to contemporary sociological endeavors.

**151. Social Stratification (3)**

Prerequisite: Soc 1 or permission of instructor. Analysis of evaluational differentiation leading to social stratification. Criteria for differentiation, bases for evaluation, types of stratification, composition of strata and status systems, mobility, consequences of stratifications, and methods of studying stratification.

**152. History of Social Thought (3)**

Prerequisite: Soc 1 or permission of instructor. History of sociological theory: major theoretical schools and important theorists.

**153. Contemporary Sociological Theory (3)**

Prerequisite: Soc 1, 152, or permission of instructor. Nature of theory and its verification; critical examination of current theoretical formulation.

**157. Social Change (3)**

Prerequisite: Soc 1 or permission of instructor. Analysis of trends in and process, directions, and patterns of social change.

**158. Seminar: Sociology of Knowledge (3)**

Prerequisite: Soc 1, 152, 153, or permission of instructor. How social processes affect what is to be considered "knowledge" and the attainment of "knowledge." Research papers required.

**159. Sociology of Religion (3)**

Prerequisite: Soc 1 or permission of instructor. Major sects, denominations and churches; integrative and disintegrative processes in the United States; contemporary religious phenomena. (1 lecture, 4 lab hours)

**161. Population Analysis (3)**

Prerequisite: Soc 1 or permission of instructor. Population theories and history; demographic processes and variables in contemporary society. Analysis of census data.

**162. Social Psychology (3)**

Not open to students with credit in Psych 134. Prerequisite: Soc 1 or permission of instructor. A multiple systems approach to personality; analysis of the effect of social and psychological variables; attitudes, social perceptions, collective behavior, conformity, and leadership.

**163. Urban Sociology (3)**

Prerequisite: Soc 1 or permission of instructor. The urban concept; form and development of urban areas; scientific study of urban places and populations; effect of urbanization on social institutions and social relations.

**164. Political Sociology (3)**

Prerequisite: Soc 1 or permission of instructor. Political pressures and the social bases of power in society; the role of classes, groups, institutions and social values in political behavior.

**165. The Family (3)**

Prerequisite: Soc 1 or permission of instructor. The family in historic and contemporary society, theoretical frameworks for analyzing the family, family dynamics; changes in family functions, structures, and roles.

**167. Seminar in Self and Society (3)**

Prerequisite: Soc 1, 162, or Psych 134 or permission of instructor. Analysis of the relation of the self-system to society; symbolic interaction theory; role identity and social interaction; types of self developed under varying social conditions.

**175. Seminar in Sociological Research Methods (3)**

Prerequisite: Soc 1 and 25 or permission of instructor. Analysis of selected published research; individual field research and reports.

**176. Seminar in Advanced Research Methods Topics (3; max total 6)**

Prerequisites: Soc 1, 25, 175, or permission of instructor. Exploration of theoretical problem from definition through collection of data, to analysis, interpretation; methods used to vary from semester to semester.

**181. Seminar in Small Groups (3)**

Prerequisite: Soc 1, 162, or permission of instructor. Microsociology; group types and basic processes. Effects of selected variables: group size, composition, task difficulty, role allocation, communication networks. Experimental research and reports.

**183. Mass Society and Communications (3)**

Prerequisite: Soc 1, 145 or 163, or permission of instructor. Analysis of social conditions producing mass society; its characteristics; communication systems; mass media and opinions formation.

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**SPEECH COMMUNICATION DEPARTMENT**

**FACULTY**

David F. Quadro, *Department Chairman*

R. Gene Anderson ■ Vincent L. Bloom ■ Hal W. Bochin ■ John A. Cagle ■ Howard J. Campbell ■ George E. Diestel ■ William M. Fulkerson, Jr. ■ L. Ralph Hennings ■ David T. Natharius ■ John F. Schunk ■ W. Richard Ullmann

The Speech Communication Department offers courses leading to a bachelor of arts degree with a major or minor in speech communication and master of arts degree in speech arts.

The curriculum is designed to provide courses appropriate to prepare students for careers in teaching, law, communication professions, public service and administration, and industrial communication management. The departmental major and minor requirements include courses relating to rhetorical and communication theories. The department affords the student majoring in fields other than speech many courses which focus upon communication factors as they apply to any field of study. Students planning to pursue graduate work in speech communication should consult their advisers and the graduate schools of their choice regarding requirements for admission and should plan to use their electives within the major largely to satisfy such requirements.

In addition to departmental programs, many courses are offered which fulfill general education requirements and which provide the knowledge and background necessary to enjoy and contribute to our free society.

<b>SPEECH COMMUNICATION MAJOR</b>	<i>Units</i>
Elect from Spch 5, 7, 8, 15-115, 106.....	12*
Spch 140, 142, 160, 162, 166 .....	15
Elect from Spch 108, 163, 167 .....	3
Elect from Spch 146, 148 .....	3
Approved Electives (See Note below) .....	15
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\* No more than 3 units of Spch 15-115 can count toward fulfillment of these 12 units.

*Note:* In consultation with your departmental adviser, you may use these electives to fit your particular interests and professional aspirations. The following directions are examples of uses that the Speech Communication Department recommends and in which our students have shown interest.

*Public Administration:* Pl Si 3, 181, and one upper division political science course from each of the following areas: Political Theory, American Government, Local Government (see Political Science Department course offerings). Free electives should be used to gain additional work in communication and public administration or work in personnel management and public relations. See your adviser.

*Credential Program:* For information on the current credential program consult departmental advisers and the School of Education; see the section on *Public School Credentials*.

*Prelegal.* In consultation with your departmental adviser, courses from the choices listed above in the Major should be carefully selected, as should appropriate electives. Speech 105 is strongly recommended as an elective course. See also the catalog's general *Prelegal* description under *Preprofessional Preparation*.

<b>SPEECH COMMUNICATION MINOR</b>	<i>Units</i>
Spch 5, 7, 8, 140, 160 .....	15
Elect from Spch 108, 162, 163, 167 .....	3
Elect from Spch 142, 146, 148 .....	3
	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> 21

**SPEECH TEST**

For credential candidates. See *General Information—Entrance Examinations* and *School of Education—Admission to Credential Program*.

**MASTER OF ARTS DEGREE**

The graduate program for the master of arts degree in speech is based on the equivalent of the undergraduate major or minor in speech at CSU, Fresno. From 18 to 24 of the 30 units required for the degree must be in speech. For specific requirements, consult the graduate adviser; for general requirements see *School of Graduate Studies* and the *Graduate Bulletin*.

**COURSES****SPEECH COMMUNICATION (Spch)****3. Fundamentals of Oral Communication (3)**

Meets speech requirement in general education. Understanding and practicing the skills of oral communication; observation, organization, reasoning, transmission, listening, and problem solving through a series of prepared speeches.

**4. Introduction to Interpersonal Communication (3)**

Introduction to various theories of interpersonal communication; participation in experiences designed to enhance competence in interpersonal relationships.

**5. Argumentation (3)**

Logical analysis, evidence, reasoning, and proof used in arriving at rational decisions as demonstrated through presentation of public speeches and debates.

**7. Persuasion (3)**

Analysis and practice of the use of persuasion as a social tool for resolving controversy and forming opinions from the perspectives of both the persuader and the persuaded.

**8. Group Discussion (3)**

Communication in group thinking and problem solving through preparation and presentation of panels and symposia on public issues.

**107. Topics in Speech (1–3; max total 9)**

Contemporary problems and issues in speech communication; sections include such topics as freedom of speech, parliamentary procedure, special communication skills, rhetoric of protest and response, and communication processes.

**15. Forensics Laboratory (1–2; max total 4)**

Experience in the presentation of debates, oral interpretation programs, persuasive and expository speaking. Intramural and intercollegiate competition in forensics.

**103. Advanced Public Speaking (3)**

Advanced principles of expository and persuasive speaking; development of skills through analysis, preparation, organization, and delivery of various types of speech.

**105. Proseminar in Argumentation Theory (3)**

Analysis of the theories and techniques of argumentation, including models of argument, relationships between persuasion and argumentation, and the effects of argumentative discourse.

**106. Statistical Applications in Communication (3) (Former Spch 66)**

Introduction to elementary statistical concepts, correlation analysis, parametric and nonparametric tests; emphasis on the application of statistical procedures to communication research. (3 lecture, 1 lab hour)

**108. Communication and the Small Group (3)**

Analysis of group communication theories and their application to small group behavior in specific variables such as leadership, power, conflict-resolution, conformity, cohesiveness, and related group processes.

**114. Communication and Learning (3) (Same as E Ed 158)**

Study of the nature of communication and its relationship to learning and instruction; management of oral communication strategies in the educational setting.

**115. Advanced Forensics Laboratory (1-2; max total 6)**

Experience in the presentation of debates, oral interpretation programs, persuasive and expository speaking. Intramural and intercollegiate competition in forensics.

**134. Structure of English (3) (See Ling 134)****135. General Linguistics (3) (See Ling 135)****137. American English (3) (See Ling 137)****140. Rhetorical Theory (3)**

Examination and analysis of classical, renaissance, and modern rhetorical theory for the purpose of identifying the theories of speech.

**142. Rhetorical Criticism (3)**

Examination of methods of the classical critics through the contemporary theorists in rhetorical criticism for the purpose of establishing standards for rhetorical analysis.

**145. History of Public Address: Ancient (3)**

Study of selected classical discourse. Special emphasis is given to the study of classical institutions within ambient societies.

**146. British Political Communication (3)**

A history and criticism of British political communication from Pitt to modern times. Special emphasis is given to the social and political forces of the period.

**148. History of Public Address: American (3)**

Selections from speeches of great American speakers analyzed in a cultural, psychological, social, and historical context; historical-rhetorical method of speech criticism.

**160. General Semantics (3)**

Study of the attempt to organize the findings of the sciences of men and to develop procedures for self-management of man as a symbol user; internalizing the procedures.

**162. Proseminar in Interpersonal Communication (3)**

Nature of the communication process; factors affecting the process and the individuals involved.

**163. Social Influence and Attitude Change (3)**

Discussion of research on the nature and effects of social influence, with special emphasis on attitude formation and change, conformity, behavior, "brainwashing", prejudice, and propaganda as functions of communication.

**164. Intercultural Communication (3)**

Analysis of cultural variables and factors in the communication process and strategies for the resolution of intercultural problems; consideration of implications for education and programs necessarily involving intercultural communication.

**165. Computer Applications in Communication (3)**

Study and use of various computer systems available in the study of human communication: Fortran IV, coursewriter III, LISP, SNOBOL, *General Enquirer*; emphasis on processing verbal data.

**166. Communication Research Methods (3)**

Application of behavioral research principles to problems in quantification, design, and analysis of data in communication research.

**167. Leadership in Groups and Organizations (3)**

Theory and practice of selected leadership variables in groups and organizations; functions of leadership in formal and informal structures, understanding and analysis of role-playing techniques.

**168. Communication in Organizations (3)**

Application of communication principles to the improvement of organizational efficiency.

**188T. Topics in Speech (1-3; max total 9)**

Selected topics in speech communication.

**189. Projects in Speech (1-3; max total 6)**

Prerequisite: permission of instructor. Projects in speech communication. (4 hours activity)

**190. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*.)

**200. Introduction to Graduate Study (3) (Same as Drama 200)**

Seminar in research procedures and materials. Required of all majors during the first semester of graduate work.

**210. Graduate Survey in Speech Arts (3)**

Seminar in review and analysis of advanced literature in an area of specialization.

**215. Seminar in Speech Arts (3; max total 9) (Same as Drama 215)**

Research and individually directed work within one area of specialization.

**241. Seminar in Rhetorical Theory (3)**

A seminar which deals with the development of specific principles by selected theories.

**242. Seminar in Contemporary Criticism (3)**

The role of rhetorical criticism in contemporary society.

**243. Seminar in the History of American Public Address (3)**

A detailed study of selected men who have influenced political, religious, and social problems in American History.

**244. Seminar in Contemporary Public Address (3)**

The study of contemporary figures in public address who have influenced political, religious, economic, and social problems in the 20th century.

**262. Seminar in Communication Theory and Research (3)**

An examination and evaluation of mathematical, philosophical, sociological, psychological, and rhetorical theories of human communication. Emphasis upon the assumptions and implications of various theories, models, and constructs.

**263. Seminar in Small Group Communication (3)**

A critical examination of the scientific research in small group communication with emphasis on theories of group communication; research variables and methodologies. Implications of research findings for contemporary communication problems.

**264. Seminar in Communication Research Methods (3)**

The nature, implications and assumptions of methodologies in human communication research. Discussion of quantification, design, and statistical inference as they relate to experimental, quasi-experimental, descriptive, survey, and case study methodologies.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**299. Thesis or Project (2-6; max total 6)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

**IN-SERVICE COURSES**

(See *Course Numbering System*)

**303. Topics In Speech (1-3; repeatable with different topics)**

## URBAN AND REGIONAL PLANNING DEPARTMENT

### FACULTY

Harold H. Tokmakian, *Department Chairman*

Russell C. Fey ■ David T. Lee ■ Joel M. Levin ■ Wayne V. Merchen ■ Barry M. Rosenblatt

The Department of Urban and Regional Planning offers a professional program leading to the master's degree in city and regional planning which is recognized by the American Institute of Planners. The program has a multidisciplinary approach which seeks to develop planners equipped to deal effectively with the structures, processes, and problems of community and regional planning and development. Program emphasis is on the development of a general theory and philosophy of planning applicable to any spatial or institutional setting, including the region, metropolitan area, medium-sized city, rural areas and their service centers, and all constituent communities of interest.

The department offers undergraduate courses to serve students interested in urban studies and environmental design. Students considering undergraduate work in planning should consult the department chairman to arrange an appropriate course of study.

### MASTER OF CITY AND REGIONAL PLANNING DEGREE

The master's degree program in city and regional planning requires 60 semester units of study designed as preparation for careers in planning at a responsible level. It accepts an undergraduate degree in a field related to planning, such as geography, political science, public administration, economics, sociology, architecture, social psychology, education, social welfare, recreation, or engineering as the necessary foundation for entrance. Other fields may be acceptable, depending on an evaluation of the candidate's record and career goals.

The program is composed of a professional planning core and related supportive subjects designed to provide a framework sufficiently broad for specialized or general practice. Generally, students in their first year follow a program which provides a common body of knowledge in planning theory, research methods, design, and professional practice. Beginning with the second semester and continuing into the second year, students are encouraged to consider a minor specialization. With the assistance of his adviser, a student may undertake work which emphasizes interest in social concerns, in planning research, in regional and environmental studies, or in urban planning, policies, and programs. Each candidate should consult the department chairman prior to formal application. Applicants must also meet the entrance standards of the School of Graduate Studies. See *School of Graduate Studies and the Graduate Bulletin*.

### COURSES

#### URBAN AND REGIONAL PLANNING (U R P)

##### 100. Introduction to Community Planning (3)

Prerequisite: junior standing. Introduction to and critical analysis of theory and practice of community planning; traditional and alternative roles of planning in contemporary society; perspectives on community problems; evaluation of concepts, literature, and history.

##### 101. Urban and Regional Research Methods (3)

Prerequisite: junior standing. Review of mathematical processes, including algebra, and basic statistics; introduction to regression analysis, probabilities, gaming and simulation, and other methods of systems analysis; application of techniques to urban and broad area data.

##### 102. History of Urban Development Form (3)

Prerequisite: junior standing. Historical survey of urbanization; the evolution of urban form, spatial structure and systems.

##### 103. Introduction to Urban Design (3)

Suggested for graduate students emphasizing design. Prerequisite: junior standing. Introduction to physical design and environmental communication. Basic sources of design information, formulation of design programs and solutions; supervised studio projects. (2 3-hour studios)

**118T. Topics in Public Policy (1-3; max total 6)**

Prerequisite: junior standing. Study and development of interagency and intergovernmental policy concerning contemporary issues of local and regional significance.

**140. Urban Design Analysis (3)**

Prerequisite: junior standing, URP 103, or permission of instructor. Empirical study of urban design, urban pattern analysis, environmental perception, and the underlying concepts affecting design philosophy, design communications and design process.

**149T. Topics in Environmental Design (3; max total 6)**

Prerequisite: junior standing, URP 100, or permission of instructor. Selected topics on factors that influence environmental design problems, including environmental crisis areas and impact of public policies; design framework formulation and problem solving needed to achieve a quality environment.

**161T. Topics in Planning Research Methods (1-3; max total 6)**

Prerequisite: junior standing. Application of simulation and mathematical methods of research and analysis to urban and regional planning problems.

**190. Independent Study (1-3; max total see reference)**

See *General Information-Independent Study*.

**191. Directed Readings (1-3; max total 6)**

Supervised independent reading in a selected topic related to urban and regional planning.

**GRADUATE COURSES**

(See *Course Numbering System—Definitions and Eligibility*)

**109GT. Presentation Techniques in Urban and Regional Planning (1; max total 3)**

Prerequisite: concurrent enrollment in U R P 200 series courses. Topics in techniques and practice of oral, narrative and graphic presentation as related to urban and regional planning. (1 2-hour lab)

**200. Seminar in Planning Theory and Process (6) (Former U R P 200, 210)**

Prerequisite: permission of instructor. Pursuit and analysis of the essence of planning, study of traditional and contemporary theories of community, community development, the planning process.

**201A-B. Seminar in Planning Research (3-3)**

Prerequisite: permission of instructor. (A) Planning research methodology and technique including scientific method, statistical analysis of data, sampling, regression analysis; application of computer technology; sources of data. (B) Application of research methodology and technique to planning problems; special emphasis on the formulation of research designs.

**202. Seminar in Design Theory (3)**

Prerequisite: permission of instructor. Examination of urban design theory with attention to design philosophy and the underlying concepts that include man-environment relations, contemporary global impact upon design, design communications, the design process; case studies that range from the micro to macro arenas.

**203. Practicum in Community Planning (6) (Former U R P 203A-B)**

Prerequisite: U R P 200, 202, or permission of instructor. Supervised studio and field projects in community design, the planning process, and research studies; application of principles and theories in preparation and analysis of conceptual and comprehensive plans and studies.

**204. Seminar in the Elements of Community Structure (3)**

Prerequisite: permission of instructor. Analysis of the characteristics and interrelationships between selected elements of the physical structure of the community including land use, transportation, housing, and public facilities.

**205. Seminar in Community Dynamics (3)**

Prerequisite: U R P 200 or permission of instructor. Critical and constructive examination of key concepts and conceptual roots implicit and explicit to contemporary theories of community dynamics and development program policy.

**212. Seminar in Urban Renewal (3)**

Prerequisite: U R P 200, 201A, 202, or permission of instructor. The growth, development and application of urban renewal as a concept and as a means to solution of the physical, social, and economic deterioration of urban areas; federal, state, and local agency interrelationships; political constraints.

**215. Seminar in Land Development Controls (3)**

Prerequisite: graduate standing, U R P 200, 202, 203 or permission of instructor. The application of the police power—zoning, subdivision regulations and other techniques—used to implement land development plans and policies; historical and contemporary case studies.

**218T. Topics in Public Policy Study (3; max total 12)**

Prerequisite: U R P 200, 205 or permission of instructor. Topics in the analysis and development of concepts, structures, and dynamics implicit and explicit to the formation, implementation, and evaluation of governmental policy-making impacts on the community and region. New towns, antipoverty, systems analysis, federalism, and intergovernmental relations.

**219T. Seminar: Topics in Urban Theory and Planned Change (1–3; max total 12)**

Prerequisite: U R P 200, 201A or permission of instructor. Selected topics such as forces affecting urban development; means for guiding urban development; channels and spaces in the urban matrix; impediments to planned change; economic structure of the city and region; formulation and implementation of planning policy reflecting these considerations.

**220. Seminar: Planning for Housing (3)**

Prerequisite: graduate standing, U R P 200, 201A, 202 or permission of instructor. Housing problems in America; the role of local, state and federal government and private enterprise; planning for adequate housing, carrying out policies and programs.

**230. Seminar in Planning for the Region (3)**

Prerequisite: graduate standing, U R P 200, 201A, or permission of instructor. Regional planning—approaches and methods; goal and policy implications of resource development, utilization and conservation; strategies for planning; case studies.

**232. Seminar in Planning for Natural Resources (3)**

Prerequisite: U R P 200, 201A, or permission of instructor. Planning with the natural environment to produce maximum benefits to society; techniques of soil, air, water, vegetative, and associated resource management; case studies and field projects.

**235. Seminar in Environmental Law (3)**

Prerequisite: U R P 200, 203 or permission of instructor. Contemporary environmental problems and programs; the interrelationship and impact of laws which affect and regulate the environment and its quality; case studies.

**239T. Seminar in Regional and Environmental Planning (1–3; max total 12)**

Prerequisite: U R P 200, 203, 235 or permission of instructor. Selected topics in regional and environmental planning, including land, air and water resources; consideration of federal, state, and local environmental laws and policies; case studies.

**240. Seminar in Urban Design (3)**

Prerequisite: U R P 202, 203, or permission of instructor. Advanced and empirical study of urban design, environmental perception, and the person-environment relationship; supervised individual and group projects in the field and laboratory.

**249T. Seminar in Environmental Design (1-3; max total 12)**

Prerequisite: U R P 200, 202, 203 or permission of instructor. Selected topics such as man-environment relations; the development of community form; physiographic and cultural influences on urban design; problems in policy making, implementation, and controls; cognitive mapping, formulation of community design centers, design of prototypical environments. (2 3-hour studios)

**259T. Seminar: Topics in Public Services and Resource Management (1-3; max total 12)**

(Former U R P 225T)

Prerequisite: U R P 200, 201A, or permission of instructor. Public facilities and services planning including transportation; physical planning and programming aspects of water supply, liquid and solid waste management systems, and education facilities; development of goals, policies, and plans for open space, parks, recreation facilities, and resource management.

**260. Seminar in Theory of Urban Development Process (3)**

Prerequisite: U R P 201A or Geog 120, or permission of instructor. Theory of regional and urban spatial organization; economic, size, distance, political, and social theories of urban development; theory of modeling and gaming simulation.

**261. Seminar in Development Process Simulation (3)**

Prerequisite: U R P 201A, 260, or permission of instructor. Application of gaming and mathematical simulation techniques to the urban development process; research assignments, case studies, supervised projects.

**279T. Seminar: Topics in the Social Aspects of Planning (1-3; max total 12)**

Prerequisite: U R P 200, or permission of instructor. Selected topics such as patterns of response to social change and their implications for planning policy; the advocacy role in planning; social accounting systems for plan evaluation.

**280T. Professional Planning Practice (2-5; max see below)**

Maximum total 13 units; no more than 5 applicable toward degree. Prerequisite: U R P 200, 201A, 202, 203, or permission of instructor. Individually supervised professional practice in a public agency: preparation and implementation of comprehensive urban and regional plans; study of interrelationships and roles of governments, public agencies, and private enterprise.

**281T. Seminar in Planning Practice (1; max total 3)**

Prerequisite: concurrent enrollment in U R P 280T, permission of instructor. Seminar to explore characteristics and problems of professional planning practice; written evaluations of work experience.

**282T. Field Study of Selected Planning Topics (1-6; max total 12 if no topic repeated)**

Prerequisite: permission of instructor. Field study of urban and regional phenomena in relation to urbanization, urban systems, housing, and resource development.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**291. Directed Readings in Urban and Regional Planning (1-3; max total 6)**

Supervised independent reading in a selected topic related to urban and regional planning.

**299. Planning Thesis (2-4; max total 4)**

Prerequisite: see *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis for the master's degree.



