

California State University, Fresno



SUPPLEMENT
to the
1991-92 General Catalog



In lieu of a *1992-93 CSU Fresno General Catalog*, we have published this supplement. It contains critical additions, deletions, and revisions that have occurred since the printing of the 1991-92 catalog. Use this supplement in addition to — not instead of — the 1991-92 catalog. Consult your faculty adviser or the various departmental offices for clarification or for any additional changes.

This supplement contains statements directing you to "See Page XX." These page numbers are in reference to the *1991-92 General Catalog*, not the supplement.

The supplement to the *1991-92 General Catalog* is prepared under the supervision of the Associate Vice President for Academic Affairs, J. Leonard Salazar.

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1992-93 Academic Calendar

Note: This document is not intended to be construed as an employee work calendar.

JUNE 1992

- 1 SUMMER SESSION begins (June 1-Aug. 21); see *Summer Session Catalog*

1992 FALL SEMESTER

AUGUST 1992

- 1 ADMISSION APPLICATION cycle for Spring 1993 begins
- 24 SEMESTER begins
- 25 ACADEMIC ASSEMBLY for faculty DISCOVERY '92 — orientation for new undergraduates (late registrants)
- 28 LATE REGISTRATION begins (\$25 late fee); auditors may register ADD/DROP period begins
- 31 INSTRUCTION begins APPLICATION period for degrees to be granted in December 1992 begins (Aug. 31-Sept. 11)

SEPTEMBER 1992

- 1-30 Filing period for applications for Spring 1993 student teaching — elementary and secondary
- 4 LATE REGISTRATION ends Last day to:
 - Pay registration fees
 - Request permission for concurrent enrollment at another college
- 7 Labor Day — no classes; all offices closed
- 8-11 WELCOME WEEK '92 — events, activities, and programs for new and continuing students, faculty, and staff

AUGUST 1992

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NOVEMBER 1992

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- 15 DISCOVERY '92 — orientation sessions with academic advising for new undergraduates and their parents (June 15-July 9)
- 26 Last day for faculty to submit CHANGES and CLEARANCES (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation with a bachelor's

degree at the end of the Spring 1992 semester

JULY 1992

- 1 Final ADMISSION APPLICATION and documentation deadline to attend the Fall 1992 semester
- 20 Last day to pay fees for Telephone Registration for the Fall 1992 semester

- 9 NEW STUDENT CONVOCATION — welcoming event for new students
- 11 Last day to file an application for BACHELOR'S and MASTER'S DEGREES to be granted in December 1992
- 14 Last day to:
 - ADD CLASSES
 - DROP CLASSES without a serious and compelling reason
 - Register for Credit by Examination
 - File for refunds by resident students; nonresidents see *Schedule of Courses, "Fee Refund Schedule"*
- 28 Last day to:
 - Obtain approval for credit/ no credit grading
 - Change from audit registration to credit registration or credit registration to audit registration
 - Take examination for Credit by Examination

- 23 Last day to file edited, committee-approved MASTER'S THESIS for December 1992 graduation

NOVEMBER 1992

- 1 ADMISSION APPLICATION cycle begins for Fall 1993
- 2 Admission deadline to School of Education Basic Credential Programs — Multiple and Single Subjects Filing period for scholarships for the 1993-94 academic year begins (Nov. 2-Feb. 1)
- 9 Advising for Telephone Registration for Spring 1993 semester begins
- 13 Last day to DROP CLASSES for SERIOUS and COMPELLING REASONS, except by complete withdrawal from the university
- 17-18 ADVISING DAY — orientation with academic advising for new undergraduates and their parents, Spring 1993 semester; participants only need to attend one day
- 26-27 THANKSGIVING RECESS; the library will post holiday hours

DECEMBER 1992

- 4 Last day to pay fees for Telephone Registration for the Spring 1993 semester (tentative)
- 11 Last day of instruction; last day to withdraw from a complete program
- 12 Telephone Registration (STAR) for Spring 1993 semester begins (tentative)
- 14-18 SEMESTER EXAMINATIONS
- 23 FALL SEMESTER ends

Key: Calendar dates in *italic* denote classes in session.

DECEMBER 1992

- 23 Last day for incomplete grades to be made up from Fall 1991; last day

to submit to the Graduate Office departmental clearance paperwork on behalf of December 1992 master's degree candidates (include a photocopy of the completed

final report on incomplete or in-progress work, if needed for graduation)

- 24 WINTER RECESS (Dec. 24-Jan. 18)
- 25 Campus closed (Dec. 25-Jan. 1)

1993 SPRING SEMESTER

JANUARY 1993

- 4 WINTER SESSION begins (Jan. 4-22)
- 15 Telephone Registration (STAR) for Spring 1993 semester ends
- 18 Martin Luther King Jr. Day — campus closed
- 21 SEMESTER begins
ADVISING DAY — orientation with academic advising for new undergraduates and their parents, Spring 1993 semester
- 22 LATE REGISTRATION begins (\$25 late fee); auditors may register ADD/DROP period begins
Last day for faculty to submit CHANGES and CLEARANCES (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation with a bachelor's degree at the end of the Fall 1992 semester
- 25 INSTRUCTION begins
APPLICATION period for degrees to be granted in May 1993 begins (Jan. 25-Feb. 5)
- 29 LATE REGISTRATION ends
Last day to:
• Pay registration fees
• Request permission for concurrent enrollment at another college

for Fall 1993 student teaching — elementary and secondary

- 5 Last day to:
• ADD CLASSES
• DROP CLASSES without a serious and compelling reason
• Register for Credit by Examination
• File for refunds by resident students; nonresidents see *Schedule of Courses*, "Fee Refund Schedule"
• File an application for BACHELOR'S and MASTER'S DEGREES to be granted in May 1993
- 15 Presidents' Day — no classes; all offices closed
- 22 Last day to:
• Obtain approval for credit/no credit grading
• Change from audit registration to credit registration or credit registration to audit registration
• Take examination for Credit by Examination

- 5-9 SPRING RECESS
- 16 Last day to DROP CLASSES for SERIOUS and COMPELLING REASONS, except by complete withdrawal from the university
- 29 VINTAGE DAYS begins (April 29-May 2)

MAY 1993

- 14 Last day of instruction; last day to withdraw from a complete program
- 17-21 SEMESTER EXAMINATIONS
- 22 82nd annual COMMENCEMENT
- 27 SPRING SEMESTER ends
Last day for incomplete grades to be made up from Spring 1992; last day to submit to the Graduate Office departmental clearance paperwork on behalf of May 1993 master's degree candidates (include a photocopy of the completed final report on incomplete or in-progress work, if needed for graduation)
- 31 SUMMER SESSION begins (May 31-Aug. 20, tentative); see *Summer Session Catalog*

MARCH 1993

- 1 Filing deadline for Financial Aid for the 1993-94 academic year
- 8 Last day for faculty to submit Credit by Examination grade
- 12 Last day for graduate students to apply for ADVANCEMENT TO CANDIDACY this semester to be eligible for graduation in August 1993 or December 1993

JUNE 1993

- 25 Last day for faculty to submit CHANGES and CLEARANCES (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation with a bachelor's degree at the end of the Spring 1993 semester

APRIL 1993

- 1 Last day to file edited, committee-approved MASTER'S THESIS for May 1993 graduation
Admission deadline to School of Education Basic Credential Programs — Multiple and Single Subjects

FEBRUARY 1993

- 1 Last day to file applications for scholarships for the 1993-94 academic year
- 1-26 Filing period for applications

JANUARY 1993

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JUNE 1993

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MARCH 1993

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Key: Calendar dates in *italic* denote classes in session.



MC/Randy Dotta-Dovidlo

In the summer of 1991, Dr. John D. Welty left his position as president of Indiana University of Pennsylvania, a state university northeast of Pittsburgh, to become the seventh president of CSU Fresno. Welty comes to us with a list of achievements at IUP which includes the establishment of a new Liberal Studies curriculum, the strengthening of the graduate education program (three new doctoral programs and three new master's programs) and initiation of campaigns which increased private giving to the university by 500 percent and grant funding by 300 percent.

*I see a university that offers
a bright future to its students.
Together, we have an unparalleled opportunity
to become even stronger
as we begin this journey
toward the next century.*

A letter to our **Students**

At the beginning of this decade you probably spent many hours pondering the question, "Where do I want to go to college?" Now that you've made that decision, you might consider asking yourself this question, "Where do I want to be by the end of this decade?"

It is my hope that each of you at the turn of the century will be proud of your individual and collective accomplishments and contributions in making our world a better place for all.

It is also my hope that you will have achieved these goals because of the rewarding and enriching experiences you will have had at CSU Fresno.

Not too long ago, in July 1991, I walked onto this campus for the first time as president of this outstanding university. At that time, I realized that the steps I would take throughout the year would affect many individuals — students, faculty, administrators, and support staff.

The state's budget crisis drastically reduced our fiscal flexibility for the 1991-92 academic year and presented some tough challenges for all of us. The decisions have not been easy.

However, we must not allow these serious fiscal challenges to deter us from looking at the potential of this

university and — more importantly — at where *you* want to be by the year 2000. My initial views of the campus still hold true. Today, as I survey this university, I see:

- ✓ a very strong regional university in the process of growth and change
- ✓ a student body that is growing in size and diversity
- ✓ a faculty dedicated to teaching and engaged in increasingly significant and exciting scholarly work
- ✓ an academic master plan that has added pivotal programs to the curriculum
- ✓ a campus that has built excellent relations with the community and enjoys a tremendous amount of support
- ✓ a campus that reaches out and offers services to the community.

I see a university that offers a bright future to its students. Together, we have an unparalleled opportunity to become even stronger as we begin this journey toward the next century.

Sincerely,

John D. Welty
President

California State University, Fresno


... and there's more information about:

- **Admissions, Fees, and Academic Regulations**
- **General Education**
- **The Senior Major Requirement**
- **Courses and Programs**
- **Graduate Studies and Research**
- **University Administration and Policies**


Admission Requirements and Registration Process

Undergraduate Admission

Undergraduate admission requirements and procedures are printed in the *1992-93 CSU Application Booklet*, which is available at California Public High Schools (counselors' offices), California Community College Transfer Centers and Counseling Offices, or the CSU Fresno Admissions and Records lobby in the Joyal Administration Building, 5150 N. Maple Ave., 9 a.m. to 4 p.m. Monday-Friday.


 The following information replaces catalog copy on *Phase-in of the Subject Requirements*, page 67, in the *1991-92 General Catalog*:

Effective Fall 1992 semester, freshmen applicants must complete the CSU comprehensive college preparatory pattern of at least 15 units (30 semester courses) with a grade of C or better in each course to qualify for regular admission. From Fall 1992 through Spring 1995 semesters, applicants may offset a 1-unit shortage in one subject area by completing an extra unit in another subject area (not electives).

 The following information reflects changes in CSUF's policy on *Concurrent Enrollment* and replaces catalog copy on page 72 in the section on *Registration* and page 86 in the section on *Academic Regulations*:

Concurrent Registration at a Non-CSU College or University. While enrolled at CSU Fresno, students may enroll for additional courses at another institution outside the CSU system with the written approval of the student's academic adviser. Such approval must be granted prior to the beginning of classes at the other institution. The courseload in the combined enrollment program may not exceed the maximum unit load restrictions for CSU Fresno. The completed form must be filed at the Admissions/Records service windows by the end of Late Registration.

Concurrent enrollment shall not be permitted for classes taken for grade substitution.


 The following information replaces catalog copy on *Adding Courses and Dropping Courses*, page 73, in the *1991-92 General Catalog*:

Adding Courses. Once registered, a student may add courses through the end of the second week of instruction.

Dropping Courses. Through the second week of instruction, a student may drop courses without a serious and compelling reason.

After the second week of classes, a student may drop a course only for a serious and compelling reason that makes it impossible for the student to complete course requirements. A *serious and compelling reason* is defined as a medical, emotional, or other condition acceptable to and verified by the dean of the school in which the course is offered. The condition must be stated in writing on the drop form. Upon signing the form, the course instructor may add a written recommendation to the school dean in the space provided. The dean may require that the student provide written substantiation as deemed necessary. Failing or performing poorly in a class is not an acceptable serious and compelling reason within the university policy, nor is dissatisfaction with the subject matter, class, or instructor.

During the final four weeks of instruction, dropping one or more courses is not permitted. A student must completely withdraw unless special approval is given by the registrar in cases such as accident or illness where the cause of the drop is due to circumstances beyond the student's control. If the student has completed a significant portion of the required coursework, incomplete grades are often assigned.

 The following information replaces catalog copy on *Disqualified Students*, page 92, in the *1991-92 General Catalog*:


Readmission of Disqualified Students (Undergraduate)

Students placed on academic disqualification at the end of a semester may only be readmitted for a subsequent semester by special action of an academic adviser.

A letter outlining disqualification criteria is mailed to students at the same time each semester's grades are mailed. Disqualified CSU Fresno students who have been away one semester or longer must submit an application for readmission in addition to the appropriate petition approved by an academic adviser. Students readmitted under a special disqualification "probation" contract must fulfill the terms of that contract or again face disqualification.

Since all disqualified students are prohibited from participation in Student Telephone Assisted Registration (STAR), those who STAR register for any term will be disenrolled if they are disqualified at the end of the previous term. If readmitted, students will be required to register in Late Registration with payment of a late fee.

Contact the Admissions Office at (209) 278-2191 for more information.

 The following information reflects changes in catalog copy on the *English Placement Test (EPT)*, page 93, and replaces catalog copy on the *Entry-Level Mathematics (ELM) Exam*, pages 68, 93 and 94, in the *1991-92 General Catalog*:

English Placement Test (EPT). The CSU English Placement Test must be completed by all new non-exempt undergraduates prior to placement in appropriate university English coursework. *Undergraduates admitted with 56 or more transferable semester units and who are subject to a catalog earlier than 1986-87 are not required to complete the EPT.* A passing score on the EPT is defined as earning a minimum total score of 151 or a minimum essay score of 8. Exemptions from the test are given only to those students who present proof of one of the following:

Bulleted items 1, 2, 3, and 7 remain the same. Bulleted items 4, 5, and 6 are changed as follows:

- a score of 22 or above on the ACT English Usage Test (taken prior to October 1989)
- a score of 25 or above on the enhanced ACT English Test (taken October 1989 or later)
- a score of 600 or above on the College Board Achievement Test in English Composition with essay.

Entry-Level Mathematics (ELM) Exam. The ELM examination tests students for entry-level mathematics skills acquired through three years of rigorous college preparatory mathematics coursework (normally Algebra I, Algebra II, and Geometry).

Unless exempt according to CSU policy, all students enrolling at CSU Fresno must take the ELM by the end of their first semester of attendance. Students who have not done so will be ineligible to enroll for a second semester.

Students may qualify to take the General Education required quantitative reasoning course by taking and passing the ELM examination, and in the event of not passing it, demonstrating competence in intermediate algebra by passing campus-approved mathematics courses (*Math 4R on our campus or another college-taught intermediate algebra course*) with a grade of C or better or by retaking and passing the ELM examination.

Students entering CSU Fresno in the Fall 1992 semester or thereafter must complete the General Education quantitative reasoning requirement by the end of their fourth semester of enrollment or the completion of 60 units, whichever comes later. Students who are making serious and consistent effort to comply may be given extensions. Students who do not meet this requirement or receive extensions will be ineligible to enroll after the completion of 60 units.

Students enrolled at CSU Fresno prior to the Fall 1992 semester and who are not exempt must take the ELM by the end of the Spring 1993 semester or their next semester of enrollment. Failure to do so will render them ineligible for subsequent enrollment until the examination is taken.

Specific policies regarding retesting and placement will be determined by the campus. Exemptions from the test are given only to those students who can present proof of one of the following:

- a score of 3 or above on the College Board Advanced Placement mathematics examination (*AB* or *BC*)
- a score of 560 or above on the mathematics section of the Scholastic Aptitude Test (SAT-Math)
- a score of 27 or above on the ACT Mathematics Test (taken prior to October 1989)

- a score of 28 or above on the enhanced ACT Mathematics Test (taken October 1989 and later)
- a score of 560 or above on the College Board Mathematics Achievement Test, Level 1 or Level 2
- for transfer students, completion and transfer to the CSU of a college course that satisfies the General Education requirement in quantitative reasoning, provided such course was completed with a grade of C or better.


EPT and ELM. Failure to take either of these tests, as required, may lead to administrative probation, which, according to Section 41300.1 of Title 5, *California Code of Regulations*, and CSU Executive Order 582, may lead to disqualification from future attendance.

It is the students' responsibility to confirm exemption from either the EPT or ELM exam by completing the appropriate Request for Exemption Form available at the Admissions and Records Office service windows, Joyal Administration Building. Students who need assistance in preparing for the ELM exam should consider enrolling in one or more of the following classes: Math AR or Math ILR, N Sci 37, Psych 180T (overcoming academic anxiety). In addition, students may contact the Developmental Learning Resource Center in the Keats Building for information regarding ELM workshops.

Information bulletins and registration materials for the EPT and ELM will be mailed to all students subject to the requirements. The materials may also be obtained from the Office of Admissions/Records or the Testing Office.

Upper-Division Writing Examination

You will receive your UDWE scores approximately three to four weeks after your test date. If you are a graduating senior in your final semester of attendance, your UDWE scores will not be available in time to permit registering for or dropping a course that will satisfy your graduation writing requirement in lieu of passing the UDWE. You should complete the UDWE in the semester following attainment of 56 units and in no case later than the semester prior to your contemplated graduation.

 The following information reflects changes in catalog copy on *Fees and Expenses*. See the *1991-92 General Catalog*, page 76, for other fees and expenses not listed below.

Fees are subject to change without advance notice.

| | |
|---|--------|
| State University fee | |
| 0 to 6.0 units | 378.00 |
| 6.1 and more units | 654.00 |
| Other fees | |
| Graduation application fee (bachelor's or master's) | 30.00 |
| Diploma replacement, duplicate/reissue | 20.00 |
| Health Service fee (not a state fee), optional, per semester | 20.00 |
| Student Body Association fee , all students*** (not a state fee), per semester | 8.00 |
| A course fee of \$15.00 may be charged for courses that require the use of computer laboratories. See the <i>Schedule of Courses</i> for specific courses. | |

*** See the *1991-92 General Catalog*, page 76, for an explanation of this footnote.

General Education

Developed by both faculty and students, CSU Fresno's General Education Program is an introduction to the breadth and depth of the dynamics of human experience. It provides students with a foundation in the liberal arts and sciences and prepares them for specialized study in a particular discipline or program.

The overall objective of General Education is to create a context wherein basic skills are developed and strengthened, scholarship and disciplined thinking emerge, awareness and reflection occur, and ultimately — the *integration* of knowledge begins.

CORE, BREADTH, and CAPSTONE

The General Education Program is an integrated curriculum of courses organized into three phases:

CORE, the basic foundation of one's university education, consists of courses in fundamental skills and knowledge.

BREADTH exposes students to a variety of disciplines within a structured framework that develops knowledge and skills representative of all areas of human endeavor.

CAPSTONE concludes the General Education Program by providing an interdisciplinary experience at the upper-division level in which the skills and knowledge developed in CORE and BREADTH are integrated, bringing their interrelationships into focus.

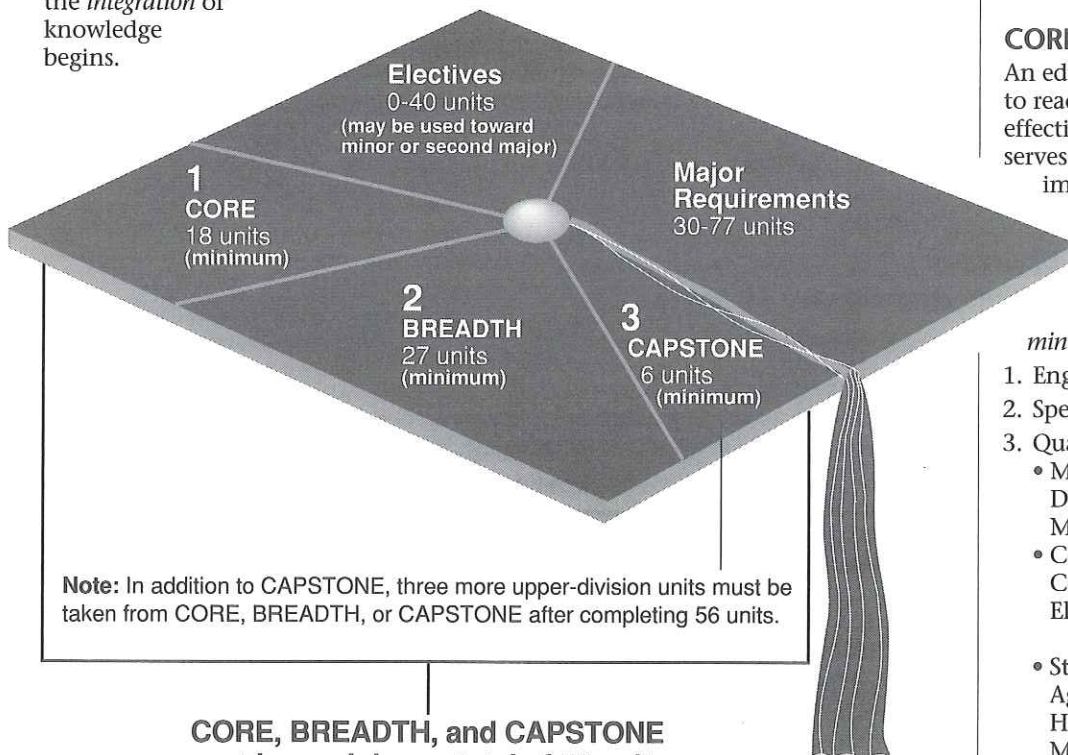
Requirements

The General Education Program requires students to complete a minimum of 51 semester units. This includes 18 units minimum in CORE, 27 units minimum in BREADTH, and

9 upper-division units minimum, of which 6 units are in CAPSTONE. The 9 upper-division units can be taken only after completing 56 units of coursework. Also, 9 units must be taken in residence at CSU Fresno.

Because the goal of General Education is to provide a solid foundation with a broad scope and the goal of the major is to provide depth in a specific discipline or program, the following stipulations apply:

1. A CORE course also may be applied to a student's major requirement unless the department specifically prohibits it.
2. A maximum of two General Education courses from one department or program may be applied to satisfy BREADTH requirements. (However, a department or program may prohibit any General Education BREADTH course from simultaneously satisfying its own departmental or programmatic requirements.)
3. Courses used to satisfy CAPSTONE may not be used to satisfy requirements for the major.



Note: In addition to CAPSTONE, three more upper-division units must be taken from CORE, BREADTH, or CAPSTONE after completing 56 units.

CORE, BREADTH, and CAPSTONE must be a minimum total of 51 units.

CORE

An educated person must be able to read critically, communicate effectively, and think clearly. CORE serves to develop these skills. It is important to take CORE courses soon after entry into the university.

Select one course from each of the following six categories for a minimum of 18 units.

1. English 1
2. Speech 3, 7, or 8
3. Quantitative Reasoning
 - Mathematics:
 - Decision Sciences 71
 - Mathematics 45, 70, 72, 75
 - Computer Language:
 - Computer Science 20, 40
 - Electrical and Computer Engineering 70, 71
 - Statistics:
 - Agricultural Economics 71
 - Health Science 92
 - Mathematics 11
 - Plant Science 99
 - Psychology 42

4. Critical Thinking: A course meeting the Critical Thinking requirement shall deal with the following topics: a) analysis, criticism, and advocacy of ideas; b) reaching factual or judgmental conclusions; c) learning elementary inductive and deductive processes; d) recognition of formal and informal fallacies of language and thought.

The following courses presently satisfy this requirement:

Anthropology 30; Computer Science 1; English 21, 30, 44; Foreign Language 10; Greek 10; Natural Science 4; Philosophy 25, 26, 27, 45; Sociology 3; Speech 5; Surveying Engineering 5; Women's Studies 12

5. History 11 or 12
6. Political Science 2 or 101

BREADTH

The BREADTH component of the General Education Program exposes students to a variety of disciplines within the structured framework of Divisions 1-9.

Select at least one course from each of Divisions 1-9 for a minimum of 27 units. Courses from Divisions 1 and 2 must have a laboratory component.

Division 1 — Physical Processes

Purpose: To understand fundamental principles in the physical sciences and the methods of developing and testing hypotheses used in the analysis of the physical universe.

Chemistry 1, 1A, 1B, 3A, 3B
Geology 1, 2, 15 (MNE only)*
Physical Science 21
Physics 2A, 2B, 5A, 5B, 10

Note: Math 4R or second-year high school algebra is a prerequisite for all courses in Division 1.

Every course in BREADTH Divisions 2-9 requires 2,000 words of writing. The writing must be student composition which may include essays, essay examinations, and journals or lab books. At least one-half of the written material is to be in the form of a multi-paragraph, i.e., a sustained argument.

Division 2 — Biological Processes

Purpose: To understand basic concepts of living things, the nature of scientific knowledge, and the relevance of biological knowledge to human affairs.

Biology 10, 15 (MNE only)*
BioSc 1A
Botany 10
Zoology 10

Division 3 — Behavioral/Environmental Systems

Purpose: To understand scientific concepts of human development and the relationships between people and their physical environment.

Anthropology 1, 3
Geography 5, 7
Plant Science 105
Psychology 10, 36

Division 4 — Personal Life and Growth

Purpose: To equip human beings for lifelong understanding of themselves as integrated physical and psychological entities and to enhance their appreciation of and participation in the social, cultural, and physical environment.

Art 13, 20, 30, 40, 50, 60, 70
Child and Family Studies 38
Dance 116
Drama 22, 34
English 41, 43
Food Science and Nutrition 53
Health Science 90, 124
Industrial Engineering 125
Music 2 and 102, 3 and 103, 18 and 118, 21 and 121
Physical Education 31
Psychology 61, 132, 171
Recreation and Leisure Studies 80, 101
Speech 4

Division 5 — Fine Arts

Purpose: To understand the world of nonverbal expression by developing an appreciation for the integrity and harmony of works of art.

African American Studies 24
Art 1
Art History 10, 11
Chicano and Latin American Studies 7, 9
Dance 171
Drama 62, 163
Music 9, 74

Division 6 — Humanities and Literature

Purpose: To understand, appreciate, and analyze the meaning of our civilization,

its cultural and historical background, and to study the realm of literature from a variety of historical perspectives and cultures by analyzing individual works.

Applied Ethics 100
Armenian 148
English 20, 101, 102, 103
French 109, 148
German 148
Greek 148
History 1, 2
Humanities 10, 11, 12, 14
Philosophy 1, 10, 120, 131
Russian 148
Spanish 140, 142, 146

Division 7 — Languages

Purpose: To understand the nature and role of language by developing skills in speaking, reading, and writing a language other than English. Students from non-English speaking countries cannot use their native language for General Education BREADTH, Division 7.

Armenian 1A, 1B, 2A, 2B
Chinese 1A, 1B, 2A, 2B
Communicative Disorders 133
French 1A, 1B, 2A, 2B
German 1A, 1B, 2A, 2B
Greek 1A, 1B, 3A, 3B
Hebrew 1A, 1B
Italian 1A, 1B, 2A, 2B
Japanese 1A, 1B, 2A, 2B
Latin 1A, 1B
Linguistics 10
Portuguese 1A, 1B
Russian 1A, 1B, 2A, 2B
Sanskrit 10A, 10B
Spanish 1A, 1B, 2A, 2B, 4A, 4B

Division 8 — Social, Economic, and Political Systems

Purpose: To understand and analyze the basic principles underlying human social behavior.

Agricultural Economics 1
Anthropology 2
Economics 25, 40, 50
Geography 2, 4
Political Science 1, 8, 120
Social Science 15 (MNE only)*
Sociology 1, 2

* Man/Woman and the Natural Environment (MNE) is an 18-unit interdisciplinary thematic cluster offered through the School of Natural Sciences. For more information about this program, see *School of Natural Sciences*, page 118, in the 1991-92 *General Catalog*.

Division 9 — Other Cultures and Women's Studies

Purpose: To understand the diversities and similarities of individuals and groups by studying the roles of specific ethnic cultures and women in contemporary America.

- African American Studies 25, 27, 38, 144, 178
- American Indian Studies 50, 103
- Armenian Studies 10
- Asian American Studies 15, 30, 56
- Chicano and Latin American Studies 3, 5, 160
- Ethnic Studies 1
- History 101, 178
- Sociology 131
- Women's Studies 10, 101, 131, 135

CAPSTONE

Interdisciplinary Courses (IntD)

101Nex. Space and Time (3)

An interdisciplinary study of the changing concepts of space and time that underlie our vision of the world and the ways in which these concepts are expressed, especially in art, astronomy, literature, and physics. (Former Nexus 101)

102Nex. Understanding of Men and Women (3)

A philosophical, psychological, and biological investigation of the main issues involved in understanding human behavior. Reading and discussion of literary and historical accounts of behavior, with emphasis on the development of scientific explanation. Ethical scientific consequences of the use of experimental methods. (CT) (Former Nexus 102)

103Nex. Ascent of Man (3)

Exploration of basic ideas found in Jacob Bronowski's *Ascent of Man*. Explores the implications, both scientific and humanistic, of Bronowski's interpretation of man's cultural history. Guest lecturers from various arts and science disciplines add their insights. (Former Nexus 103)

104. Humanities in the Middle Ages and Renaissance (3)

An examination of art, literature, philosophy, and music and their interrelationships in European culture during the Middle Ages and Renaissance. (CT) (Former CapS 104)

104Nex. Psychological Issues Through Literature (3)

Examination of fundamental and controversial issues in psychology as they

CAPSTONE (Upper Division)

CAPSTONE provides an interdisciplinary experience at the upper-division level in which the skills and knowledge developed in CORE and BREADTH are integrated.

Policies for CAPSTONE

The CAPSTONE requirement may be fulfilled in one of two ways: either by completing a minimum of 6 units (two courses) in specific interdisciplinary courses — *IntD* and/or *IntD (number) Nex* — or by completing a minimum of 6 units (two courses) in a single *Cluster* from two different departments or programs, after 56 units have been completed.

Students must take at least one upper-division Critical Thinking (CT) course not listed in CORE or BREADTH in order to graduate.

No CAPSTONE course may be used to fulfill a requirement toward an undergraduate major or a master's degree.

All CAPSTONE courses require a written paper, research project, or performance equivalent exploring the course or *Cluster* theme.

In the case of *Cluster* courses, students must select from at least two different participating departments.

appear in novels, plays, and short stories. (Former Nexus 104)

105Nex. Evolution Revolution (3)

An exploration of the significance of evolutionary theory and its impact on the sciences and on the broader cultural scene: Pre-Darwinian evolutionists; changing attitudes toward persons and their relation to the rest of nature; literary and artistic expressions of evolutionary ideas; philosophical and ethical responses; the controversies between evolutionary and other accounts of the origin and development of life. (Former Nexus 105)

108. Humanities in Classical Athens (3)

An examination of the unique cultural environment of the ancient city, its art, architecture, literature, social and political structures, and their interrelationships as manifest in fifth century Athens. (CT) (Former CapS 108)

110. Humanities in Republican and Imperial Rome (3)

An examination of the unique cultural environment of the ancient city, its art, architecture, literature, social and political structures, and their interrelationships as manifest during Republican and Imperial Rome. (CT)

112. Humanities During the Baroque and Enlightenment (3)

An examination of European and American art, literature, philosophy, and

music and their interrelationships during the period from the late 16th century through the 18th century. (Former CapS 112)

116. Humanities in the Modern World (3)

An examination of art, literature, philosophy, and music and their interrelationships in the Western world during the 19th and 20th centuries. (CT) (Former CapS 116)

118. Folklore in Modern Life (3)

An examination of the role of folklore in modern life, its power to communicate critical issues through expressive culture, e.g., jokes, legends, folksongs, graphic arts, and festival; focus on the intellectual currents influencing the study of folklore provide interdisciplinary perspective. (CT)

120A-B. Latin America: A Search for Stability (3-3)

Prerequisite: completion of Division 8 of the General Education Program or permission of instructor. An examination of the geographic, social, and historical factors underlying government instability in Latin America followed by a discussion of right and left wing approaches to stability. *Completion of both semesters is required to satisfy the CAPSTONE requirement for General Education.* (Former CapS 120A-B)

123. The American Experience: Beginnings to World War I (3)

Survey of the principal experiences and intellectual movements that have formed the American character, as illustrated through American literature, music, and the arts, serious and popular, from the formation of the colonies to the outbreak of WWI. (Former CapS 123)

124. The American Experience: World War I to the Present (3)

Survey of the principal experiences and intellectual movements that have formed the American character as illustrated through American literature, music, and the arts, serious and popular, from WWI to the present time. (CT) (Former CapS 124)

128. Mythology: An Interdisciplinary Approach (4)

An interdisciplinary examination of mythology. Readings in significant myths from various parts of the world (including those influential on Western culture, such as Greek myth and the Bible, and equivalent Native American, Pre-Columbian, Oriental, and African myth). A survey of the current theories of myth (as a component in ritual and religion, a development of linguistics and oral tradition, a focus of cultural values, and the like); and an examination of the contemporary relevance of myth in art, literature, and culture. (Former CapS 128)

130. Latin American Cultures and Traditions (3)

A study of Hispanic cultural and aesthetic trends and practices as seen in the popular and formal arts and other styles of Hispanic thought, feeling, and expression. (Former CapS 130)

132. Aging as a Social Issue (3)

Prerequisite: Engl 1 and prior fulfillment of upper-division writing skills requirement. An examination of human aging from the viewpoints of gerontology, literature, and social work with particular emphasis on the problems of women. (CT) (Former CapS 132)

148. Voting and Elections in the 1990s (3)

Exploration of the factors (e.g., socioeconomic, cultural, peer, and family influences) that affect voting. Focus of class is on the analysis of major election studies. (Former CapS 148)

152. Ethnic Minorities in American Schools (3)

Exploration of the sociohistorical and cultural development of education in the United States, with special emphasis on the Asian American, American Indian, African American, and Chicano experience. (CT) (Former CapS 152)

156. Welfare and Military Expenditures: The Quest for Balance (3)

An examination of the size and effects of spending for social welfare and military purpose. (CT) (Former CapS 156)

160. Orientation to Gerontology (3)

Orientation to the professional and personal requirements for work with the aging, including an introduction to the problems and potentials of the aged. (CT) (Former CapS 160)

164. Technology and Health Care (3)

The impact of technology on the health care industry: current applications, resulting ethical issues, political ramifications, and future directions. (Former CapS 164)

168. Cinema and the Humanities (3)

Explores the relationships between the art and technology of the cinema and current humanist ideology. Topics include how film interacts with other arts and with cultural, aesthetic, and moral assumptions; whether cinema is a viable intellectual discipline; and where art, entertainment, and values meet. Weekly films, assigned reading, written reports. (CT) (Former CapS 168)

172A-B. Health**Promotion and Wellness (3-3)**

Prerequisite: upper-division status. An interdisciplinary approach to encourage individual responsibility toward achieving high level wellness with integration of body, mind, and spirit. To assist students in seeking balance with their natural and psychosocial environments. IntD 172A is a prerequisite to IntD 172B and both A and B must be completed to receive CAPSTONE credit. (2 lecture, 2 lab hours) (Former CapS 172A-B)

180. Peace and Conflict (3)

Provides an overview of causes and types of conflict, issues related to war, peace and justice; historical and contemporary perspectives and responses to conflict resolution; uses an eclectic and interdisciplinary approach. (CT) (Former CapS 180)

184. Family Communication (3)

The analysis and exploration of personal experience, family systems theory, and the mass media to describe, evaluate, and improve family communication patterns. Special topics include family conflict, sex roles, family types, sexual communication, parenting, and intimacy.

188. Principles of Self-Esteem in Education, Social Work, and Mental Health (3)

Involves an empirical exploration of the development, enhancement, and diminishment of self-esteem through social experience and the relationship of self-esteem to a variety of social problems and concerns. Focuses on the personal development of self-esteem and on specific applications of this theory domain to policy and practice in the fields of education, social work, and mental health. (CT)

CAPSTONE**Cluster Courses****The Spiritual Quest**

Cluster Theme: To explore in cross-cultural, theoretical, and philosophical perspectives the answers humans have discovered to ultimate questions.

Anth 150W:

Anthropology of Religion (3) (CT)

Phil 130:

Philosophy of Religion (3) (CT)

Energy and Society

Cluster Theme: To understand the role of energy in modern society and to provide an awareness of environmental problems associated with energy utilization from an economic, spatial, practical, and theoretical standpoint.

Econ 117:

Economics of Ecology (3) (CT)

Geog 134:

Geography of Energy (3) (CT)

I T 106:

Energy Conversion and Utilization (3)

P Sci 168:

Environmental Impact of Energy Demands by Society (3) (CT)

Ethnicity and Culture:**Theories and Applications**

Cluster Theme: To sharpen the focus on ethnic behavior by applying theories of interethnic contact, boundary maintenance, and cultural change to the study of one major element, folklore, in the

culture of a significant ethnic minority group in the United States today.

Anth 172:

Ethnic Relations and Cultures (3) (CT)

CLS 103:

Chicano Folklore (3) (CT)

Christianity, History, and Politics

Cluster Theme: To offer students an opportunity to reflect upon and integrate their General Education experience in the light of the tradition of Christian humanism. To offer a framework and a method for tying together the disparate bodies of information and insight garnered from formal courses in the humanities, the arts, and the natural and social sciences.

Hist 103A:

History of Early Christianity (3)

PI Si 112:

Politics and Christianity (3)
(Same as A Eth 104)

The Church and the Court

Cluster Theme: To explore the interdependence of art forms developed during the Middle Ages and the Renaissance in Western Europe.

Art H 122:

Northern Renaissance (3)

Engl 113:

World Literature: Medieval and Renaissance (4) (CT)

Mexico-U.S. Relations:

Conflict and Change

Cluster Theme: To explore the constant conflicts and changes in Mexican/U.S. relations from the past to the present and to analyze the sociocultural interaction among Mexicanos/Chicanos and Anglos.

CLS 114:

Mexico and the Southwest
1810-1910 (3) or

CLS 115:

Mexico-U.S. Relations Since 1910 (3)
and either

Hist 165:

Modern Mexico (3) or

Hist 183:

The Hispanic Southwest (3)

The Greek World

Cluster Theme: To deal with the ancient, primarily Greek, world from its earliest beginnings to the classical period and beyond.

Engl 112:

World Literature: Ancient (4) (CT)
and either

Hist 111:

Ancient Greece (3) or

Phil 101:

Ancient Philosophy (3) (CT)

Popular Culture and Society

Cluster Theme: To examine popular culture as an institution that is organized in distinctive ways; the relation between content and social structure; the importance of the content of popular culture in shaping society.

Engl 174:

Popular Fiction (3) or

Music 187:

Pop Music: Jazz and Rock (3)
and either

Soc 142:

Sociology of Popular Culture (3) (CT)
or

TCOM 163:

Radio-TV as Popular Culture (3) (CT)

Agriculture and Government Policy

Cluster Theme: To investigate the philosophical foundations, political formulation, and economic consequences of government agricultural policies and farm programs.

Ag Ec 150:

Agricultural Policy (3) (CT)
and either

Phil 125:

Issues in Political Philosophy (3) (CT)
or

PI Si 150:

Public Policy Making (3)

The Soviet Union

Cluster Theme: To acquaint students with the geography, history, economy, institutions, and culture of the Soviet Union.

Geog 176:

Geography of the Commonwealth of Independent States (3)

Hist 143A:

The Soviet Union (3) (CT)

PI Si 141:

Soviet Politics (3)

Business and Society

Cluster Theme: To understand the relationship between business and society and to analyze various forms of business activity that have appeared in different societies and at different times.

B A 120:

Business and Society (3)

Soc 149:

Sociology of Business (3) (CT)

The Roman World

Cluster Theme: To acquaint students with Roman civilization in the areas of language, law, government, art, architecture, literature, and religion.

Hist 112:

Ancient Rome (3)

Latin 148:

Roman Literature in English
Translation (3) (CT)

Phil 108:

Roman Philosophy (3) (CT)

Crime and Society

Cluster Theme: To provide students an opportunity to study crime in contemporary American society from an intensive interdisciplinary approach.

Crim 100:

Criminology (3) (CT) or

Crim 153:

Psychology of Crime (3) (CT)
and either

Soc 143:

Deviance and Control (3) (CT) or

Soc 159:

Social History of Crime (3) (CT)

Women: Themes and Variations; Potential and Problems; Cohesion and Conflict

Cluster Theme: To re-orient the student from a perception of women as "other" to a view of all women as equal contributors to our developing humanity and increase sensitivity to the problems that women — privileged and oppressed, African American and Chicana, working and at leisure — have faced, coped with, and surmounted to achieve selfhood.

Af Am 137:

African American Women (3)
(Same as W S 137)

Anth 170:

Women: Culture and Biology (3) (CT)
(Same as W S 170)

CLS 152:

The Chicano Family (3)
(Same as W S 152)

Note: To receive CAPSTONE credit, students must complete Anth 170 before Af Am 137 or CLS 152 is taken.

The Renaissance

Cluster Theme: The emergence of the "modern world" from its medieval beginnings to the 17th century.