SCHOOL OF SOCIAL WORK  
Graduate Department of Social Work  
Social Welfare Department



## SCHOOL OF SOCIAL WORK

Richard D. Ford, Dean

### FACULTY

Manuel E. Aguirre ■ Andrew J. Alvarado ■ Patricia M. Baumann ■ Susan F. Bennett ■ Clifford V. Bonham ■ Thomas M. Brigham ■ Barbara H. Costigan ■ David L. Ellis ■ Marie A. Emmal ■ Paul L. Haire ■ Robert L. Hatmaker ■ Jack T. Jenkins ■ Sudarshan Kapoor ■ Joyce Kershaw ■ John E. Lindberg ■ Aleanor R. Merrifield ■ Barbara M. Moore ■ Nobuo Mori ■ Lynne C. Morris ■ Stanley S. Moss ■ Patricia R. Pickford ■ Wallace N. Rich ■ Erving C. Ruhl ■ Marilyn J. Simpson ■ Luis R. Sosa ■ Wynn C. Tabbert (Chairwoman, Department of Social Welfare) ■ Henry Van Veldhuizen ■ Barbara K. Varley ■ Ganesha Visweswaran ■ Catherine Woodcock

The School of Social Work provides an undergraduate major in social welfare leading to the bachelor of arts degree, designed to prepare for beginning professional social work practice, to provide preparation for graduate work, and to provide a broad education in liberal arts. The school offers a two-year graduate program of preparation leading to the professional master of social work degree.

Social welfare courses at the undergraduate level include integration of theoretical and applied materials with contributions from social work, law, sociology, political science, cultural anthropology, economics, and psychology.

Graduate social work courses are similarly integrated and include materials from medicine, and psychiatry as well. Additionally, graduate social work courses include content unique to social work, especially in methods, field instruction, and social welfare policies and services. The School of Social Work holds membership in the Council of Social Work Education. Both undergraduate and graduate programs are accredited by the Council.

The continuing education program seeks to serve professionally trained social workers, other workers, and aides employed in social welfare agencies in the five-county service area of the college by supplementing professional education and in-service training in order to improve the level of effectiveness of social workers and allied disciplines in practice and to provide learning opportunities for those persons desirous of career progress.

### COOPERATING AGENCIES

Social agencies throughout the San Joaquin Valley participate in the social welfare and social work training programs by providing field experience and instruction: Atascadero State Hospital; Behavior Analysis Group; Big Brothers of Fresno; California State Department of Corrections, Human Resources Development, Social Welfare, Youth Authority; California State University, Fresno, ACTION Program, Affirmative Action, Educational Opportunity Program, Social Welfare Department; Clovis Unified School District; Comprehensive Health Planning Association; Emanuel Mental Health Center; Fresno City: Inspection and Planning Division, Housing Conservation Division, Recreation Department, Fresno City Police Department, Fresno City Unified School District; Fresno City College EOP/SS and Women's Center, Fresno Community Council; Fresno Community Hospital; Fresno County: Family Court, Jail, Mental Health Department, Probation Department, Sheriff's Office, Welfare Department, Valley Medical Center; Housing Authorities of Fresno City and County; Geriatric Programs; Hamberger House; Infant of Prague; Jewish Resources Corporation; Kernview Mental Health; Kings Canyon Unified School District; Kings View Mental Health Services; La Colonia Head Start Center; Lutheran Social Services; Madera County Welfare Department; Merced County Welfare Department; Multiple Sclerosis Society; National Association of Social Workers; National Organization of Women; North Visalia Social Service Center; Parlier Community Center; Pastoral Counseling Service; Pinedale Boys Club; Planned Parenthood of Fresno; Private convalescent hospitals; Project Outreach; Regional Diagnostic Center for the Mentally Retarded; St. Agnes Hospital; Trabajadores de la Raza; Tulare County Child Care Educational Program; Universidad de Aztlan; Valley Children's Hospital and Child Guidance Clinic; Veterans Administration Hospital. In addition, other agencies cooperate in the program.

## GRADUATE DEPARTMENT OF SOCIAL WORK

### MASTER OF SOCIAL WORK DEGREE

The master of social work degree prepares social workers for such areas as mental health, family service, public welfare, child welfare, child guidance, physical health, medical and hospital social services programs, rehabilitative social work, social work in correctional programs, family planning, social administration, social welfare planning, school social work, programs for the aging, social work in minority communities, social work education, drug abuse.

The graduate program requires two years of full-time enrollment. The first-year core curriculum provides generic training. In the second year, students select an area of specialization and one of two practice concentrations, either micro practice (clinical), which deals with small social systems (individual, family, small groups) or macro practice, which is concerned with large social systems (communities, formal organizations). Both years include concurrent classroom study and an intensive practicum. All degree students are required to complete an individual thesis or an individual or group research project.

Eligibility for admission to the program is based on completion of a bachelor's degree, preferably in a social welfare major or with substantial preparation in the social sciences and psychology (although other patterns may be permitted); an acceptable score on the Graduate Record Examination Aptitude Test; specified grade point average at the undergraduate level; and academic and personal suitability for the field as determined by social work faculty. Admitted applicants with an undergraduate degree in social welfare or social work from an accredited program may qualify for advanced standing of up to one year.

For further information, consult the Dean, School of Social Work. For general requirements see *School of Graduate Studies*. For detailed information about the graduate program, see the *Graduate Bulletin*, available in the Office of the School of Graduate Studies.

### SEQUENCE OF GRADUATE COURSES FOR MASTER OF SOCIAL WORK DEGREE

1st Semester (16 units): S Wrk 200, 223, 233, 250 (4 units), 291 (3 units)

2nd Semester (15 units): S Wrk 224, 234, 250 (4 units), 270T (3 units), 292 (2 units)

3rd Semester (15-16 units): S Wrk 251 (5 units), 271T (3 units), 290 (2 units), and either 297 (2 units) or 299 (3 units); in addition, "micro" students take 225 (3 units) and "macro" students take 235 (3 units).

4th Semester (14-15 units): S Wrk 251 (5 units), 272T (2 units), 290 (1 unit), either 297 (2 units) or 299 (3 units); in addition, "micro" students take two seminars of 226T (2 units) and "macro" students take two of 236T (2 units).

### GRADUATE COURSES

#### SOCIAL WORK (S Wrk)

*Note: Admission to the MSW program is prerequisite to all graduate courses unless otherwise stated. Exceptions may be authorized by the Dean.*

#### 200. Seminar in Social Welfare Policy and Services (3)

Social work philosophy, values and ethics; the evolving, changing relationship of social work and social welfare to changing socio-economic and political climate; social welfare as a social institution, evolving from aspects of social change and social responsibility.

#### 223. Seminar in Social Work Practice (Micro) (3) (Former S Wrk 220)

Introduction to the basic concepts and principles of social work practice with individuals, families and small groups, including knowledge of the growth processes and personality development; relationship of social functioning to native endowment, environment, and culture.

#### 224. Seminar in Social Work Practice (Micro) (3) (Former S Wrk 221)

Prerequisite: S Wrk 223. Continued study of the methods of intervention appropriate to individuals, families and small groups whose life situations reflect environmental, interpersonal or intrapersonal stresses.

**225. Seminar in Social Work Practice (Micro) (3) (Former S Wrk 222)**

Prerequisite: S Wrk 224. Advanced seminar on the theories of clinical intervention and the underlying theories of personality and pathology, with major emphasis on social work treatment modalities.

**226T. Seminar in Methods of Clinical Practice (2) (Former S Wrk 280T)**

May be repeated with different topics. Prerequisite: S Wrk 225 or permission of instructor. Theories and developments in services to and treatment of individuals, families, and small groups.

**233. Seminar in Social Work Practice (Macro Social Systems) (3) (Former S Wrk 230)**

Introduction to the basic concepts of social work practice in macro social systems (community and formal organizations). Theories and characteristics of community and formal organizations; nature of social work intervention in these larger systems, including strategies of community and administrative practice in social welfare institutions.

**234. Seminar in Social Work Practice (Macro Social Systems) (3) (Former S Wrk 231)**

Prerequisite: S Wrk 200 and 233. Intermediate study of social work theory and methods in larger social systems (community and formal organizations). Implementation of social welfare policies of governmental and non-governmental agencies, relationships and linkages among these various institutions, and roles and goals of practitioner in administering or changing existing policies and programs.

**235. Seminar in Social Work Practice (Macro Social Systems) (3) (Former S Wrk 232)**

Prerequisite: S Wrk 234. Advanced study of social work practice, theory and methods in larger social systems (community, formal organizations), with emphasis upon prevention of social problems; will also explore the relationship between these social systems and other large systems, e.g., ecological, communications; roles, goals and strategies of the social worker in developing preventive programs.

**236T. Seminar in Social Work Processes (Macro Social Systems) (2) (Former S Wrk 280T)**

Prerequisite: S Wrk 235. Advanced practice course to prepare for mid-range management positions in social welfare through study of specific topics, e.g., administration, budgeting and personnel administration, community organization and development, social planning; primary emphasis upon development of skills in the solution, alleviation or prevention of specific problems.

**250. Field Instruction (4-8; max total 8)**

Field instructed practice experiences in work with individuals, groups and families, formal organizations and communities, applying the theories and concepts of social work practice taught concurrently in the classroom; a two-semester course beginning each fall.

**251. Field Instruction, Advanced (5-10; max total 10) (Former S Wrk 250)**

Prerequisite: S Wrk 250. Field instructed practice experiences in selected areas of specialization, with emphasis upon a practice concentration, either with small or with large social systems; application of theories and concepts taught concurrently in classroom; a two-semester course beginning each fall.

**270T. Seminar in Social Work Specializations (3) (Former S Wrk 201)**

A required elective is an introduction to and overview of selected areas of specialization, e.g., mental health, social development, administration of justice. Emphasized will be theory, practice, implications and professional opportunities in student's specialization choice.

**271T. Seminar in Social Work Specializations (3) (Former S Wrk 202)**

Prerequisite: S Wrk 270T or permission of instructor. Indepth study of the specialization of student's choice as reflected in 270T; a required elective.

**272T. Seminar in Areas of Social Work Service (2) (Former S Wrk 273T)**

Prerequisite: permission of instructor. Theories and developments in the areas of mental health, public health, administration of justice, child welfare, family welfare, income maintenance, community planning, community development, international social work, schools, social gerontology, rehabilitation.

**290. Independent Study (1-3; max see reference)**

See *General Information—Independent Study*.

**291. Seminar in Social Work Research (3)**

Relation of research, theory, and practice in social work.

**292. Seminar in Methods in Social Work Research (2)**

Prerequisite: S Wrk 291. Social work research strategies and methods, including program and proposal development, evaluative research, experimental design, social stimulation, research utilization.

**297. Individual or Group Research Project (2-4; max total 4)**

Prerequisite: S Wrk 292. Utilization of social work research principles and techniques to select study design, determine data collection techniques, collect and process data, interpret findings and prepare final written report. Standards same as thesis.

**299. Thesis or Project (3-6; max total 6)**

Prerequisite: S Wrk 292. See *Master's Degrees—Thesis Requirement*. Preparation, completion, and submission of an acceptable thesis or project for the master's degree.

## SOCIAL WELFARE DEPARTMENT

The Social Welfare Department offers a major in Social Welfare. The bachelor of arts degree is designed to follow the guidelines of the Council on Social Work Education for the first professional practice level degree and to prepare students to be eligible for consideration for advanced standing in admission to master's degree programs which would otherwise require two years of full time enrollment. Graduates generally find employment in the human service occupations, especially public welfare, voluntary community and group services, poverty programs, mental hygiene, services for children, the handicapped, the aged and other special population groups, Peace Corps, VISTA, social rehabilitation, and human resources development.

### BACHELOR OF ARTS DEGREE MAJOR IN SOCIAL WELFARE

*Units*

S Wel 20, 123, 130, 140 (4 units), 141 (4 units), 170 (2 units), 175, 176, 181 (10 units), 185 38

*Additional Requirements:* (24 units) URP 100, Introduction to Urban and Regional Planning (3); six units of ethnic studies, three of which must be from approved La Raza courses, and three of which can be chosen from approved ethnic studies courses; one three unit course from approved courses in three of the following areas: anthropology, economics, political science, psychology, sociology (18 units total, at least 12 upper division). Two additional electives from the foregoing areas or from criminology or urban and regional planning (6 units upper division).

### COURSES

#### SOCIAL WELFARE (S Wel)

##### 20. Social Welfare (3)

Social, economic, political, historical, and philosophic components in development of social welfare and social work in western society.

##### 121. Social Welfare Programs (3)

Prerequisite: S Wel 20 or permission of instructor. Major contemporary social welfare programs in the United States; basic principles of social security programs; roles of federal, state, and local governments.

##### 122T. Topics in Social Welfare (3; max total 15) (Same as W S 122T)

Topics in fields of social work practice, basic social work theories and social work methods.

##### 123. Seminar in Social Welfare Policies and Programs (3)

Open only to Social Welfare majors. Prerequisite: S Wel 20. Basic policies and major programs in contemporary social welfare; consumption, income supports, job provision, housing, health, civil rights, consumer advocacy, population control, environmental standards; principles of social security, administration of social services, roles of government and citizen participation.

##### 124. Proseminar in Interviewing (3)

Seminar in principles of interviewing. Conduct, analysis and presentation of interviews, and case studies.

##### 127. Proseminar in Group and Community Services (3)

Seminar in group and individual analyses and presentations of community problems and services.

##### 130. Seminar in Social Work Processes (3)

Open only to Social Welfare majors. Prerequisite: S Wel 20 and permission of instructor. Introduction to social work intervention.

##### 140. Seminar in Micro Practice (4)

Open only to Social Welfare majors or by permission of department chairman. Seminar emphasizing integration of behavior and personality theories with principles of beginning social work practice with individuals, families, and small groups; counseling skills.

**141. Seminar in Macro Practice (4)**

Open only to Social Welfare majors. Integration of systems, large groups, and organization theory with beginning practice with large groups, organizations and the community; designing interventive strategies for these systems.

**170. Field Observation (1-3; max total 6)**

Open only to Social Welfare majors. Prerequisite: junior standing and permission of instructor. Introduction to field practice with emphasis on observation and beginning social work practice in various community settings.

**175. Seminar in Social Work Research (3)**

Open only to Social Welfare majors. Prerequisite: S Wel 20. Research design in social work; sampling, instruments for data collection.

**176. Seminar in Data Analysis and Presentation (3)**

Open only to Social Welfare majors. Prerequisite: S Wel 20, 175. Introduction to statistical methods and computer utilization. Application of research methods to problems of program development and evaluation with a focus on analysis and interpretation of data.

**180. Training in Public Services (1-2; max total 5)**

Prerequisite: S Wel 20 and permission of instructor. Planned and supervised experience or study in a field of occupational specialization.

**181. Field Instruction (1-5; max total 10)**

Open only to Social Welfare majors. Prerequisite: senior standing and permission of instructor. Guided social work practice experience with individuals, groups, families and organizations in the community.

**185. Capstone Seminar (3)**

Open only to Social Welfare majors. Culminating senior seminar integrating theory and practice of social work, current trends in the profession.

**190. Independent Study (1-3; max see reference)**

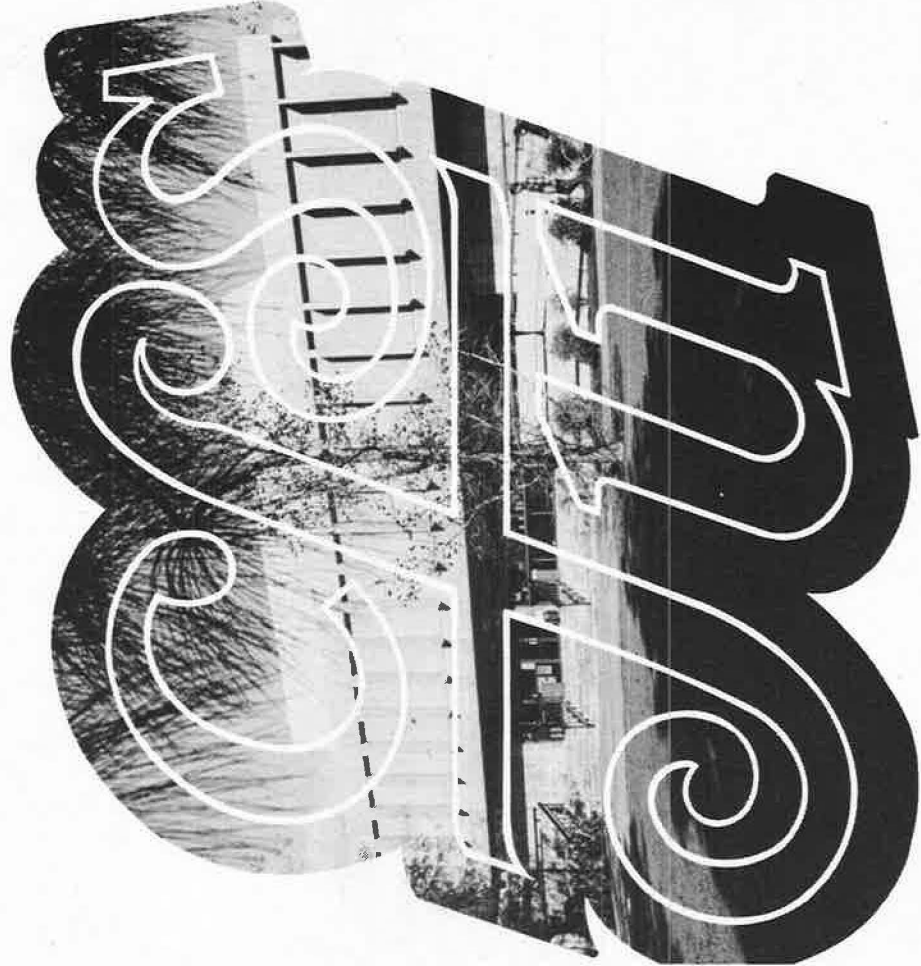
See *General Information—Independent Study*.





FACULTY AND ADMINISTRATION

Full-Time Staff  
Adjunct Professors  
Visiting Lecturers  
Part-Time Staff  
Emeriti



## FACULTY AND ADMINISTRATION

(Listed as of May 1975)

*Note: Numbers in parentheses indicate year of appointment at California State University, Fresno.*

- BAXTER, NORMAN A. (1969), President; Professor of History  
 AB, Taylor University; BD, New York Theological Seminary; PhD, Harvard University.
- ABELL, JACQUELINE C. (1973), Assistant Professor of Communicative Disorders  
 BA, University of California at Berkeley; MA, Fresno State College.
- ABOU-GHORRA, IBRAHIM M. (1956), Professor of Psychology  
 BA, Cairo University; Diploma, Ain Shams University (Egypt); Diploma, Cairo Institute of Higher Studies; MA, Ohio State University; PhD, University of Southern California; Licensed Psychologist.
- ADAMS, ROBERT C. (1963), Associate Professor of Radio-Television; Director, Computer Assisted Registration  
 BA, Idaho State College; MA, PhD, University of Oregon.
- ADRIAN, MERLE S. (1973), Lecturer in Industrial Arts and Technology  
 BS, Fresno State College; MA, California State University, Fresno.
- AGNEW, ALLEN M. (1965), Professor of Office Administration; Assistant Dean, School of Business  
 BA, MA, San Jose State College; EdD, University of California at Los Angeles.
- AGUIRRE, MANUEL E. (Spring 1969), Associate Professor of Social Work  
 BA, Fresno State College; MSW, University of California at Berkeley.
- AIKEN, JOYCE B. (1956-1958; Spring 1962), Professor of Art  
 BA, MA, Fresno State College.
- ALBRIGHT, W. DONALD (1958), Counselor  
 BS, Northeast Missouri State Teachers College; MEd, University of Missouri; EdD, Teachers College, Columbia University.
- ALDEN, H. LEE, JR. (1960), Assistant Professor of Radio-Television  
 BA, University of Virginia.
- ALDRICH, LESLIE L. (1955), Professor of Industrial Arts and Technology  
 BA, Willamette University; MA, Oregon State College.
- ALI, MIR K. (1968), Associate Professor of Mathematics  
 BS, MA, Osmania University; MS, Montana State University; PhD, Washington State University.
- ALLEN, DERYLE K. (1961), Director of Counseling and Testing  
 BA, Southwestern State College (Oklahoma); MEd, EdD, University of Oklahoma.
- ALLEN, TERRENCE L. (1971), Associate Professor of Art  
 BFA, Chouinard Art Institute.
- ALLISON, ROBERT J. (1967), Professor of Economics; Chairman, Economics Department  
 BA, MS, PhD, University of Colorado.
- ALVARADO, ANDREW J. (Spring 1973), Assistant Professor of Social Welfare; Faculty Affirmative Action Coordinator  
 BS, MSW, Fresno State College.
- ANDERSON, DAVID C. (1966), Professor of Management and Accounting  
 BS, MS, West Virginia University; DBA, Georgia State University.
- ANDERSON, LAWRENCE L. (1971), Assistant Professor of Art  
 BA, MA, San Jose State College.
- ANDERSON, R. GENE (1970), Associate Professor of Speech Communication  
 BA, MA, Baylor University; PhD, University of Colorado.
- ANDREWS, CLIFFORD B. (1972), Assistant Professor of Physical Education and Recreation  
 BFA, Miami University; MA, George Washington University.
- ARCE, CINA (1957), Professor of Botany  
 BA, MA, George Peabody College; PhD, Vanderbilt University.
- ARNDT, J. RICHARD (1973), Coordinator, Advising Services  
 BS, Wheaton College; MS, EdM, Oregon State University; PhD, Michigan State University.
- ARNOLD, ROBERT F. (1968), Associate Professor of Mathematics  
 BS, MA, Fresno State College; PhD, University of California at Berkeley.
- ASPEN, SANDRA (1974), Lecturer in Nursing  
 BSN, Florida State University.
- AUSTIN, ELLIS T. (1958), Professor of Finance  
 BA, University of Washington; PhD, Michigan State University.
- AVEDISIAN, NORMA L. (1969), Associate Professor of Education  
 BA, MS, EdD, University of Nebraska.
- AVENT, CAROL L. (1966), Associate Professor of Nursing  
 BA, Boston University; MS, University of Colorado.

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- AVENT, JON C. (1963), Associate Professor of Geology  
BS, University of Colorado; MS, PhD, University of Washington.
- AVERY, GEORGE E. (1959), Professor of Education  
BS, Colorado State University; EdD, University of Maryland.
- AVINA, ARTURO (1974), Lecturer in La Raza Studies  
BA, Sacramento State College.
- AYER, SALLY L. (1971), Assistant Professor of Physical Education and Recreation  
BA, Colorado State College; MA, Northern Arizona University.
- BADR, SAYED A. (1970), Associate Professor of Plant Science  
BS, Ain-Shams University (Egypt); MS, PhD, University of California at Davis.
- BAILEY, HERMAN S. (1973), Assistant Professor of Criminology  
BA, Fresno State College; MA, Chapman College.
- BAILEY, ROGER L., (1970), Test Officer  
BA, Southwestern College; MS, PhD, University of Kansas.
- BAIRD, WILLIAM A. (1973), Football Coach, Physical Education  
BA, San Francisco State College.
- BAKKEGARD, BENJAMIN M. (1958), Professor of Music  
BS, University of North Dakota; MEd, University of Minnesota; EdD, Teachers College, Columbia University.
- BALDIS, BETTE J. (1971), Assistant Professor of Communicative Disorders  
BEEd, MS, Illinois State University.
- BALDRIDGE, J. VICTOR (1974), Assistant Vice President for Academic Affairs; Associate Professor of Sociology  
BA, Lambuth; BD, MPhil, PhD, Yale University.
- BALL, WILBUR P. (1958), Professor of International Agriculture and Education  
BS, MEd, Colorado State University; PhD, Iowa State University.
- BALLARD, O. DUANE, JR. (1968), Assistant Professor of Physical Education  
BS, MS, Brigham Young University.
- BALLOU, STEPHEN V. (1953), Professor of Education  
BEEd, Duluth State Teachers College; MA, EdD, University of Colorado.
- BARBA, SHARON R. (1974), Lecturer in English  
BA, MA, Bowling Green University; PhD, University of New Mexico.
- BARNHART, KENNETH E., JR. (1958), Professor of Engineering  
BS, MS, PhD, University of California at Berkeley.
- BARRIO, FRANCISCO G. (1973), Lecturer in Art  
BFA, MA, New Mexico State University; EdD, Indiana University.
- BARRON, MILTON L. (Spring 1974), Professor of Sociology  
BA, MA, PhD, Yale University.
- BARTA, JOHN M. (1968), Assistant Professor of Foreign Languages  
BA, MA, University of California at Los Angeles.
- BASDEN, BARBARA H. (1973), Associate Professor of Psychology  
BA, College of Idaho; PhD, University of California at Santa Barbara.
- BASDEN, DAVID R. (Spring 1969), Associate Professor of Psychology  
BA, College of Idaho; PhD, University of California at Santa Barbara.
- \*BATES, DAVID S. (1971), Assistant Professor of Music  
BM, MM, PhD, University of Michigan.
- BATHURST, LEONARD H., JR. (1954), Professor of Education; Director of Instructional Media Center  
BA, MEd, EdD, Pennsylvania State University.
- BAUER, ANN S. (1968), Assistant Professor of Home Economics  
BA, Whittier College.
- BAUMANN, PATRICIA M. (1967), Associate Professor of Social Work  
BA, Fresno State College; MSW, Boston College.
- BAUMANN, ROBERTA JO (1973), Assistant Professor of Physical Education and Recreation  
BFA, MFA, University of Utah.
- BEACH, PHILIP F. (1964), Professor of Political Science  
BA, University of Washington; MA, PhD, Northwestern University.
- BEATTY, WILLIAM C., JR. (1947), Professor of Social Science  
BA, University of Denver; MA, University of Colorado; PhD, University of Southern California.
- BEDROSIAN, CAROL A. (Spring 1974-Fall 1974), Lecturer in Nursing  
BS, MS, Fresno State College; Registered Nurse.
- BEDROSIAN, SARAH G. (1959-1960; 1962), Professor of Finance and Quantitative Studies  
BA, MA, Fresno State College; DBA, University of Southern California.

- BELL, DAVID G. (1971), Dean of Student Affairs  
BME, Milton College; MS, PhD, University of Wisconsin.
- BELL, JESSE T. (Spring 1948), Professor of Animal Science  
BS, Texas College of Arts and Industries; MA, Sul Ross State College.
- BENITEZ, FRANK (1971), Assistant Professor of Foreign Language  
BA, Zaragoza Philosophy College; MA, Fresno State College; PhD, University of California at Riverside.
- BENKO, STEPHEN (1969), Professor of History; Chairman, History Department  
BD, Theological Academy, Budapest; PhD, University of Basel (Switzerland).
- BENNETT, BOB G. (1969), Head Coach, Physical Education  
AB, MA, Fresno State College.
- BENNETT, BOB L. (1955), Professor of Music  
BA, Fresno State College; MS, Julliard School of Music; DMA, Stanford University.
- BENNETT, SUSAN F. (1967), Associate Professor of Social Work  
Bed, University of Hawaii; MSW, New York School of Social Work.
- BENSON, RAY (1964), Professor of Business Law  
BA, Long Island University; JD, Fordham University; MBA, PhD, University of California at Los Angeles.
- BERESKIN, S. ROBERT (1969), Associate Professor of Geology  
BS, University of Southern California; MA, PhD, University of California at Santa Barbara.
- BERGEY, JOHN (1961), Professor of Nursing  
BS, Yankton College; MA, University of Pittsburgh; Registered Nurse.
- BERRETT, RICHARD D. (1969), Assistant Professor of Home Economics  
BS, MS, Brigham Young University; PhD, Florida State University.
- BERTOLDI, ALLEN E. (1968), Associate Professor of Art  
BA, MA, Fresno State College.
- BEST, HAROLD L. (1970), Professor of Management and Marketing; Director of Institutional Research; Interim Director,  
Division of Health Professions  
BA, MA, PhD, George Washington University; Licensed Psychologist.
- BEST, JOEL G. (1970), Assistant Professor of Sociology  
BA, University of Minnesota; MA, PhD, University of California at Berkeley.
- BETANCOURT, RAUL (1972), Assistant Professor of Psychology  
BA, California State College, Hayward; MA, PhD, University of California at Berkeley.
- BEVANS, BONNIE JO (1970), Associate Professor of Physical Education and Recreation  
BA, University of California at Santa Barbara; MA, Fresno State College.
- BEVILL, VINCENT D. (1957), Professor of Engineering  
BS, Fresno State College; MS, University of California at Davis; Registered Mechanical Engineer.
- BIECHLER, MICHAEL J. (1970), Associate Professor of Geography  
BS, Eau Claire State University; MA, PhD, Michigan State University.
- BIEHLER, WAYNE E. (1951), Professor of Agronomy  
BS, Fort Hays Kansas State College; MS, University of California at Davis.
- BIGGE, MORRIS L. (1950), Professor of Educational Foundations  
BA, Washburn Municipal University; MS, University of Michigan; PhD, University of Kansas.
- BIGGERSTAFF, WARREN R. (1948), Professor of Chemistry  
BA, Willamette University; MS, Oregon State College; PhD, University of Wisconsin.
- BILDERBACK, D. LOY (1962), Professor of History  
BA, MA, University of Kansas; PhD, University of Washington.
- BILLINGS, ROBERT S. (1957), Professor of English; Chairman, English Department  
BA, University of New Hampshire; MA, Boston University; PhD, State University of Iowa.
- BJERK, ROGER C. (1969), Associate Professor of History  
BA, Pacific Lutheran University; MA, PhD, Washington State University.
- BLACKERBY, BRUCE A. (1963), Professor of Geology; Chairman, Geology Department  
BA, University of California at Riverside; PhD, University of California at Los Angeles.
- BLANTON, RONALD L. (1965), Associate Professor of Industrial Arts and Technology  
BA, MA, Fresno State College.
- BLISS, WILLIAM H. (1950), Professor of Industrial Arts and Technology  
BS, Central Missouri State College; MA, University of Northern Colorado; EdD, Bradley University.
- BLOMGREN, GLEN H. (1962), Professor of Industrial Arts and Technology  
BA, MA, Fresno State College; EdD, University of California at Los Angeles.
- BLOOD, KENNETH H. (1966), Counselor  
BA, Hamline University; MS, PhD, Washington State University.
- BLOOM, VINCENT L. (1970), Assistant Professor of Speech Communication  
BA, Bethel College; MA, Colorado State College; PhD, Ohio University.
- BLUESTEIN, GENE (1963), Professor of English  
BA, Brooklyn College; MA, PhD, University of Minnesota.

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- BLUESTONE, SYDNEY (1963), Professor of Chemistry  
BS, Brooklyn College; PhD, Rutgers University.
- BOARD, ROBERT R. (1964), Registrar  
BS, University of Santa Clara.
- BOCHIN, HAL W. (1969), Associate Professor of Speech Communication  
BS, John Carroll University; MA, University of Wisconsin; PhD, Indiana University.
- BODGER, W. KENNETH (1968), Professor of Engineering  
BS, MS, Massachusetts Institute of Technology.
- BOHNSTEDT, JOHN W. (1956), Professor of History  
BA, Michigan State University; MA, PhD, University of Minnesota.
- BOLES, EDMOND D. (1973), Lecturer in Journalism  
BA, Fresno State College.
- BONHAM, CLIFFORD V. (1964), Professor of Social Work  
BA, MSW, University of California at Berkeley.
- BOONE, J. R. (Spring 1973), Head Football Coach, Physical Education  
BA, University of Tulsa.
- BOURDET, J. GENE (1971), Professor of Physical Education and Recreation; Chairman, Physical Education and Recreation  
Department; Director of Athletics  
BS, ME, Montana State University.
- BOWDEN, SHIRLEY J. (1968), Assistant Professor of Home Economics  
BS, University of California at Los Angeles; Dietetic Internship, John Hopkins; MS, Fresno State College; PhD, Oregon  
State University; Registered Dietician.
- BOWEN, THOMAS G. (1969), Associate Professor of Anthropology  
BA, Grinnell College; MA, PhD, University of Colorado.
- BOWEN, WAYNE S. (1964), Professor of Foreign Languages  
BA, Ohio State University; MA, Emory University (Georgia); PhD, Ohio State University.
- BRADLEY, BEATRICE E. (1969), Professor of Education  
BS, MS, EdD, University of Pennsylvania.
- BREEN, THOMAS E. (1966), Associate Professor of Psychology  
BS, University of Illinois; MA, PhD, Louisiana State University.
- BRENGELMAN, FREDERICK H. (1957), Professor of Linguistics  
BA, Dana College; MA, University of Nebraska; PhD, University of Washington.
- BRENNER, ROBERT D. (1968), Associate Professor of Education  
BA, Ottawa University; MA, EdD, Northern Colorado University.
- BRENNINGER, RALPH A. (1946), Professor of Foreign Languages  
BS, Lafayette College; MA, Columbia University; PhD, University of California at Berkeley.
- BREWER, RAY E. (1965), Professor of Education  
BS, Kansas State University; MA, New Mexico State University; EdD, University of Arizona.
- BRIGHAM, THOMAS M. (1953), Professor of Social Work  
BA, San Francisco State College; MSW, University of California; Registered Social Worker.
- BROCK, RICHARD K. (1966-1971; Spring 1972), Lecturer in Management and Marketing  
BA, MBA, University of Washington.
- BRODERICK, LEO J. (1967), Counselor, Psychiatrist  
BS, St. Joseph's College; MD, Hahnemann Medical College.
- BROOKS, ROBERT S. (1967), Director of Housing  
BA, University of Colorado; MEd, Ohio University.
- BROOKS, WAYNE A. (1956), Professor of Business Law  
BA, St. Ambrose College; JD, University of Iowa; LLM, Stanford University; JSD, University of California at Berkeley;  
Member, Iowa Bar, California Bar.
- BROUWER, JAMES M. (1964), Assistant Professor of History  
BA, MA, Yale University.
- BROWN, DANIEL R. (1974), Lecturer in English  
BPh, University of Detroit; MA, Kent State University; PhD, Wayne State University.
- BROWN, ROBERT E., JR. (1972), Assistant Professor of Biology  
BA, Pomona College; MS, University of Michigan.
- BROWN, SHELDON J. (1956), Professor of Physics  
BA, PhD, University of California at Los Angeles.
- BROWNELL, JAMES R. (1969), Professor of Soils  
BS, Pennsylvania State University; MS, University of Minnesota; PhD, University of California at Davis.
- BROYLES, DON R. (1968), Associate Professor of Political Science; Chairman, Political Science Department  
BA, Sacramento State College; MA, PhD, Claremont Graduate School.
- BRYAN, GERALD O. (1973), Assistant Professor of Office Administration; Director, Bureau of Business Research and  
Service  
AB, MA, University of Northern Colorado; DBA, Arizona State University.

- BRYON, JEANNETTE P. (1956), Professor of Theatre Arts  
BA, University of Maine; MA, University of North Carolina.
- BUCKLEY, JOSEPH J. (1972), Assistant Librarian  
BS, University of California, Santa Cruz; MLS, Case Western Reserve University.
- BURDICK, DONALD J. (1960), Professor of Biology  
BA, San Jose State College; PhD, University of California at Berkeley.
- BURGER, O. J. (1969), Dean, School of Agricultural Sciences; Professor of Agronomy  
BS, MS, PhD, Purdue University.
- BURGESS, ROBERT C. (1947), Professor of Physical Education  
BA, Fresno State College; MS, University of Southern California.
- BURNS, FELTON (1969), Counselor  
BA, Fresno State College.
- BURRISS, MERLYN D. (1948-1951; 1953), Professor of Radio-Television  
BA, Fresno State College; MA, University of California at Los Angeles.
- BURROWS, ANN L. (1974), Lecturer in Home Economics  
BS, University of California at Davis; MS, Oregon State University.
- BURTNER, DALE C. (1958), Professor of Chemistry  
BA, Reed College; MS, PhD, University of Washington.
- BURTON, BENJAMIN B. (1958), Professor of Psychology  
BA, MA, PhD, University of Missouri; Licensed Psychologist.
- BUSH, P. DALE (1961), Professor of Economics  
BA, MA, University of Denver; PhD, Claremont Graduate School.
- BUTTON, ALAN D. (1961), Professor of Psychology  
BS, MA, University of Oregon; PhD, Stanford University.
- CADENAZZI, NANCY F. (1969-71, 1973), Lecturer in Home Economics  
BA, San Francisco State College; MS, University of Nebraska.
- CADY, DOROTHY A. (1954), Assistant Professor of Elementary Education  
BS, University of Minnesota; BA, MA, Fresno State College; Registered Nurse.
- CAGLE, JOHN A. (1970), Assistant Professor of Speech Communication  
BA, MA, San Fernando Valley State College; PhD, University of Iowa.
- CAID, JOANNE N. (1967), Associate Professor of Home Economics  
BS, Rochester Institute of Technology; MS, Michigan State University; Registered Dietician.
- CAILLET, GREG M. (1974), Assistant Professor of Biology at Moss Landing  
BA, PhD, University of California at Santa Barbara.
- CAMPBELL, HOWARD J. (1946), Professor of Speech Communication  
BS, North Texas State Teachers College; MA, Stanford University; EdD, University of California at Berkeley.
- CANALES, JOSE C. (1946), Professor of History  
BA, Manhattan College; MA, PhD, University of California at Berkeley.
- CARBAJAL, FRANK J. (1969), Coach, Physical Education and Recreation  
BA, Colorado State College; MS, Utah State University.
- CARR, JOHN H. (1953), Professor of Microbiology  
BS, Kansas State Teachers College; MS, PhD, Kansas State College.
- CARR, ROBERT A. (1952-1956; 1957), Professor of Finance and Industry; Chairman, Finance and Industry Department  
BA, MA, San Francisco State College; PhD, University of Southern California.
- CASPERSON, DONALD G. (1970), Associate Professor of Health Science  
BA, Ohio Wesleyan University; MEd, Xavier University; HSD, Indiana University.
- CHA, MARN J. (1969), Associate Professor of Political Science  
BA, MPA, PhD, University of Southern California.
- CHAMBERS, JACK A. (1974), Director, Data Processing Services  
AB, University of Miami; MA, University of Cincinnati; PhD, Michigan State University.
- CHANG, SIDNEY H. H. (1966), Professor of History  
BA, National Taiwan University; MA, University of Missouri; MS, Florida State University; PhD, University of Wisconsin.
- CHANG, TSAI YU LILLIAN (1966), Associate Professor of Nursing  
BS, University of Soochow (China); MPH, University of Michigan; MS, University of California at San Francisco; RN; SCM, England.
- CHESEMORE, DAVID L. (1972), Assistant Professor of Biology  
BS, Wisconsin State University; MS, University of Alaska.
- CHEUK, S. FAI (1970), Associate Professor of Biology,  
BSc, MSc, University of Manitoba; PhD, McGill University.
- CHITTICK, ROGER D. (1956), Professor of English  
BA, Butler University; MA, Washington State College; PhD, Stanford University.

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- CHRISTENSEN, ELWYN L. (1968), Professor of Accounting  
BA, Andrews University; MAcct, DBA, University of Southern California; CPA.
- CHRISTENSEN, JACK D. (1968), Associate Professor of History  
BA, University of California; MA, Fresno State College; PhD, Stanford University.
- CHRISTISON, CHESTER E. (1970), Associate Professor of Industrial Arts and Technology  
BS, Mankato State College; MS, Colorado State College; EdD, University of Northern Colorado.
- CHUA, CHENG LOK (1974), Lecturer in English  
BA, DePauw University, Greencastle; MA, PhD, University of Connecticut.
- CIULA, RICHARD P. (Spring 1961), Professor of Chemistry  
BA, Bowling Green State University; MS, University of California; PhD, University of Washington.
- CLAASSEN, ALFRED J. (1969), Assistant Professor of Sociology  
AB, University of California; PhD, University of Colorado.
- CLARK, A. ZANE (1968), Associate Librarian  
BS, Utah State University; MA, University of Denver.
- CLARK, DAVID E. (1950-1951; 1953), Associate Vice President for Academic Affairs; Professor of Chemistry  
BA, University of Redlands; MS, PhD, Stanford University.
- CLARK, WAYNE N. (1973), Assistant Professor of Health Science  
BS, MS, PhD, Utah State University.
- CLAY, CORINNE (Sister), (1972), Assistant Professor of Biology  
BS, Mt. Angel College; MS, Oregon State University.
- CLENDENIN, W. RITCHIE, JR., (1973), Assistant Professor of Music  
BMus, University of Colorado; MMus, Yale University; DMA, University of Colorado.
- CLOUGH, CARMEN P. (1963), Professor of Foreign Languages  
DrPed, University de la Habana; MA, University of Michigan.
- COE, WILLIAM C. (1966), Professor of Psychology  
BS, University of California at Davis; PhD, University of California at Berkeley; Licensed Psychologist.
- COFFEY, JACK (1968), Associate Professor of Office Administration  
BA, Nebraska State College; MA, PhD, University of Northern Colorado.
- COHEN, MOSES E. (1969), Professor of Mathematics  
BS, Sir John Cass College, London University; PhD, University College of South Wales.
- COKER, WILSON W. (1968), Professor of Music  
BM, MM, Yale University; BM, St. Louis Institute of Music; DMA, University of Illinois.
- COLE, CHESTER F. (1947), Professor of Geography; Chairman, Geography Department  
BA, Eastern Washington College of Education; MA, University of Washington; PhD, University of Nebraska.
- COLVER, A. WAYNE (1957), Professor of Philosophy  
BA, University of California at Los Angeles; MA, PhD, Harvard University.
- COMEGYS, ROBERT G. (1955), Professor of History  
BA, MA, University of Washington; PhD, Stanford University.
- CONRAD, PETER W. (1970-73; 1974), Lecturer in Physical Education and Recreation  
BA, Fresno State College; MS, Cal Poly, San Luis Obispo.
- CONTRERAS, CARLOS A. (1968), Assistant Professor of History  
BA, Brigham Young University; MA, PhD, University of California at Los Angeles.
- COOKE, GWEN C. (1973), Professor of Home Economics; Chairwoman, Home Economics Department  
BS, MS, PhD, Ohio State University.
- COOPER, ARNOLD M. (1957), Professor of Psychology  
BA, San Francisco State College; MA, PhD, Claremont Graduate School; Licensed Psychologist.
- CORCORAN, WILLIAM H. (1971), Assistant Dean of Student Affairs  
BA, MA, San Fernando Valley State College.
- CORDS, DOUGLAS A. (1969), Associate Professor of Marketing  
BS, MBA, Fresno State College; PhD, University of California at Los Angeles.
- CORUM, FREDERICK J. (1973), Senior Assistant Librarian  
AB, University of Pennsylvania; ThB, ThM, Princeton Seminary; MS, LS, Syracuse University School of Library Science.
- COSTIGAN, BARBARA H. (1969), Professor of Social Work  
BA, University of Southern California; MSW, University of Pennsylvania; DSW, University of Southern California.
- COSTIS, HARRY G. (1967), Professor of Statistics and Quantitative Methods  
BS, University of Athens; MS, University of Georgia; PhD, University of Texas.
- COTTEN, CARROLL (Spring 1973), Admissions Officer  
BA, Chapman College; BD, Pacific School of Religion; MA, Claremont Graduate School; PhD, Stanford University.
- COUGHRAN, WILLIAM M. (1959), Director of Personnel  
BA, MA, Fresno State College.
- COWLING, SANDRA L. (1967), Associate Librarian  
BA, MA, Indiana University.

- COWLING, WILLIAM H. (1967), Associate Professor of English  
BA, Loyola University; MA, PhD, Indiana University.
- CRABTREE, PHILLIP R. (1973), Assistant Professor of Accounting and Quantitative Studies  
BA, Stanford University; MBA, Fresno State College.
- CROSBY, JOHN A. (1956), Professor of Geography  
BS, University of Chicago; MA, PhD, University of Washington.
- CSERNA, EUGENE G. (Spring, 1959), Professor of Geology  
PhD, University of Sciences (Budapest, Hungary); MA, PhD, Columbia University.
- CULLEN, CLIFT C. (1969-1970; 1971), Assistant Professor of Industrial Arts and Technology  
BA, MA, Fresno State College.
- CUMMINS, JAN L. (1968), Assistant Professor of Home Economics  
BS, MS, Fresno State College.
- CURB, PHILLIP D. (1974), Lecturer in Chemistry  
BA, University of California at Santa Barbara; MA, PhD, University of California at Riverside.
- CYPHER, JAMES M. (1967), Associate Professor of Economics  
BA, MA, University of California at Santa Barbara; PhD, University of California at Riverside.
- DACKAWICH, S. JOHN (1970), Professor of Sociology; Chairman, Sociology Department  
BA, University of Maryland; PhD, University of Colorado.
- DANDROY, MAXIMA A. (Spring, 1956), Professor of Education  
BSE, National Teachers College (Philippines); MA Arellano University (Philippines); EdD, Stanford University.
- DANGELO, DAVID J. (1970), Assistant Professor of Art, Director of Exhibits  
BA, Sacramento State College.
- DARGAHI, GHOLAM H. (1967-1968; 1970), Associate Professor of Political Science  
BA, University of Tehran (Iran); MA, University of Denver; PhD, University of Utah.
- DAUBS, EDWIN H. (1963), Professor of Biology  
BS, MS, PhD, University of Illinois.
- DAVIES, KENT C. (1972), Director of Admissions and Records  
BA, Wesleyan University; MAT, Harvard University.
- DAVIS, IRVING F. (1960), Professor of Finance and Industry  
BS, University of California; MS, University of Illinois; PhD, University of California at Berkeley.
- DAVIS, MARTHA A. (1960), Professor of Nursing  
BS, St. Louis University; MA, Teachers College, Columbia University; Registered Nurse.
- DAVIS, VIOLA A. (1955), Counselor  
BA, Pasadena College; MA, University of Southern California; PhD, Northwestern University.
- DELANEY, RICHARD W. (1963), Associate Professor of Art  
BA, MA, San Francisco State College.
- DEMING, DONALD E. (1960), Associate Professor of Engineering  
BS, Worcester Polytechnic Institute; MS, University of Connecticut.
- DEMPSTER, FRED E. (1951), Professor of Music  
BA, University of Omaha; MMus, Northwestern University.
- DENTON, CHARLES F. (1971), Dean, School of Social Sciences; Associate Professor of Political Science  
BA, University of the Americas, Mexico; MA, PhD, University of Texas at Austin.
- DEURMIER, ARMON O. (1973), Assistant Professor of Health Science  
BA, Wayne State; MA, Central Missouri State.
- DEWS, JON R. (1965), Associate Professor of Physics  
BS, Fresno State College; PhD, University of California at Berkeley.
- DIESTEL, GEORGE E. (1969), Associate Professor of Speech Communication  
BA, St. Mary's College; MA, Fresno State College; PhD, University of Southern California.
- DILL, DOUGLAS L. (1969), Assistant Professor of Journalism  
BS, Brigham Young University; MAJ, Marshall University.
- DINKIN, ROBERT J. (1968), Associate Professor of History  
BA, Brooklyn College; MA, PhD, Columbia University.
- DMITRIEW, HELEN L. (1967), Associate Professor of Foreign Languages  
MA, University of Iowa.
- DODDS, J. PARRY (1964), Professor of Finance and Industry  
BS, MS, PhD, Iowa State University.
- DOLARIAN, ARA H. (1968), Associate Professor of Art  
BA, MA, San Francisco State College.
- DOMINICK, WAYNE P. (1964), Professor of Engineering; Assistant Dean, School of Engineering  
BSCE, Ohio Northern University; MSCE, ScD, New Mexico State University; Registered Professional Engineer.
- DONALDSON, JOHN R. (1956), Professor of Physics  
BS, MA, Rice University; MS, PhD, Yale University.