Art H 120:

Italian Renaissance (3) (CT)

Engl 147:

Renaissance (4) (CT)

Hist 125:

Renaissance (3)

Music 161A:

Survey of Music History I (3)

The World of the Old Testament

Cluster Theme: An analysis of the Hebraic world, including its history, geography, literature, and its basic religious beliefs.

Geog 180:

Biblical Lands (3)

Hist 115:

Ancient Israel (3)

Phil 134:

Literature of the Old Testament (4)
(Same as Engl 116)

European Culture**Since the Renaissance**

Cluster Theme: The various ways in which intellectual and artistic movements and political ideologies have shaped the development of the modern world from the 18th century to the present.

Engl 114:

World Literature: Modern (4) (CT)

Hist 135A:

European Cultural History (3) (CT)

Music 161B:

Survey of Music History II (3)

Phil 103:

Bacon to Kant (3) (CT)

Note: To receive CAPSTONE credit, students must complete Hist 135A before Engl 114, Phil 103, or Music 161B is taken.

California: Land of Contrast

Cluster Theme: An examination of the physical, cultural, and political complexities of the state of California; a land of contrast.

Geog 168:

Geography of California (3) (CT)

Geol 168:

Geology of California (3)

Pl Si 103:

California Politics (3)

Note: To receive CAPSTONE credit, students must include Geog 168 as part of the required 6-unit Cluster.

Cities and Urban Society

Cluster Theme: To explore the social, economic, and environmental factors at work in the formation of cities; their changing forms and social patterns; urban life and interrelationships; means for guiding city change through planning.

Anth 108:

Urban Anthropology (3) (CT)

C R P 100:

Introduction to Community Planning (3) (CT)

Geog 160:

Urban Geography (3)

Soc 163:

Urban Sociology (3) (CT)

An Emerging Third World Region: Sub-Saharan Africa

Cluster Theme: To provide an understanding of the peoples of Africa south of the Sahara — their problems and prospects, accomplishments and aspirations, values and perceptions — through a study of their physical environment, their history, and their literature.

Fren 149:

Voices of Africa (3) (CT)

Geog 182:

Sub-Saharan Africa (3)

Hist 157:

Modern Africa (3)

Environment:**Problems and Solutions**

Cluster Theme: Our environment, critical to the survival of mankind and all living things, has been threatened by a variety of human-caused problems. These problems — their nature and potential solutions — are treated in-depth by this Cluster of courses.

Biol 110:

Human Ecology (3)

C R P 135:

Environmental Law (3) (CT)

Geog 128:

Environmental Pollution (3)

Note: To receive CAPSTONE credit, students must complete Biol 110 or Geog 128 before C R P 135 is taken as the required course of this Cluster.

Race and Ethnicity in the United States

Cluster Theme: This Cluster focuses on race and ethnicity in the United States and is designed to integrate perspec-

tives and information on race and ethnicity in America from at least two and, ideally, three different programs and disciplines.

Af Am 135:

African American Community (3)

A I S 100:

American Indian Religion (3)

AsAm 110:

Asian American Communities (3)

CLS 116:

Cultural Change and the Chicano (3)

Hist 186:

American Ethnic History (3)

Soc 111:

Sociology of Minority Relations (3)

Note: To receive CAPSTONE credit, students must select one course (3 units) from Hist 186 or Soc 111 and select one to two courses (3-6 units) from A I S 100, Af Am 135, AsAm 110, or CLS 116.

Acquisition of Knowledge

Cluster Theme: To examine various aspects of the methods and processes by which we acquire information and support our beliefs.

Phil 150:

Foundations of Knowledge (3) (CT)

P Sci 106:

History of Physical Science (3)

Psych 136:

Human Learning and Behavior (3) (CT)

Britain

Cluster Theme: To examine Britain through selected cultural and historical perspectives, including its theatre, literature, and the development of the welfare state.

Only students participating in the London Semester Program will be eligible for CAPSTONE credit by enrolling in these classes.

Drama 188T:

British Theatre (3)

Engl 169T:

British Women Writers (3) (CT)

Engl 169T:

The English Experience through Literature (3) (CT)

Pl Si 142T:

British Government and Institutions (3) (CT)

A study of America's best schools ranks CSU Fresno 14th among 112 of the West's regional colleges and universities. The ranking was determined by analyzing data that included a survey of college presidents and deans, academic information from the universities, and statistics from the Department of Education.

*"Rating America's Colleges"
U.S. News and World Report*

Asian Cultures and Traditions

Cluster Theme: To provide an understanding of cultural pluralism, awareness of the proportion and significance of other cultures in general, of Asia in particular, and a better understanding of this country's role in different parts of Asia.

Anth 123:

Peoples and Cultures of Southeast Asia (3) or

Anth 186:

Tradition and Change in China and Japan (3) (Same as Hum 140) and

Ling 110:

Indic Cultures and Traditions (3)
(Same as Hum 150)

Pollution, Health, and Society

Cluster Theme: To develop knowledge of fundamental engineering and health factors in the environment including governmental regulations, risk analysis, sources of pollution, control technologies, and health effects of more common pollutants.

C E 170:

Pollution and Society (3)

H S 170:

Health Effects of Indoor Pollution (3) (CT)

Juveniles and Adolescence

Cluster Theme: To study adolescents during intense periods of biological, social, and psychological development.

CFS 136:

Middle Childhood and Adolescence (3) or

Psych 102:

Adolescent Psychology (3) and

Crim 120:

Juvenile Delinquency (3) (CT)

Law, Culture, and Society

Cluster Theme: Examines the nature, origins, functions, and limits of law as cultural expressions; focuses on the American legal system and its underlying premises in their American cultural contexts.

Anth 146:

Law and Culture (3) (CT)

B A 108:

Law and Society (3) (CT)

Our Classical Heritage

Cluster Theme: An analysis of the Greco-Roman legacy via archetypes in religion, drama, sport, and mythology.

Drama 185:

History of the Theatre and Drama I (3)

Hist 116:

Greek and Roman Religion (3)

Latin 132:

Classical Mythology (3) (CT)

P E 111:

The Olympic Games (3)

Ancient Peru

Cluster Theme: To acquaint students with the pre-Hispanic peoples and cultures of the Andean area through the study of art, archaeology, and geography.

Art H 175:

Pre-Columbian Andes (3) (CT)

Geog 172:

Ancient Peru (3) (CT)

Transfer Students

Earning an A.A. or A.S. degree does not necessarily mean one has fulfilled CSU admission and/or General Education requirements.

After admission to CSU Fresno, transfer students with 40 or more units will receive a copy of their advanced standing evaluation indicating how previous college units have been applied toward requirements at CSU Fresno. Questions about one's evaluation should be directed to the student's adviser or the Evaluations Office. *It is recommended that transfer students bring with them an unofficial copy of all previous college transcripts and their CSU General Education Certification when attending New Student Orientation and Advising Day to ensure accurate advising.*

Transfer admission eligibility is based on *BACCALAUREATE TRANSFERABLE* college units, rather than on all college units. California community college transfers should consult their counselors for information on transferability of courses for admission purposes. Applicants in good standing at the last institution attended may be admitted as *undergraduate transfer* if either of the following requirements are met:

1. Eligible for freshman admission (see *Freshman Requirements*) with a grade point average of C (2.0 on a scale where A = 4.0) or better in all transferable college units attempted.
2. Completed at least 56 transferable semester (84 transferable quarter) units with a grade point average of C (2.0 on a scale where A = 4.0) or better if a California resident. Nonresidents must have a 2.4 grade point average or better. A maximum of 70 transferable semester (105 quarter) units is allowed from two-year institutions (community/junior colleges).

California State Code of Regulations provides that General Education BREADTH requirements completed at an accredited California public community/junior college and/or a California State University campus by a student transferring to CSU Fresno shall be accepted (up to 39 units) to the extent stated in the certification from the originating college or university. Each transfer student is required to complete additional units at CSU Fresno to meet the General Education

requirement. Transfer students who change their majors after being admitted to the university are advised that General Education course requirements may also change.

A through E Format

To aid transfer students in planning their academic programs, the CSU Fresno General Education Program is presented below in the A through E format in use at many other California colleges and universities.

Area A — 9 units minimum

Written Communication

Required: English 1

Oral Communication

Select one: Speech 3, 7, or 8

Critical Thinking

Select one: Anthropology 30; Computer Science 1; English 21, 30, 44; Foreign Language 10; Greek 10; Natural Science 4; Philosophy 25, 26, 27, 45; Sociology 3; Speech 5; Surveying Engineering 5; Women's Studies 12

Area B — 12 units minimum

Quantitative Reasoning

Select one:

Mathematics: Decision Sciences 71; Mathematics 45, 70, 72, 75
Computer Language: Computer Science 20, 40; Electrical and Computer Engineering 70, 71
Statistics: Agricultural Economics 71; Health Science 92; Mathematics 11; Plant Science 99; Psychology 42

Select at least one course from each of Divisions 1-3. Courses from Divisions 1 and 2 must have a laboratory component.

Division 1 — Physical Processes

Chemistry 1, 1A, 1B, 3A, 3B
Geology 1, 2, 15 (MNE only)*
Physical Science 21
Physics 2A, 2B, 5A, 5B, 10

Note: Math 4R or second-year high school algebra is a prerequisite for all courses in Division 1.

Every course in BREADTH Divisions 2-9 requires 2,000 words of writing. The writing must be student composition which may include essays, essay examinations, and journals or lab books. At least one-half of the written material is to be in the form of a multi-paragraph, i.e., a sustained argument.

Division 2 — Biological Processes

Biology 10, 15 (MNE only)*
BioSc 1A
Botany 10
Zoology 10

Division 3 — Behavioral/ Environmental Systems

Anthropology 1, 3
Geography 5, 7
Plant Science 105
Psychology 10, 36

Area C — 9 units minimum

Select at least one course from each of Divisions 5-7.

Division 5 — Fine Arts

African American Studies 24
Art 1
Art History 10, 11
Chicano and Latin American Studies 7, 9
Dance 171
Drama 62, 163
Music 9, 74

Division 6 — Humanities and Literature

Applied Ethics 100
Armenian 148
English 20, 101, 102, 103
French 109, 148
German 148
Greek 148
History 1, 2
Humanities 10, 11, 12, 14
Philosophy 1, 10, 120, 131
Russian 148
Spanish 140, 142, 146

Division 7 — Languages

Armenian 1A, 1B, 2A, 2B
Chinese 1A, 1B, 2A, 2B
Communicative Disorders 133
French 1A, 1B, 2A, 2B
German 1A, 1B, 2A, 2B
Greek 1A, 1B, 3A, 3B
Hebrew 1A, 1B
Italian 1A, 1B, 2A, 2B
Japanese 1A, 1B, 2A, 2B
Latin 1A, 1B
Linguistics 10
Portuguese 1A, 1B
Russian 1A, 1B, 2A, 2B
Sanskrit 10A, 10B
Spanish 1A, 1B, 2A, 2B, 4A, 4B

Area D — 12 units minimum

Required: History 11 or 12
Required: Political Science 2 or 101

Select at least one course from each of Divisions 8 and 9.

Division 8 — Social, Economic, and Political Systems

Agricultural Economics 1
Anthropology 2
Economics 25, 40, 50
Geography 2, 4
Political Science 1, 8, 120
Social Science 15 (MNE only)*
Sociology 1, 2

Division 9 — Other Cultures and Women's Studies

African American Studies 25, 27, 38, 144, 178
American Indian Studies 50, 103
Armenian Studies 10
Asian American Studies 15, 30, 56
Chicano and Latin American Studies 3, 5, 160
Ethnic Studies 1
History 101, 178
Sociology 131
Women's Studies 10, 101, 131, 135

Area E — 3 units minimum

Select at least one course from Division 4.

Division 4 — Personal Life and Growth

Art 13, 20, 30, 40, 50, 60, 70
Child and Family Studies 38
Dance 116
Drama 22, 34
English 41, 43
Food Science and Nutrition 53
Health Science 90, 124
Industrial Engineering 125
Music 2 and 102, 3 and 103, 18 and 118, 21 and 121
Physical Education 31
Psychology 61, 132, 171
Recreation and Leisure Studies 80, 101
Speech 4

CAPSTONE

(6 upper-division units minimum)

A minimum total of 9 upper-division units in General Education is required, of which 6 units are CAPSTONE, to be taken after 56 units have been completed.

* Man/Woman and the Natural Environment (MNE) is an 18-unit interdisciplinary thematic cluster offered through the School of Natural Sciences. For more information about this program, see *School of Natural Sciences*, page 118, in the 1991-92 *General Catalog*.

Senior Major Requirement

All students graduating from the university are required to complete a senior major requirement (senior project) developed and approved by their major departments as a graduation requirement. Normally, senior major requirements would be a seminar, discussion, or laboratory course. However, departments may select a senior project, performance, internship, or independent study if it is linked with an on-campus seminar.

Courses identified as satisfying the senior major requirement are listed alphabetically by major in this section.



Agricultural Business Major — B.S.

Ag Ec 170. Agribusiness Research Methods (3)

Prerequisite: senior standing or permission of instructor; Ag Ec 71, 76, 100, 120, 130, 160; upper-division writing skills requirement. Research methods applied to agricultural business; problem definition, hypothesis formulation, research design, data collection, and results analysis using descriptive and inferential statistics. A culminating project includes proposal, research, written report and oral presentation of findings. Satisfies the senior major requirement for the B.S. in Agricultural Business.

Agricultural Education Major — B.S.

Ag Ed 150. Agricultural Resources and Computer Applications (3)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Development and application of techniques for obtaining and using resource materials including government documents, university and experiment station reports. Development of computer

skills utilized in agricultural education. Satisfies the senior major requirement for the B.S. in Agricultural Education. (2 lecture, 2 lab hours)

Agricultural Science Major — B.S.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Animal Sciences Major — B.S.

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

Open to juniors and seniors. Exploratory work on a suitable agricultural problem in animal science. When taken concurrently, A Sci 180 and 186 satisfy the senior major requirement for the B.S. in Animal Sciences. Approved for *SP* grading.

A Sci 186. Animal Science Seminar (1)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Latest developments in research; assigned papers in animal science to be presented in both oral and written form. When taken concurrently, A Sci 180 and 186 satisfy the senior major requirement for the B.S. in Animal Sciences.

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

See *Academic Placement — Independent Study*. When taken concurrently, A Sci 186 and 190 satisfy the senior major requirement for the B.S. in Animal Sciences. Approved for *SP* grading.

Anthropology Major — B.A.

Anth 198. Senior Project (2)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Students will be guided through the selection, definition, and execution of research on an anthropological topic of each student's choosing. Includes lecture, discussion, practice, and independent student research. Satisfies the senior major requirement for the B.A. in Anthropology.

Art Major — B.A.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Biology Major — B.S.

BioSc 180. Evolution (3)

Prerequisite: senior standing or permission of instructor; BioSc 130, 140A-B. Required of all biology majors. Evolutionary pro-

cesses and patterns. Satisfies the senior major requirement for the B.S. in Biology. (Former Biol 125)

Business Administration Major — B.S.

Mgt 187. Seminar in Business Strategy (3)

Prerequisite: last-semester senior or permission of instructor, completion of SOBAS core requirements and the upper-division writing skills requirement. 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 international policy formulation and implementation. Satisfies the senior major requirement for the B.S. in Business Administration.

Chemistry Major — B.A. and B.S.

Chem 156. Biochemical Laboratory Techniques (3)

Prerequisite: senior standing or permission of instructor; Chem 150 or 155 (or concurrently). Provides the student with a range of techniques and methodology appropriate to the study or phenomena at the biochemical, cellular, and organismic levels. Satisfies the senior major requirement for the B.A. in Chemistry. (1 lecture, 6 lab hours)*

Chem 160. Research Techniques (3)

Prerequisite: senior standing or permission of instructor. Concepts in the design of experiments. Development of practical research skills through the planning and undertaking of a short laboratory project. Satisfies the senior major requirement for the B.S. in Chemistry. (1 lecture, 6 lab hours)

Child Development Major — B.S.

CFS 139. Child Development Practicum (3)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major; CFS 37. Assume the responsibility of a nursery school head teacher; plan learning episodes for young children based on their needs, abilities and interests; work with parents and do diagnostic assessments of children. Satisfies the senior major requirement for the B.S. in Child Development. (2 lecture, 3 lab hours)

*For safety reasons, "soft" contact lenses may not be worn in chemistry labs. In all lab courses, the wearing of approved safety glasses is mandatory.

Civil Engineering Major — B.S.**C E 180. Senior Project (2)**

Prerequisite: senior standing in civil engineering or permission of instructor; approved subject; I E 182W or concurrently; C E 185 concurrently. Study of a problem under supervision of a faculty member; final typewritten report required. Individual project except by special permission. When taken concurrently, C E 180 and 185 satisfy the senior major requirement for the B.S. in Civil Engineering.

C E 185. Civil Engineering Practice (1)

Prerequisite: senior standing in civil engineering or permission of instructor; C E 180 concurrently. Practice of civil engineering; opportunities in civil engineering; transition from student to professional engineer; engineering ethics. Evaluation of design requirements, economic, and social considerations; student presentations. When taken concurrently, C E 180 and 185 satisfy the senior major requirement for the B.S. in Civil Engineering.

Communicative**Disorders Major — B.A.****C D 110. Diagnostic Procedures (3)**

Prerequisite: senior standing or permission of instructor; C D 80, 90, 95, 102, 103, 105 must be taken concurrently with C D 107 (1 unit). Seminar in the selection and use of various speech, language, voice, and prosody tests and procedures used in the diagnostic process. Satisfies the senior major requirement for the speech pathology and audiology options of the B.A. in Communicative Disorders. (2 lecture, 2 lab hours)

C D 164. Elementary School Subjects for the Deaf (3)

Prerequisite: senior standing; C D 80, 95, 106; 12 upper-division units in the major; and permission of instructor. Seminar in 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. Satisfies the senior major requirement for the education of the deaf option of the B.A. in Communicative Disorders. (2 lecture, 2 lab hours)

**Computer Engineering Major — B.S.
Electrical Engineering Major — B.S.****ECE 180. Senior Project (2)**

Prerequisite: senior standing in electrical and computer engineering or permission of instructor; I E 182W or concurrently; approved subject. Study of a problem under supervision of faculty member; final typewritten report required. Individual project except by special permission. When taken in addition to ECE 183A, B, C, or D, this course satisfies the senior major requirement for the B.S. in Electrical Engineering and the B.S. in Computer Engineering. (Former E E 180)

ECE 183A. Electronic Circuits and Electrical Networks Laboratory (1)

Prerequisite: ECE 124, 138, 138L. Senior design laboratory. Signal measurement and analysis techniques for communication networks; discrete, hybrid, and integrated electronic circuit design and testing; analog and digital filter realization; computer-aided analysis and design of circuits and networks. When taken in addition to ECE 180, this laboratory satisfies the senior major requirement for the B.S. in Electrical Engineering and the B.S. in Computer Engineering. (3 lab hours) (Former E E 183A)

ECE 183B. Digital Devices and Systems Laboratory (1)

Prerequisite: ECE 85, 128. Senior design laboratory. Familiarization with a real-time microcomputer board, assembly language programming techniques, I/O interfacing, documentation, debugging, and testing. When taken in addition to ECE 180, this laboratory satisfies the senior major requirement for the B.S. in Electrical Engineering and the B.S. in Computer Engineering. (3 lab hours) (Former E E 183B)

ECE 183C. Physical Electronics and Electromagnetics Laboratory (1)

Prerequisite: ECE 114, 128, 128L, 136, 136L. Senior design laboratory. Solid state device and characterization; rf component design with stripline and microstrip techniques; electromagnetic signal analysis; noise reduction techniques; antenna pattern measurements; laser system design. When taken in addition to ECE 180, this laboratory satisfies the senior major requirement for the B.S. in Electrical Engineering and the B.S. in Computer Engineering. (3 lab hours) (Former E E 183C)

ECE 183D. Electrical Power and Control Systems Laboratory (1)

Prerequisite: ECE 121, 121L, 155 (or concurrently). Senior design laboratory. Mea-

surement of characteristics and testing of power systems, computer-aided design and simulation of power and control systems; design and testing of feedback control systems; parametric study of control system implementation. When taken in addition to ECE 180, this laboratory satisfies the senior major requirement for the B.S. in Electrical Engineering and the B.S. in Computer Engineering. (3 lab hours) (Former E E 183D)

Computer Science Major — B.S.**C Sci 198. Project (3)**

Prerequisite: senior standing in computer science or permission of instructor and approved subject. See *Criteria for Thesis and Project*. Study of a problem under the supervision of a faculty member. Presentation by the student in a seminar setting and a final report are required. Satisfies the senior major requirement for the B.S. in Computer Science. Approved for *SP* grading.