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- DONOHUE, DONALD J. (1965), Professor of Mathematics  
BS, Fresno State College; MS, PhD, University of Oregon.
- DOWLER, LLOYD (1948), Professor of Agricultural Education  
BS, MS, University of Wyoming.
- DOYEL, TOM (1970), Associate Professor of Finance and Industry  
BS, Fresno State College; MBA, PhD, University of California at Los Angeles.
- EBERT, THOMAS J. (1970), Senior Assistant Librarian  
BA, MA, MLS, State University of New York.
- ECHOLS, JAMES P. (1964), Associate Professor of History  
BA, College of Idaho; MA, University of California at Berkeley; PhD, Stanford University.
- ECKHARDT, WYMOND W. (1970), Assistant Director of Instructional Media Center  
BA, George Pepperdine College; MS, EdD, University of Southern California.
- ELGORRIAGA, JOSE A. (1962), Professor of Foreign Languages; Chairman, Foreign Language Department  
BA, Fresno State College; MA, PhD, University of California at Los Angeles.
- ELHAG, MOSTAFA (1970), Professor of Accounting and Quantitative Studies  
BS, Ain Shams University (Egypt); MBA, PhD, University of Texas.
- ELLIS, DAVID L. (1966), Associate Professor of Social Work  
BA, University of Oklahoma; MSW, University of California at Los Angeles.
- EL SADEK, SAMIR S. M. (1971), Assistant Professor of Industrial Arts and Technology  
BS, Cairo University; MArch, University of Oregon.
- EMANUEL, EDWARD F. (1969), Associate Professor of Theatre Arts  
BA, MA, San Jose State College.
- EMERSON, JOHN T. (1959), Professor of Finance and Industry  
BA, JD, University of Chicago; Member, Illinois State Bar; Member, Korea Bar.
- EMMAL, MARIE A. (1964), Professor of Social Work  
BA, University of California at Los Angeles; Mental Health Certificate, University of London.
- ENSSLIN, WALTER (Spring, 1959), Professor of Foreign Languages  
PhD, University of Berlin.
- ERB, CHARLOTTE M. (1970), Associate Professor of Management  
BA, MacMurray College; PhD, University of Wisconsin.
- ERVIN, ROGER E. (1957), Professor of Geography  
BA, MA, University of Washington; PhD, University of Florida.
- ERVIN, STEPHEN H. (1974), Lecturer in Biology  
BA, MA, PhD, University of California at Santa Barbara.
- ESTES, GENE L. (1964), Associate Professor of Physical Education  
BS, MS, University of Oregon; DEd, Colorado State College.
- EVANS, ALFRED B., JR. (1971), Assistant Professor of Political Science  
BA, MA, University of Texas; PhD, University of Wisconsin.
- EVANS, ARLENE C. (1970-71; 1972), Assistant Professor of Nursing  
BA, University of California at Berkeley; BS, University of Hawaii; MS, University of California at Los Angeles.
- EVANS, RALPH F. (1947), Dean, School of Education; Director of Teacher Education; Professor of Education  
BEd, Eastern Illinois State Teachers College; MA, PhD, State University of Iowa.
- EVANS, RONALD L. (1963), Professor of Biology  
BA, MA, University of Toronto; PhD, Stanford University.
- EVERWINE, PETER P. (1962), Professor of English  
BS, Northwestern University; PhD, State University of Iowa.
- EWY, DANIEL J. (1951-1952; 1956), Professor of Mathematics  
BA, University of California; MS, Stanford University.
- FADERMAN, LILLIAN (1967), Assistant Vice President for Academic Affairs; Director of Experimental College; Professor  
of English  
BA, University of California; MA, PhD, University of California at Los Angeles.
- FAGNANI, AUDREY M. (1973), Assistant Professor of Physical Education and Recreation  
AB, MS, San Francisco State; REd, Indiana University.
- FANKHAUSER, CHARLES (1974), Lecturer in Communicative Disorders  
BA, Ohio State University; MA, Stanford University; PhD, University of Washington.
- FARRELL, FRANCES F. (1972), Assistant Professor of Nursing  
BS, D'Youville College; MS, University of California at San Francisco.
- FAST, PETER G. (1957), Professor of Education  
BA, Goshen College; MA, Ball State Teachers College; EdD, Indiana University.
- FEY, RUSSELL C. (1969), Professor of Urban and Regional Planning  
AB, Hiram College; MCP, University of California at Berkeley.
- FIKES, JAMES A. (1955), Dean of Continuing Education and Summer Sessions; Professor of Health Science  
BS, Central State University; MPH, MED, PhD, University of Oklahoma; Registered Sanitarian.

- FIREMAN, JANET R. (1971), Assistant Professor of History  
BA, University of Arizona; MA, Phd, University of New Mexico.
- FISCHER, ROBERT D. (1972), Assistant Professor of Sociology  
BS, Portland State University; MA, University of Michigan; PhD, Michigan State University.
- FISHER, M. BRUCE (1941), Professor of Psychology  
BA, University of California; PhD, Yale University; Licensed Psychologist.
- FITCH, JON M. (Spring 1970), Assistant Professor of Communicative Disorders  
BS, Connecticut Teachers College; BLI, Emerson College; MS, Purdue University.
- FITZGERALD, EDWARD T. (1969), Associate Professor of Criminology  
BS, MPA, DPA, University of Southern California.
- FLAKE, RHITA (1967), Professor of Physical Education  
BS, Brigham Young University; MA, San Jose State College; PhD, University of Southern California.
- FLAM, ROBERT A. (1969), Associate Professor of Office Administration  
BS, Valley City State College; ME, University of North Dakota; EdD, University of Wyoming.
- FLANERY, JAMES A. (1973), Assistant Professor of Journalism  
BA, Fresno State College; MS, University of California at Los Angeles; PhD, Northwestern University.
- FOIN, OWEN F., JR. (1942), Professor of Engineering  
BA, Fresno State College; Registered Electrical Engineer.
- FORD, RICHARD D. (1972), Dean, School of Social Work; Associate Professor of Social Work  
BA, Miles College; BD, Theological Seminary; MSW, State University of New York at Buffalo.
- FORTNER, JACK R. (1970), Associate Professor of Music  
BMus, Aquinas College; MMus, AMusD, University of Michigan.
- FOSTER, HAGUE D. (1966), Professor of Philosophy  
BA, PhD, University of Chicago.
- FOSTON, ARTHUR L. (1968), Professor of Industrial Arts and Technology  
BS, BSEE, MS, Prairie View A and M College; MAT, Colorado State University.
- FOX, HERBERT S. (1969), Senior Assistant Librarian  
BA, Dip Theol, Concordia Seminary; BLS, University of British Columbia.
- FRANC, MAX B. (1969), Associate Professor of Political Science  
BA, St. Norbert College; MA, University of Wisconsin; MPA, PhD, New York University.
- FRANCIS, RICHARD W. (1965), Associate Professor of Physical Education  
BA, San Jose State College; MA, Fresno State College.
- FRANK, DAVID L. (1970), Associate Professor of Chemistry  
BA, Alfred University; PhD, University of Rochester.
- FRANKLIN, SAMUEL S. (1969), Associate Professor of Psychology  
BA, University of California at Los Angeles; MA, University of California at Santa Barbara; PhD, University of Kansas.
- FREEMAN, G. RONALD (1969), Associate Professor of Foreign Languages  
BA, University of Utah; MA, PhD, University of Washington.
- FREY, JAMES E. (1969), Associate Professor of English  
BA, Jamestown College; MA, Columbia University; PhD, University of California at Berkeley.
- FREYDONT, SHElLEY (1974), Lecturer in Physical Education and Recreation  
BFA, MFA, University of Utah.
- FRICKER, HENRY F. (1952), Professor of Health Science and Education; Assistant to the Dean of Continuing Education and Summer Sessions  
BA, Marshall College; MA, EdD, Stanford University.
- FROM, BENDT A. (Spring 1968), Associate Professor of Agricultural Industry and Education  
BA, MED, University of California at Davis.
- FROST, EVERETT (1969), Assistant Professor of English  
BA, MA, University of Connecticut; PhD, State University of Iowa.
- FULKERSON, WILLIAM M., JR. (1966), Associate Professor of Speech Communication  
BA, William Jewell College; MA, Temple University; PhD, Michigan State University.
- FUTRELL, MAX D. (1970), Assistant Professor of Criminology  
BS, MS, Fresno State College.
- GADE, CHRISTY V. (1970), Assistant Librarian  
BA, University of California at Santa Barbara; MLS, University of California at Los Angeles
- GADE, WARREN E. (1966), Associate Professor of History  
BS, University of San Francisco; MA, PhD, Stanford University.
- GAINES, CHARLES F. (1968), Associate Professor of Art  
BA, Jersey City State College; MFA, Rochester Institute of Technology.
- CAISER, EDWARD A. (1969), Assistant Professor of Industrial Arts and Technology  
BS, MS, State University College at Buffalo.
- GAMMON, EDWARD R. (1966), Professor of Linguistics  
BA, Reed College; MA, University of Oregon; PhD, Stanford University.

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- GARCIA, MANUEL R. (1969) Associate Professor of Industrial Arts and Technology  
BA, MA, Fresno State College.
- GARDNER, FANNIE L. (1959), Professor of Nursing  
BS, MEd, University of Houston; Registered Nurse.
- GENA, PETER A. (1974), Lecturer in Music  
BA, MA, SUNY at Buffalo.
- GENDRON, MAURICE C. (1969), Associate Professor of Foreign Languages  
BA, MA, PhD, University of California at Los Angeles.
- GERSTER, ROBERT G. (1974), Lecturer in Music  
BM, MM, Ohio State University; CMA, University of Washington.
- GIBSON, GEOFFREY J. (1969), Assistant Professor of Philosophy  
BA, City College of New York; MA, Princeton University.
- GIESE, RICHARD J. (1973), Coordinator of Relations with Schools  
BS, MEd, University of San Diego.
- GIGLIOTTI, HELEN J. (1966), Professor of Chemistry  
BA, Vassar College; PhD, University of Michigan.
- GILBERT, STEVEN E. (1970), Associate Professor of Music  
BA, City University of New York; MusM, MPhil, PhD, Yale University.
- GILBERT, WILLIAM R. (1955), Professor of Education  
BS, BS, MS, University of Illinois; PhD, University of Washington.
- GILL, JUNE M. (1971), Assistant Professor of Foreign Languages  
BA, MA, PhD, University of California at Berkeley.
- GILLIS, ALBERT (1969), Professor of Music  
BA, MA, Yale University.
- GLEASON, KENNETH C. (1946), Professor of Physical Education  
BA, Fresno State College; MS, University of Southern California.
- GLIM, ROBERT J. (1948), Professor of Animal Sciences and Farm Management  
BS, MEd, University of California at Davis.
- GODDEN, JOHN L. (1974), Coach, Physical Education and Recreation  
BA, San Diego State University.
- GOISHI, FRANK H. (1966-1967; 1970) Associate Professor of Industrial Arts and Technology  
BA, MA, Fresno State College; EdD, University of Missouri.
- GOLDBLOOM, DAVID E. (1968), Associate Professor of Home Economics  
BA, MA, Cambridge University (England); PhD, University of California at Berkeley.
- GOOD, SHIRLEY R. (1973), Professor of Nursing; Chairwoman, Nursing Department  
BSN, MEd, Drury College; EdD, Teachers College, Columbia University; Registered Nurse.
- GOODWIN, H. MARSHALL, JR. (1964), Associate Professor of History  
BA, MA, San Diego State College; PhD, University of California at Los Angeles.
- GOODYEAR, DON L. (1973), Lecturer in Rehabilitation Counseling  
BA, University of Nebraska; MA, University of Colorado; EdD, University of Northern Colorado.
- GORMAN, PATRICK C. (1971), Counselor, Financial Aids  
BA, MA, University of New Mexico; PhD, University of Northern Colorado.
- GOTHE, A. GERALD (Spring 1965), Senior Assistant Librarian  
BA, University of California at Santa Barbara; MLS, University of California at Berkeley.
- GOTLIFFE, HARVEY L. (1971), Assistant Professor of Journalism  
BS, Wayne State University; MS, San Jose State College.
- GRAHAM, GAYLORD O. (1957), Professor of Theatre Arts; Chairman, Theatre Arts Department  
BA, MA, State University of Iowa.
- GRANNIS, GARY E. (1968), Associate Professor of Industrial Arts and Technology  
BSE, MA, Northeast Missouri State Teachers College; EdD, Texas A & M University.
- GREENE, ELEANORE R. (1960), Professor of Nursing  
BA, Cornell University; MA, Columbia University; Registered Nurse.
- GREGORY, EDDIE J. (1969), Professor of Physical Education  
BS, Pepperdine College; MS, University of Southern California.
- GRIFFITHS, I. ACE (1959), Professor of Education  
BS, University of Idaho; MS, University of Arizona; EdD, Northern Colorado University; Licensed Psychologist.
- GROSS, HOWARD D. (1974), Lecturer in Radio-Television  
BA, Queens College; MA, Northwestern University of Illinois.
- GROSSMAN, JOEL S. (1965), Professor of Psychology  
BA, University of Michigan; MS, PhD, Western Reserve University.
- GRUBBS, DAVID E. (1973), Assistant Professor of Biology  
BA, University of California at Santa Barbara; PhD, University of California at Irvine.

- GULLICKSON, NORMAN A. (1971), Assistant Professor of Industrial Arts and Technology  
BS, MS, University of Wisconsin, Stout; EdD, University of Northern Colorado.
- GUMP, BARRY H. (1967), Professor of Chemistry  
BS, Ohio University; PhD, University of California at Los Angeles.
- GUNN, THOMAS I. (1967), Professor of Agricultural Economics; Chairman, Agricultural Economics Department  
BS, Brigham Young University; MS, Utah State University; PhD, Cornell University.
- GUTHORMSEN, M. URSULA (1973), Assistant Professor of Nursing  
BS, Boston College; MEd, Teacher College, Columbia University; Registered Nurse
- GUZMAN, PAULA S. (1967-1968; 1971), Assistant Professor of Recreation  
BA, Fresno State College.
- GYSLER, RANDOLPH L. (1966-1971, 1973), Assistant Professor of Industrial Arts and Technology  
BS, MA, Kent State University; PhD, Ohio State University.
- HAAS, RICHARD (1969), Associate Professor of Biology  
BA, MA, PhD, University of California at Los Angeles.
- HADDAD, MARIE N. (1964), Professor of Nursing  
BS, St. Louis University; MN, University of Washington.
- HAFFNER, SUSANNE A. (1965), Senior Assistant Librarian  
BA, University of Oregon; ML, University of Washington.
- HAGEN, JOHN W. (Spring 1969), Associate Professor of Agricultural Economics  
BS, MS, North Dakota State College; PhD, Washington State College.
- HAGGBLADE, BERLE (1963), Professor of Office Administration; Chairman, Office Administration Department  
BA, University of Northern Iowa; MA, University of Northern Colorado; EdD, University of California at Los Angeles.
- HAIMBACH, DAVID (1959), Professor of Education  
BSEd, EdM, Temple University; EdD, University of Florida.
- HAIRABEDIAN, ARA (1953), Professor of Physical Education  
BS, University of Southern California; MEd, Pennsylvania State College; EdD, Stanford University.
- HAIRE, PAUL L. (1969), Associate Professor of Social Work  
AB, Boston College; MSW, Simmons College.
- HALL, ELTON A. (1969), Assistant Professor of Philosophy  
BA, Occidental College; MA, University of California at Santa Barbara.
- HALTERLEIN, PAUL J. (1973), Assistant Professor of Aerospace Studies  
BA, Duquesne University; MA, Texas Tech University; Captain, USAF.
- HAMPTON, ROBERT E. (1956), Professor of Marketing  
BBA, Golden Gate College; MA, Chico State College; EdD, Stanford University.
- HANSEN, JULIA A. (1962), Associate Professor of Nursing  
BA, University of Redlands; BA, Stanford University; MN, University of Washington; Registered Nurse.
- HANZLICEK, CHARLES G. (1966), Associate Professor of English  
BA, University of Minnesota; MFA, University of Iowa.
- HARBERTSON, NOAL C. (1971), Assistant Professor of Mathematics  
BS, University of Utah; MS, PhD, North Carolina State University.
- HARDGRAVE, JOHN G. (1971), Assistant Professor of Health Science  
BA, MA, MS, Fresno State College; Certified Medical Representative.
- HARKINS, FRANCES H. (Spring 1967), Associate Professor of Home Economics  
BS, Indiana University (Pennsylvania); MS, Oklahoma State University.
- HARLAN, RONALD J. (1956), Associate Librarian  
BA, Fresno State College; MLS, University of California at Berkeley.
- HARMON, WALLACE M. (1965), Professor of Biology  
BS, The Colorado College; MS, Syracuse University; PhD, University of California at Los Angeles.
- HARRISON, RAYMOND H. (1955), Professor of School Administration  
BS, Central State College; MS, Oklahoma State University; EdD, University of Denver.
- HARRISON, ROBERT D. (1954), Associate Professor of Agricultural Inspection and Services  
BS, University of Michigan; MS, Michigan State College.
- HART, FRANCIS A. (1965), Professor of English  
BA, Harvard University; MA, PhD, University of Utah.
- HARTMAN, ROY A. (1971), Assistant Professor of Industrial Arts and Technology  
BME, Ohio State University; MBA, Fresno State College.
- HASLAM, HAROLD B. (1970), Associate Professor of Mathematics  
BS, Fresno State College; MA, PhD, University of California at Irvine.
- HASSON, ALLEN (1966), Associate Professor of Education  
BS, Brigham Young University; MA, EdD, Arizona State University.
- HATMAKER, ROBERT L. (1969), Associate Professor of Social Work  
BA, Wheaton College; MSW, University of Michigan.

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- HAYNES, CHARLES W. (1970), Professor of Engineering  
BS, MSc, University of Nebraska; DSc, Carnegie Institute of Technology.
- HEARD, JOHN R. (1970), Associate Professor of Music  
BMus, University of Texas; MMus; Catholic University of America.
- HEINE, LYMAN H., JR. (1968), Associate Professor of Political Science  
BA, John Hopkins University; MA, PhD, University of Nebraska.
- HEINLEN, WILLIAM F. (1970), Associate Librarian  
BA, Kenyon College; MA, University of Michigan; MSLS, Case Western Reserve University.
- HELMERS, MERRILEE K. (1972), Assistant Professor of Mathematics  
BS, University of Washington; MS, PhD, Michigan State University.
- HENFLING, PHYLLIS B. (1940-1945; 1952), Professor of Education  
BA, MA, Fresno State College.
- HENNINGS, L. RALPH (1969), Professor of Speech Communication  
AB, MA, San Diego State College; PhD, University of Oregon.
- HENNINGS, PATRICIA L. (1970), Assistant Professor of Home Economics  
BA, University of California at Santa Barbara; MS, University of Wyoming.
- HENRY, NINA J. (1971), Assistant Professor of Home Economics  
BS, Oklahoma College of Liberal Arts; MS, Kansas State University.
- HERMAN, SUSAN L. (1973), Assistant Professor of Art  
BA, MA, Humboldt State College.
- HEUSTON, JOSEPH W., JR. (1974), Assistant Director of Financial Aids  
BS, MA, Northeastern University, Boston.
- HEWITT, ALLAN A. (1968), Professor of Pomology  
BS, MS, University of California at Davis; PhD, University of Maryland.
- HIATT, ARTHUR A. (1974), Lecturer in Secondary Education  
BA, MA, San Jose State College; PhD, University of California at Berkeley
- HIGGINS, FRANCIS V. (1958), Professor of Engineering  
BS, MS, Indiana State Teachers College; MS, University of Michigan; MS, Case Institute of Technology.
- HIGHLANDER, JOHN P. (1966), Television Coordinator; Professor of Radio-Television; Chairman, Radio-Television Department  
BA, MA, University of Iowa; PhD, University of Wisconsin.
- HILLMAN, STEPHANIE (1958), Librarian  
BA, University of California at Los Angeles; MLS, University of California at Berkeley.
- HIXSON, FLOYD M. (1951), Professor of Poultry Science  
BS, Oklahoma State University; MS, PhD, Kansas State University.
- HOLDER, WAYNE B. (1955), Professor of Psychology; Chairman, Psychology Department  
BA, MA, New Mexico State University; PhD, University of Missouri.
- HOLLAND, DEANNA V. (1974), Lecturer in Ethnic Studies  
BA, MA, Howard University.
- HOLMES, DONALD E. (1971), Associate Professor of Physics  
BS, University of Oklahoma; MS, San Diego State College; PhD, University of California at Los Angeles.
- HOLMES, SAMUEL F. (1974), Lecturer in Accounting and Quantitative Studies  
BS, Delaware State College; MS, University of Connecticut.
- HOPKINS, JERRY D. (1964), Associate Professor of Linguistics  
BA, Indiana University.
- HOTZ, DAVID F. (1964-1965; 1970), Associate Professor of Engineering  
AB, PhD, University of California at Berkeley.
- HOVERSLAND, ARTHUR S. (Spring 1971), Professor of Animal Science; Chairman, Animal Science Department  
BS, MS, Montana State College; PhD, Oregon State University.
- HOWLAND, RUSSELL S. (1948), Professor of Music  
BM, MMus, University of Illinois.
- HSU, MARILYN M. (1971), Assistant Librarian  
BA, National Taiwan University; MALS, Immaculate Heart College.
- HUDSON, DAVID C. (1968), Associate Professor of History  
BA, University of Notre Dame; MA, PhD, Columbia University.
- HUFF, ARTHUR E. (1964), Associate Professor of Music  
BA, MA, San Jose State College; DMA, University of Arizona.
- HUGGINS, JOYCE, M. (Spring 1970), Professor of Education  
BA, Colgate Rochester Divinity School; MA, New York University; EdD, Arizona State University.
- HUILLIER, HELEN J. (Spring 1974), Lecturer in Nursing  
BS, Fresno State College; MS, California State University, Fresno; Registered Nurse.
- HULL, F. LEE (1968), Associate Professor of Finance and Industry  
BS, MS, University of Illinois; PhD, University of Illinois at Urbana.

- HUNT, MAURICE P. (1948), Professor of Educational Foundations  
BS, MA, PhD, Ohio State University.
- HURST, ROLLAND WOOD (1968), Associate Professor of Music  
BA, Grinnell College; MM, Eastman School of Music; EdD, Columbia University.
- HUSSON, EVELYN M. (1968), Associate Professor of Nursing  
BA, American International College; MA, Teachers College, Columbia University.
- ILG, GEORGE F. (1948), Assistant Dean, School of Agricultural Sciences; Professor of Dairy Industry  
BS, University of California; MS, Ohio State University.
- INGENTHORN, WILLIAM J. (1969), Associate Professor of Journalism  
AB, BJ, MA, PhD, University of Missouri.
- IRVIN, MELVA E. (1973), Assistant Professor of Physical Education and Recreation  
BA, University of Northern Colorado; MS, Penn State University.
- IRWIN, PHYLLIS A. (1963), Assistant Vice President for Academic Affairs; Professor of Music  
BS, MEd, University of Houston; EdD, Columbia University.
- ISHIMOTO, T. TOM (1968), Professor of Vegetable Crops  
BA, MA, Fresno State College; PhD, Oregon State College.
- JACOBSEN, ERLAND L. (1959), Associate Librarian  
BA, Stanford University; MLS, University of California at Berkeley.
- JACOBY, THOMAS J. (Spring 1974), Lecturer in Art  
BBA, Loyola University; MA, MLS, University of California at Los Angeles.
- JAMES, BARBARA S. (1973), Assistant Professor of Criminology  
BA, San Jose State College; JD, McGeorge School of Law.
- JAMES, HELEN G. (Spring 1973), Assistant Professor of Physical Therapy  
BS, East Stroudsburg State College; MS, Stanford University.
- JANSEN, ROBERT J. (1973), Instructor in Theatre Arts  
BS, MA, University of Wisconsin.
- JARRETT, McRAE (1957), Professor of Engineering  
BS in EE, MS, University of Tennessee; Registered Professional Industrial Engineer.
- JASUTIS, CORDELIA (1959), Professor of Foreign Languages  
Lic-es-Let, University of Paris; MA, PhD, State University of Iowa.
- JEN, SHIEN-MIN (1970), Assistant Professor of Anthropology  
BA, National Taiwan University (Taiwan); MA, New York University; PhD, University of Wisconsin.
- JENKINS, JACK T. (1964), Professor of Social Work  
BSSW, University of Arkansas; MSSW, University of Tennessee.
- JENNE, RICHARD S. (1969), Assistant Professor of Industrial Arts and Technology  
BPA, Art Center School; MA, Chico State College.
- JENSEN, KAREN M. (1970), Associate Professor of Communicative Disorders  
BS, Northern Illinois University; MEd, Smith College.
- JEPSEN, VICTOR L. (1946), Professor of Management  
BA, MA, University of Oregon; EdD, Stanford University.
- JEYAPALAN, KANDIAH (1972), Associate Professor of Engineering  
BS, University of Ceylon; MS, PhD, University of London.
- JOHNSON, ALAN H. (1963-1969; Spring 1971; 1974), Building Coordinator  
BS, MA, University of Missouri.
- JOHNSON, BIRGER L. (1955), Professor of Physical Education  
BA, North Dakota State Teachers College; MS, University of Oregon; PhD, University of Southern California.
- JOHNSON, GORDON F. (1966), Professor of Education  
BS, MS, Oregon College of Education; EdS, Stanford University; EdD, University of Oregon.
- JOHNSON, MARGARET T. (1973-Fall 1974), Lecturer in Nursing  
BA, BS, Fresno State College; MS, California State University, Fresno
- JOHNSON, RONALD D. (1968), Associate Professor of Theatre Arts  
BA, University of California at Santa Barbara; MA, San Francisco State College.
- JOHNSTON, GERALD L. (1971), Assistant Professor of Accounting and Quantitative Studies  
BS, Arizona State University; MBA, Kent State University.
- JONES, DAVID N. (1970), Assistant Professor of History  
AB, MA, PhD, University of North Carolina.
- JONES, HAROLD D. (1957), Director of Placement  
BS, Northern State Teachers College (South Dakota); MEd, University of Colorado; EdD, University of Denver.
- JUDD, FLOYD L. (1967), Associate Professor of Physics  
BS, Carroll College; MS, PhD, Iowa State University.
- KALLAM, JOHN F. (1962), Professor of Criminology  
BA, San Jose State College; MS, Fresno State College.