Construction**Management Major — B.S.****Const 134. Architectural Design Problems (3)**

Prerequisite: senior standing or permission of instructor; Const 132. Conceptual planning and design of a large scale architectural project responding to the social and cultural context of the environment. Employing team research and analysis leading to the design and presentation on individual solutions with graphic and three-dimensional techniques. Satisfies the senior major requirement for the architecture specialty of the B.S. in Construction Management. (6 lab hours)

Const 150. Heavy Construction (3)

Prerequisite: senior standing or permission of instructor; Const 105, 116, 120. Problems and methods of solution in heavy construction from earth moving, paving, compacting to tunneling; administrative procedures, quantity surveying, estimating, scheduling, and bidding. Satisfies the senior major requirement for the B.S. in Construction Management. (2 lecture, 2 lab hours; field trips)

Const 151. Heavy Building Construction (3)

Prerequisite: senior standing or permission of instructor; Const 150. Problems and methods of solutions in the construction of heavy buildings; site, excavations, foundations, framework, heavy timber, reinforced concrete, structural steel, ma-

Senior Major Requirement

sonry construction and related elements. Satisfies the senior major requirement for the B.S. in Construction Management. (2 lecture, 2 lab hours; field trips)

Criminology Major — B.S.

Crim 199. Senior Seminar (3)

Prerequisite: last-semester senior or permission of instructor, completion of Department of Criminology lower-division requirements, upper-division core requirements, and upper-division writing skills requirement. Integration of scholarly knowledge relating to criminology with emphasis upon critical thinking and decision-making. Satisfies the senior major requirement for the B.S. in Criminology.

Economics Major — B.A.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Electrical Engineering Major — B.S.

See *Computer Engineering Major*.

English Major — B.A.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Food and Nutritional Sciences Major — B.S.

FScN 110. Food Chemistry and Biochemistry (4)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major; Chem 150 or concurrently; D Ind 23 or FScN 1. Chemical and biochemical changes in foods during production, processing, and utilization. Satisfies the senior major requirement for the food science option of the B.S. in Food and Nutritional Sciences. (3 lecture, 3 lab hours)

FScN 166. Community Nutrition (3)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major; FScN 54. Survey of existing federal, state, and local food assistance programs. Proposal writing and subsequent steps in establishing a new program; seminar. Satisfies the senior major requirement for the dietetics and food administration option, sports nutrition option, and food systems management option of the B.S. in Food and Nutritional Sciences.

FScN 169. Nutrition and the Consumer (3)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major; FScN 53 or 54. Consumer's view of nutrition; factors influencing food choices. Evaluation of dietary guides and popular nutritional issues; seminar. Satisfies the senior major requirement for the dietetics and food administration option, sports nutrition option, and food systems management option of the B.S. in Food and Nutritional Sciences.

Enol 110. Enological Science (4)

Prerequisite: senior standing or permission of instructor; Chem 8, 150; Enol 15, 165; Micro 140; VTF 104. Critical study of chemical and biochemical interactions in winemaking; term paper and discussion. Satisfies the senior major requirement for the enology option of the B.S. in Food and Nutritional Sciences.

French Major — B.A.

Fren 170. Senior Seminar in French Studies (2)

Prerequisite: senior standing, permission of instructor, concurrent enrollment in another upper-division French course. Culminating experience integrating the student's critical thinking abilities with in-depth knowledge of French language, literature, culture. Students produce a project requiring extensive research and final written report. Satisfies the senior major requirement for the B.A. in French.

Geography Major — B.A.

Geog 109. Technical Field Geography: Senior Project (3)

Prerequisite: senior standing or permission of instructor. Gathering and analysis of data pertaining to topics in physical or human geography. Includes an on-campus seminar to discuss issues and concepts. Satisfies the senior major requirement for the B.A. in Geography. (4-8 field hours)

Geology Major — B.S.

Geol 108A. Field Geology (4)

Prerequisite: senior standing or permission of instructor; Geol 107; Geol 108B concurrently. Geologic reconnaissance and mapping in field groups. *Usually conducted in early summer.* When taken concurrently, Geol 108A and 108B satisfy the senior major requirement for the B.S. in Geology. Approved for *SP* grading. (Field trip fee may be required.)

Geol 108B. Field Geology — Reports (1)

Prerequisite: senior standing or permission of instructor; Geol 108A concurrently. Written presentation of fieldwork conducted in Geol 108A. When taken concurrently, Geol 108A and 108B satisfy the senior major requirement for the B.S. in Geology. Approved for *SP* grading. (1 lecture hour)

German Major — B.A.

Germ 170. Senior Seminar in German Studies (2)

Prerequisite: senior standing, permission of instructor, concurrent enrollment in another upper-division German course. Culminating experience integrating the student's critical thinking abilities with in-depth knowledge of German language, literature, culture. Students produce a project requiring extensive research and final written report. Satisfies the senior major requirement for the B.A. in German.

Health Science Major — B.S.

Contact your academic adviser regarding a "university-approved senior project" for this major.

History Major — B.A.

Hist 121B. The Middle Ages (3)

Prerequisite: senior standing or permission of instructor; Hist 100W and 121A. Discussion and analysis of central themes and issues in the field; senior seminar. Satisfies the senior major requirement for the B.A. in History.

Hist 132B. Europe in the 19th Century (3)

Prerequisite: senior standing or permission of instructor; Hist 100W and 132A. Discussion and analysis of central themes and issues in the field; senior seminar. Satisfies the senior major requirement for the B.A. in History.

Hist 135B. European Cultural History (3)

Prerequisite: senior standing or permission of instructor; Hist 100W and 135A. Discussion and analysis of central themes and issues in the field; senior seminar. This course does not fulfill a General Education requirement. Satisfies the senior major requirement for the B.A. in History.

Hist 143B. The Soviet Union (3)

Prerequisite: senior standing or permission of instructor; Hist 100W and 143A. Discussion and analysis of central themes and issues in the field; senior seminar. This course does not fulfill a General Education

requirement. Satisfies the senior major requirement for the B.A. in History.

Hist 171B. Early American History, 1607-1789 (3)

Prerequisite: senior standing or permission of instructor; Hist 100W and 171A. Discussion and analysis of central themes and issues in the field; senior seminar. Satisfies the senior major requirement for the B.A. in History.

Hist 172B. United States History, 1789-1865 (3)

Prerequisite: senior standing or permission of instructor; Hist 100W and 172A. Discussion and analysis of central themes and issues in the field; senior seminar. Satisfies the senior major requirement for the B.A. in History.

Hist 175B. United States History, 1945-Present (3)

Prerequisite: senior standing or permission of instructor; Hist 100W and 175A. Discussion and analysis of central themes and issues in the field; senior seminar. Satisfies the senior major requirement for the B.A. in History.

Home Economics Major — B.A.

CSH 114. Consumer Science and Family Studies Practicum (3)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Integrated field experience in various phases of home economics as applied to consumer science and family studies; seminar. Satisfies the senior major requirement for the B.A. in Home Economics. (6 lab hours)

F M 129. Fashion Merchandising Practicum (3; max total 6)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major including F M 127. Integrated field experience in various areas of fashion merchandising; seminar. Satisfies the senior major requirement for the B.A. in Home Economics.

Industrial Arts Major — B.A.

Industrial Technology Major — B.S.
Bachelor of Vocational Education

I T 199. Senior Problem in Industrial Technology (2)

Prerequisite: senior standing and permission of instructor; I T 74, 102, 104, 198W. Approved problem or research project, with seminar, in the area of the student's option and emphasis. Satisfies the senior

major requirement for the B.A. in Industrial Arts, for the manufacturing industries option of the B.S. in Industrial Technology, and for the Bachelor of Vocational Education. Approved for *SP* grading.

GID 148. Advanced

Advertising Design (3; max total 6)

Prerequisite: senior standing or permission of instructor; GID 142. Advanced advertising/graphic design from conceptual to finished art. Includes problems and more advanced approaches relating to various media such as logo design, billboards, TV, etc. Emphasis on production procedures, professionalism, and building a strong portfolio, including critiques. Satisfies the senior major requirement for the graphic design option of the B.A. in Industrial Arts. (6 lab hours)

Industrial Engineering Major — B.S.

I E 180. Senior Design Project and Seminar (2)

Prerequisite: senior standing in industrial engineering or permission of instructor; approved subject; I E 182W or concurrently. A meaningful major design project which focuses on engineering practice and draws on past coursework, under the supervision of a faculty member. Final report and presentation is required, including evaluation of the design requirements, economic, and social considerations. Satisfies the senior major requirement for the B.S. in Industrial Engineering.

Interior Design Major — B.A.

GID 155. Advanced

Commercial Interior Design (3)

Prerequisite: senior standing or permission of instructor; GID 114, 115, 131, 135, 144; I T 115. A series of design solutions for a diversity of commercial spaces: public buildings, health care, food service, professional offices and merchandising facilities. Space planning, equipment lighting, systems, codes, layout, presentation, and specifications. Satisfies the senior major requirement for the B.A. in Interior Design. (6 lab hours) (Former GID 178B)

Journalism Major — B.A.

Jour 130. Problems of Broadcast Journalism (3)

Prerequisite: senior standing or permission of instructor. Sociological and journalistic study, individually and in groups, including evaluation of historical development, legal problems, and traditional and contemporary criticism of broadcast journal-

ism. Satisfies the senior major requirement for the radio/TV news communication sequence of the B.A. in Journalism.

Jour 173. Public Relations Strategies and Techniques (3)

Prerequisite: senior standing or permission of instructor; Jour 8, 100W, 113. Study, individually and in groups, of effective publicity methods and assessment of public relations programs and problems in business, philanthropy, and public institutions. Satisfies the senior major requirement for the public relations sequence of the B.A. in Journalism.

Jour 175. Advertising Campaigns (3)

Prerequisite: senior standing or permission of instructor; Jour 145 and 155 or 160. Background, research, planning, and preparation of a national advertising campaign as advertising agency with client-agency setup; marketing plan and creative execution. Satisfies the senior major requirement for the advertising sequence of the B.A. in Journalism.

Jour 187. Advanced Photojournalism (3)

Prerequisite: senior standing and permission of instructor; Jour 17, 117. Individual and group study and practice in advanced skills including lighting, color, laboratory techniques, and electronic imagery. Satisfies the senior major requirement for the photocommunication sequence of the B.A. in Journalism.

Jour 188. In-Depth Reporting (3)

Prerequisite: senior standing or permission of instructor; pass language qualification exam, Jour 100W; 114. Advanced reporting for publication; emphasis on covering community sources and issues, including politics, local government, courts and law enforcement. Satisfies the senior major requirement for the news-editorial sequence of the B.A. in Journalism. (2 lecture, 2 lab hours)

Liberal Studies Major — B.A.

EHD 115. Liberal Studies Project (2)

Prerequisite: senior standing; 12 upper-division units in the major; permission of liberal studies adviser. Students will utilize previous liberal studies coursework to enhance the academic progress of public school students. One hour lecture weekly, plus two hours weekly tutorial in the public schools. Satisfies the senior major requirement for the B.A. in Liberal Studies.

Senior Major Requirement

Linguistics Major — B.A.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Mathematics Major — B.A.

Math 198. Senior Project (3)

Prerequisite: senior standing or permission of instructor; Math 151, 171 and 124 or 152. Independent investigation and presentation of an advanced topic in mathematics. Satisfies the senior major requirement for the B.A. in Mathematics.

Mechanical Engineering Major — B.S.

M E 164. Machine Design (3)

Prerequisite: senior standing or permission of instructor; M E 116, 136, 154; I E 182W, 160 (or concurrently). Open-ended design problems of complete machine systems. Integration of prerequisite course material into final design project. Satisfies the senior major requirement for the B.S. in Mechanical Engineering. (Two 3-hour lecture-labs)

Music Major — B.A.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Nursing Major — B.S.

Nurs 151. Senior Project (2)

Prerequisite: senior standing or permission of instructor; Nurs 140, 140L, 141, 141L, 141S, 145. Corequisite: Nurs 150, 150L. Opportunity for students to build upon conceptual, theoretical, and research knowledge base. Students pursue in-depth study and practical application in areas of interest: management, conflict resolution, application of nursing theories, research, or community project. Satisfies the senior major requirement for the B.S. in Nursing.

Philosophy Major — B.A.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Physical Education Major — B.S.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Physical Therapy Major — B.S.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Physics Major — B.A. and B.S.

Phys 181. Senior Research Project (2)

Prerequisite: senior physics major or permission of instructor. Individual project, supervised by faculty member, to develop student's research skills. Student must report on project to Physics Seminar (Phys 180). Satisfies the senior major requirement for the B.A. and B.S. in Physics. Approved for *SP* grading.

Plant Science Major — B.S.

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

Open to juniors and seniors. Exploratory work on a suitable agricultural problem in plant science. This course satisfies the senior major requirement for the B.S. in Plant Science when students meet the following additional requirements: sign up for a minimum of 2 units, satisfy the prerequisite of 12 upper-division units in the major, participate in a seminar, and provide a written report. Approved for *SP* grading.

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

See *Academic Placement — Independent Study*. This course satisfies the senior major requirement for the B.S. in Plant Science when students meet the following additional requirements: sign up for a minimum of 2 units, satisfy the prerequisite of 12 upper-division units in the major, participate in a seminar, and provide a written report. Approved for *SP* grading.

Plant 196. Crop Projects (1; max total 4)

Prerequisite: AET 3 or equivalent; Cr Sc 1, VTF 1, or OH 1; junior or senior standing; and permission of instructor. Grow a crop on the campus farm with minimal faculty supervision, from budget decisions through cultural practices to marketing and sale. Cotton, agronomic crops, grapes, fruit, ornamental plants, etc. Earn up to \$600 per project. This course satisfies the senior major requirement for the B.S. in Plant Science when students meet the following additional requirements: sign up for a minimum of 2 units, satisfy the prerequisite of 12 upper-division units in the major, participate in a seminar, provide a written report.

Political Science Major — B.A.

Public Administration Major — B.A.

PI Si 193. Senior Seminars (3)

Prerequisite: senior standing or permission of instructor; for political science majors: PI Si 1, 90, 110 or 111, 120, 140, 150; for public administration majors: PI Si 1, 90, 181, 182, plus 6 additional units in major excluding PI Si 187. Disciplinary themes in political science and public administration. Satisfies the senior major requirement for the B.A. in Political Science and the B.A. in Public Administration.

Psychology Major — B.A.

Psych 182. History and Systems (4)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Historical, philosophical, and scientific background in psychology; review and integration of theoretical issues and current systems in the field. Lecture and discussion. Satisfies the senior major requirement for the B.A. in Psychology. Approved for *SP* grading. (Former Psych 112)

Public Administration Major — B.A.

See *Political Science Major*.

Recreation Administration Major — B.S.

RLS 173. Advanced Programming and Staff Supervision (3)

Prerequisite: senior standing or permission of instructor; RLS 172. Corequisite: RLS 173L. Advanced program planning for various age groups in public and nonprofit agencies. Recruitment, selection, supervision, and evaluation of program staff. A senior project is required. When taken concurrently, RLS 173 and 173L satisfy the senior major requirement for the public and nonprofit recreation option of the B.S. in Recreation Administration. (Former Rec 173)

RLS 173L. Advanced Programming and Staff Supervision Laboratory (1)

Prerequisite: senior standing or permission of instructor. Corequisite: RLS 173. Programming experience in public or nonprofit agencies. When taken concurrently, RLS 173 and 173L satisfy the senior major requirement for the public and nonprofit recreation option of the B.S. in Recreation Administration. (Former Rec 173L)

RLS 174. Senior Project in Therapeutic Recreation (4)

Not open to students with credit in RLS 173. Prerequisite: senior standing or permission of instructor; RLS 144A, 144B, 168. A culminating experience in the therapeutic recreation option. Planning therapeutic programs for special populations. Practical program experiences with disability groups required. Satisfies the senior major requirement for the therapeutic recreation option of the B.S. in Recreation Administration. (3 lecture, 1 lab hour) (Former Rec 174; Rec 174L)

RLS 175. Senior Project in Commercial Recreation (4)

Prerequisite: senior standing or permission of instructor; RLS 170. Culminating experience in the commercial recreation option. Concepts and methods in the development and analysis of potential markets, estimation of expenses and revenues, site evaluation, and program planning and leadership in a commercial recreation enterprise. Hours arranged are based on student observations and evaluations of various commercial recreation businesses and are presented in a seminar format during the semester. Satisfies the senior major requirement for the commercial recreation option of the B.S. in Recreation Administration. (Field trips are required, students may incur expense; hours arranged.) (Former Rec 192T section)

Russian Major — B.A.**Russ 170. Senior Seminar in Russian Studies (2)**

Prerequisite: senior standing, permission of instructor, concurrent enrollment in another upper-division Russian course. Culminating experience integrating the student's critical thinking abilities with in-depth knowledge of Russian language, literature, culture. Students produce a project requiring extensive research and final written report. Satisfies the senior major requirement for the B.A. in Russian.

Social Science Major — B.A.

Social science majors may meet the senior major requirement by taking the senior requirement in any of the school's departments. The courses fulfilling the requirement are listed in each of the respective department majors.

See Page 432

To accommodate the senior major requirement in the Social Science Major, the

Special Topic section has been decreased by 3 units for a total of 9 units.

Social Work Major — B.A.

S Wrk 185. Senior Capstone Seminar (3)
Open only to social work majors. Prerequisite: senior standing or permission of instructor, 5 units of S Wrk 181. Culminating senior seminar integrating theory and practice of social work, current trends in the profession. Satisfies the senior major requirement for the B.A. in Social Work.

Sociology Major — B.A.

Contact your academic adviser regarding a "university-approved senior project" for this major.

Spanish Major — B.A.**Span 170. Senior Seminar in Spanish Studies (3)**

Prerequisite: senior standing, permission of instructor, 20 upper-division units of Spanish coursework or graduate standing. Designed to meet the individual needs of students about to graduate. Diagnostic testing in language, linguistic, cultural, and literary proficiency. Readings, research projects, and assignments. Satisfies the senior major requirement for the B.A. in Spanish.

Speech Communication Major — B.A.**Spch 190. Independent Study (1-3; max see reference)**

See *Academic Placement — Independent Study*. When taken concurrently, Spch 190 (2 units) and 199 satisfy the senior major requirement for the B.A. in Speech Communication. Approved for *SP* grading.

Spch 199. Senior Seminar (1)

Prerequisite: senior standing or permission of instructor; Spch 100 and 140; enrollment in Spch 190 for 2 units and a selected 3-unit upper-division course. Discussion and criticism of senior projects. When taken concurrently, Spch 190 (2 units) and 199 satisfy the senior major requirement for the B.A. in Speech Communication. Not available for *CR/NC* grading.

Surveying Engineering Major — B.S.**S E 171. Project Design (3)**

Prerequisite: senior standing or permission of instructor; S E 180 concurrently. Design of control, boundary location, and photogrammetric systems. Evaluation of design requirements, economic, and social considerations. Case Studies. Student

presentations. When taken concurrently, S E 171 and 180 satisfy the senior major requirement for the B.S. in Surveying Engineering. (Field trips required)

S E 180. Senior Project (2)

Prerequisite: senior standing in surveying engineering or permission of instructor; approved subject; I E 182W or concurrently; S E 171 concurrently. Study of a problem under supervision of a faculty member; final typewritten report required. Individual project except by special permission. When taken concurrently, S E 171 and 180 satisfy the senior major requirement for the B.S. in Surveying Engineering.

Telecommunications Major — B.A.**TCOM 195. Proseminar in Media Issues (3)**

Prerequisite: senior standing, eligible for graduation, and permission of instructor. This major capstone course examines current issues affecting all phases of the media industries through research, discussions with local media managers, readings in selected trade publications. Major term paper; subscriptions required. Satisfies the senior major requirement for the B.A. in Telecommunications.

Theatre Arts Major — B.A.**Drama 117. Senior Project (2)**

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Group laboratory experience in presentation of major productions for public performance. Seminars will discuss issues which integrate individual work. Evaluation by faculty in area of specialty. Satisfies the senior major requirement for the B.A. in Theatre Arts.

Dance 119. Senior Project (2)

Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Group laboratory experience in presentation of productions for public performance with seminar component. Seminars will discuss issues which integrate individual work. Evaluation by faculty committee. Satisfies the senior major requirement for the dance option of the B.A. in Theatre Arts.

Vocational Education — Bachelor's

See *Industrial Arts Major*.

Courses and Programs

Students for Community Service

Com S 101. Students for Community Service (1-3; max total 6) Volunteer opportunities designed to develop skills and knowledge that promote responsible leadership in major fields of study and to integrate academic experiences in nonacademic settings to benefit local community service organizations. Meeting with the Students for Community Service coordinator is required at the beginning of the semester. If this course is successfully completed, you can receive academic credit toward degree electives. (Former UNIV 101)

Agriculture — Agricultural Economics

See Page 132

COURSE

Decision Analysis (Ag Ec)

71. Agricultural Business Statistics (3) Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course. (Prerequisite change.)