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- KALLO, ROBERT M. (1950), Professor of Chemistry  
BS, PhD, University of California at Berkeley.
- KAPOOR, SUDARSHAN (1967), Professor of Social Work  
BA, DAV College (India); MA, Delhi School of Social Work; MSW, PhD, Florida State University.
- KARIKKA, KATHERINE J. (1967), Associate Professor of Home Economics  
BS, Utah State University; MS, Cornell University.
- KARLE, HARRY P. (1962), Professor of Plant Pathology and Viticulture; Chairman, Plant Science Department  
BS, Fresno State College; MS, PhD, University of California at Davis.
- KARR, HAROLD S. (1966), Professor of English  
BA, United College (Winnipeg); MA, PhD, University of Minnesota.
- KAUFFMAN, GEORGE B. (1956), Professor of Chemistry  
BA, University of Pennsylvania; PhD, University of Florida.
- KAUSCH, DONALD E. (1965), Professor of English  
BA, Wayne State University; MA, University of Michigan; PhD, Wayne State University.
- KEHOE, BRANDT (1972), Dean, School of Natural Sciences; Professor of Physics  
Deep Springs College; BA, Cornell University; MS, PhD, University of Wisconsin.
- KENDALL, JOHN C. (1968), Associate Professor of History  
BA, MA, Carleton University; PhD, McGill University.
- KENSEL, W. HUDSON (1965), Professor of History  
BA, University of Washington; BA, MEd, Central Washington State College; PhD, Washington State University.
- KERSHAW, JOYCE (Spring 1967), Associate Professor of Social Work  
BA, Fresno State College; MSW, University of California at Los Angeles.
- KESSLER, WARREN L. (1968), Associate Professor of Philosophy; Chairman, Philosophy Department  
BA, Rutgers University; MA, PhD, University of Wisconsin.
- KILNER, MICHELE M. (1970), Assistant Professor of Home Economics  
BS, MS, University of Arizona.
- KIM, JOO I. (1970), Associate Professor of Agricultural Industry and Education  
BSc, Seoul National University (Korea); MSc, Israel Institute of Technology (Israel); PhD, University of British Columbia.
- KIMBERLY, MAX E. (1958), Professor of Health Science  
BS, MS, Montana State College; MA, EdD, Stanford University.
- KINDELL, DOLORES J. (1970), Assistant Professor of Nursing  
BSN, University of Rochester; MSN, Marquette University.
- KINGSLEY, BARBARA (1973), Lecturer in Biology  
BS, New Mexico State University.
- KINZEL, PAUL F. (1963), Professor of Foreign Languages  
BA, Fresno State College; MA, Columbia University; PhD, University of Washington.
- KIPPS, THOMAS C. (1956), Professor of Mathematics  
BA, MA, PhD, University of California at Berkeley.
- KIRK, LARRY L. (1974), Lecturer in Chemistry  
BA, William Jewell College; MS, University of Washington; PhD, University of California at Santa Barbara.
- KIRTLEY, DONALD D. (1966), Associate Professor of Psychology  
BA, MA, PhD, University of Miami.
- KISSICK, ELENA F. (1966), Associate Professor of Home Economics  
BS, University of California at Davis; MA, San Jose State College.
- KITTREDGE, ROBERT E. (1969), Counselor  
BA, State University of New York; MA, PhD, Michigan State University.
- KLASSE, PETER J. (1966), Professor of History  
BA, University of British Columbia; MA, PhD, University of Southern California.
- KLEEMAN, KARL T. (1971), Assistant Professor of Biology  
BS, Purdue University; PhD, Oregon State University.
- KNUDSEN, ROBERT G. (1964), Counselor  
BS, MS, Utah State University.
- KOCH, GARY M. (1970), Associate Professor of Plant Science  
BS, MS, PhD, Pennsylvania State University.
- KOLLER, E. FRANK (1969), Professor of Geography  
BA, University of Utah; MA, Brigham Young University; PhD, Pennsylvania State University.
- KOLSTAD, WILLIAM A. (1964), Associate Professor of Political Science  
BA, Macalester College; LLB, University of Minnesota; MA, University of South Dakota; PhD, University of Texas.
- KRAL, IRVIN H. (1969), Professor of Engineering  
BSRE, Indiana Institute of Technology; MSEE, PhD, University of New Mexico.
- KRELL, FRED C. (1963), Associate Professor of Nursing  
BSN, State University of Iowa; MS, Boston University; Registered Nurse.

- KREMEN, BENJAMIN G. (1950), Professor of Education  
BS, John Hopkins University; MA, University of Maryland; PhD, Michigan State College.
- KRUGER, JOHN H., JR. (1964), Professor of Industrial Relations; Chairman, Management and Marketing Department  
BMinE, MA, PhD, University of Minnesota.
- KUBINSKI, MARK A. (1974), Lecturer in Biology  
BS, Gonzaga University; MS, PhD, Washington State University.
- KULHAN, EDWARD F. (1956), Professor of Engineering  
BS, University of Nevada; MS, Pennsylvania State University; Registered Land Surveyor.
- KUNIMITSU, DONALD K. (1967), Professor of Chemistry  
BA, PhD, University of Hawaii.
- KUNIMITSU, VIVIAN Y. (1971), Assistant Professor of Home Economics  
BS, University of Hawaii; MS, Fresno State College.
- KUS, JAMES S. (1970), Associate Professor of Geography  
BA, Case Western Reserve University; MA, Michigan State University; PhD, University of California at Los Angeles.
- KUSEL, HEINZ N. (1965), Professor of Art  
BS, Skidmore College; MA, Fresno State College.
- KUTSCHER, ROBERT I. (1970), Associate Professor of Finance and Industry  
AB, Cornell University; MA, Stanford University; JD, Harvard Law School.
- LABARRE, ANTHONY E., JR. (1961), Professor of Mathematics  
BE, MS, Tulane University; PhD, University of Oklahoma.
- LAJEUNESSE, ROGER M. (1974), Lecturer in Anthropology  
BA, Fresno State College; MA, San Francisco State College; PhD, Washington State University.
- LANE, PHILIP J. (1969), Associate Professor of Radio-Television  
BA, University of Portland; MA, University of Kansas; PhD, Northwestern University.
- LANGE, PAUL M. (1968), Professor of Business Law  
BSBA, Northwestern University; MA, Mankato State College; JD, University of Minnesota; CLU; Member, Minnesota State Bar.
- LARK, ALEXANDER H. (1968), Assistant Professor of Education  
BA, Goshen College; MA, Roosevelt University; PhD, University of Southern California.
- LARKA, ROBERT (1973), Assistant Professor of Radio-Television  
BS, University of Wisconsin; MA, Marquette University; PhD, Ohio University.
- LATIMER, HOWARD L. (1958), Professor of Biology  
BS, MS, State College of Washington; PhD, Claremont College.
- LAURY, FRANK B. (1959), Professor of Art; Chairman, Art Department  
BA, University of Northern Iowa; MA, Stanford University.
- LEAVENWORTH, RUSSELL E. (1955-1971; 1973), Professor of English  
AB, Hanover College; AM, PhD, University of Colorado.
- LEAVITT, GEORGE S. (1955), Professor of Psychology  
BA, Macalester College; MA, PhD, University of California at Berkeley.
- LEAVITT, JEROME E. (1969), Professor of Education  
BS, Newark State College; MA, New York University; EdD, Northwestern University.
- LEE, DAVID T. (Spring 1971), Associate Professor of Urban and Regional Planning  
BS, Taiwan Provincial University (Taiwan); MS, South Dakota State University; PhD, Michigan State University.
- LEE, ROBERT E. (1964), Professor of Geography  
BA, MA, San Jose State College; PhD, University of California at Los Angeles.
- LEET, DON R. (1969-1971; 1972), Assistant Professor of Economics  
BA, University of Pittsburgh; MA, PhD, University of Pennsylvania.
- LESLIE, GLENN F. (1958), Professor of Education  
BS, Central Missouri State College; MEd, EdD, University of Missouri.
- LEVIN, CARL (1942), Director of Business Affairs  
BA, Fresno State College.
- LEVIN, JOEL M. (1971), Assistant Professor of Urban and Regional Planning  
BA, Boston University; MUP, New York University.
- LEVINE, MICHAEL M. (1974), Lecturer in Psychology  
BA, Brooklyn College; MA, Western Michigan State; PhD, University of Hawaii.
- LEVINE, PHILIP (1958), Professor of English  
BA, MA, Wayne University; MFA, State University of Iowa.
- LEVINE, ROBERT V. (1973), Assistant Professor of Psychology  
AB, University of California at Berkeley; MS, Florida State University; PhD, New York University.
- LEWIS, GEORGE M. (1970), Associate Professor of English  
BA, MA, University of Texas.
- LEWIS, LETA J. (1963), Professor of Foreign Languages  
BA, University of Washington; PhD, University of California at Los Angeles.

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BS, University of Chicago; MSEE, University of Idaho.
- LINDAE, DETLEV (1971), Assistant Professor of Mathematics  
BA, MA, PhD, University of California at Berkeley.
- LINDBERG, JOHN E. (1969), Associate Professor of Social Work  
BS, MSW, University of California at Berkeley.
- LINDQUIST, STANLEY E. (1953), Professor of Psychology  
BA, Fresno State College; PhD, University of Chicago; Licensed Psychologist.
- LISKEY, NATHAN E. (1965), Associate Professor of Health Science; Chairman, Health Science Department  
BA, LaVerne College; MS, HSD, Indiana University.
- LIST, EDGAR A. (1961), Professor of Foreign Languages  
BA, Carroll College; MA, PhD, Yale University.
- LIVINGSTON, WILLIAM H. (1966), Associate Professor of Industrial Arts and Technology  
BSME, University of California; Registered Electrical Engineer; Licensed General Building Contractor.
- LOCKWOOD, NORMAN H. (1968), Associate Professor of Art  
BA, University of Washington; MFA, Mills College.
- LOGAN, BARRY L. (1961), Professor of English  
BA, MA, Syracuse University; PhD, Yale University.
- LOGSDON, PAUL G., JR. (1973), Professor of Aerospace Studies; Chairman, Aerospace Studies Department  
AB, Sacramento State College; MS, University of Southern California; Lt. Col. USAF.
- LOPEZ-URRUTIA, M. MARGARITA (1973), Assistant Professor of Foreign Languages  
BA, MA, University of Texas; PhD, University of Arizona.
- LORENZ, PHILIP M. (1969), Associate Professor of Music
- LORING, JANET (1957), Professor of Theatre Arts  
BS, Northwestern University; MA, University of Missouri; PhD, State University of Iowa.
- LOVE, WILLIAM R. (1974), Lecturer in Ethnic Studies  
BS, MS, A & T State University, North Carolina
- LOYD, RAY D. (1972), Assistant Professor of Industrial Arts and Technology  
BA, MA, Fresno State College; DED, Texas A&M University.
- LUNA, JESUS (1974), Lecturer in La Raza Studies  
BA, Pan American University; MA, East Texas State University; PhD, North Texas State University.
- LUND, EDWARD O., JR. (1966), Associate Professor of Art  
BS, University of Wisconsin; MFA, Indiana University.
- LUNDBERG, JAMES B. (1960), Associate Professor of Education  
BS, North Texas State College; MA, Michigan State University.
- LYLES, SAMUEL P. (1969), Associate Professor of Physics; Research Coordinator  
BS, Louisiana State University; MS, PhD, University of Oklahoma.
- LYON, ROSE M. (1973), Assistant Professor of Physical Education and Recreation  
BA, Pasadena College; MS, University of Southern California at Los Angeles.
- LYWEN, WERNER (1969), Professor of Music  
State Academy of Music, Berlin.
- MABEY, RENDELL N., JR. (1968-71; 1974), Assistant Professor of Philosophy  
BA, University of Utah.
- MACH, LELAND E. (1958), Professor of Education  
BA, Colorado State College of Education; MA, Northwestern University; EdD, College of the Pacific; Licensed Psychologist.
- MACK, SEYMOUR (1957), Professor of Geology  
BS, College of the City of New York; MS, PhD, Syracuse University.
- MacMILLAN, MARGARET W. (Spring 1970), Associate Professor of Office Administration  
BS, MED, University of Pittsburgh; EdD, University of California at Los Angeles.
- MADDEN, HARRISON E. (1956), Professor of Psychology  
BS, MA, MA, PhD, University of Kansas; Licensed Psychologist.
- MADDEN, HENRY M. (1949), University Librarian  
BA, Stanford University; BLS, University of California; MA, PhD, Columbia University.
- MAHAJAN, SUKHBIR (1973), Lecturer in Physics  
BSc, MSc, Panjab University; PhD, Purdue University.
- MAHONEY, RONALD J. (1968), Associate Librarian  
BA, University of the Americas (Mexico City College); MLS, University of California at Berkeley.
- MAJORS, DIANE L. (1968), Assistant Librarian  
BA, Fresno State College; MLS, University of California at Los Angeles.
- MAJORS, KERN T. (1969), Assistant Librarian  
BS, MLS, University of California at Berkeley.

- MALKANI, MOTI C. (1970), Lecturer in Accounting and Quantitative Studies  
BSc, Jai Hind College (India); MSc, University of Bombay (India); MS, Fresno State College.
- MALLORY, THOMAS E. (1968), Associate Professor of Biology  
BS, University of Redlands; MS, PhD, University of California at Davis.
- MANGAN, JERROME (1970), Associate Professor of Biology  
BA, MS, University of Cincinnati; PhD, Brown University.
- MARGOSIAN, ARTHUR H. (1956-1959; 1961), Dean, School of Professional Studies; Professor of Journalism  
BA, MA, Fresno State College; EdD, University of Southern California.
- MARHENKE, RONALD LEE (1970), Assistant Professor of Chemistry  
BS, Valparaiso University; PhD, Purdue University.
- MARKHAM, CHARLES G. (1967), Professor of Geography  
BA, University of California at Los Angeles; MA, Colorado State College; PhD, University of California at Berkeley.
- MARLOWE, JULIUS H. (1971), Assistant Professor of Sociology  
BA, California State College at Long Beach; MA, University of Washington.
- MARTIN, HOWARD J. (1965), Associate Professor of Agricultural Industry and Education  
BSAE, California State Polytechnic College; MA, Fresno State College.
- MARTIN, JOHN E. (1959), Professor of Education  
BA, Central State College (Oklahoma); MEd, EdD, University of Oklahoma.
- MARTIN, JOHN H. (1962), Professor of Music  
BS, MA, Ohio State University; EdD, University of Arizona.
- MARTINEZ, ERNEST A. (1971), Assistant Professor of La Raza Studies  
BA, MA, Fresno State College.
- MASON, R. ELAINE (1956), Professor of Physical Education  
BA, Fresno State College; MA, Stanford University.
- MAST, DONALD L. (1974), Lecturer in Communicative Disorders  
BS, University of Oregon; MS, Oregon College of Education.
- MASTERS, RUTH (1972), Assistant Professor of Criminology  
BA, University of California at Berkeley.
- MATHENY, JAMES (1973), Dean, School of Engineering; Professor of Engineering  
BS, University of Southern Carolina; BS, MS, PhD, University of Texas.
- MATHESON, VERNILE (1970), Director of Financial Aids  
BS, Southern Utah State College; MA, Northern Arizona University.
- MATTHEW, VIRGIL L., JR. (1948), Professor of History  
BA, Fresno State College; MA, PhD, University of California at Los Angeles.
- MATTOON, DARRELL S. (1974), Lecturer in Accounting and Quantitative Studies  
BS, California Polytechnic State University, San Luis Obispo; MBA, California State University, Fresno.
- MAUGHELLI, MARY L. (1962), Professor of Art  
BA, MA, University of California at Berkeley.
- McALPINE, AUBRY J. (1972), Assistant Professor of Aerospace Studies  
BS, Tuskegee Institute; MS, Air Force Institute of Technology; Major, USAF.
- McCLINTIC, J. ROBERT (1954), Professor of Biology  
BA, San Diego State College; PhD, University of California at Berkeley.
- McCOMAS, WAYNE L. (1953), Professor of Industrial Arts and Technology  
BA, Santa Barbara College; MA, Stanford University.
- McCONNELL, VANCE Y. (1966), Associate Professor of Foreign Languages  
BA, University of Omaha; MA, PhD, University of Arizona.
- McCULLOCH, WILLIAM J. (Spring 1974), Lecturer in Animal Science  
BS, Jamestown College; MS, Oregon State University.
- McDERMOTT, JOHN J. (1969), Associate Professor of English  
BA, University of Notre Dame; MA, Columbia University; PhD, University of California at Los Angeles.
- McDOUGALL, THOMAS (1966), Associate Professor of Art  
BA, San Jose State College; MA, San Fernando Valley State College.
- McFERRIN, WILLIAM D. (1970), Assistant Professor of Accounting and Quantitative Studies  
BS, Northwestern State College; MBA, Louisiana State University.
- McGOLDRICK, BERNARD E. (1969), Associate Professor of Political Science  
BA, MA, Fordham University; BD, Woodstock College; MA, PhD, Georgetown University.
- McGUIRE, PAUL J. (1966), Professor of Theatre Arts  
BA, MA, San Fernando Valley State College.
- McINERNEY, PATRICK J. (1974), Lecturer in Radio-Television  
BA, MA, Ohio University; MA, University of California at Los Angeles.
- McKNIGHT, H. RAY (1965), Professor of English  
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BA, MA, San Francisco State College; MFA, PhD, University of Oregon.
- MERCHEN, WAYNE V. (1969), Associate Professor of Urban and Regional Planning  
BA, Fresno State College; MUP, University of Washington.
- MERRIFIELD, ALEANOR R. (1969), Professor of Social Work  
BS, University of Oregon; MA, University of Chicago.
- MERRILL, ROBERT D. (1970), Assistant Professor of Geology  
BA, University of California at Riverside; MS, University of Massachusetts; PhD, University of Texas at Austin.
- MEYER, RONALD W. (1966), Professor of Botany  
BS, MA, University of Missouri; PhD, University of California at Berkeley.
- MEYERS, MARILYN L. (1974), Lecturer in Accounting and Quantitative Studies  
BS, California State University, Fresno.
- MEYERSON, MARION D. (1971), Associate Professor of Communicative Disorders  
BA, Hunter College; MA, Brooklyn College; PhD, University of Illinois.
- MIKELL, ROBERT S. (1972), Assistant Professor of Ethnic Studies  
BS, MA, Fresno State College.
- MILLER, HARRY J. (Spring 1970), Lecturer of Quantitative Studies  
BA, MBA, Fresno State College.
- MILLER, JAMES B. (1971), Director of Public Information  
BS, Fresno State College.
- MILLER, TERRY C. (1969), Assistant Professor of Theatre Arts  
AB, University of California at Berkeley; MA, Northwestern University; MFA, Ohio University.
- MILLER, WILLIAM M. (1956), Professor of Chemistry  
BS, University of Illinois; MS, PhD, State University of Iowa.
- MINICH, MARSHALL E. (1966), Associate Professor of Finance and Industry  
BS, Lafayette College; MBA, Harvard Business School.
- MINICK, ROBERT A. (1962), Professor of Economics  
BS, MS, North Texas State College; PhD, University of Texas.
- MINSCHW, WILLIAM E., JR. (Spring 1963), Associate Professor of Art  
BS, Atlantic Christian College; MFA, University of North Carolina.
- MISTRY, P. J. (1969), Associate Professor of Linguistics; Chairman, Linguistics Department  
BA, MA, Elphinstone College (Bombay); MA, University of Pennsylvania; PhD, University of California at Los Angeles.
- MITCHELL, COLLEEN A. (1968), Senior Assistant Librarian  
BA, College of the Holy Names; MA, Washington University; MLS, University of California at Berkeley
- MITCHELL, RICHARD L., JR. (Fall 1974), Lecturer in Ethnic Studies  
BS, Tennessee State University; MA, Pepperdine University.
- MIZELL, M. Diann (1970), Assistant Professor of Communicative Disorders  
BSE, Henderson State College; MA, University of Houston.
- MOERK, ERNEST (1967), Professor of Psychology  
MA, PhD, University of Innsbruck.
- MOLEN, DAYLE H. (1965), Professor of Journalism; Chairman, Journalism Department  
BA, University of Idaho; MS, University of Oregon.
- MONKE, ROBERT H. (1969), Associate Professor of Education  
BS, MS, Illinois State University; PhD, Arizona State University.
- MONSON, WILLIAM N. (1968), Assistant Professor of Radio-Television  
BA, Knox College; MA, San Fernando Valley State College.
- MONTGOMERY, RICHARD C. (1966), Professor of Geography  
BS, University of Idaho; MA, PhD, University of Nebraska.
- MOORE, BARBARA M. (1969), Associate Professor of Social Work  
BA, Mount Holyoke College; MSW, University of Pennsylvania.
- MOORE, HEYWARD, JR. (1965), Professor of Political Science  
BA, University of North Carolina; MA, University of Florida; PhD, University of North Carolina.
- MORGAN, DONALD L. (Spring 1972), Associate Professor of Geography  
BA, MA, University of California at Los Angeles; MS, Stanford University; PhD, University of California at Davis.
- MORI, NOBUO (1967), Associate Professor of Social Work  
BS, MSW, University of Utah.
- MORRIS, LYNNE C. (Spring 1973), Assistant Professor of Social Work  
BA, Oberlin College; MSW, University of Michigan.
- MORTIMER, DELL L. (1968), Professor of Accounting  
BA, Chico State College; MBA, University of California; DBA, University of Colorado.