Agriculture — Animal Sciences and Agricultural Education

See Page 135

In the degree requirements for the Animal Sciences Major, two changes have been made to accommodate the senior major requirement. With the addition of A Sci 180 or 190 (except for the basic animal science option), "additional requirements" have been increased by 1 unit for a range from 17–30 units and the "electives" have been decreased by 1 unit for a range from 2–15 units.

Add Advising Note No. 10:

10. A Sci 180 and 186 or A Sci 190 and 186 satisfy the senior major requirement.

Students must take A Sci 180 or 190 while enrolled in one of the following courses: A Sci 121A, 131A, 151, 161, 165, 166, or 172 to initiate the university senior major experience. Concurrent enrollment in A Sci 186 will complete the senior major requirement. Students must earn at least a C letter grade in the senior major requirement classes.

See Page 136

In the degree requirements for the Agricultural Education Major, two changes have been made to accommodate the senior major requirement. With the addition of Ag Ed 150, "additional requirements" have been increased by 3 units for a range from 6–22 units, and the "electives" have been decreased by 3 units for a range from 1–14 units.

Agriculture — Enology, Food Science, and Nutrition

See Page 153

COURSE

Food Science and Nutrition (FScN)

152. Food for Health (3)

Prerequisites: FScN 50, 53, or 54. Planning a nutritious diet implementing the Dietary Goals for the United States and Dietary Guidelines for Americans. Cooking principles, recipe modification, and food selection at supermarkets and restaurants to increase dietary complex carbohydrates and decrease fat, sugar, and sodium. (2 lecture, 2 lab hours) (Former FScN 56) (Number, description change.)

Agriculture — Industrial Technology

See Pages 157, 158, and 159, respectively

In the degree requirements for the Industrial Arts Major, two changes have been made to accommodate the senior major requirement. With the addition of IT 199, the Industrial Arts Core section has been increased by 2 units for a total of 25 units, and the "electives" have been decreased by 2 units for a range from 21–23 units.

A B.S. in Construction Management replaces the construction option of the B.S. in Industrial Technology. The degree requirements for the construction option, page 158, meet the requirements for the B.S. in Construction Management.

A M.S. in Industrial Technology replaces the M.A. in Industrial Arts. The stated curriculum remains in effect.

Agriculture — Plant Science and Mechanized Agriculture

See Page 172

COURSE

Plant Science (Plant)

99. Applied Agricultural Statistics (3)

Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course. (2 lecture, 3 lab hours) (Prerequisite, lecture/lab hour change.)

Anthropology

NEW COURSE

Anthropology (Anth)

109. Internships in

Anthropology (1; max total 6)

Prerequisite: Anth 1 or 3. Interns will work on a variety of tasks involving the analysis and curation of archaeological collections; design and curation of museum displays; and the collection and analysis of physical anthropological data, including working with primates at local zoos.

Art

See Pages 184, 185, and 186

COURSES

Studio (Art)

1. Art Forms (3)

(Course fee, \$5) (New course fee.)

80. Introduction to 35mm Photography (3)

(Course fee, \$25) (Course fee change.)

182. Introduction to Large Format Photography (3; max total 12)

(Course fee, \$25) (Course fee change.)

183. Field Studies in Photography (3; max total 12)

(Course fee, \$25) (Course fee change.)

185. Color Photography (3; max total 12)

(Course fee, \$25) (Course fee change.)

GRADUATE COURSES

Art (Art)

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

(Course fee variable) (New course fee.)

298. Project (2-6; max total 6)

(Course fee variable) (New course fee.)

Asian American Studies

See Page 187

COURSE

Asian American Studies (AsAm)

195. Diversity in the United States: Race and Gender Issues (3)
(See CLS 195.) (Former Eth S 195) (*Prefix, title change.*)

Biology

Due to extensive changes in the Biology Department's undergraduate degree requirements, minor, credential program, and undergraduate and graduate course listings, this information is being printed in its entirety. However, refer to the 1991-92 General Catalog for information about the department's graduate program, pages 193-195, and the Moss Landing Laboratories, pages 200-202.

School of Natural Sciences
Department of Biology
RONALD L. EVANS, Chair
Science Building, Room 106
(209) 278-2001

B.S. in Biology

Options:
Ecology
Molecular and Cellular Biology
Organismic and General Biology
Physiology
M.A. in Biology
M.S. in Marine Sciences
Minor in Biology
Single Subject Teaching
Credential in Life Science
Preprofessional advising in:
Clinical Laboratory Technology
Dentistry
Forestry
Medicine
Pharmacy
Veterinary Medicine

Biology is the scientific study of life: its properties, its complexity, and its incredible variety. Biological studies may focus on objects as small as molecules or as large as whales. They range from the inner workings of cells to the structure of whole ecosystems, and they lead biologists from the tops of mountains and the deepest ocean trenches into sophisticated modern laboratories.

The Department of Biology offers a diversified undergraduate program that matches the breadth and excitement of modern biology and prepares students for the hundreds of career opportunities that

use biology as a foundation. The Bachelor of Science degree requires the successful completion of the core program and one of the following four options:

- 1. Organismic and General Biology** allows students to develop a broad program that cuts across taxonomic lines or to specialize in a particular taxonomic group. This option is also appropriate for students planning to enter the field of clinical laboratory technology.
- 2. Molecular and Cellular Biology** utilizes advanced technology to uncover the fundamental unifying processes of living things.
- 3. Physiology** seeks to understand the mechanisms that operate within the individual organism.
- 4. Ecology** focuses on the interrelationships between living organisms and their environments.

The biology major we offer has three programmatic goals:

1. To provide students with a solid foundation in all aspects of modern biology and also the intellectual skills that will serve as the basis for a lifetime of future achievement.
2. To provide students with the specialized educational opportunities that will allow them to compete successfully for careers in the biological sciences or for advanced studies in major doctoral programs.
3. To provide preprofessional students with the knowledge needed for advanced study in the many fields that build upon a biological foundation.

Our undergraduate biology major is excellent preparation for graduate programs in medicine, dentistry, pharmacy, forestry, veterinary medicine, optometry, doctoral programs, and many others.

The department offers a Master of Arts degree in Biology for qualified students who wish to explore biology in greater depth. It also participates in a post-baccalaureate certificate program in biotechnology.

Advising is an integral part of the departmental program and all biology majors are assigned advisers. This student/faculty collaboration on program planning is undoubtedly one of the main reasons for the postgraduate successes of our students.

Faculty and Facilities

Faculty expertise spans the range of biology from molecular to ecological, with a broad representation of taxonomic

specialties. Laboratories in upper-division major courses are taught by faculty, and individualized student/faculty research participation through independent study is encouraged.

The department is housed in a well-equipped, modern science building. Excellent greenhouse and animal care facilities provide support to the instructional program. The new Geo-Information Processing Systems facility provides opportunities for students in the fields of remote sensing, digital image processing, and geographical information systems technology. Fresno's proximity to both the Sierra Nevada crest and the Pacific coast, provides an "outdoor laboratory" with numerous field trip opportunities that are rarely equalled at other institutions. Students with interests in marine biology can study at the Moss Landing Marine Laboratories (MLML).

Bachelor of Science Degree Requirements

Biology Major

The Bachelor of Science degree in Biology is a 124-unit program. In addition to General Education and other university requirements, biology majors must complete coursework consisting of three complementary parts: a common *core curriculum* of 21 units, required of all biology majors, that builds the foundation upon which all further learning in biology will be based; *additional requirements* from related fields, as specified by the option, to create the modern synthesis that characterizes biology; and one of four *options* to complete the degree. All four options are flexibly designed; as a result, virtually any career goal in the life sciences and related fields can be accommodated by judicious choice of specific courses within the option.

Academic advising is an important component of the Biology major. All students should consult their advisers at least once each semester for assistance in program planning.

Students planning for graduate and professional schools should be aware that entrance requirements for those programs will often exceed the minimal requirements for a Biology B.S. degree, particularly in the ancillary fields of chemistry, physics, and mathematics. An adviser should be consulted for specific information on graduate and professional school requirements.

Biology Core

The biology core is required of all majors (see *Note 1* at end of Bachelor of Science description).

Units

BioSc 1A-B, 130, 140A-B, 180 21

In addition to the core, all majors must complete major and additional requirements in one of the four options described as follows:

Organismic and General Biology Option

This versatile option is designed for students who wish to explore the breadth of modern biology and is highly recommended for students preparing for teaching careers. It is equally useful as preparation for a large variety of careers including clinical laboratory technology, and for additional studies in graduate and professional schools. By carefully selecting courses, students may use this option to obtain strong preparation for careers as botanists, zoologists, entomologists, microbiologists; or they may select courses that produce a broadly based program that does not emphasize a particular taxonomic group. Advising is critically important in this option. Students must consult a faculty adviser for help in determining the appropriate selection of courses and special requirements for their chosen fields.

Units

Option requirements 42

Biology Core (21)

A. Select one course from each of the following five lines (16-20)

1. Bot 131, 132, 142, 144; Micro 140, 172, 181, 185; M Sci 131
2. Micro 171; Zool 120, 141, 148, 150, 171, 172, 174, 177; M Sci 112, 113, 114
3. Bot 133, 137; PhyAn 133, 135, 158; M Sci 122; Zool 132
4. Bot 130; Genet 172; Micro 161; PhyAn 141, 151, 160, 164; M Sci 123
5. Ecol 151, 152, 162; M Sci 103

B. Biological Science Electives (1-5)
Select one or more Biology Department

courses to complete the option. Only one elective course may be lower division.

Additional requirements 25

1. Chem 3A, 8, and 150 (10)
2. Math 70 or 75 (4)
3. C Sci 101 (3)
4. Math 101 or Psych 42 or M Sci 104 (4)
5. One course selected from Phys 2A; M Sci 142, 143; Geol 1; SI 101 (4)

Remaining General

Education requirements 42*

Electives and remaining degree requirements 15
(see *Degree Requirements*); may include a minor

Total 124

*Nine units of General Education requirements are satisfied to the following extent by major and additional requirements: CORE, Category 3 by Math 70, 72, or 75; Psych 42; BREADTH, Division 1 by Chem 3A, Division 2 by BioSc 1A. Consult your major academic adviser for details.

Molecular and Cellular Biology Option

This degree option is intended for students who wish to study the molecular mechanisms underlying cellular structure and function as well as the molecular and cellular interactions occurring in the operation and development of organ systems. Molecular biology combines the knowledge and techniques of genetics, cell biology and biochemistry, forming a basis for in-depth inquiry into all aspects of biology. The option introduces students to molecular inquiry at several levels of organization and provides the requisite background for the many career opportunities in biotechnology. The option also provides a solid foundation for graduate and professional studies emphasizing cellular and molecular processes, including the postbaccalaureate certificate of advanced studies in biotechnology offered by this department. Students preparing for the biotechnology certificate program should select a general microbiology course with laboratory and a biochemistry laboratory course among their elective courses. Students planning to enter professional and graduate programs should elect Chem 1A-B and 128A-B rather than Chem 3A and 8, and should consult an adviser about additional mathematics requirements as well.

Units

Option requirements 40

Biology Core (21)

A. Select two courses from the following list (7-8)

- Bot 137; Genet 171; Micro 161, 185; PhyAn 160

B. Select two additional courses from the following list or from other courses listed in Category A (6-8)

- Genet 172; PhyAn 140, 162, 165

C. Biological Science Electives (3-6)

Select sufficient Biology Department courses *other than* those listed in Categories A and B to complete the option. Only one elective course may be lower division.

Additional requirements 31-41

1. Chem 3A or 1A-B, 8 or 128A-B, 109 or 129A, 150 or 155 (12-22)
2. Phys 2A-B (8)
3. Math 70 or 75 (4)
4. C Sci 101 (3)
5. Math 101 or Psych 42 (4)

Remaining General

Education requirements 42*

Electives and remaining degree requirements 1-11
(see *Degree Requirements*); may include a minor

Total 124

*Nine units of General Education requirements are satisfied to the following extent by major and additional requirements: CORE, Category 3 by Math 70, 72, or 75; Psych 42; BREADTH, Division 1 by Chem 3A, Division 2 by BioSc 1A. Consult your major academic adviser for details.

Physiology Option

This degree program is designed to help students understand basic cellular phenomena and to analyze complex multicellular biological systems in preparation for medical, clinical, academic, or research careers that require physiology as a foundation. The ultimate goal of physiology is to understand, in physical and chemical terms, the mechanisms that operate in living organisms. This option encompasses three major branches of physiology: cellular; systemic; and whole organism. Physiology is

one of the central disciplines in biology and is of particular importance in the health professions and agriculture. This option offers excellent preprofessional preparation for medicine, dentistry, pharmacy, various careers requiring physiology, and for advanced graduate study. Students planning to enter professional and graduate programs should elect Chem 1A-B and 128A-B rather than Chem 3A and 8, and should consult an adviser about additional mathematics requirements as well.

Units

Option requirements 41
 Biology Core (21)

A. Select one course from each of these three lines (9-12)

1. Bot 133; PhyAn 130, 133, 135; Zool 132
2. Bot 137; Micro 161; PhyAn 160
3. Bot 130; PhyAn 141, 151; M Sci 123

B. Select two additional courses from the following list or from other courses listed in category A (6-8)

Genet 172; PhyAn 140, 162, 164, 165, 172

C. Biological Science Electives (0-5)

Select sufficient Biology Department courses to complete the option. Only one elective course may be lower division.

Additional requirements 32-41

1. Chem 3A or 1A-B, 8 or 128A-B, 109, 150 or 155 .. (13-22)
2. Phys 2A-B (8)
3. Math 70 or 75 (4)
4. C Sci 101 (3)
5. Math 101 or Psych 42 (4)

Remaining General

Education requirements 42*

Electives and remaining degree requirements 0-9

(see *Degree Requirements*); may include a minor

Total 124

*Nine units of General Education requirements are satisfied to the following extent by major and additional requirements: CORE, Category 3 by Math 70, 72, or 75; Psych 42; BREADTH, Division 1 by Chem 3A, Division 2 by BioSc 1A. Consult your major academic adviser for details.

Ecology Option

This degree program is intended for students who wish to study the interrelationships between living things and their environments. This option has a strong field component that takes full advantage of the outstanding natural environments conveniently located near our campus. Students in this program gain an in-depth understanding of ecology and evolution, and acquire the skills to apply that understanding to important questions in freshwater, marine, and terrestrial systems, in fisheries and wildlife management, or other branches of applied ecology. Students completing this option are well prepared for entry into a wide range of environmental careers with governmental field research agencies, in agriculture-related areas, environmental microbiology, environmental law and consulting firms, or for graduate programs leading to advanced degrees in ecology, management, and evolution. Students may obtain an emphasis in marine science by selecting electives offered at the Moss Landing Marine Laboratories. Faculty advising plays an important role in this program. Students must consult an adviser for help in selecting courses appropriate to their interests and career objectives.

Units

Option requirements 47
 Biology Core (21)

A. Select one course from the following (4)

Ecol 151, 152; M Sci 103

B. Select one course from the following (3-4)

Bot 130; Micro 161; PhyAn 141, 151; M Sci 123

At least one botany (Bot) or microbiology (Micro) course must be selected from categories C or D below. M Sci 131 is also acceptable.

C. Select one course from the following (3-4)

Bot 131, 132; Micro 140; Zool 120, 141, 150; M Sci 124, 131

D. Biological Science Electives (14-16)

Select sufficient Biology Department courses, including those listed in categories A, B, and C, to complete the option. Only one elective course may be lower division.

Additional requirements 24-25

1. Chem 3A, 8, and 150 (10)
2. Math 70 or 75 (4)
3. C Sci 101 (3)
4. Math 101 or Psych 42 (4)
5. Select one course from the following (3-4)
 C Sci 20; Phys 2A; M Sci 142, 143; Geol 1, 105; SI 101

Remaining General

Education requirements 42*

Electives and remaining degree requirements 10-11

(see *Degree Requirements*); may include a minor

Total 124

*Nine units of General Education requirements are satisfied to the following extent by major and additional requirements: CORE, Category 3 by Math 70, 72, or 75; Psych 42; BREADTH, Division 1 by Chem 3A, Division 2 by BioSc 1A. Consult your major academic adviser for details.

Advising Notes for all Options within the Bachelor of Science in Biology

1. B.S. biology majors who have taken introductory sequences other than Bio-Sc 1A-B must consult with their faculty adviser or department chair for equivalency evaluation prior to beginning their upper-division coursework.
2. Chem 1A may be taken as a substitute for Chem 3A, and Chem 128A and 128B may substitute for Chem 8. The reverse substitutions are not permissible. Pre-medical students should take Chem 1A and 1B and 128A and 128B instead of Chem 3A and 8.
3. Math 71 plus 72 may be taken as a substitute for Math 70 or 75.
4. B.S. biology majors selecting options in Molecular and Cellular Biology or in Physiology can complete a Minor in Chemistry with the addition of Chem 105. Consult the chemistry department chair for details (see *Chemistry Minor*).
5. No course used to satisfy General Education CAPSTONE requirements may be used to satisfy biology major requirements.
6. CR/NC grading is not permitted in the biology major.
7. General Education, additional, and elective requirements may be used toward a dual major or minor (see *Dual Major* or departmental *minor*). Consult the appropriate department chair, program coordinator, or faculty adviser for additional information.

Upper-Division Course Numbers

Biology Department upper-division course numbers provide information on course level and scheduling. Courses with higher numbers have more prerequisites. Courses with numbers less than 120 are not intended for use on biology majors. Numbers in the range 120 to 149 are third year courses requiring only lower-division prerequisites; 150 to 169 courses require some part of the upper-division core as prerequisite; and course numbers 170 or greater are more specialized fourth year courses. For schedule planning, in general: odd numbered upper-division courses are offered in the Fall; even numbered courses are offered in the Spring; course numbers ending in zero are offered both Fall and Spring; and courses offered irregularly end with a nine.

Suggested Sequence of Courses for B.S. Degree in Biology

The following comments on timing and sequence are intended for full-time students who plan to complete the B.S. degree in four years. Students with extensive extracurricular obligations should make appropriate timing adjustments to avoid overloads. See your adviser for assistance.

A total of 124 units must be completed for all Biology B.S. degree options. In addition to courses required for the major, full-time students should add General Education requirements and electives to bring semester totals to 15-17 units. Electives may include minor and credential requirements. (See *Degrees and Credentials*.)

During the first two years, both resident and transfer students should complete most General Education requirements, BioSc 1A-B, all lower-division additional requirements for the option they have selected, and any lower-division electives that might be selected within that option. BioSc 130, 140A-B, C Sci 101, and statistics should be completed as early as possible after completing 56 total units, 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, General Education CAPSTONE courses, and electives in biology and other fields. BioSc 180 is a senior requirement and must be taken during the fourth year.

Biology Minor

A Minor in Biology may be earned by completing the 21-unit biology core: BioSc 1A-B, 130, 140A-B, 180.

Credential Program

The single subject waiver program for Life Science (Biology) consists of BioSc 1A-B, 130, 140A-B, 180; Micro 20 or 140; Chem 3A, 8, 150; Geol 1 or 2; Phys 2A-B; C Sci 101; and one course from each of the following three categories: (1) Bot 144; Ecol 151; (2) Ecol 152; Zool 120, 141, 150; (3) Bot 130; PhyAn 65, 151.

For program planning in science, consult the biology department coordinator for teacher education each semester.

COURSES

Biology (Biol)

10. Life Science (3)

Not open to students with credit in BioSc 1A, 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. General Education BREADTH, Division 2. (2 lecture, 2 lab hours)

15. An Ecological Approach to Life Science (5)

Concurrent enrollment in Geol 15, N Sci 15, S Sci 15 required. Portion of *Man/Woman and the Natural Environment* Cluster. An introduction to biological concepts and investigational methods in the natural environment. Lecture, lab, and fieldwork. General Education BREADTH, Division 2. (Field trip fee required) (See *Man/Woman and the Natural Environment*, School of Natural Sciences.)

100. Nature Study (3)

Not allowable for credit for biological or physical science majors or minors. Prerequisite: a college level biology course. 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) (Former Biol 101)

110. Human Ecology (3)

The study of the relationships between humans and their environment, both natural and man-made; emphasis on scientific understanding of root causes of current environmental problems. General Education CAPSTONE *Cluster* course. (Former Biol 105)

112W. The Scientific Paper (3)

Not allowable for credit for biological or physical science majors or minors. Pre-

requisite: Engl 1. An introduction to the preparation, structure, use, and writing of the scientific research article; the meaning, logic, and structure of the abstract, introduction (historical review), methods, results, discussion, conclusion, and bibliographic citation. Meets the upper-division writing skills requirement for graduation. (Former Biol 102W)

121. Electron Microscopy (4)

Prerequisite: permission of instructor. Preparation and examination of biological specimens. Basics of electron microscopy and interpretation of electron micrographs. (1 lecture, 9 lab hours) (Former Biol 150)

172. Biological Methods and Techniques (3)

Open to credential candidates in the life science or physical science waiver program; course meets the professional education requirement of 30 units for the clear credential. Collection and preparation of biological materials and specimens for instruction. Designing and conducting laboratory investigations. Planning and directing field trips. (1 lecture, 6 lab hours) (Former Biol 162)

189T. Topics in Biology (1-4; max total 6)

Prerequisite: permission of instructor. Investigation of selected areas in the field of biology. (Lecture and/or laboratory) (Former Biol 185T; Micro 160T)

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

See *Academic Placement — Independent Study*. Approved for *SP* grading. (Former Bot 190, Ent 190, Micro 190, Phy 190, Zool 190)

Biological Science Core (BioSc)

1A-B. Introductory Biology (4-4)

Two-semester sequence required of all biology majors. Thematic introduction to the unifying concepts of life science: chemical basis of life; cellular processes; energy metabolism; genetics; evolution; diversity of life; ecology and environmental biology. BioSc 1A is prerequisite to BioSc 1B. BioSc 1A meets the criteria for General Education BREADTH, Division 2. (3 lecture, 3 lab hours)

130. General Ecology (3)

Prerequisite: BioSc 1A-B; Math 70 or equivalent recommended. Required of all biology majors. The structure, function, organization, and regulation of populations, communities, and ecosystems. The role of

evolution in environmental relationships. (2 lecture, 3 lab or field hours)* (Former Biol 140)

140A-B. Genetics and Cellular Biology (3-4)

Prerequisite: BioSc 1A-B and Chem 8 or 128A; Chem 150 or 155 recommended. Two-semester sequence required of all biology majors. Fundamentals of inheritance and cellular biology for both prokaryotic and eukaryotic systems, including an introduction to the underlying molecular mechanisms. BioSc 140A is prerequisite to BioSc 140B. (A: 3 lecture hours; B: 3 lecture, 3 lab hours) (Former Biol 130; Biol 135)

180. Evolution (3)

Prerequisite: senior standing or permission of instructor; BioSc 130, 140A-B. Required of all biology majors. Evolutionary processes and patterns. Satisfies the senior major requirement for the B.S. in Biology. (Former Biol 125)

Botany (Bot)

10. Plant Biology (3)

Not open to students with credit in BioSc 1B. Structure, function, and development of plants. General Education BREADTH, Division 2. (2 lecture, 2 lab hours)

130. Plant Physiology (4)

Prerequisite: BioSc 1A-B; Chem 1A or 3A; or permission of instructor; organic chemistry recommended. General metabolism and related processes. (2 lecture, 6 lab hours) (Former Bot 104)

131. Vascular Plants (4)

Prerequisite: BioSc 1A-B or permission of instructor. Morphology, reproduction, and evolution of the major groups of vascular plants (both living and extinct). Emphasis placed upon the seed plants. (2 lecture, 6 lab hours) (Former Bot 136)

132. Nonvascular Plants (3)

Prerequisite: BioSc 1A-B or permission of instructor. Comparative structure and phylogeny of the fungi, algae, mosses, and liverworts. (2 lecture, 3 lab hours) (Former Bot 135)

133. Plant Anatomy (3)

Prerequisite: BioSc 1A-B or permission of instructor. Structure and development of flowering plants at the cellular and tissue levels. (2 lecture, 3 lab hours) (Former Bot 134)

137. Plant Growth and Development (3)

Prerequisite: BioSc 1A-B or permission of instructor. Processes involved in plant growth with emphasis on the develop-

ment of form in higher plants and the experimental approach. (2 lecture, 3 lab hours)

142. Algology (4)

Prerequisite: BioSc 1A-B or permission of instructor. Morphology, cytology, ecology, physiology, economic importance, and cultivation of the algae. (2 lecture, 6 lab or field hours)*

144. Plant Taxonomy (4)

Prerequisite: BioSc 1A-B or permission of instructor. Principles of plant classification; local flora. (1 lecture, 9 lab or field hours)* (Former Bot 106)

Ecology (Ecol)

135. Marine Biology (3)

Prerequisite: a college biology course. 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) (Former Biol 155)

151. Terrestrial Ecology (4)

Prerequisite: BioSc 130. The interaction of organisms and communities with the physical and biotic environment, with emphasis on the biotic communities of Central California. (3 lecture, 3 lab or field hours)* (Former Bot 107)

152. Aquatic Ecology (4)

Prerequisite: BioSc 130. 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)* (Former Biol 133)

162. Microbial Ecology (4)

Prerequisite: BioSc 130 and Micro 140. Physiological ecology of microorganisms; interactions of microorganisms with abiotic and biotic factors in the environment; microbial habitats including soil, water, and organisms; techniques of microbial ecology (field and laboratory). (3 lecture, 3 lab hours)* (Former Micro 125)

171. Fisheries Biology and Management (3)

Prerequisite: BioSc 130; statistics strongly recommended. Ecology and management of fisheries; techniques for studying fish populations; quantitative methods for assessing fish stocks; environmental requirements and habitat improvement methods; acquisition and application of

information to obtain maximum benefit from fishery resources. Inland fisheries emphasized. (2 lecture, 3 lab or field hours)* (Former Zool 136)

172. Wildlife Biology and Management (4)

Prerequisite: BioSc 130. Ecological theory and its use in the management of wildlife resources. Field and laboratory exercises designed for the application of techniques used in research and in making management decisions. (2 lecture, 6 lab or field hours)* (Former Zool 134)

(See also *Bot, Micro, Zool courses.*)

Genetics (Genet)

120. Introduction to Genetics (3)

Not open to biology majors and students with credit in BioSc 140A. Prerequisite: BioSc 1A-B or equivalent. Principles of biological inheritance, including gene structure, gene function, statistical methods, problem solving, and human genetics. (Former Biol 120)

122. Fundamentals of Human Genetics (3)

Prerequisite: a college biology course. Intended primarily for students in the health fields or biology. Meiosis, mitosis, chromosomes, and genes. Mutations and familial diseases. Pedigrees, inbreeding, multiple genes, sex determination, blood group alleles, linkage and mapping, twins, cytogenetic and other diseases, genetic counseling. (Former Biol 122)

123. Heredity and Society (3)

Prerequisite: a college biology course. Principles of genetics and evolution as they apply to human society, thought, experience, and affairs. Ethical, social, political, and medical problems in relation to genetic engineering and other techniques. (Former Biol 107)

171. Experimental Molecular Genetics (4)

Prerequisite: BioSc 140A-B. The nature of genetic information, its mutation, transfer, and recombination in cells. (2 lecture, 6 lab hours) (Former Micro 189)

172. Developmental Biology (3)

Prerequisite: BioSc 140A-B. Investigations concerning the variety of mechanisms acting during the several stages of development of the living organism, from gamete formation to morphological and bio-

* Late afternoon, Saturday and/or overnight field trips may be required.

chemical differentiation of organ systems; emphasis on differential genetic control. (Former Biol 160)

Microbiology (Micro)

20. Introductory Microbiology (4)

Not open to students with credit in Micro 140. Prerequisite: Chem 3A; Chem 3B or 8; plus a college course in the biological sciences. Introduction to microbiology; principles and selected applications. (3 lecture, 3 lab hours)

140. Microbiology (4)

Prerequisite: BioSc 1A-B; organic chemistry. Emphasis on prokaryotes (bacteria); microbial physiology, genetics, ecology, classification, and identification; applications of microbiology. Prerequisite to most upper-division microbiology courses. (2 lecture, 6 lab hours) (Former Micro 104)

161. Microbial Physiology (4)

Prerequisite: Micro 140. Structure, function, energy metabolism, growth, and regulatory mechanisms of microorganisms. (2 lecture, 6 lab hours)

171. Protozoology (3)

Prerequisite: BioSc 130, 140A-B. The biology of protozoan organisms. (2 lecture, 3 lab hours) (Former Zool 115)

172. Medical Mycology (4)

Prerequisite: Micro 140; PhyAn 160 recommended. Morphology, physiology, and principles of pathogenicity of selected fungal agents of human and animal disease. (2 lecture, 6 lab hours) (Former Micro 150)

181. Bacteriology of Human Disease (5)

Prerequisite: Micro 140; PhyAn 160 recommended. Bacterial, etiological agents of human disease. (3 lecture, 6 lab hours) (Former Micro 118)

185. Virology (4)

Prerequisite: Micro 140; PhyAn 160 recommended. Inquiries into the unique nature of viruses; methods of analysis, structure, and replication. Virus-host interactions are described from bacterial, plant, and animal virus groups. Considerable emphasis is placed on diagnosis of viruses infecting humans including epidemiology and viropathology. (2 lecture, 6 lab hours)

(See also *Bot 142; Ecol 162; Genet 171; PhyAn 160; Zool 147, 148.*)

Physiology/Anatomy/Development (PhyAn)

33. Human Anatomy and Physiology (5)

Three units allowed for students with prior credit in human anatomy; 2 units allowed for students with prior credit in human physiology. An integrated study of the structure and function of the human body. (4 lecture, 3 lab hours) (Former Phy 33)

64. Functional Human Anatomy (3)

Not open to students with credit in PhyAn 33. Primarily for students in the health related and biological professions. The life continuum from conception to death. A systems approach to the gross and microscopic structures of the human body. (2 lecture, 3 lab hours) (Former Phy 64)

65. Human Physiology (5)

Not open to students with credit in PhyAn 33. College chemistry and human anatomy recommended. Homeostasis in the human body; how organ systems function to maintain life; dynamic and adaptive systems at the molecular, cellular, and organ level. (4 lecture, 3 lab hours) (Former Phy 65)

130. Neuroanatomy (4)

Prerequisite: anatomy and physiology. Macroscopic and microscopic study of the structure and functional relationships of the mammalian nervous system. (3 lecture, 3 lab hours) (Former Phy 155)

133. Histology (4)

Prerequisite: BioSc 1A-B. Identification and study of vertebrate cells, tissues, and organs. (2 lecture, 6 lab hours) (Former Zool 157)

135. Vertebrate Embryology (4)

Prerequisite: BioSc 1A-B. 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) (Former Zool 160)

140. Neurophysiology (3)

Prerequisite: anatomy and physiology. Function of the nervous and muscular systems with emphasis on molecular mechanisms. (Former Phy 160)

141. Insect Physiology (3)

Prerequisite: Zool 120. Principles of physiology as applied to insects; functions of insect body, tissues, and organs. (2 lecture, 3 lab or demonstration hours) (Former Ent 110)

151. Comparative Animal Physiology (4)

Prerequisite: BioSc 140A-B. Evolution of physiological systems; functional adaptations to different environments; physiological principles as applied to animals. (3 lecture, 3 lab hours) (Former Phy 140)

158. Biological Membranes: Structure and Function (3)

Prerequisite: BioSc 140A-B or a biochemistry course. A study of the myriad of functions membranes perform with an emphasis on transport. General structural properties of membranes, including fluidity and asymmetry, and modification of structural building blocks which lead to membrane diversity. (Former Biol 238)

160. Immunology (4)

Prerequisite: BioSc 140A; BioSc 140B or Micro 140. Innate and acquired immunity, including both cell-mediated and humoral phenomena; illustration of principles and technique development in the laboratory. (2 lecture, 6 lab hours) (Former Micro 117)

162. Hematology (3)

Prerequisite: PhyAn 65; PhyAn 160 recommended. Development, structure, identification, and quantification of cellular blood elements; qualitative and quantitative considerations of hemoglobin, coagulation, and immuno-hematology. Procedural proficiency emphasized in the laboratory. (2 lecture, 3 lab hours) (Former Zool 158)

164. Integrative Human Physiology (3)

Prerequisite: BioSc 140A-B. Primarily for students in biology and the health professions. A functional approach to the integration of organs and organ systems.

165. Endocrinology (3)

Prerequisite: BioSc 140A-B. A systems approach to the study of hormone synthesis, secretion, function as intercellular signals, and their role in both controlling and integrating normal physiological processes. (Former Biol 185T section)

172. Pathophysiology (3)

Prerequisite: PhyAn 33 or 65 or 164. An application of anatomic and physiologic principles in the study of those disturbances that underlie the etiology and pathogenesis of human diseases. (Former Biol 185T section)

(See also *Biol 121; Bot 130, 133, 137; Genet 172; Micro 161.*)

* Late afternoon, Saturday and/or overnight field trips may be required.

Zoology (Zool)**10. Animal Biology (3)**

Not open to students with credit in BioSc 1B. Structural and functional comparison of animals; principles and human implications of inheritance, evolution, and ecology; physiology as applied to man. General Education BREADTH, Division 2. (2 lecture, 2 lab hours)

120. General Entomology (3)

Prerequisite: BioSc 1A-B. Anatomy, physiology, life history, and classification of insects and other arthropods. (2 lecture, 3 lab or field hours)* (Former Ent 101)

122. Economic Entomology (3)

(Same as Pl Pr 103). 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) (Former Ent 106)

132. Comparative Vertebrate Morphology (4)

Prerequisite: BioSc 1A-B. Comparative structure of vertebrate organ systems; laboratory study of representative vertebrates. (2 lecture, 6 lab hours) (Former Zool 103)

141. Invertebrate Zoology (3)

Prerequisite: BioSc 1A-B. Systematics, general ecology, and phylogeny of free living invertebrates (excluding insects), and including field studies of marine intertidal habitats. (2 lecture, 3 lab or field hours)* (Former Zool 114)

147. Medical Parasitology (3)

Prerequisite: BioSc 1A-B. Epidemiology, pathogenesis, and identification of the parasites of man. (2 lecture, 3 lab hours) (Former Zool 107)

148. Parasitology (4)

Prerequisite: BioSc 1A-B; general chemistry. A study of the general biology of symbiotic organisms of animal hosts including man. Lecture topics include life histories, epidemiology, infection and disease processes, physiology, and treatment. Laboratory exercises include a study of biological processes as well as parasite identification and diagnosis. (3 lecture, 3 lab hours) (Former Zool 108)

150. Natural History of Vertebrates (4)

Prerequisite: BioSc 130. Systematics, distribution, morphology, behavior, and ecology of fish, amphibians, reptiles, birds, and mammals. Fieldwork includes capture and sampling techniques, species identification and habitat analysis, and may require

weekend field trips to coastal, desert, and mountain environments. (3 lecture, 3 lab or field hours)* (Former Zool 113)

152. Animal Behavior (3)

Prerequisite: BioSc 130; one additional course in ecology or natural history recommended. Principles of ethology with emphasis on mechanisms of behavior. (2 lecture, 3 lab hours)* (Former Zool 130)

171. Ichthyology (3)

Prerequisite: BioSc 130. Ecology, evolution, and diversity of the fish of the world with emphasis on California fish, freshwater and marine. (2 lecture, 3 lab or field hours)* (Former Zool 140)

172. Herpetology (3)

Prerequisite: BioSc 130. Ecology, evolution, and diversity of the reptiles and amphibians of the world. (2 lecture, 3 lab or field hours)* (Former Zool 137)

174. Ornithology (3)

Prerequisite: BioSc 130. Ecology, ethology, evolution, and diversity of the birds of the world. (2 lecture, 3 lab or field hours)* (Former Zool 165)

177. Mammalogy (3)

Prerequisite: BioSc 130. Ecology, evolution, and diversity of the mammals of the world. (2 lecture, 3 lab or field hours)* (Former Zool 135)

(See also *Ecol 171, 172; Micro 171; and PhyAn courses.*)

GRADUATE COURSES

(See *Course Numbering System.*)

Biology (Biol)**204. Biology of Speciation (2)**

Prerequisite: BioSc 140A-B and 180. Evolution of the species as a unit of biological organization.

206. Biological Systematics (2)

Prerequisite: at least one upper-division or graduate course having a phylogenetic component. Classification, nomenclature, and taxonomic theory as applied to living organisms, their evolution, and phylogeny.

207. Radiotracer Methodology in the Natural Sciences (3)

(Same as Chem 207 and Phys 207.) Prerequisite: graduate standing; two semesters undergraduate physics recommended. For students in biology, chemistry, physics, or other areas using radioisotopes. Covers radiation detection, radiation safety, gamma ray spectroscopy, liquid scintillation, radioimmunoassay, and biological applications in living systems. Team taught. (2 lecture, 3 lab hours) (Former N Sci 207)

208. Biological Field Studies (1-6; max total 6)

Prerequisite: permission of instructor. Integrated studies or specialized topics, including botanical, environmental, microbiological, or zoological field studies.* Approved for *SP* grading.

210. Parasitic Protozoa (3)

Prerequisite: Zool 148. A systematic survey of parasitic protozoa. (2 lecture, 3 lab hours)

212. Helminthology (3)

Prerequisite: Zool 148. A systematic survey of parasitic helminths. (2 lecture, 3 lab hours)

240. Systems Ecology (3)

Prerequisite: BioSc 130, Math 70. Quantitative approach to the analysis of whole ecosystems including data acquisition and statistical treatment, conceptual and mathematical ecosystem modeling, and computer simulations in FORTRAN or BASIC. No programming experience needed. (2 lecture, 3 lab hours)

241A-B. Molecular Biology I-II (3-3)

(Same as Chem 241A-B.) Prerequisite: BioSc 140A-B, Chem 150 or 155, and permission of instructor. Biol/Chem 241A is prerequisite for Biol/Chem 241B. Seminar covering current topics in molecular biology. Topics include: protein and nucleic acid structure, DNA replication, transcription, translation, bacterial and animal viruses, prokaryotic and eukaryotic regulation, mechanisms of exchange of genetic material, and recombinant DNA technology.

242. Techniques in Protein Purification and Analysis (3)

(Same as Chem 242.) Corequisite: Biol/Chem 241A. Deals with the technologies relevant to protein isolation, purification, analysis, immobilization, and modification in micro and macro quantities. (1 lecture, 6 lab hours)

243. Nucleic Acid Technology Lab (3)

(Same as Chem 243.) Prerequisite: Biol/Chem 241A and 242. Corequisite: Biol/Chem 241B. A lecture/laboratory course focusing on the technologies used in nucleic acid chemistry, specifically synthesis, translation, mutagenesis, and genetic engineering. (1 lecture, 6 lab hours)

244. Cell Culture and Hybridoma (2)

(Same as Chem 244.) Prerequisite: Micro 185 or PhyAn 160. The theory and practice of *in vitro* propagation of eukaryotic cells, including growth characteristics, metabolic

* Late afternoon, Saturday and/or overnight field trips may be required.

requirements, and genetic analysis. Cloning, fusion, and generation of monoclonal antibody (hybridoma) are presented relative to cultured cell biology and application to biotechnology. (1 lecture, 3 lab hours)

248. Seminar in Molecular Biology and Biotechnology (1-2; max total 4)
(Same as Chem 248.) Prerequisite: admission into the Biotechnology Certificate Program. Reviews and reports on current literature in various aspects of biotechnology and molecular biology.

250. Scientific Research Reporting (2)
Prerequisite: permission of instructor. Techniques of scientific photography and writing, illustrating emphasized. (1 lecture, 3 lab hours)

255T. Topics in Botany (1-3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

260T. Topics in Biology (1-3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

265T. Topics in Physiology (1-3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

270T. Topics in Zoology (1-3; max total 8)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

272. Physiological Ecology of Vertebrates (2)
Prerequisite: BioSc 130, PhyAn 151. An analysis of problems in and adaptations to arctic, alpine, marine, desert, tropical, and disturbed ecosystems; matters of energy and water economy, respiratory, circulatory, and sensory neuromuscular adaptations, and such topics as biological timing, migration, and navigation. Lecture/seminar; paper(s) required.

274. Biometry (3)
Prerequisite: one statistics class, preferably Math 101. Application of statistical techniques to biological problems with emphasis on sampling, analysis of variance, experimental design, and regression

techniques. Emphasis on analysis of real biological data and interpretation of results.

275. Biogeography (3)
Prerequisite: permission of instructor. Seminar in descriptive and ecological geography of animal and plant groups.

281T. Seminar in Biological Science (1-2)
Prerequisite: permission of instructor. Reviews and reports on current literature in the various phases of biology.

290. Independent Study (1-3; max see reference)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

295. Research (2-6; max total 6)
Prerequisite: permission of the instructor. Independent research by the advanced graduate student.

299. Thesis (2-4; max total 4)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE
(See *Course Numbering System*.)

Biology (Biol)

302T. Topics in Biology (3; max total 6)
Prerequisite: graduate standing or permission of instructor. Relation of man to his surroundings; review of concepts, cell, physics and chemistry of life, energetics, inheritance, evolution.