- MOSHIER, KENNETH D. (1973), Assistant Professor of Industrial Arts and Technology  
BA, MA, Fresno State College; PhD, Utah State University.
- MOSS, STANLEY S. (1965), Professor of Social Work  
BSS, College of City of New York; MSW, Rutgers, The State University.
- MOTT, MARY L. (1969), Professor of Physical Education and Recreation  
BA, University of California at Santa Barbara; MA, Stanford University; EdD, Louisiana State University.
- MULLENNIX, GRADY L. (1958), Professor of Economics  
BS, MS, North Texas State College; PhD, University of Texas.
- MUSSELMAN, DARWIN B. (1953), Professor of Industrial Arts and Technology  
BA, Fresno State College; MFA, California College of Arts and Crafts; MA, University of California at Berkeley.
- NAGY, ELEMER J. (1962), Professor of Foreign Languages  
MA, PhD, P. Pazmany University (Budapest).
- \*NALBANDIAN, LOUISE (Spring 1964), Professor of History  
BA, San Francisco State College; MA, PhD, Stanford University.
- NASSE, GEORGE N. (1965), Professor of Geography  
BA, Clark University; MA, PhD, University of Michigan.
- NATHARIUS, DAVID T. (1966), Associate Professor of Speech Communication  
BA, Los Angeles State College; MA, Bradley University; PhD, University of Southern California.
- NELSEN, CLAIR E. (1950-1953; 1955), Professor of History  
BA, Fresno State College; MA, PhD, Stanford University.
- NELSON, DARREN M. (1968), Professor of Animal Science  
BS, University of Nebraska; PhD, University of Illinois.
- NELSON, DONALD D. (Spring 1964-Fall 1974), Professor of Animal Science  
BS, Fresno State College; MS, University of California at Davis; PhD, Ohio State University.
- NELSON, EDWARD E. (1973), Assistant Professor of Sociology  
BA, MA, PhD, University of California at Los Angeles.
- NELSON, ELIZABETH N. (1973), Lecturer in Sociology  
BA, Washington State University; MA, University of California at Los Angeles.
- NELSON, MYRTHEL S. (1965), Professor of Nursing  
BA, College of Great Falls; MA, Gallaudet College; MA, Columbia University; MN, Yale University; Registered Nurse.
- NEWCOMB, RICHARD F. (Spring 1956), Professor of Industrial Arts and Technology  
BA, MA, Fresno State College.
- NEWELL, TERRY G. (1969), Associate Professor of Psychology  
BA, PhD, University of Minnesota.
- NEWSOME, RATANA S. (1961), Professor of Home Economics  
BA, Chulalongkorn University (Thailand); MS, PhD, Florida State University; Registered Dietician.
- NICKLETT, GEORGIA E. (1965), Associate Professor of Education  
BA, University of California at Los Angeles; MA, EdD, Columbia University.
- NIETO, RICHARD (1974), Action Program Director  
BS, Fresno State College; MEd, Antioch College.
- NIGGLE, CHRISTOPHER J. (1970), Assistant Professor of Economics  
BA, Arizona State University; MA, New School for Social Research.
- NISHIO, KAREN H. (1959-Fall 1962; 1963), Professor of Nursing  
BS, University of Dayton; MS, University of California at Los Angeles; Registered Nurse.
- NIXON, ARNE J. (1961), Professor of Education; Chairman, Elementary Education Department  
BS, Ellendale State Teachers College (North Dakota); EdM, Western Washington College of Education; EdD, Teachers College, Columbia University.
- NOKLEBERG, WARREN J. (1970), Associate Professor of Geology  
BA, University of California at Los Angeles; PhD, University of California at Santa Barbara.
- NORRIS, EVAN J. (1974), Lecturer in Ethnic Studies  
BA, Fresno State College.
- NORSWORTHY, STANLEY F. (1966), Associate Professor of Geography  
BA, University of California at Los Angeles; MA, Miami University; PhD, University of California at Los Angeles.
- NUR, HUSSAIN SAYID (1967), Professor of Mathematics  
BS, University of Bagdad; MA, PhD, University of California at Berkeley.
- NURY, FRED S. (1969), Professor of Food Science and Enology; Chairman, Agricultural Industry and Education Department  
BS, University of California at Berkeley; MS, American University; PhD, Utah State University.
- NWOKO, SOMAYINA G. (1968), Associate Professor of Finance and Industry  
BS, University of Ibadan (Nigeria); MS, PhD, University of California at Davis.

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- O'BRIEN, JOHN C. (1965), Professor of Industrial Economics  
BCom, University of London; MA, PhD, University of Notre Dame.
- OGDEN, LOWELL K. (1958), Associate Professor of Elementary Education  
BS, Arkansas State Teachers College; MA, University of Wyoming; EdD, University of Southern California.
- OKIN, ISAAC (1973), Lecturer in Ethnic Studies  
BA, Fresno State College; MCRP, California State University, Fresno; ABD, Claremont Graduate School.
- OLNEY, ARTHUR J. (Spring 1969), Associate Professor of Ornamental Horticulture  
BS, University of Rhode Island; MS, PhD, Michigan State University.
- O'NEIL, ROBERT M. (1957), Professor of English  
BA, MA, Montana State University; PhD, University of Washington.
- ONO, HOWARD K. (1972), Assistant Professor of Chemistry  
BS, California Institute of Technology; PhD, University of California at Berkeley.
- OPPER, S. MICHAEL (1965), Associate Professor of Art  
BS, Southern Connecticut State College; MA, Columbia University; PhD, Institute of Asian Studies.
- ORTEGA, ADOLFO A. (1973), Lecturer in La Raza Studies; Coordinator, La Raza Studies Program  
BA, Loyola University; MA, Catholic University; PhD, University of Southern California.
- OSTERBERG, RICHARD F. (Spring 1971), Assistant Professor of Elementary Education  
BA, MA, Fresno State College.
- OVERSTREET, LEILANI (1970), Assistant Professor of Physical Education and Recreation  
BA, MA, San Fernando Valley State College.
- OWENSBY, LOLA B. (Spring 1963; 1970), Assistant Professor of Physical Education and Recreation  
AB, Fresno State College; MS, University of Wisconsin.
- PAGLIERANI, GARY B. (1970), Assistant Professor of Industrial Arts and Technology  
BA, MA, San Jose State College.
- PALOMINO, ERNEST (1970), Assistant Professor of Art  
BA, Fresno State College; MA, San Francisco State College.
- PANICO, VICTOR G. (1970), Associate Professor of Office Administration  
BS, MS, Siena College; EdD, Arizona State University.
- PAPE, LAURENCE A. (1951), Professor of Physical Education  
BA, MA, Ohio State University; EdD, Columbia University.
- PARKER, LILLIE A. (1951), Associate University Librarian  
BA, BLS, University of California at Berkeley.
- PARKER, WILLIAM M. (1950), Professor of Accounting  
BS, MBA, University of California; PhD, University of Southern California; Certified Public Accountant.
- PATNOTT, JOHN R. (1972), Coach in Physical Education and Recreation  
BA, Fresno State College.
- PATTERSON, MARY G. (1969), Professor of Nursing  
BS, PHN, Columbia University; MS, New York University; EdD, University of California at Los Angeles.
- PAUL, HERBERT A. (1974), Lecturer in Irrigation  
BS, MS, University of California at Davis; PhD, Utah State University; Registered Civil Engineer.
- PAUL, MARTIN T. (1967), Associate Professor of English  
BA, College of the Holy Cross; MA, PhD, University of Wisconsin.
- PEREZ, MANUEL (1971), Director of Educational Opportunity Program  
BA, MSW, Fresno State College.
- PEREZ, ROBERT F. (1972), Assistant Professor of Criminology  
BA, Chico State College; JD, McGeorge School of Law.
- PEREZ, TERESA R. (1971), Assistant Professor of La Raza Studies  
BA, Fresno State College.
- PERRY, DENNIS F. (Spring 1973), Lecturer in Accounting and Quantitative Studies  
BA, MA, Fresno State College.
- PERRY, LAURI L. (1969), Counselor  
BA, Lewis and Clark College; MA, University of Hawaii.
- PERRY, WILLIAM R. (1969), Counselor  
BA, Chico State College; JD, McGeorge School of Law.
- PETERSON, BETTY J. (1973), Senior Assistant Librarian  
AB, University of Pacific; MLS, University of California at Berkeley.
- PETESCH, WILLIAM J. (1968), Senior Assistant Librarian  
BA, MA, University of Montana; MALS, University of California at Berkeley.
- PETRUCCI, VINCENT E. (1948), Professor of Viticulture  
BS, MS, University of California at Davis.
- PFUFF, CAROL W. (1973), Lecturer in Linguistics  
BA, MA, PhD, University of California at Los Angeles.

- PFLUEGER, CLAYTON C. (1959), Professor of Dairy Industry  
BS, South Dakota State College; MS, State College of Washington.
- PHERSON, CARL L. (1972), Assistant Professor of Agricultural Economics  
BS, MA, PhD, University of Minnesota.
- PICKEL, DONNA RAE (1967), Associate Professor of Physical Education  
BS, Oklahoma Baptist University; MS, Smith College.
- PICKERING, JEAN E. (1970), Associate Professor of English  
BA, University College (London University); MA, San Francisco State College; PhD, Stanford University.
- PICKFORD, PATRICIA R. (Spring 1957), Professor of Social Work  
BA, Fresno State College; MSW, University of California at Los Angeles.
- PIERSOL, ROBERT J. (1968), Professor of Management  
BSME, University of Illinois; MBA, Stanford University; DBA, Harvard University.
- PIGG, C. JOANNE (1964), Professor of Biology  
BA, Arizona State University; MS, PhD, Oregon State University.
- PINCU, LESTER P. (1970), Associate Professor of Criminology  
BS, Tufts University; MA, PhD, University of California at Berkeley.
- PISCOTTOLI, LOUIS F. (1967), Associate Professor of Economics  
BA, Boston College; PhD, Duke University.
- PITT, JACK A. (1957), Professor of Philosophy  
BS, Sir George Williams College (Canada); BA, MA, McGill University (Canada); PhD, Yale University.
- PLATZEK, DENNA J. (1973-74; 1975), Lecturer in Psychology  
BA, University of California at Berkeley; MA, Fresno State College; PhD, Florida State University.
- POLLART, GENE J. (1974), Lecturer in Music  
BM, MM, University of Colorado.
- POLLOCK, BETTY J. (1974), Lecturer in Communicative Disorders  
BA, Illinois State University; MA, California State University, Northridge.
- POOLE, PATRICK H. (1966), Counselor  
BA, University of Tulsa; MS, Kansas State College. Licensed Marriage Counselor; Licensed Psychometrist.
- POSEY, CLYDE L. (1966), Assistant Professor of Accounting and Quantitative Studies  
BBA, Texas Western College; MBA, University of Texas; CPA, California, Texas.
- POSS, STANLEY H. (1956), Professor of English  
BA, University of Redlands; MA, Claremont Graduate School; PhD, University of Washington.
- POSTON, BILLIE L. (1966), Associate Professor of Physical Education  
BS, MS, University of Tennessee.
- POWELL, FRANK V. (1955), Professor of Psychology  
BA, University of Redlands; MS, PhD, University of Wisconsin; Licensed Psychologist.
- POYTHRESS, RANSOM H. (Spring 1962), Associate Professor of Foreign Languages  
BA, Stanford University; MA, Fresno State College.
- PRONIN, ALEXANDER (1965), Professor of Foreign Languages  
BA, University of California; PhD, Georgetown University.
- PROVOST, DAVID H. (1958), Professor of Political Science  
BA, Pomona College; PhD, University of Queensland (Australia).
- QUADRO, DAVID F. (1970), Assistant Professor of Speech Communication; Chairman, Speech Communication Department  
BA, University of the Pacific; MA, San Fernando Valley State College; PhD, University of California at Los Angeles.
- QUINN, JOHN R. (1969), Professor of Criminology; Chairman, Criminology Department  
BA, Aquinas College; MA, Michigan State University.
- RABAGO, EMPERATRIZ N. (1971), Associate Professor of Nursing  
BSE, University of Santo Tomás Library; MA, Northwestern University; MNE, PhD, Indiana University; Registered Nurse.
- RAGSDALE, MARJORIE L. (1973), Lecturer in Elementary Education  
BA, Fresno State College.
- RANDALL, CHARLES H. (1962), Professor of Theatre Arts  
BA, Central Washington College of Education; MFA, Yale University.
- RANEY, GEORGE W. (1969), Associate Professor of Linguistics  
BA, Loyola University; MA, PhD, University of Southern California.
- RAY, D. N. (Spring 1969), Professor of Criminology  
BA, Yankton College; MA, Washington State University.
- REA, RALPH C. (1954), Professor of Music  
BM, Eastman School of Music; MA, PhD, State University of Iowa.
- REA, THELMA M. (1958), Professor of Education  
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BA, MA, University of Illinois.
- REES, BRYANT E. (1947), Professor of Biology  
BA, MA, University of Utah; PhD, Stanford University.
- REHART, B. SCHYLER, JR. (Spring 1963), Associate Professor of Journalism  
BA, MA, Fresno State College.
- REICHERT, RAPHAEL X. (1971), Assistant Professor of Art  
BA, San Diego State College; MA, University of California at Los Angeles.
- REITMAN, SANDFORD W. (1966), Professor of Education  
BA, Ohio University; MA, EdD, Western Reserve University.
- RENZI, DOROTHY (Spring 1968), Associate Professor of Music  
BA, Mills College.
- RICE, WILLIAM C. (1970), Assistant Professor of Home Economics  
MS, Pennsylvania State University; BS, PhD, Brigham Young University.
- RICH, WALLACE N. (1963), Professor of Social Work  
BA, Fresno State College; MSW, Florida State University.
- RICHARDS, HERBERT D. (1955), Professor of Engineering  
BS, University of California; MS, Stanford University; Registered Civil and Structural Engineer.
- RICHTER, BERTINA (1967), Assistant Librarian  
BA, Sacramento State College; MLS, University of California at Berkeley.
- RIES, JOACHIM S. (1964), Professor of English  
BA, Syracuse University; MA, PhD, University of Washington.
- RIGGINS, LESTER (1971), Assistant Professor of Ethnic Studies; Coordinator of Black Studies  
BA, Fresno State College; MBA, Indiana University; MA, Federal City College.
- RITENOUR, GARY L. (1969), Professor of Agronomy  
BS, Purdue University; MS, PhD, University of California at Davis.
- ROBERTS, HENRY L. (1952), College Fiscal Officer  
BA, Occidental College.
- ROCKWELL, JAMES H. (1957), Professor of Industrial Arts and Technology  
BS, Stout Institute; MS, Bradley University.
- RODEMEYER, STEPHEN A. (1967), Professor of Chemistry; Chairman, Chemistry Department  
BS, St. Thomas College; PhD, University of California at Berkeley.
- ROQUE, TONY (1973), Lecturer in La Raza Studies  
BA, California State University, Fresno.
- ROSE, CARLENE M. (1951), Professor of Home Economics  
BS, University of Minnesota; MS, Oregon State College.
- ROSEN, ELLEN L. (1974), Lecturer in Nursing  
BS, Boston University; MN, University of California at Los Angeles; Pediatric Nurse Practitioner; Texas Women's University; Registered Nurse.
- ROSENBLATT, BARRY M. (1972), Assistant Professor of Urban and Regional Planning  
BA, University of California at Berkeley; MCRP, Fresno State College; PhD, Claremont Graduate School.
- ROSENTHAL, JUDY A. (1971), Assistant Professor of English  
BA, Harpur College; BA, PhD, University of Pittsburgh.
- ROSS, DAVID A. (1968), Associate Professor of Foreign Languages  
BA, MA, PhD, University of California at Los Angeles.
- ROSS, T. EDWARD (1971), Assistant Librarian  
BA, University of California; BLS, University of Toronto.
- ROTH, HOWARD C. (1967), Associate Professor of Foreign Languages  
BA, Fresno State College; MA, University of California; PhD, University of Washington.
- ROTH, LESTER J. (1956), Professor of Social Science and Education; Chairman, Secondary Education Department  
BS, Kent State University; MA, Western Reserve University; EdD, Stanford University.
- ROTSTAN, JOHN A. (1967), Professor of Political Science;  
BA, MEd, Whittier College; MA, PhD, Claremont Graduate School.
- ROUSEK, EDWIN J. (1948), Professor of Animal Sciences  
BS, University of Nebraska; MS, Cornell University.
- ROWE, IVAN H. (1969), Associate Professor of Education  
BA, MA, University of Auckland; MA, Fresno State College; DipEd, University of Auckland.
- ROWE, STEPHEN H. (1974), Assistant Professor of Aerospace Studies  
BA, University of Florida; MA, Seattle University; Captain USAF.
- ROWLAND, WALTER F. (1967), Professor of Engineering  
BS, MS, University of Illinois; PhD, Stanford University, Registered Civil Engineer.

- RUHL, ERVING C. (1967), Associate Professor of Social Work  
BA, Monmouth College; MA, University of Chicago.
- RUSSELL, KENNETH H. (1963), Professor of Chemistry  
BS, Portland State College; PhD, Washington State University.
- RYAN, LANNY J. (1974), Lecturer in Management and Marketing  
BS, Clemson College; MBA, Southern Methodist University
- SAAKE, ROBERT D. (1969), Associate Professor of Criminology  
BA, San Francisco State College; MS, Sacramento State College; EdD, University of Southern California.
- SADDLER, JAMES K. (1970), Assistant Professor of Foreign Languages  
AB, MA, University of California at Los Angeles.
- SALEHI, MERRY W. (1972), Assistant Professor of Psychology  
BA, MS, PhD, Iowa State University.
- SANTIGIAN, M. MARTY (Spring 1970), Professor of Education  
BA, Occidental College; MA, Fresno State College; EdD, University of California at Berkeley.
- SAPPENFIELD, GEORGE O. (1972), Assistant Professor of Physical Education and Recreation  
BS, Fresno State College; MS, San Francisco State College
- SARAGOZA, ALEXANDER M. (1971), Assistant Professor of La Raza Studies  
BA, Fresno State College; MA, Harvard University.
- SARKISIAN, RICKY (1973), Clinical Psychologist  
BS, MBA, California State University, Fresno; MA, PhD, University of California at Berkeley.
- SATIN, JOSEPH (1973), Dean, School of Humanities; Professor of English  
BS, Temple University; MA, PhD, Columbia University.
- SAUER, KEITH (1971), Assistant Professor of Foreign Languages  
BA, MA, University of California at Berkeley; PhD, University of Washington.
- SAWYER, DANIEL B. (1968), Associate Professor of Physical Education and Recreation  
BA, San Jose State College; MS, Los Angeles State College; PhD, University of Southern California.
- SCHANDERL, SIGMUND H. (1973), Professor of Enology and Food Science  
BS, PhD, University of California at Davis.
- SCHINDLER, JANET S. (Spring 1973), Assistant Librarian  
BA, MLS, University of Texas at Austin.
- SCHORLING, HORACE O. (1941), Executive Vice President; Professor of Industrial Arts and Technology  
BA, San Jose State College; MS, EdD, Oregon State College.
- SCHECHESTER, PAUL M. (1973), Assistant Professor of Physical Education and Recreation  
BS, Cal Poly at Pomona; MS, Azusa Pacific College.
- SCHRAMM, DWAYNE G. (1967), Professor of Office Administration; Acting Chairman (Fall) Office Administration  
Department  
BA, University of Northern Iowa; MA, University of Northern Colorado; PhD, University of California at Los Angeles.
- SCHREIBER, FREDERICK E. (1973), Assistant Professor of Biology  
BS, MS, Northern Illinois University.
- SCHROEDER, JOAN G. (1970), Professor of Accounting and Quantitative Studies; Director, Graduate Program  
BS, Marquette University; MBA, PhD, University of Wisconsin.
- SCHROETER, FRANK E. (1949), Professor of Industrial Arts and Technology; Chairman, Industrial Arts and Technology  
Department  
BS, MS, Stout Institute.
- SCHROLL, JOANNE W. (1963), Associate Professor of Physical Education  
BA, MA, Fresno State College.
- SCHULTZ, RONALD C. (1972), Assistant Professor of Health Science  
BA, MS, Fresno State College; Registered Sanitarian.
- SCHUNK, JOHN F. (1974), Lecturer in Speech Communication  
BA, MA, PhD, University of Illinois.
- SCHWARTZ, MARVYN S. (1958), Director of Health Services  
BA, Fresno State College; MD, University of California at Berkeley.
- SEIB, KENNETH A. (1968), Associate Professor of English  
BA, Ashland College; MA, Columbia University; PhD, University of Pittsburg.
- SELKIRK, ROBERT J., JR. (1948), Professor of Dairy Science  
BS, MEd, University of California at Davis.
- SHACKLETT, ROBERT L. (1955), Professor of Physics; Assistant Dean, School of Graduate Studies  
BA, Fresno State College; PhD, California Institute of Technology.
- SHANAB, MITRI E. (1968), Professor of Psychology  
BA, San Francisco State College; PhD, University of California at Santa Barbara.
- SHANKS, SUSAN J. (1970), Associate Professor of Communicative Disorders; Chairwoman, Communicative Disorders  
Department  
BEd, University of Toledo; MA, Bowling Green State University; PhD, Louisiana State University.

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- SHAW, JOHN A., JR. (1965), Professor of Economics  
BA, San Diego State College; MS, PhD, Purdue University.
- SHEPARD, BERNARD A. (1948), Professor of Journalism  
BA, Union College; BS, Columbia University; MS, PhD, Syracuse University.
- SHETZLINE, MARY B. (1970), Associate Professor of English  
BA, Barnard College; MFA, University of Oregon.
- SHOCKLEY, JAMES T. (1956), Professor of Physics  
BA, MA, Fresno State College; PhD, University of Southern California.
- SHORE, SHARON K. (1970), Assistant Professor of Art  
BFA, Illinois Wesleyan University; MS, University of Oregon.
- SIA, MING BE (1964), Professor of Nursing  
BA, Hwa Nan College (China); MA, Teachers College, Columbia University.
- SIGALA, RALPH (1969), Counselor  
BA, MA, Eastern New Mexico University.
- SILVANI, HAROLD (1974), Lecturer in Elementary Education  
BA, MA, Fresno State College.
- SIMMONS, ANDREW M. (1970), Assistant Professor of English  
BA, MA, PhD, University of Missouri.
- SIMPSON, DOUGLAS B. (1971), Associate Professor of Management  
BC, University of British Columbia; MBA, University of California at Berkeley; PhD, University of Washington.
- SIMPSON, MARILYN J. (1972), Assistant Professor of Social Work  
BA, North Carolina University at Greensboro; MSSA, Case Western Reserve University.
- SKEI, ALLEN B. (1970), Associate Professor of Music  
BA, St. Olaf College; MMus, PhD, University of Michigan.
- SLANICEANU, ADRIANA N. (1969), Assistant Professor of Foreign Languages  
BA, University of Alberta; MA, University of Washington.
- SLINGER, JAMES W. (1969), Associate Professor of Philosophy  
BS, PhD, University of Wisconsin.
- SLOAN, FORREST E. (1954), Professor of Elementary Education  
BS, Illinois State University; MA, EdD, Northern Colorado University.
- SMALL, LILY B. (1972), Assistant Professor of Ethnic Studies  
BA, MA, Fresno State College.
- SMALLEY, R. GAYLE (1963), Associate Professor of Art  
BFA, Rochester Institute of Technology; MFA, Indiana University.
- SMARDAN, LAURENCE E. (1966), Professor of Home Economics  
BA, MS, University of Southern California; PhD, Cornell University.
- SMETIERTMAN, ROBERT M. (1967), Professor of History  
BA, Claremont Men's College; MA, Los Angeles State College; PhD, Claremont Graduate School.
- SMITH, CHARLENE K. (1960), Professor of Education  
BA, Western College (Ohio); MS, Butler University; EdD, Colorado State College.
- SMITH, CURTIS B. (1973), Assistant Librarian  
BA, George Washington University; MLS, University of California at Berkeley.
- SMITH, EDNA A. (Fall 1972), Assistant Professor of Home Economics  
BS, MA, University of California at Los Angeles.
- SMITH, EPHRAIM K., JR. (1966), Associate Professor of History  
BA, Hillsdale College; MA, University of Nebraska; PhD, Johns Hopkins University.
- SMITH, JAMES H. (1955), Professor of Engineering  
EE, MS, University of Cincinnati; BA, BS, PhD, University of Illinois; Registered Electrical Engineer.
- SMITH, JAMES MARVIN (1959-1966; 1969), Professor of Philosophy  
BA, University of Southern California; MA, PhD, Brown University.
- SMITH, JAMES MITCHELL (1965), Associate Professor of Psychology  
BA, PhD, University of California at Los Angeles.
- SMITH, LARRY E. (1967), Director, Academic Personnel Services  
BS, MBA, Fresno State College.
- SMITH, LAWRENCE E. (1967), Associate Professor of Industrial Arts and Technology  
BS, MS, Stout State University; PhD, University of Southern California.
- SMITH, PHILIP N. (1958), Professor of Biology  
BA, PhD, University of California at Berkeley.
- SMITH, VINCENT J., JR. (1971), Associate Librarian  
BA, Sacramento State College; MLS, University of California at Berkeley.
- SOBOLIK, GAYLE A. (1969), Associate Professor of Office Administration  
BA, Concordia College; MA, PhD, University of North Dakota.

- SOLLIE, ALICE J. (Spring 1959), Associate Professor of Home Economics  
BS, MS, Oregon State University.
- SOMMER, DOROTHY C. (1965), Associate Professor of Nursing  
BS, University of Buffalo; MN, University of Washington; CNM, State University of New York; Registered Nurse.
- SOSA, LUIS R. (1973), Lecturer in Graduate Department of Social Work  
BA, University of Albuquerque; MSW, Florida State University.
- SPANGLER, RICHARD C. (Spring 1963), Professor of Economics  
BA, MA, PhD, University of California at Los Angeles.
- SPARKS, RICHARD K. (1961), Professor of Education  
BA, University of Washington; BA, Central Washington College of Education; MA, EdD, University of California at Berkeley.
- SPIELER, RICHARD A. (1968), Associate Professor of Biology  
BA, PhD, University of Chicago.
- STAEBLER, ARTHUR E. (1955), Professor of Biology  
BS, MS, PhD, University of Michigan.
- STANDING, KEITH M. (1958), Professor of Biology  
BS, MS, Brigham Young University; PhD, Washington State University.
- STANDRING, L. HARRIET (1971), Assistant Professor of Music  
BM, Westminster Choir College; MM, University of Arizona.
- STEFFES, EVA L. (1969), Associate Professor of Nursing  
RN, Methodist Hospital; BS, San Jose State College; MS, University of California at San Francisco; JD, Humphreys College of Law.
- STELTING, KATHLEEN M. (1973), Assistant Professor of Chemistry  
BS, Eastern N.M. University; PhD, University of Missouri—Columbia.
- STEPHEN, DIANE (1974), Lecturer in Nursing  
Christ Church School of Nursing, New Zealand; Registered Nurse.
- STEWART, DARLENE L. (1972), Assistant Professor of Physical Therapy  
BS, University of Kansas; MS, Fresno State College.
- STITTICH, ELEANOR M. (1964), Professor of Nursing  
BSNE, MLitt., University of Pittsburgh; Registered Nurse.
- STOCK, EDITH H. (1969), Assistant Professor of Foreign Languages  
AB, Western Reserve University; MA, University of Arizona; PhD, University of Kansas.
- STOCK, WILLIAM P. (1971), Psychometrist  
BS, University of California at Berkeley; MEd, University of California at Santa Barbara.
- STOCKTON, DANIEL L. (Spring 1973), Coach, Physical Education and Recreation  
BA, Fresno State College; MA, California State Polytechnic College.
- STORY, SYDNEY R. (1963), Professor of Anthropology  
BA, MA, PhD, University of California at Los Angeles.
- STRUMWASSER, GINA (1971), Assistant Professor of Art  
BA, University of California at Berkeley; MA, California State College at Los Angeles.
- STUART, MERRILL M. (1967), Associate Professor of Geography  
BA, Carroll College; MA, University of Hawaii; EdD, Teachers College, Columbia University.
- STUART, WALTER H. (1967), Associate Professor of English  
BA, Harvard; MA, PhD, University of Wisconsin.
- STUDE, EVERETT W. (1971), Associate Professor of Rehabilitation Counseling  
BA, Pasadena College; MS, California State College at Los Angeles; EdD, University of Southern California.
- STULL, SARAH L. (1959-1966), Librarian II; (1967), Assistant Professor of Education  
BA, MA, University of Illinois.
- STUTZMAN, CARL R. (1969), Professor of Education  
AB, MA, EdD, University of the Pacific.
- SUN, HUGO S. (1970), Associate Professor of Mathematics  
BA, University of California at Berkeley; MA, University of Maryland; PhD, University of New Brunswick.
- SUPERSAD, JANKIE N. (1970), Associate Professor of Engineering  
BSc, Glasgow University (Scotland); MS, Northwestern University; PhD, Arizona State University.
- SUTHERLAND, LAWRENCE R. (1969), Associate Professor of Music  
BMusEd, University of Tulsa; MA, University of Missouri.
- SVENSON, KARL A. (1954), Professor of Political Science  
BA, University of Wyoming; MA, Indiana University; PhD, State University of Iowa.
- SWANSON, CHARLES E. (1968), Vice President for Academic Affairs; Professor of Marketing  
BA, San Diego State College; MA, PhD, State University of Iowa.
- SWINEFORD, EDWIN J. (1964), Professor of Secondary Education  
BA, Fresno State College; MA, University of California; EdD, University of Virginia.

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- TABBERT, WYNN C. (1970), Associate Professor of Social Welfare; Chairwoman, Social Welfare Department  
BA, University of Minnesota; MSW, DSW, University of Southern California.
- TANIGUCHI, IZUMI (1963), Professor of Economics  
BBA, MBA, University of Houston; PhD, University of Texas.
- TATARIAN, H. ROGER (1972), Professor of Journalism  
BA, Fresno State College; D. Litt., Windham College.
- TATE, MICHAEL G. (1970), Associate Professor of English  
AB, University of California at Berkeley; MA, PhD, Indiana University.
- TAYLOR, FRANK E., JR. (1965), Assistant Professor of Accounting and Quantitative Studies  
BS, MBA, University of California at Los Angeles; CPA.
- TAYLOR, VERA C. (1965), Professor of Elementary Education  
BS, MS, Iowa State University; PhD, University of Southern California.
- TELLIER, RICHARD D. (1973), Assistant Professor of Management and Marketing  
BSEE, Drexel University; MBA, DBA, Florida State University.
- TERRY, EDWIN F. (1969), Professor of Economics  
BS, University of Oklahoma; MA, University of Kansas; PhD, Iowa State University.
- THOM, STEPHEN N. (1973), Lecturer in Ethnic Studies  
BA, MA, California State College at Los Angeles.
- THOMAS, ALROY E. (1972), Assistant Professor of Ethnic Studies  
BA, Fresno State College; MA, California State University, Fresno.
- THOMPSON, GENE L. (1965), Associate Professor of Art  
BFA, California College of Arts and Crafts; MFA, Cranbrook Academy of Art.
- THOMPSON, SHIRLEY M. (1953), Associate Professor of Physical Education  
BS, MS, University of Wisconsin.
- THOMSON, PATRICIA L. (1967), Professor of Physical Education; Coordinator of Women's Physical Education  
BA, University of Washington; MS, University of California at Los Angeles; PhD, University of Southern California.
- THORBURN, MARGARET C. (1971), Assistant Professor of Nursing  
BS, University of California at San Francisco; MS, Fresno State College; Registered Nurse.
- TIDYMAN, CLAYTON R. (1957), Professor of Accounting; Chairman, Accounting and Quantitative Studies Department  
BS, MBA, PhD, University of Southern California; CPA.
- TIGERMAN, NORMA S. (1974), Lecturer in Nursing  
BS, MS, California State University at Los Angeles; Registered Nurse.
- TINKER, JOHN N. (1969), Associate Professor of Sociology  
BA, Fresno State College; MA, PhD, University of California at Los Angeles.
- TITUS, CHARLES B. (1963), Professor of Accounting and Quantitative Studies  
BS, MA, University of Oklahoma; PhD, University of Texas.
- TOCCHIO, OCTAVIO J. (1959), Professor of Criminology; Assistant to the Dean, School of Professional Studies  
BA, Suffolk University; MA, PhD, American University.
- TOKMAKIAN, HAROLD H. (Spring 1968), Professor of Urban and Regional Planning; Chairman, Urban and Regional Planning Department  
BA, MA, Stanford University; MRP, Cornell University.
- TONEY, JOE D. (1969), Associate Professor of Chemistry  
BS, Agricultural, Mechanical and Normal College; MS, PhD, University of Illinois.
- TOWLE, JERRY C. (1971), Assistant Professor of Geography  
BA, Valparaiso University; MA, Southern Illinois University; PhD, University of Oregon.
- TOWNSEND, JOSEPH L. (1970), Professor of Rehabilitation Counseling; Coordinator, Rehabilitation Counseling  
BM, MEd, Colorado State University; EdD, University of Northern Colorado.
- TRIBBEY, BERT A. (1965), Professor of Biology; Chairman, Biology Department  
BA, University of California at Santa Barbara; PhD, University of Texas.
- TROSTLE, LOIS M. (1970), Assistant Professor of Physical Education and Recreation  
BS, Manchester College; MA, University of California at Los Angeles.
- TSUKUDA, ERNEST K. (1973), Assistant Professor of Criminology  
BA, MA, Sacramento State College.
- TUCKER, HAZEL J. (1966), Professor of Foreign Languages  
BA, University of California at Los Angeles; MA, National University of Mexico.
- TUCKER, JAMES B. (1968), Associate Professor of Journalism  
BA, MA, University of Iowa.
- TURNER, LOUISE P. (1970), Associate Professor of Home Economics  
BS, MA, PhD, Texas Woman's University.
- TURNQUIST, E. JOAN (1971), Associate Professor of Physical Therapy; Coordinator of Physical Therapy  
BS, University of Minnesota; MA, Stanford University; MPH, University of California at Berkeley.
- ULLMANN, W. RICHARD (1968), Assistant Professor of Speech Communication  
BA, Fresno State College; MA, Colorado State University; PhD, University of Southern California.

- UPHOLD, WILLIAM B., JR. (1954), Professor of English and Philosophy  
BA, ThB, Taylor University; BD, Drew University; PhD, University of Southern California.
- VALDEZ, MANUEL K. (1974), Lecturer in La Raza Studies  
BA, California State University, Fresno.
- VALETT, ROBERT E. (Spring, 1970), Professor of Education  
BS, George Williams College; MA, University of Chicago; EdD, University of California at Los Angeles; Licensed Psychologist; Diplomate, American Board of Professional Psychology.
- VAN DALSEM, DALE A. (1974), Lecturer in Theatre Arts  
BA, University of California at Santa Barbara; MFA, Stanford University.
- VAN DER ELST, DIRK H. (1969), Associate Professor of Anthropology; Chairman, Anthropology Department  
BA, MA, University of Utah; MA, PhD, Northwestern University.
- VANDER MEER, PAUL (1971), Assistant Professor of Geography  
BA, Hope College; MA, PhD, University of Michigan.
- VAN ELSWYK, MARINUS, JR. (1957), Professor of Agronomy  
BS, Fresno State College; MEd, University of California at Davis; PhD, University of Arizona.
- VAN CALDER, ROBERT B. (Spring 1963), Associate Professor of Physical Education  
BA, MA, Fresno State College; EdD, University of Northern Colorado.
- VAN VELDHUIZEN, HENRY (1967), Associate Professor of Social Work  
BA, Calvin College; MSW, Florida State University.
- VARLEY, BARBARA K. (1965), Professor of Social Work  
BS, MSW, University of Utah; DSW, Western Reserve University.
- VARNIER, DUDLEY M. (1974), Lecturer in Anthropology  
BA, MA, University of Texas; PhD, University of Arizona.
- VAVOULIS, ALEXANDER (1963), Professor of Chemistry  
BA, MA, Brooklyn College; EdD, University of the Pacific.
- VIAU, MONNETTE C. (1969), Associate Professor of Nursing  
RN, St. Joseph's School of Nursing; BS, MA, Fresno State College.
- VIDOLI, VIVIAN A. (1970), Associate Professor of Biology  
BS, Southern Connecticut State College; MS, PhD, Arizona State University.
- VISWESWARAN, GANESHA (1969), Associate Professor of Social Work  
BS, University of Madras (India); DSSA, Madras School of Social Work; MSW, University of Illinois.
- WADSWORTH, STEVEN D. (1968), Associate Professor of Communicative Disorders  
BS, MS, Utah State University; EdD, Brigham Young University.
- WAGONER, RONALD L. (1969), Associate Professor of Mathematics  
BA, MA, Fresno State College; PhD, University of Oregon.
- WAIBEL, GRACE T. (1963), Senior Assistant Librarian  
BA, College of St. Catherine (Minnesota); MA, George Washington University; MA, University of Minnesota.
- WALKER, HAROLD E. (1965), Professor of Philosophy  
BA, Whittier College; BD, Hartford Seminary; PhD, University of Edinburgh.
- WALKER, PHILLIP N. (1950), Professor of Theatre Arts  
BA, MA, University of Washington; PhD, University of Southern California.
- WALKER, WILLIAM (1973), Lecturer in Elementary Education  
BA, MA, California State University, Fresno.
- WALTON, SIDNEY F. (1973), Assistant Professor of Ethnic Studies  
BA, MA, San Francisco State College; MA, University of California at Berkeley.
- WAMPLER, MARVIN B. (1969), Executive Dean  
BA, College of Idaho; MA, EdD, Stanford University.
- WANG, PETER C. (1970), Assistant Professor of Linguistics  
BA, Taiwan Normal University (Taiwan); MEd, Auburn University; PhD, University of Texas.
- WARDLE, ORRIN D. (1957), Professor of Education  
BS, MS, Utah State College; EdD, University of California at Berkeley.
- WARMERDAM, CORNELIUS A. (1947), Professor of Physical Education  
BA, Fresno State College; MA, Stanford University.
- WASHBURNE, CHANDLER (1968), Professor of Sociology  
BA, MA, PhD, Michigan State University.
- WATTS, PHYLLIS W. (1945), Dean, School of Graduate Studies, Professor of English  
BA, Santa Barbara State College; MA, Claremont College; EdD, Stanford University.
- WAYNE, WILLIAM C. (1954), Professor of Business  
BS, MA, Ball State Teachers College; MS, Indiana University; EdD, University of Southern California.
- WEBER, ROBERT B. (Spring 1969), Assistant Professor of Sociology  
MA, Fordham University.
- WEILER, JOHN H., JR. (1962), Professor of Botany  
BS, University of Nebraska; PhD, University of California at Berkeley.

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- WEINSTOCK, IRWIN (1971), Dean, School of Business; Professor of Management and Marketing  
BA, University of Washington; MBA, PhD, Louisiana State University.
- WEITZMAN, RAYMOND S. (1968), Associate Professor of Linguistics  
BA, University of California at Los Angeles; MA, PhD, University of Southern California.
- WELCH, MARIE R. (1969), Associate Professor of Nursing  
BS, Simmons College; AM, University of Michigan.
- WETMORE, CHARLES H. (1970), Associate Professor of Management  
BA, Pomona College; MSBA, DBA, Arizona State University.
- WETZEL, JOHN C. (1973), Assistant to the Research Coordinator  
BA, Fresno State College.
- WHALEY, JULIAN W. (1970), Professor of Plant Science  
BS, West Liberty State College; MS, West Virginia University; PhD, University of Arizona.
- WHEELER, CHARLES L., JR. (1959), Counselor  
BA, Pasadena College; BD, Nazarene Theological Seminary; MA, Fresno State College; EdD, University of Southern California.
- WHEELER, KENNETH G. (1971), Assistant Professor of Management  
BA, University of California at Berkeley; MBA, Fresno State College.
- WHITE, STANTON M. (1967), Professor of Geology  
BS, University of Massachusetts; MS, University of Rochester; PhD, University of Washington.
- WHITEHEAD, JAMES W. (1970-1971; 1972), Assistant Executive Vice President; Professor of Social Work  
BA, Morehouse College; MA, MSW, Atlanta University.
- WILBER, ERLE L. (1972), Assistant Professor of Criminology  
BA, San Jose State College; MA, Fresno State College.
- WILCOX, R. JACK (1968), Associate Professor of Physical Education  
BA, MA, Fresno State College; PhD, University of Utah.
- WILCOX, ORLEY W. (1959), Professor of Education; Chairman, Advanced Studies Department  
BA, Southwestern College (Kansas); MS, Kansas State Teachers College; EdD, University of Colorado.
- WILD, ERNEST S. (1948), Professor of Physical Education  
BS, MS, Kansas State College.
- WILEY, FRANCIS A. (1946), Professor of History  
BA, Emory and Henry College; MA, Duke University; PhD, University of California at Berkeley.
- WILEY, LORRAINE (1972), Assistant Professor of Biology  
BA, Sacramento State College; MS, PhD, University of California at Davis.
- WILKIN, BRUCE M. (1967), Professor of Education  
BA, University of Redlands; MA, University of California; EdD, Colorado State College.
- WILLIAMS, SHERLEY A. (1969), Associate Professor of English  
AB, Fresno State College; MA, Brown University.
- WILLIAMS, WESLEY M. (1961), Professor of Art  
BA, MA, University of California; EdD, Stanford University.
- WILLIAMSON, HUGH A. (1967), Professor of Physics; Chairman, Physics Department  
BA, North Texas State College; PhD, University of Texas.
- WILSON, DONALD M. (1956), Professor of Communicative Disorders  
BA, Western Washington College of Education; MA, PhD, University of Southern California.
- WINEGAR, GARY H. (1969), Associate Professor of Industrial Arts and Technology  
BS, Brigham Young University; MEd, DEd, Texas A&M University.
- WINIKER, HORTENCIA (1973), Lecturer in Elementary Education  
BA, Fresno State College.
- WINKLER, H. DONALD (1972), Director of Public Affairs  
BA, McKendree College; MS, Ohio University.
- WINSTON, NANCY J. (1971), Assistant Professor of Home Economics  
BS, University of Nevada; MS, Oregon State University.
- WINTER, JAMES H. (1947), Professor of Music; Chairman, Music Department  
BA, Carleton College; MMus, Northwestern University; PhD, State University of Iowa.
- WOHL, MILTON (1967), Associate Professor of Linguistics  
BBA, City College of the University of New York; MA, PhD, University of Michigan.
- WOO, NORMAN T. (1968), Associate Professor of Mathematics  
BA, Wabash College; MS, Southern Methodist University; PhD, Washington State University.
- WOODCOCK, CATHERINE (1968), Professor of Social Work  
BA, University of Manchester; MSW, University of London.
- WOODWICK, KEITH H. (1955), Professor of Biology  
BS, Jamestown College; MS, University of Washington; PhD, University of Southern California.
- WRIGHT, EVELYN H. (1948) Counselor  
BA, Cedar Crest College; MA, Syracuse University.

- WRIGHT, FREEMAN J. (1969), Professor of Political Science  
BS, MS, Montana State University; PhD, Johns Hopkins University.
- YBARRA, LEONARDA (1972), Assistant Professor of La Raza Studies  
BA, MA, University of California at Berkeley.
- YEARY, PATRICIA C. (1971), Assistant Professor of Home Economics  
BS, University of California at Los Angeles; MS, Fresno State College.
- YEUNG, HENDERSON C. (1971), Assistant Professor of Mathematics  
BS, University of Illinois; PhD, Kansas State University.
- YORK, WILLIAM L. (1968), Associate Professor of Sociology  
BS, East Texas Baptist College; MA, Stephen F. Austin State College; EdD, University of Pacific.
- ZANE, BURKE (1962), Professor of Mathematics; Chairman, Mathematics Department  
BA, Fresno State College; MA, PhD, University of Oregon.
- ZELDIS, JACK B. (1969), Associate Professor of Linguistics  
BA, PhD, University of Pennsylvania.
- ZELLMER, DAVID L. (1969), Associate Professor of Chemistry  
BS, University of Michigan; MS, PhD, University of Illinois.
- ZENDER, MICHAEL J. (1966), Professor of Physics  
BA, St. John's University; PhD, Vanderbilt University.
- ZIEGLER, STANLEY M. (1968), Associate Professor of Chemistry  
BA, University of California at Riverside; PhD, University of California at Los Angeles.
- ZITTERKOPF, MARILYN R. (1969), Assistant Librarian  
BA, Eastern Washington State College; MLS, University of Hawaii.
- ZUMWALT, EUGENE E. (1959), Professor of English  
BA, MA, University of Oregon; PhD, University of California at Berkeley.

## ADJUNCT PROFESSORS

(Listed as of May 1975)

- CASTIGLIONE, JOHN B. (1972-1973, Spring 1974), Adjunct Professor of Nursing  
BA, University of California at Berkeley; MD, University of California Medical School at San Francisco.
- ENSMINGER, MARION E. (Spring 1973), Adjunct Professor of Animal Science  
BS, MS, University of Missouri; PhD, University of Minnesota.
- LARSEN, LELAND M. (Spring 1974), Adjunct Professor of Animal Science  
BS, Fresno State College; MS, PhD, Oregon State University.
- LUKAS, GUS N. (1973), Adjunct Professor of Health Science  
BS, Washington State University; DVM, Iowa State University.
- MCKENNA, JAMES (Spring 1974), Adjunct Professor of Nursing  
MBBS, London University.
- MOSS, ELAINE B. (Spring 1974), Adjunct Professor of Nursing  
BS, Stanford University; MS, California State University, Fresno; PNA, University of California at Davis.
- NILSON, BJORN W. (Spring 1974), Adjunct Professor of Nursing  
BA, MD, Ohio State University; MPH, John Hopkins University.
- ROLFING, WALTER (Spring 1974), Adjunct Professor of Nursing  
BA, MD, Washington University
- SCHRADER, PAUL J. (Spring 1974), Adjunct Professor of Nursing  
MD, St. Louis University.
- VANDER GRIEND, MAURINE (1974), Adjunct Professor of Home Economics  
BA, San Jose State College; MA, Oregon State College.
- WHITEHEAD, DOLLIE G. (Spring 1974), Adjunct Professor of Nursing  
AB, Spelman College; MSW, Atlanta University School of Social Work.

## VISITING LECTURERS

(Listed as of May 1975)

- BELCHER, CHARLES H. (1974), Visiting Lecturer in Social Work  
BS, MD, University of Arkansas.
- CARTER, PHILLIP L. (1973), Visiting Lecturer in Social Work  
BS, Northwestern University; MSW, University of California at Los Angeles.
- CHRISTENSON, JOAN (1972), Visiting Lecturer in Social Work  
BA, San Diego State College; MSW, Catholic University of America.
- ERICKSON, ROBERT S. (Spring 1973), Visiting Lecturer in Social Work  
BS, Pennsylvania State University; MSW, Fresno State College.
- HEAD, ELIZABETH (1973), Visiting Lecturer in Social Work  
BA, University of Alabama; MSW, Fresno State College.
- KINDELL, WILLIAM A. (1973), Visiting Lecturer in Nursing
- KLEIN, WALTER (1974), Visiting Lecturer in Social Work  
BA, MSW, California State University, San Diego.
- LYFIELD, WILLIAM G. (1974), Visiting Lecturer in Social Work  
BA, MA, University of California at Los Angeles.
- OXELSON, ERIC C. (Spring 1973), Visiting Lecturer in Social Work  
BA, Harvard College; MSW, University of Minnesota.
- SAIKI, ENID (1974), Visiting Lecturer in Social Work  
BS, Ohio State University; MSW, Wayne State University.
- SANDOVAL, JOE R. (1973), Visiting Lecturer in Social Work  
BA, MSW, Fresno State College.
- SOUZA, A. DANIEL JR., (1973), Visiting Lecturer in Social Work  
BA, Stanislaus State College; MSW, Fresno State College.
- VAVOULIS, JEAN (1972), Visiting Lecturer in Social Work  
BM, University of Colorado; MSW, Fresno State College.
- WATSON, WILFORD E. (1974), Visiting Lecturer in Social Work  
AB, Fresno State College; MSW, University of Southern California.