Business — Finance and Business Law

See Page 207

The following information replaces catalog copy under the heading *Options in the Department of Finance and Business Law*:

| | |
|--|--------------|
| Agribusiness Option | Units |
| Fin 121; B A 174; Ag Ec 110, 150, 160 | 15 |
| Elect 4 from at least two areas: Fin 123, 128, 133, 137; B A 154, 175, 178; Ag Ec 153, 162, 163 | 12-13 |
| | 27-28 |

| | |
|---|----|
| Finance Option | |
| B A 100; Fin 121, 122, 123, 128, 139 | 19 |
| Elect 3 from: Fin 131, 132, 133, 137, 138, 143, 180; B A 150, 178 | 9 |
| | 28 |

Financial Services Option

| | |
|--|-------|
| Fin 128, 143, 144, 150, 180 | 15 |
| B A 100, 160 | 6 |
| Acct 144 | 4 |
| Elect 2 from: Fin 122, 123, 131, 132, 133, 138, 139, 145, 146, 181, 182, 183; B A 150, 154 | 6-7 |
| | 31-32 |

International Business Option*

| | |
|------------------------------|----|
| B A 174, 175, 176, 178 | 12 |
| Mktg 176 | 3 |
| Mgt 131 | 3 |
| Electives** | 9 |
| | 27 |

* Students selecting the International Business Option must successfully demonstrate conversational proficiency in a language other than English.

** Requires prior approval of faculty adviser.

Legal Environment of Business Option

| | |
|--|----|
| Elect from B A 150, 151, 155 | 9 |
| Elect 2 from: B A 101, 154, 156, 158, 160; HRM 157 | 6 |
| Elect from approved upper-division courses in accountancy, business administration (including international business), finance, human resource management, management, marketing, logistics, decision science, information systems, production and operations management | 9 |
| | 24 |

Real Estate and Urban Land Economics Option

| | |
|--|-------|
| B A 100, 154 | 6 |
| Fin 122, 180, 181, 182, 183 | 15 |
| Elect 1 from: Fin 123, 132, 185, 186 | 3-4 |
| | 24-25 |

Risk Management and Insurance Option

| | |
|---|-------|
| Fin 143, 144, 145, 146 | 12 |
| B A 100, 151, 160 | 9 |
| Elect 2 from: Fin 122, 128, 131, 133, 138, 139, 180; Acct 144 | 6-7 |
| | 27-28 |

NEW COURSE
Finance (Fin)

133. Futures Markets (3)
Prerequisite: Fin 120. Use of futures contracts as speculative investments and as hedging devices to reduce risk in securities portfolios and in domestic and international business operations. Topics: financial futures, commodity futures, futures markets, fundamental and technical analysis, hedging strategies. (Former Fin 189T section)

**Business —
Information Systems
and Decision Sciences**

See Page 213

COURSES

Decision Sciences (DS)

71. Quantitative Analysis I (3)

Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course; one year high school geometry. (Prerequisite change.)

Information Systems (IS)

1L. Keyboarding (2)*

Recommended for students with less than one semester of keyboarding or typewriting instruction. Development of keyboarding techniques on microcomputers for personal and business usage. (4 lab hours) (Unit, description change.)

2L. Word Processing Applications (2)*

(Former IS 2) (Number change.)

*Not more than 6 units of credit in typewriting/keyboarding will be allowed toward any degree.

Business — Marketing

See Page 221

COURSES

Marketing (Mktg)

100. Marketing Concepts (4)

During the Fall 1992 semester, Mktg 100 will be offered as a four-lecture-hour course instead of three lecture hours and two lab hours.

138. Psychology of Personal Persuasion (4)

Prerequisite: Mktg 100 or permission of instructor. (Prerequisite change.)

**Business —
Graduate Program**

Published in its entirety
due to extensive changes

School of Business and
Administrative Sciences (SOBAS)
Graduate Business Program
DONALD N. STENGEL, Director
Peters Business Building, Room 183
(209) 278-2107

Master of Business
Administration (M.B.A.)
M.S. in Accountancy (M.S.A.)

**Master of
Business Administration**

The Master of Business Administration degree program is designed as a graduate, professional education for managers of business, agriculture, education, government, and nonprofit organizations. The program prepares students broadly in the essential business concepts and tools, and in their application to problems that managers face. The program offers elective area courses that provide advanced preparation in special areas of professional practice.

Admission. The program is open to college graduates without regard to the area of undergraduate study. Applicants are expected to show intellectual promise sufficient to perform satisfactorily in the program, and upon graduation, to perform effectively as professional managers. Applicants must submit the following to be considered for admission:

1. a completed CSUF Graduate Application form
2. a completed M.B.A. Program Application form
3. complete university or college transcripts
4. official record of the Graduate Management Admission Test
5. two letters of recommendation appropriate for evaluation of professional promise
6. description of work experience.

Program Requirements

The M.B.A. is awarded to students upon completion of requirements in three groups of courses. These groups are generally completed in sequence. Students may not take Group II or Group III courses prior to the semester they complete their Group I requirements.

Group I

The following five courses or equivalent knowledge are required: MBA 200, 201, 203, 204, 205.

Equivalent knowledge may be demonstrated through examinations offered two times each year before the beginning of fall and spring semesters.

M.B.A. Degree Requirements

| | |
|---|--------------|
| Group II | Units |
| MBA 210, 211, 212, 213, 214, and 215 | 18 |

Group III 15-21

Select one of the following elective areas (9-12)

Accounting (9)

MBA 220, 221, 222

Finance (9)

Select from MBA 230*,
231, 232, 233

Human Resource

Management (12)

MBA 240, 241, 242,
243

Management Infor-

mation Systems (9)

Select from MBA 250,
251, 252, 253

Marketing Manage-

ment (9)

Select from MBA 260*,
261, 262, 263

International

Business (9)

Select from MBA 221,
231, 241, 251, 261

General M.B.A. (9)

Select from MBA 220,
230, 240, 250, 260

Additional approved elective** ... (0-3)

MBA 279 (3)

Select one of the following

culminating experiences (0-6)

A management project

MBA 216 and 298 (6)

A thesis

MBA 216 and 299 (6)

A comprehensive

examination (0)

Total 33-39

**Required course in elective area.

**Not required for students completing Human Resource Management elective area or students doing a thesis or project. A list of approved electives is available in the Graduate Business Program Office.

**Master of Science
in Accountancy**

The M.S.A. degree is intended for students desiring advanced theoretical and practical study in the field. The program is based upon a strong foundation in business and accounting subjects. The program is designed for those persons who wish to advance their careers in public accounting, in controllership, and accounting executive positions in business, government, and other nonprofit organizations, and in consulting firms.

Students are required to have the equivalent of an undergraduate degree in business (accountancy major) or to remove any deficiencies in these areas. The program calls for 30 additional units when these requirements have been met. A comprehensive examination is required of all students prior to the completion of the program.

The M.S.A. degree requires the following specific prerequisite courses or their equivalents: MBA 200, 201, 203, 204, 205; Acct 120A, 120B, 132, 144, 146, 162, 167.

M.S.A. Degree Requirements

| | <i>Units</i> |
|--|--------------|
| Financial Accounting Option | |
| Core: MBA 220, 222, 251, and MSA 223 | 12 |
| Other required courses: | |
| MBA 212, 221, and MSA 224 | 9 |
| Electives from: | |
| MBA 210 or 216 | 3 |
| One approved course in taxation* | 3 |
| One approved elective* | 3 |
| Total | 30 |

Taxation Option

| | |
|--|--------------|
| Core: MBA 220, 222, 251, and MSA 223 | 12 |
| Other required courses: | |
| MSA 226, 227, 228 | 9 |
| Electives from: | |
| MSA 225, 229, Acct 145, or another approved graduate business course numbered between MBA 220 and 299* | 9-10 |
| Total | 30-31 |

* Lists of approved electives are available in the Graduate Business Program Office.

GRADUATE COURSES

(See *Course Numbering System*.)

Master of Business Administration (MBA)

200. Managerial Economics (3)

Prerequisite: differential calculus, admission to graduate business program or permission of director. Logic and methods of economic analysis for business decisions. Multivariate, constrained optimization; production, cost, supply; buyer behavior, consumer demand, derived demand; forecasting; market structure, pricing, negotiation; government regulation; risk, uncertainty; valuation, capital budgeting. (Former Bus 202)

201. Accounting and Information Systems (3)

Prerequisites: electronic spreadsheet literacy, and either admission to graduate program in business or permission of director. Concepts and terminology of financial and managerial accounting and information systems. Transaction processing systems and planning and control systems integrated with data capture, data classification, information storage and organization, information access and display/reporting. (Former Bus 205; Bus 209)

203. Methods of Decision Sciences (3)

Prerequisites: linear functions, familiarity with PC-based microcomputing and spreadsheets, and either admission to the graduate business program or permission of director. Statistical concepts, inferential statistical methods, management science techniques. Descriptive statistics; discrete random variables; expected value decision theory; continuous distributions; sampling distributions; estimation; hypothesis testing; analysis of variance; linear regression and correlation; chi-square tests; time series analysis; simulation; linear programming. (2 seminar, 2 lab hours) (Former Bus 208; Bus 243)

204. Global Environment of Business (3)

Admission to the graduate business program or permission of director. Introduction to global business environment. Cultural, economic, political, and legal systems. Advances in global trade, marketing, production, accounting, taxation, financial and payment systems. Impact of technological advances, multinational corporations, and nation-states on the performance and competitiveness of businesses. Lecture and case. (Former Bus 247)

205. Production and Operations Management (3)

Prerequisites: MBA 203 or concurrently, admission to the program or permission of director. Production and operations systems; product development; process selection; facility location and design; transportation management; method analysis; job design; work measurement; planning and control; project management; inventory control; just-in-time philosophy; total quality management. (Former Bus 216; Bus 255)

206. Seminar in Business Communication (3)

Investigation and analysis of the communication process as it relates to managerial effectiveness. Business communication

theory; analysis of communication alternatives; effective business writing and speaking; case studies. (Former Bus 257)

210. Seminar in Organization Theory and Development (3)

A seminar that applies advanced management concepts, both micro-level and macro-level, to the solution of complex organizational problems in a rapidly changing and increasingly competitive environment. (Former Bus 241)

211. Seminar in Management Information Systems (3)

Prerequisites: MBA 200 and 201. Managerial and technical issues in computer-based information systems. Decision support; artificial intelligence, expert, and strategic information systems; system analysis, design, and implementation; financial, human resource, marketing, and production information systems. (Former Bus 246)

212. Seminar in Financial Management (3)

Prerequisites: MBA 200, 201, and 203. Theories, concepts, and techniques in financial management; financial analysis, planning, forecasting, and working capital; risk and return analysis, valuation models, cost of capital and capital budgeting; capital structure, dividend policy and long-term financing. Special contemporary topics in financial management. (Former Bus 218; Bus 244)

213. Seminar in Managerial Accounting (3)

Prerequisites: MBA 200 and 201. In-depth consideration of several topical areas in accounting analysis related to both profit and not-for-profit organizations, with emphasis on currently controversial issues. Analysis includes budgetary planning, cost analysis, internal control and case studies. (Former Bus 245)

214. Seminar in Marketing Management (3)

Prerequisites: MBA 200-204; 203 or concurrently. Strategic and operational planning of the marketing operation and marketing management process: market measurement and forecasting; segmentation and positioning; product, price, service, and distribution; advertising, sales management, and sales promotion; and introduction to implementation and control in marketing. (Former Bus 217; Bus 242)

215. Seminar in Regulatory and Ethical Environment of Business (3)

Prerequisites: MBA 210-214 or concurrently. Relationships among personal ethics, corporate social responsibility, and regulatory policy on business decision-making. Evaluation of business decisions, corporate goals, and regulatory statutes and process in terms of their ethical quality and adherence to sound policy. (Former Bus 248)

216. Seminar in Business Research (3)

Prerequisites: MBA 200-205. Logic and methods of survey and experimental research methods for business. Multivariate analytical methods for interpretation of survey and experimental results. Research using secondary data for business decisions. Preparation of a plan for thesis, project, or other business research. (Former Bus 221)

220. Seminar in Cost Accounting (3)

(See MSA 220.)

221. Seminar in International and Nonprofit Accounting (3)

(See MSA 221.)

222. Seminar in Accounting Theory (3)

(See MSA 222.)

230. Seminar in Advanced Financial Management (3)

Prerequisite: MBA 212. An applied case-method analysis of theories, concepts, and analytical techniques of financial management, financial analysis and planning, capital budgeting, leasing, refunding, mergers and acquisitions, corporate restructuring, financial engineering, derivative securities. Lecture and cases. (Former Bus 244)

231. Seminar in International Finance (3)

Prerequisite: MBA 212. An advanced study of theories and techniques in global finance and investment. The international financial system; currency markets; risks and exposure management; balance of payments; political risks; international banking and capital markets; euro-currencies; portfolio and foreign direct investment. (Former Bus 272)

232. Seminar in Investments and Portfolio Management (3)

Prerequisite: MBA 212. Advanced analysis of equity, fixed-income, and derivative securities; operation of financial markets and investment environment. Strategic and tactical decisions related to institutional and individual portfolio management. Lecture and cases. (Former Bus 232)

233. Seminar in Management of Financial Institutions (3)

Prerequisite: MBA 212. Comprehensive analysis of the role of financial institutions and markets in allocating capital. Application of economic and financial analytical techniques to the managerial problems of financial institutions. Lecture and cases. (Former Bus 236)

240. Seminar in Human Resource Management: Theory, Policy, and Practice (3)

Prerequisite: MBA 210. Analysis of the theories behind, and practical application of, human resource management policies of private and public organizations. Particular emphasis on government employment policy. Lecture and cases. (Former Bus 250)

241. Seminar in Comparative Human Resource and Industrial Relations Systems (3)

Prerequisite: MBA 210. Analysis of human resource and industrial relations practices of transnational and multinational corporations operating in the global environment. Particular emphasis on the emergence, evaluation, structures, functions and challenges of labor movements in developed and less developed countries. Lecture and cases.

242. Seminar in Compensation and Benefits Administration (3)

Prerequisite: MBA 210. Analysis of the behavioral and social issues involved in designing and administering of employee compensation systems and benefit programs. Particular emphasis on the psychological relationship between pay and performance and the micro and macro forces that affect pay. Lecture and cases. (Former Bus 252)

243. Seminar in Organizational Staffing (3)

Prerequisite: MBA 210. Analysis of the techniques for recruiting, selecting, evaluating, and allocating employees to meet organizational goals with emphasis on sociological, psychological, and cultural factors effecting work attitude and behavior.

250. Seminar in End User Computing (3)

Prerequisite: MBA 211. Use of data resources in business problem solving. Analysis, formulation and implementation of business models using microcomputer packages; managerial topics and decision support tools. Lecture, case, and lab. (Former Bus 262)

251. Seminar in Information Systems in a Global Environment (3)

Analysis of systems through study and application of systems theory; special emphasis on information systems. Application of systems theory in national and international environments; lecture and case analysis.

252. Seminar in Information Systems Management (3)

Prerequisite: MBA 211. Study of hardware, software, and behavioral issues related to the design, acquisition, implementation, and management of contemporary data processing systems underlying global information systems. Lecture and cases. (Former Bus 265)

253. Seminar in Information Technology (3)

In-depth analysis of a selected information technology with application to business problem solving and decision making. Topics from database; telecommunications; decision support systems; expert systems; artificial intelligence. Lecture and cases. (Former Bus 266)

260. Seminar in Market Analysis and Forecasting (3)

Prerequisite: MBA 214. Analysis of buyer and seller components of markets. Emphasis on design and evaluation of marketing plans. Primary and secondary data in measuring market response. Application of extrapolation and programmatic forecasting methods. Cases, projects, and industry analysis. (Former Bus 240)

261. Seminar in Global Marketing Management (3)

Prerequisite: MBA 214. Analysis of problems of product design, channel structure, promotion, logistics, and inter-organization cooperation and control in international marketing. Negotiation, bargaining, and contracting across national boundaries. Legal issues affecting global marketing operations, cases, projects, and special studies.

262. Seminar in Marketing Organization and Operations Management (3)

Prerequisites: MBA 210, 214, and 260. Organization for marketing operations: design of strategic business units, functional and matrix structures, and incentive systems. Implementation of marketing plans: sales force, advertising, channel, logistics management. Information systems for support of operation and control of the marketing operation.

263. Seminar in

Marketing Management Issues (3)

Prerequisites: MBA 214 and 260. With approval of instructor, each student selects a marketing management problem or issue, and prepares a major investigative paper. Student will present results to seminar for professional critique.

279. Seminar in

Business Policy and Strategy (3)

Prerequisite: completion of Group II or concurrently. Evolution of strategic management, globalization of strategy, role of multinationals, competitive advantage strategy formulation; implementation; control issues; role of top and middle management; ethics; and culture.

289T. Seminar in Business Topics (3)

Prerequisite: completion of 9 units of 200-level courses. Theory and developments in accounting, administration and organization, business education, communication, consumer economics, finance, industrial and regional studies, real estate and urban economics, information systems, decision sciences, resource economics, risk and insurance, or transportation. (Former Bus 289T section)

290. Independent Study (1-3)

Prerequisite: Advanced to Candidacy; permission of director and instructor. Approved for *SP* grading. (Former Bus 290)

292. Readings in Business (2-3)

Prerequisite: Advanced to Candidacy; permission of director. Approved for *SP* grading. (Former Bus 292)

298. Management Project (3)

Prerequisites: MBA 216, Advanced to Candidacy and permission of director. See *Criteria for Thesis and Project*. Examination of the work and problems general managers of business units face as chief strategists and organization builders. Independent analysis of an operating industry, business, or a principals functional area of an organization. Case studies and field research project. Approved for *SP* grading. (Former Bus 298)

299. Thesis (3)

Prerequisites: MBA 216, Advanced to Candidacy and permission of director. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading. (Former Bus 299)

Master of Science

in Accountancy (MSA)

220. Seminar in Cost Accounting (3)

(Same as MBA 220.) Prerequisites: MBA 200-205 and 213 or M.S.A. prerequisites. The development, interpretation, and uses of accounting reports for management planning, control, and decision-making. Cost-volume-profit analysis; linear programming, capital budgeting; inventory models; standards, budgets, and analysis variance for planning and control purposes; divisional performance; and transfer pricing issues. (Former Bus 263)

221. Seminar in International and Nonprofit Accounting (3)

(Same as MBA 221.) Prerequisites: MBA 200-205 and 213 or M.S.A. prerequisites. Accounting for various types of funds as applied to governmental and other not-for-profit organizations. Global practices and accounting standards. Managerial problems of multinational enterprises. International auditing standards and taxation issues.

222. Seminar in Accounting Theory (3)

(Same as MBA 222.) Prerequisites: MBA 200-205 and MBA 213 or M.S.A. prerequisites. A historical perspective of the development of accounting theory. An evaluation of the objectives and standards of financial reporting as they are applied in contemporary income determination and asset valuation. (Former Bus 260)

223. Seminar in Auditing (3)

Prerequisite: Acct 162. An advanced study of the philosophy, theory, and practice of auditing with special emphasis in recent developments, and cases involving ethical and legal responsibilities, statistical sampling methods, using computer, usage and reliance on internal control; operational auditing. Lecture and cases. (Former Bus 264)

224. Seminar in Current Accounting and Reporting Issues (3)

Prerequisites: Acct 120A and 120B. A comprehensive examination of currently effective authoritative pronouncements that govern financial accounting. Included are pronouncements and proposals of the AICPA, the FASB, the AAA, the SEC, and related accounting literature. Lecture and cases. (Former Bus 276)

225. Seminar in Tax Planning (3)

Prerequisites: Acct 144; Acct 145 or concurrently. An in-depth examination of tax planning and decision making with respect to income, estate, and gift taxes; tax

research and review of current cases involving application of tax laws to individuals, partnerships, corporations, and fiduciaries. Opportunities in special industries such as agriculture, real estate, insurance, and natural resources. Lecture and cases. (Former Bus 269T)

226. Seminar in Estate Planning (3)

Prerequisites: Acct 144 and 145. Estate planning techniques to maximize wealth and minimize taxes. In-depth discussion of federal and state systems for taxing transfers. Theory, practice, and legal requirements for reporting by fiduciaries of estates and trusts. (Former Bus 270)

227. Seminar in Taxation of Corporations and Shareholders (3)

Prerequisites: Acct 144; Acct 145 or concurrently. A detailed study of tax problems of corporations and their shareholders. Areas covered include organization, capital structure, and taxation of corporations; dividends, nonliquidating distributions, stock redemptions, and partial and complete liquidations; and corporate reorganizations. Lecture and cases. (Former Bus 277)

228. Seminar in Taxation of Partnerships and Subchapter S Corporations (3)

Prerequisites: Acct 144; 145 or concurrently. An examination of fundamental legal concepts, technical rules, and computational procedures relating to federal taxation of partnerships and Subchapter S Corporations. Areas of emphasis include partnership formation, operations, and termination. (Former Bus 278)

229. Seminar in Taxation of Property Transactions and Accounting Methods (3)

Prerequisites: Acct 144; 145 or concurrently. A comprehensive coverage of property transactions and tax accounting methods including definition, realization, recognitions, and computation of capital gains and losses, various tax accounting methods and planning opportunities relative to individuals and corporations. Lecture and cases. (Former Bus 279)

Business and Administrative Sciences (Bus)

280. Seminar in Business Education (3)

Study of advanced problems in business education.