**PART-TIME FACULTY**

(Academic Year 1974-1975)

- ADAME, LEONARD, Lecturer in La Raza Studies  
 AKRIDGE, KENNETH C., Lecturer in Experimental College  
 ALBRIGHT, MICHAEL J., Lecturer in Communicative Disorders  
 ARMSTRONG, DONNA D., Lecturer in Psychology  
 ARREDONDO, ALFRED V., Lecturer in Social Welfare  
 AUERNHEIMER, CLAYTON R., Lecturer in Health Science  
 BAKER, THOMAS W., Lecturer in Animal Science  
 BARNETT, DENEISE M., Lecturer in Advanced Studies  
 BEDROSIAN, MARGARET, Lecturer in English  
 BENCK, ERNEST A., JR., Lecturer in English  
 BERRY, ALICE, Lecturer in Psychology and Rehabilitation Counseling  
 BIXLER, MARK F., Lecturer in Chemistry  
 BLACK, KATHLEEN, Lecturer in Art  
 BLAIR, DONALD S., Lecturer in Elementary Education  
 BOOTH, WILLIAM P., Lecturer in Secondary Education  
 BOSWELL, ROBERT H., Lecturer in Experimental College  
 BROOKS, KATHRYN H., Coordinator, Women's Studies (Spring)  
 BROUGHTON, ROBERT L., Lecturer in Criminology  
 BURGER, DAVID W., Lecturer in Plant Science  
 CALDERWOOD, RICHARD E., Lecturer in Physical Education  
 CALUB, ARSENIO D., Lecturer in Animal Science  
 CAMPBELL, BLANCHE, Lecturer in Animal Science  
 CARDOZA, MARTHA L., Lecturer in Economics  
 CARTER, JAY M., Lecturer in Criminology  
 CHAFFE, JOE B., Lecturer in Accounting and Quantitative Studies  
 CHRISTENSON, BEULAH., Lecturer in Elementary Education  
 CLAY, WILLIAM T., Lecturer in Linguistics  
 COINMAN, ANN C., Lecturer in English  
 COLEMAN, MARTIN L., Lecturer in Industrial Arts and Technology  
 COLETTI, RENO P., Lecturer in Communicative Disorders  
 CORMIER, OMIE M., Lecturer in Ethnic Studies  
 COURIS, THOMAS T., Lecturer in Finance and Industry  
 CUNNINGHAM, WILLIAM P., Lecturer in Criminology  
 DANGERFIELD, DAVID E., Lecturer in Social Welfare  
 DELKER, JOEL S., Lecturer in Health Science  
 DE SOTO, RAUL T. Lecturer in Agricultural Industry and Education  
 DEWELL, BENJAMIN L., Lecturer in Experimental College  
 DODD, JUDY, Lecturer in Home Economics  
 DUERKSEN, DIANNA, Lecturer in Physical Education and Recreation  
 DURAND, KEITH H. JR., Lecturer in Plant Science  
 EASTER, KENNETH, Lecturer in Agricultural Industry and Education  
 EGAN, EUGENE A. JR., Lecturer in Animal Science  
 EMERZIAN, JANICE, Lecturer in Advanced Studies  
 FARRIS, DONALD K., Lecturer in Social Welfare  
 FOWLER, WILLIAM D., Lecturer in English  
 FRAMPTON, MARY L., Lecturer in Criminology  
 FRANKLIN, RUTH D., Lecturer in Physical Education and Recreation  
 GASHAW, KEBEDE, Lecturer in Animal Science  
 GRAHAM, MARY ELLEN, Lecturer in Experimental College  
 GUAGLIANONE, SAVERIO L., Lecturer in Industrial Arts and Technology

HAMM, PHILLIP M. JR., Lecturer in Psychology  
HANSEN, GWEN, Lecturer in Physical Education and Recreation  
HANSON, SUSAN A., Lecturer in Social Welfare  
HARKINS, ALLEN, Lecturer in Music  
HARLOW, LOREN, Lecturer in Engineering  
HARO, JULIA B., Lecturer in Office Administration  
HARRIS, JAMES M., Lecturer in Secondary Education  
HENDERSON, DAL W., Lecturer in Art  
HENDRICKSON, SHARON, Lecturer in Foreign Languages  
HILLISON, ROBERT K., Lecturer in Finance and Industry  
HOBEN, SANDRA J., Lecturer in English  
HOGNER, DONALD L., Lecturer in Criminology  
HOLDER, ELAINE E., Lecturer in Psychology  
HOLMAN, HOWARD B., Lecturer in Physical Education and Recreation  
HOPPER, GEORGE A., Lecturer in Criminology  
JAMES, FAY D., Lecturer in Criminology  
JASCHKE, JANET C., Lecturer in Home Economics  
JAUREGUI, STELLA, Lecturer in La Raza Studies  
JOHNSON, ALBERT, Lecturer in Agricultural Industry and Education  
JOHNSON, DUANE L., Lecturer in Plant Science  
JOHNSON, GARLAND E., Lecturer in Biology  
JORGE, LARRY M., Lecturer in Accounting and Quantitative Studies  
JUSTICE, DONALD L., Assistant in Criminology  
KAHN, PAULETTE E., Lecturer in Accounting and Quantitative Studies  
KAHN, ROBERT B., Lecturer in Psychology  
KEHLENBECK, GEORGE A., Lecturer in Management and Marketing  
KEHMEIER, LOUISE, Lecturer in Physical Therapy  
KELLEY, ROBERT H., Lecturer in Physical Education and Recreation  
KERR, ELIZABETH, Lecturer in Linguistics  
KEVORKIAN, BARBARA M., Lecturer in Foreign Languages  
KIMBLE, PHILLIP D., Lecturer in Physical Education and Recreation  
KIMBLE, SYDNEY, Lecturer in Chemistry  
KIRKPATRICK, ROSEMARY, Lecturer in Animal Science  
KLAVON, KARL, Lecturer in Experimental College  
KNOWLES, LARRY, Lecturer in Management and Marketing  
KOLIGAN, ALICE L., Lecturer in Chemistry  
KRUM, LE ROY, Professor of Animal Science  
KUSEL, ANITA D., Lecturer in Foreign Languages  
LANGHOFER, DENNIS L., Lecturer in Management and Marketing  
LARSEN, PAMELA, Lecturer in Experimental College  
LEAVENWORTH, ANN, Lecturer in Political Science and Experimental College  
LEVIN, ANNA M., Lecturer in Art  
LILJEDAHL, RONALD E., Lecturer in Plant Science  
LISKEY, JEAN, Lecturer in Health Science  
LOCKHART, LEE M., Lecturer in Management and Marketing  
LOEFFLER, HAROLD J., Lecturer in Agricultural Industry and Education  
LONG, ROBERT J., Lecturer in Journalism  
LORENZ, ENA B., Lecturer in Music  
LUFT, JUDITH K., Lecturer in Social Welfare  
LUMSDEN, DALE T., Lecturer in Home Economics  
LUNDEEN, RICK, Lecturer in Psychology  
MARGOSIAN, EDWARD M., Lecturer in Criminology  
MARSELLA, CARY, Lecturer in Finance and Industry  
MATTCROCEE, DAVID C., Lecturer in Animal Science

## 506 / PART-TIME FACULTY

MAURER, ROBERT J., Lecturer in Psychology  
McCONNELL, FRANCES G., Lecturer in Foreign Languages  
McRAE, CYRIL M., Lecturer in Engineering  
MEHAS, PETER, Lecturer in Secondary Education  
MEYERS, RICHARD, Lecturer in Experimental College  
MILES, RALPH G., Lecturer in Criminology  
MILLER, LAWRENCE E., Lecturer in English  
MISTRY, KAREN E., Lecturer in Linguistics  
MITCHELL, FRANKLIN J. JR., Lecturer in Political Science  
MORRIS, JUDSON H. JR., Lecturer in Social Welfare  
MUELLER, JONEL A., Lecturer in Linguistics  
MURPHY, CHARLES H., Lecturer in Rehabilitation Counseling  
NEGRETE, WILLIAM R., Lecturer in Social Welfare  
NEUFELD, RAMON H., Lecturer in Health Science  
NIBLACK, STEPHEN L., Lecturer in Music  
NILMEIER, GARY F., Lecturer in Industrial Arts and Technology  
NITZ, MELVIN W., Lecturer in Criminology  
NUNES, MARVIN F., Lecturer in Agricultural Industry and Education  
OLSON, ROBERT J., Lecturer in Nursing  
PALMER, HENRY S., Lecturer in Management and Marketing  
PAYNTER, LEATRICE F., Lecturer in Experimental College and Women's Studies  
PENA, MANUEL, Lecturer in La Raza Studies  
REA, ALAN, Lecturer in Music  
RICH, JACK I., Lecturer in Economics  
RICKETTS, JAMES C., Lecturer in Management and Marketing  
RITTORE, CAROL J., Lecturer in Communicative Disorders  
ROBINSON, MICHAEL L., Lecturer in Plant Science  
ROBINSON, WILLIAM V., Lecturer in Industrial Arts and Technology  
RODDY, EDWARD F., Lecturer in Health Science  
RODRIQUEZ, FRED J., Lecturer in Physical Education and Recreation  
ROWE, WILLIAM H. SR., Lecturer in Management and Marketing  
ROWLAND, ERNEST J., Lecturer in Management and Marketing  
RUSSELL, GREGG L., Lecturer in Health Science  
SADDLER, SUSAN, Lecturer in Foreign Languages  
SALEH, DONALD E., Lecturer in Accounting and Quantitative Studies  
SANCHEZ, DAVID W., Lecturer in Criminology  
SANDERSON, HAROLD, Lecturer in Secondary Education  
SANTOS, STEVE R., Lecturer in La Raza Studies  
SCHLINTZ, HARVEY A., Lecturer in Engineering  
SCHROEDER, GARY W., Lecturer in Accounting and Quantitative Studies  
SEIB, LORNA, Lecturer in School of Graduate Studies  
SELLS, GREGORY W., Lecturer in Rehabilitation Counseling  
SHACKLETT, JEANNE A., Lecturer in Criminology  
SHELBY, JEFFREY S., Lecturer in Experimental College  
SHULER, CHARLES J., Assistant in Criminology  
SIMPSON, ELIZABETH S., Lecturer in Elementary Education  
SKOFIS, ELIE, Lecturer in Agricultural Industry and Education  
SMETHERMAN, BOBBIE A., Coordinator, Women's Studies (Fall)  
SMITH, JEAN J., Lecturer in Psychology  
SMITH, LARRY E., Lecturer in Management and Marketing  
SOMMERS, PAUL, Lecturer in Experimental College and Plant Science  
SPANN, AL E., Lecturer in Rehabilitation Counseling  
SPARKS, RICHARD K., JR., Lecturer in Elementary Education  
STALLINGS, GORDON W., Lecturer in Communicative Disorders

STONE, TERRY L., Lecturer in Accounting and Quantitative Studies  
STUART, KENNETH C., Lecturer in Health Science  
SWANSON, JAMES W., Assistant in Criminology  
SWENNING, JOHN H., Lecturer in Criminology  
TABAKIAN, PAUL J., Lecturer in Chemistry  
TAHAJIAN, GERALD L., Lecturer in Home Economics  
TAKEDA, FUMIONI, Lecturer in Plant Science  
TAYLOR, J. MARK, Lecturer in English  
THOMAS, ALBERT L., Lecturer in Accounting and Quantitative Studies  
TREIBER, PAMELA J., Lecturer in English  
TREJO, JOSEPH, Lecturer in Criminology  
TUTTLE, STEPHEN K., Lecturer in Social Welfare  
VAIL, MORGAN W., Lecturer in Rehabilitation Counseling  
VELASQUEZ, MARY, Lecturer in Social Welfare  
WALKER, PHILIP W., Lecturer in Advanced Studies  
WALTER, ARNOLD H., Lecturer in Industrial Arts and Technology  
WELFARE, JOHN H., Lecturer in Elementary Education  
WHITNEY, SCOTT J., Lecturer in Psychology  
WHITTAKER, ROBERT E., Lecturer in Social Work  
WILDING, FAITH, Lecturer in Women's Studies  
WILLIAMS, PATRICIA J., Lecturer in Communicative Disorders  
WILSON, WESLEY F., III, Lecturer in Plant Science  
WONG, EUGENE, C., Lecturer in Engineering  
WOO, YIN HUA A., Lecturer in Linguistics  
WOOD, RONALD T., Lecturer in Criminology  
YAVASILE, KLARE W., Lecturer in Engineering  
YEUNG, CHI-DAK, Lecturer in Mathematics  
YUENGER, KEN, Lecturer in Art  
ZUPP, ROBERT R., Lecturer in Elementary Education

## EMERITI

(Listed as of May 1975)

*(Parentheses indicate years of service at CSUF)*

- ADDICOTT, IRWIN O. (1934; 1950-1966), Vice President Emeritus; Professor Emeritus of Education  
BA, University of California; MA, BD, Pacific School of Religion; EdD, Stanford University.
- ANDERSON, MYRON M. (1937-1973), Professor Emeritus of Physical Education  
BA, Fresno State College; MA, University of Southern California.
- BEARD, C. NOBLE (1937-Spring 1970), Professor Emeritus of Geology  
BA, MA, Indiana University; PhD, University of Illinois.
- BEATTY, HAROLD J. (1937-1969), Professor Emeritus of Physical Education  
BA, Fresno State College; MA, University of California at Berkeley.
- BEIDEN, J. PETER (1948-1969), Associate Professor Emeritus of Physical Education  
BA, University of Redlands.
- BERDAHL, ARTHUR C. (1932-1969), Professor Emeritus of Music  
B.A., Augustana College; MA, PhD, State University of Iowa.
- BERRY, SARA C. (1957-1973), Senior Assistant Librarian Emeritus  
BA, Occidental College.
- BIRD, C. WESLEY (1932-1969), Professor Emeritus of Foreign Languages  
BA, MA, Oberlin College; Diplôme, Grenoble University; MA, PhD, Princeton University; MOPA, France.
- BOOLSEN, FRANK M. (1948-1973), Professor Emeritus of Criminology  
BA, MA, University of California at Berkeley.
- BRADFORD, LILAH C. (1928-1958), Associate Professor Emeritus of Secretarial Administration  
BA, University of Oregon; MA, Stanford University.
- BRAUN, O. MARTIN (1936-1968), Professor Emeritus of Horticulture  
BS, MA, University of California.
- BREMNER, RAYMOND W. (1947-1973), Professor Emeritus of Chemistry  
BS, MS, 1 hD, University of Washington.
- BREWSTER, MARJORIE A. (1930-1964), Associate Professor Emeritus of Elementary Education  
BA, Fresno State College; MS, University of Southern California.
- BRIGGS, MITCHELL P. (1928-1954), Dean of Instruction Emeritus  
BA, Morningside College; MA, University of Wisconsin; PhD, Stanford University.
- BROWN, FORREST D. (1947-1970), Professor Emeritus of Educational Psychology  
BS, MS, Fort Hays Kansas State College; PhD, University of Cincinnati.
- BRYON, ARTHUR J. (1939-1941; 1947-1971), Professor Emeritus of Music  
BA, Fresno State College; MA, University of California; DMA, University of Southern California.
- CANFIELD, JAMES W. (1927-1957), Associate Professor Emeritus of Education  
BS, University of Utah; MA, University of California.
- COBB, GWENDOLIN B. (1953-1971), Professor Emeritus of History  
BA, MA, PhD, University of California at Berkeley.
- COLEMAN, EARL H. (1929-1954), Professor Emeritus of Biology and Health Education  
BA, Stanford University; MD, University of California.
- DETTINGER, DONALD J. (1947-1973), Professor Emeritus of Industrial Arts and Technology  
BA, Chico State College; MS, Oregon State College.
- DIENSTEIN, WILLIAM (1946-1974), Professor Emeritus of Sociology and Criminology  
BA, Stanford University; MA, University of California; PhD, Stanford University.
- DOYLE, KATHERINE E. (1937-1964; 1968-1970), Professor Emeritus of Physical Education  
BA, Stanford University; MS, Wellesley College
- DUKE, JOHN H. (1946-1973), Professor Emeritus of Journalism  
BJ, University of Texas; MA, PhD, University of Southern California.
- DUNNING, WILLIAM J. (1947-1972), Professor Emeritus of Industrial Arts and Technology  
BS, MS, Iowa State Teachers College; EdD, University of North Dakota.
- ELIASON, AFTON Y. (1935-1971), Professor Emeritus of Physics  
BS, Utah State Agriculture College; MA, PhD, University of California at Berkeley.
- FALK, DORIS F. (1956-Spring 1972), Professor Emeritus of Biology  
BA, MA, PhD, University of California at Berkeley.
- FALK, KARL L. (1938-1968), Professor Emeritus of Economics  
B.A., Stanford University; PhD, University of Berlin.
- FEUCHES, CONRAD (1946-1973), Professor Emeritus of Industrial Arts and Technology  
BA, Fresno State College; MS, Oregon State College.
- FISK, McKEE (1948-1969), Dean Emeritus of Business. Professor Emeritus of Business Administration.  
BA, Oklahoma City University; MA, University of Southern California; PhD, Yale University.

- GALE, JANE G. (1935-1959), Associate Professor Emeritus of Art  
BS, MA, Columbia University.
- GURLEY, RALPH R. (1947-1960), Professor Emeritus of Engineering  
BS, United States Naval Academy; MS, Columbia University; Registered Mechanical Engineer.
- HADSALL, LEO F. (1932-1972), Professor Emeritus of Biology  
BA, MA, Bucknell University; PhD, Cornell University.
- HALL, MARION BIGELOW (1932-1965), Professor Emeritus of Physical Education  
BS, MS, University of Wisconsin.
- HARTON, JOHN J. (1941-1966), Professor Emeritus of Education  
BA, Hendrix College; MA, George Peabody College; PhD, Duke University; Licensed Psychologist.
- HAWBECKER, ALBERT C. (1946-1973), Professor Emeritus of Biology  
BA, Fresno State College; MA, University of California; PhD, Oregon State College.
- HENDERSON, BETTY A. (1941-1961), Professor Emeritus of Home Economics  
BA, Fresno State College; MA, University of California at Los Angeles.
- HERBERT, JOHN ED (1928-1966), Professor Emeritus of Art  
Ed, University of California at Los Angeles; MA, Columbia University.
- HOAG, ALEXANDRA BRADSHAW (1917-1948), Professor Emeritus of Fine Arts  
BA, Stanford University.
- HUPPRICH, MABEL (1944-1969), Professor Emeritus of Physical Education  
BS, MS, University of Wisconsin.
- INGLES, LLOYD G. (1945-1966), Professor Emeritus of Zoology  
BA, Redlands University; MA, Claremont College; PhD, University of California.
- JACK, RALPH A. (1930-1956), Professor Emeritus of Physics  
BA, Pacific University; MA, University of California; Registered Electrical Engineer.
- JOYAL, ARNOLD E. (1948-1964), President Emeritus  
BA, MA, PhD, University of California; LHD, California College of Medicine.
- KELLEY, ELIZABETH (1946-1957), Professor Emeritus of Health Education  
BA, University of Wisconsin; MA, New York University; EdD, Stanford University.
- KYLBURG, BESSIE N. (1947-1962), Librarian III Emeritus  
BA, University of California.
- LANDRUM, ELIZABETH A. (1932-1971), Librarian IV Emeritus  
BA, Fresno State College; MA, University of California.
- LARRABEE, CARLTON H. (1947-Spring 1969), Professor Emeritus of English  
BA, Clark University; MA, Harvard University; EdD, New York University.
- LOMBARD, EDWIN H. (1947-1973), Professor Emeritus of Theatre Arts  
BA, Oberlin College; MA, Columbia University; MA, PhD, Cornell University.
- LUNDKVIST, LYLIS D. (1939-1963), Professor Emeritus of Music  
BM, MA, University of Washington.
- LYON, EARL D. (1938-1973), Professor Emeritus of English  
BA, University of California at Los Angeles; MA, PhD, University of California at Berkeley.
- MASTEN, JOHN W. (1929-1953), Assistant Professor Emeritus of Agriculture  
BS, MA, University of California.
- McKIM, V. CALVON (1942-1963), Professor Emeritus of Geography  
BA, Nebraska State Teachers College at Wayne; MA, PhD, University of Nebraska.
- MIKESSELL, WILBUR B. (1926-1946), Associate Professor Emeritus of Commerce  
BA, Ohio State University; MA, University of California.
- NOAKES, GEOFFREY B. (1947-1965), Professor Emeritus of Industrial Arts  
BA, MA, Fresno State College.
- ODORFER, ELLA M. (1928-1963), Professor Emeritus of Art  
BA, University of North Dakota; MA, Columbia University.
- PHILLIPS, HUBERT (1923-1955), Professor Emeritus of Social Science  
BA, University of Chattanooga; MA, PhD, Columbia University.
- PORCH, LOUISE W. (1942-1968), Professor Emeritus of Home Economics  
BS, Rockford College; MA, Columbia University; EdD, Stanford University.
- POTTER, KENNETH (1926-1947), Professor Emeritus of Social Science  
AB, University of Michigan; MA, PhD, University of California at Berkeley.
- PYMM, J. DONALD (1930-1961), Professor Emeritus of Economics  
BA, MA, University of California.
- QUIBELL, CHARLES H. (1927-1962), Professor Emeritus of Botany  
BA, Pomona College; PhD, University of Chicago.
- QUIBELL, EDITH M. (1947-April 1968), Librarian II Emeritus  
BA, Pomona College.

- RATCLIFFE, EMORY (1915-1948), Professor Emeritus of Social Science  
BA, Earlham College; MA, University of Wisconsin.
- REIGHARD, EDWARD (Spring 1960-1974), Professor Emeritus of Management  
BA, Middlebury College; BD, Yale University; MBA, PhD, Stanford University.
- RIPPEY, ANDREW D. (1946-1974), Professor Emeritus of Education  
BS, MA, University of Florida; PhD, Ohio State University.
- ROHRER, HELEN F. (1933-1969), Professor Emeritus of Office Administration and Business Education  
BA, MA, Stanford University.
- ROJAS, CARLOS A. (1928-1966), Professor Emeritus of Foreign Languages  
BA, MA, Pomona College; PhD, University of Washington.
- SAMPLE, EMILY C. (1934-1965), Associate Professor Emeritus of Physical Education  
BS, MS, University of Southern California.
- SCOTT, FREDERIC A. (1957-1972), Professor Emeritus of Physics  
BS, New York State College; MS, Lehigh University; PhD, Rice University.
- SHAFER, HELEN (1942-63), Associate Professor Emeritus of English  
BA, MA, University of California.
- SHEEHAN, PAUL V. (1930-1969), Professor Emeritus of Journalism  
BA, MA, University of Washington; PhD, University of Southern California.
- SHERMAN, HOBART M. (1947-1963), Associate Professor Emeritus of Accounting  
BS, Southwestern State College (Missouri); MA, New York University.
- SMITH, DOROTHY E. (1940-1965), Associate Professor Emeritus of English  
BS, Ohio State University; MA, University of Southern California.
- SMITH, FRANCIS F. (1925-1960), Professor Emeritus of Education  
BA, Brigham Young University; MA, PhD, University of California.
- SPENCER, EDWARD M. (1950-1971), Dean Emeritus of Educational Services and Summer Sessions  
BS, Iowa State College; MA, PhD, University of Iowa.
- STANLEY, GEORGE M. (1948-Spring 1967), Professor Emeritus of Geology  
BS, MA, PhD, University of Michigan.
- STORLI, VICTOR E. (1928-1962), Professor Emeritus of Accounting  
BA, St. Olaf College; MBA, University of Oregon; Certified Public Accountant.
- STRONG, WINSTON C. (1940-1974), Professor Emeritus of Irrigation  
BA, Stanford University; MA, EdD, University of California at Berkeley.
- TAYLOR, CHARLES (1938-1974), Professor Emeritus of Speech Communication  
BA, Fresno State College; MA, University of Southern California; EdD, University of California At Los Angeles.
- \* TENNEY, EDWARD V. (1927-1966), Professor Emeritus of Psychology  
BA, BS, University of California; MA, Pacific School of Religion; PhD, University of California; Licensed Psychologist.
- TIDYMAN, WILLARD F. (1924-1958), Professor Emeritus of Education  
BA, Baker University; MA, Columbia University; PedD, New York University.
- TUELLER, DALLAS A. (1946-1973), Academic Vice President Emeritus  
BA, San Jose State College; PhD, Stanford University.
- WATERMAN, RUTH D. (1924-28; 1939-63); Professor Emeritus of Physical Education  
BS, University of Missouri; MA, Teachers College, Columbia University.
- WEST, VIRGINIA C. (1941-1968), Librarian V Emeritus  
BA, University of California; BS, MS, University of Southern California.
- WHEATON, HERBERT H. (1922-1966), Dean Emeritus of Arts and Sciences  
BS, University of Wisconsin; MS, CE, University of California; Registered Civil Engineer.
- WIGHT, WILMA (1940-1973), Professor Emeritus of Office Administration  
BA, MA, Stanford University.
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