282. Seminar in Business Curricula (3)

Objectives, principles, and curricula of busi-

ness in secondary schools, colleges, and universities; evaluation and trends of current programs.

IN-SERVICE COURSES

Business and Administrative Sciences (Bus)

See Page 225 for complete information on In-Service Courses.

Chemistry

See Page 227

The following information reflects changes in the B.A. in Chemistry:

I. Biochemistry/Prehealth

Professional Emphasis Units

A. The B.A. Chemistry Major 37-39

Core Program

Chem 1A, 1B, 102, 108, 128A, 128B, 129A, 155 ..(30)

Emphasis

Chem 156(3)

Elect two courses from

Chem 129B, 142, 153, 241A, 241B, 250T(4-6)

B. Additional requirements 31-33

BioSc 1A-B(8)

Elect two courses from

BioSc 140A, BioSc 140B, Micro 140 or other approved courses(7)

Math 75, 76 (Math 77 strongly recommended) ..(8)

Phys 2A, 2B (or Phys 5A, 5B strongly recommended)(8-10)

C. Remaining General Education requirements 42*

D. Electives 10-14

Total 124

* Of the 51 required General Education units, 9 are satisfied by Phys 2A, 2B (or 5A, 5B) (Division 1) BioSc 1A (Division 2) and Math 75 (CORE).

Chicano and Latin American Studies

See Page 235

COURSE

Chicano and Latin

American Studies (CLS)

195. Diversity in the United States:

Race and Gender Issues (3)

(Same as A IS 195, Af AM 195, AsAm 195, W S 195.) (Former Eth S 195) (Prefix, title change.)

Communicative Disorders

See Page 238

The following information reflects changes in the B.A. in Communicative Disorders and the minor:

Bachelor of Arts

Degree Requirements

Communicative Disorders Major Units

Major requirements 44-46

Core: CD 80, 95, 102, 116,

128, 131(16)

Concentration(28-30)

Select one:

Audiology

C D 90, 103, 105,

107, 109, 110, 133,

141, 172; Phys 2B ... (29)

Education of the Deaf

C D 106, 114, 133,

134, 135, 139, 141,

162, 163, 164(30)

Speech and

Language Pathology

C D 90, 103, 105,

107, 109, 110, 112,

115, 171, 172(28)

General Education 51

Electives and remaining degree requirements 27-29

(See Degree Requirements); may be courses used to satisfy credential requirements or a minor in another field

Total 124

The Minor in Communicative Disorders has been changed from 22 to 18 units. To complete this minor, students must successfully complete C D 80, 90, 95, 102, 114, and 133.

See Page 239

The following information replaces copy under the heading *Program of Study* for the graduate program in Communicative Disorders:

Master of Arts

Degree Requirements

Communicative Disorders Major Units

Thesis or Project

Core: C D 200, 201, 2029

Specialization (select one) 21

Audiology

C D 203, 231, 232, 233, 234,

235, 240(21)

Education of the Deaf

CD 232, 261, 262, 263, 264,

268(21)

Speech-Language Pathology

C D 204, 206, 207, 210, 213

214, 215(21)

Thesis or project6

Total 36

Comprehensive Examination

Core: C D 200, 201, 2029

Specialization (select one) 21

Audiology

C D 203, 231, 232, 233, 234,

235, 240(21)

Education of the Deaf

CD 232, 261, 262, 263, 264,

268(21)

Speech-Language Pathology

C D 204, 206, 207, 210, 213

214, 215(21)

Written examination0

Total 30

See Pages 239-240

The following information replaces copy under the heading *Credentials* for the graduate program in Communicative Disorders:

Special Education

Specialist: Communication Handicapped Credentials

Deaf and Severely Hard of Hearing Option Units

Core: C D 80, 95, 102, 106, 114,

116, 128 and 131 (concurrently) 22

Ed Deaf core: C D 133, 134, 135,

139, 141, 162, 163, 164, 200, 201,

202, 232, 261, 262, 263, 264 48

Clinical core: C D 160 or 260;

C D 164B (4-9 units); C D 268

(6 units) 12-17

Generic core: ERF 130, 140; LEE

156M; EHD 160 (6 units)* 15

Education core: CTET 150;

EHD 160 (6 units)* 9

106-111

Speech and Hearing Option Units

Core: C D 80, 90, 95, 102, 103,

128 and 131 (concurrently) 19

Speech and Hearing core: C D 105,

107 and 110 (concurrently), 109,

112, 115, 116, 171, 172, 200, 201,

202, 204, 206, 207, 210, 213, 214 49

Clinical core: C D 164A (4-9 units),

209 (1 unit), 230 (6-9 units), 250

(2 units) 13-21

* See requirements for the Student Teaching Multiple Subject Credential — School of Education and Human Development.

Courses and Programs

| | |
|--|----------------|
| Generic core: ERF 130, 140; LEE 156M; EHD 160 (6 units)* | 15 |
| Education core: CTET 150; EHD 160* | 9 |
| | <u>105-113</u> |

Clinical Rehabilitative Services Credentials

| | |
|---|--------------|
| Audiology Option | Units |
| Generic courses: C D 80, 90, 95, 102, 103, 105; 107 and 110 (concurrently), 109, 116; 128 and 131 (concurrently), 133, 141, 172; Phys 2B; Psych 101 | 48 |
| Advanced Specialization in Audiology: C D 200, 201, 202, 231, 233, 234, 235, 240 | 24 |
| Clinical core: C D 164C (4-9 units) or 269 (6 units), C D 130 or 230 (3 units), 150 or 250 (6-9 units) | <u>13-21</u> |
| | <u>85-93</u> |

Language, Speech, and Hearing Services Option

| | |
|---|--------------|
| Units | |
| Generic courses: C D 80, 90, 95, 102, 103, 105; 107 and 110 (concurrently), 109, 112, 115, 116; 128 and 131 (concurrently), 171, 172; Psych 101 | 47 |
| Advanced Specialization in Language, Speech, and Hearing: C D 200, 201, 202, 204, 206, 207, 210, 213, 214, 215 | 30 |
| Clinical core: C D 164A (4-9 units), 209 (1 unit), 130 or 230 (6-9 units), 150 or 250 (2 units) | <u>13-21</u> |
| | <u>90-98</u> |

Language, Speech, and Hearing Services with Severe Oral Language Handicapped Authorization Option

| | |
|---|----------------|
| Units | |
| Generic courses: C D 80, 90, 95, 102, 103, 105; 107 and 110 (concurrently), 109, 112, 115, 116; 128 and 131 (concurrently), 171, 172; Psych 101 | 47 |
| Advanced Specialization in Language, Speech, and Hearing: C D 200, 201, 202, 204, 206, 207, 210, 213, 214 | 27 |
| Advanced Specialization in Severe Oral Language Handicapped: C D 232, 264; CTET 121, 150; LEE 120, 156M; P E 146 | <u>19-21</u> |
| Clinical core: C D 164A (4-9 units), 209, 130 or 230 (6-9 units), 250 (2-3 units) | <u>13-22</u> |
| | <u>106-117</u> |

*See requirements for the Student Teaching Multiple Subject Credential — School of Education and Human Development.

See Pages 240 and 241

COURSES

Communicative Disorders (C D)

103. Speech and Hearing Science (3)
Prerequisite: Phys 2A. Physiological acoustics, psychoacoustics, acoustic phonetics, and perception of speech. (2 lecture, 2 lab hours) (*Title, description change.*)

133. American Sign Language I (3)
Principles of American Sign Language; basic skills for communicating with deaf children and adults. General Education BREADTH, Division 7. (Former C D 138) (*Title, description change.*)

134. American Sign Language II (3)
Prerequisite: C D 133. Advanced study of grammatical structures and the lexicon of American Sign Language. Emphasis on conversational skills, fluency for communicating with deaf children and adults, and aspects of deaf culture. (*New course.*)

171. Professional Writing in Communicative Disorders (3)
Principles of clinical and scientific writing in communicative disorders; exercises in writing professional and scientific reports. (*New course.*)

172. Neural Bases of Speech, Language, and Hearing (3)
Neuroanatomical and neurophysiological bases of speech, language, and hearing; clinical implications of neuropathology. Field trip may be required. (*New course.*)

NEW GRADUATE COURSES

Communicative Disorders (C D)

201. Interviewing and Counseling in Communicative Disorders (3)
Theory and practice in interviewing and counseling clients and families related to specific speech, language and hearing disorders. Techniques for altering and modifying behaviors that affect maximum growth and potential of the client and families.

203. Hearing Aids I (3)
Prerequisite: C D 202. Electroacoustic analysis of amplification systems; identification, evaluation, and management of the candidate for amplification. (2 lecture, 2 lab hours)

215. Augmentative Communication Systems (3)
Principles, analysis, assessment techniques, and implementation procedures for developing augmentative communication systems with speech and language impaired children and adults. (2 lecture, 2 lab hours)

261. Instructional Technology with the Deaf (3)

Principles, analysis, assessment techniques, and implementation of instructional technology for teaching deaf students. Includes computer-based approaches for teaching deaf and hearing impaired individuals. (2 lecture, 2 lab hours)

Computer Science

See Page 246

COURSES

Computer Science (C Sci)

20. FORTRAN Programming (4)
Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course; trigonometry. (*Prerequisite change.*)

40. Introduction to Programming and Problem Solving (4)

Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course; trigonometry. (*Prerequisite change.*)

Criminology

See Page 250

The following information supplements catalog copy on degree requirements for the Criminology Major and degree requirements for the new Victimology Option.

Bachelor of Science Degree Requirements

Criminology Major

Criminology —

Corrections Option

Lower-division requirements:
(see Note 1): Crim 2, 20, 31, 50, 73 (16)

Upper-division core (must be taken before or concurrently with other upper-division requirements): Crim 100, 102, 109, 112, 170 (see Note 6) (15)

Upper-division requirements:
Crim 118, 133, 134, 135, 181, 199 (see Note 8) (19)

Crim electives (one of the following courses): Crim 117, 120, 127, 136T, 140, 141, 153, 160T, 174, 175, 176, 177, 190 (3)

Criminology — Law

Enforcement Option

Lower-division requirements:
(see Note 1): Crim 2, 4, 20, 31, 50, 73 (19)

Upper-division core (must be taken before or concurrently with other upper-division requirements): Crim 100, 102, 109, 112, 170 (see Note 6) (15)

Upper-division requirements: Crim 113, 117, 127, 108 or 180, 199 (see Note 8) (15)

Crim electives (one of the following courses): Crim 118, 120, 133, 134, 135, 136T, 140, 141, 153, 160T, 174, 175, 176, 177, 190 (3)

Criminology —

Victimology Option 55

Lower-division requirements: (see Note 1): Crim 2, 20, 50, 73 .. (13)

Upper-division core (see Note 2): Crim 100, 102, 112, 170 (see Note 6) (12)

Upper-division requirements: Crim 174, 175, 176, 177 (or EHD 109) Crim 182, EHD 108 (or Crim 134) Crim 199 (see Note 8) (21)

Electives (select 9 units): Af Am 135, 144, 146; Anth 121, 122, 123, 146, 172; AsAm 110; CLS 116, 160; Crim 109, 140; EHD 107; Hist 186; Pl Si 150, 160, 181; S Wrk 128, 129, 136; Soc 111, 122, 165; W S 108, 109, 116, 126, 160 (9)

General Education 51

Electives and remaining degree requirements 22-25
(see Degree Requirements); may be used toward a dual major or minor

Total 128

Advising Notes

- CR/NC grading is not permitted in the major with the exception of Crim 108, 180, 181, 182, and 281. (Revised)
- Crim 199 prerequisite: last-semester senior or permission of instructor, completion of lower-division requirements, upper-division core requirements, and upper-division writing skills requirement. (New)
- See Advising Note 8, page 250, in the 1991-92 General Catalog.

NEW COURSES

Criminology (Crim)

174. Ethnic and Gender Issues in Victim Services (3)
Prerequisite: Crim 175 and 176. Culturally specific responses to victimization; use of peers and community as support; preju-

dice, discrimination, and other special problems experienced by women and various ethnic and racial minority groups in obtaining services from victim services agencies and the criminal justice system.

177. Legal Policy in Victim Services (3)
Prerequisite: Crim 175 and 176. Analysis of legislation and specific legal policies regarding victim services. Victim rights, the process of changing attitudes, and current laws will be a major focus.

182. Internship in Victimology (1-12; max total 12)
Prerequisite: Crim 175 and 176, permission of instructor and sponsoring agency. Relates the student's classroom studies with occupational and professional experiences. Weekly conference with field supervisor. Transfer students should be aware that 12-unit total must include units previously earned; check with departmental adviser. Approved for SP grading. CR/NC grading only. (Minimum of 3 field hours per unit.)

Economics

See Page 257

COURSE

Economics (Econ)

185. Directed Readings (1-3; max total 6)
(Unit change.)

Education — Counseling and Special Education

See Page 263

Completion of COUN 150 has been added to the list of program requirements for candidates who are aspiring to the Pupil Personnel Services Credential — School Counseling.

See Page 264

The following information reflects changes in the M.A. in Education — Counseling and Student Services:

| | |
|---|--------------|
| Master of Arts Degree in Education Counseling and Student Services | Units |
| Course Requirements | |
| ERF 220, 285 or 288; COUN 298 or 299 | 10 |
| COUN 200, 203, 208, 220, 249A or 249B or 249C | 17 |
| Electives: COUN 150, 180T, 201, 202, 240, 241, 280T, 290; Psych 153; ERF 289, or other approved electives | 3 |
| Total | 30 |

See Pages 267, 268, and 269

GRADUATE COURSES

Counselor Education (COUN)

241. Seminar in Organization of Counseling Services (3)
(2 seminar, 2 lab hours) (Unit, lab hour change.)

Special Education (SPED)

202. Career Education for Students with Disabilities (4)
(Title change.)

208. Practicum/Clinic: Career Education for the Disabled (3-9; max total 9)
Prerequisites: SPED 202 and permission of instructor. Clinical experience in private and public agencies involved with vocational/career education for the disabled work evaluation and job preparation supervised by university personnel. (Former A S 249) (Title, description change.)

210. Motor, Sensory, and Perceptual Abilities (4)
(2 seminar, 4 lab hours) (Lab hour change.)

215. Seminar in Curriculum for Learning Handicapped Students (4)
(2 seminar, 4 lab hours) (Lab hour change.)

228. Advanced Practicum in Special Education for Severely Handicapped Students (4)
Prerequisites: ERF 153; SPED 160, 160F, 175, 220A, 220B, 221A, 221B; prior or concurrent enrollment in SPED 201, 202; COUN 240. (Prerequisite change.)

Education — Curriculum, Teaching, and Educational Technology

NEW GRADUATE COURSES Curriculum, Teaching, and Educational Technology (CTET)

227. Current Issues and Trends in Educational Technology (3)
Prerequisite: preliminary credential or permission of instructor. Focuses on the social, economic, and psychological impacts of technology and technology research on schools, teaching, and learning. Students examine the past and formulate a vision of the future of educational technology through readings, discussions, and research.

228. Developing Problem-Solving Skills with Computers (3)
Prerequisite: CTET 100 or 101. Developing problem-solving skills within K-12

computing environments. Students will develop curriculum materials, lesson plans, and teaching strategies for promoting problem-solving skills through the effective use of applications software, problem-solving software, programming languages, and authoring systems. (2 seminar, 2 lab hours) (Instructional materials fee, \$10)

230. Planning and Implementing Innovative Technology Programs (3)

Prerequisite: CTET 100 or 101. Strategies for implementing change in educational settings; planning for equitable technology use; planning and instituting effective staff development programs; managing resources, including networking equipment; locating, developing, and coordinating funding sources; and gaining parent and community support.

Education — Educational Research, Administration, and Foundations

See Page 279

The following information reflects changes in the M.A. in Education — Administration and Supervision:

Master of Arts Degree in Education Administration and Supervision

Program Prerequisites. Fifteen units in education or the equivalent, including ERF 153; an adequate background for advanced work in the field.

Units

Core Requirements

| | |
|---|-----------|
| ERF 220, 285 or 288, EAD 298 or 299 .. | 10 |
| EAD 261, 262, and 9 units from the following: EAD 263, 264, 265, 266, 267, 268, 271, 272, 273, 274, 275, 277, 278T, 279 | 15 |
| Electives: 5 units from the above or other approved electives | 5 |
| Total | 30 |

Education — Literacy and Early Education

See Page 286

GRADUATE COURSES

Literacy and Early Education (LEE)

244. Research in Reading Curriculum (3)

Prerequisite: LEE 213, 215, 278, and permission of instructor. Study of past and current research in reading related to in-

structional issues; planning and analysis of curricula in light of current research; application of research skills. (Former T Ed 244) (Description change.)

254. Supervised Field Experiences in Reading (3)

Prerequisite: LEE 224, 244, and permission of instructor. Intensive varied supervised field experiences in settings with reading specialists, consultants, or staff development personnel 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. (Former T Ed 254) (Description change.)

Education — Graduate Program

NEW DOCTORAL GRADUATE COURSES Educational Leadership (EdL)

201. Organizational Theory in Complex Organizations (3)

Combines alternative views of organizational theory with applications to the structure of the school; to critical roles played by teachers, principals and other school personnel; and to examine the relationships among structural elements of schools.

202. Planning and Changing in Education (3)

Examines strategies for initiating and institutionalizing change in people and organizations, with particular attention to moral and ethical issues faced by educational leaders. Attention is given to the development of scholarly and professional writing and communication of research and technical information.

203. Governance and Political Perspectives for Educational Leadership (3)

Prerequisite: admission to the program. Seminar. Determinants of policy in educational organizations and leadership. Analysis of structures used for legal, fiscal and political decisions and conflict management. Role of the educational leader in relation to intergovernmental activities aimed at educational reform.

204. Quantitative Methods Applied to Administrative Practice (3)

Prerequisite: ERF 220 or equivalent. Seminar. Examines advanced research methodologies and data analysis techniques applicable to education and social science settings. Topics include experimental and

quasi-experimental design, advanced statistical techniques, sampling distributions, nonparametric statistics, inference and hypothesis testing. Specific applications to the work of the education leader.

205. Families, Communities and Schools in Sociocultural Context (3)

Prerequisite: admission to the program. Seminar. Explores the role of parental relationships with the schools focusing on representation of culturally diverse communities. Involvement of parents in their children's education, socialization, and learning processes as related to the transition of children from home to school.

Engineering — Electrical and Computer Engineering

See Page 305

Delete footnote 3, which states approved electives may be substituted for ECE 180, Senior Project.

See Page 306

COURSES

Electrical and Computer Engineering (ECE)

70. FORTRAN 77 Programming (2)

Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course; trigonometry. (Prerequisite change.)

71. Engineering Computations (3)

Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course; trigonometry. (Prerequisite change.)

Engineering — Mechanical and Industrial Engineering

See Page 313

COURSE

Mechanical Engineering (ME)

180. Special Projects (2)

(Title change.)

See Page 314

Delete footnote 5, which states that I E 180 is substitutable by Group B electives.

English

See Page 318

The following changes have occurred in the Master of Arts degree: A revised *Literature Option* has been added (see next page); the *Thesis Alternative Plan* has

been deleted; a new *Composition Option* has been added (see below); the composition option set forth in the 1991-92 catalog also remains in effect.

Master of Arts Degree Requirements

| <i>Literature Option</i> | <i>Units</i> |
|---|--------------|
| Engl 250T and/or 280T | 12 |
| Other courses in English (see specific requirements) | 4 |
| Engl 299 (Thesis) | 2 |
| Approved electives in English or other fields | 12 |
| Total | 30 |

Note: No more than 8 upper-division units will count toward the graduate degree.

| <i>Composition Option</i> | <i>Units</i> |
|--|--------------|
| Engl 250T | 12 |
| Engl 265 | 4 |
| Engl 270 | 4 |
| Engl 281 | 4 |
| Ling 237 (Ling 132, 134, 135, or 146 may be substituted with prior approval by the department) | 3 |
| Engl 299 (Thesis — writing theory or pedagogy) | 2 |
| Engl 282 | 1 |
| | 30 |

Teaching Requirement. At some period before the completion of the M.A. degree composition option, the candidate must be engaged in teaching or coteaching a course with a strong writing component. While most candidates would be teaching in the English Department, other teaching assignments will apply with prior approval of the departmental graduate adviser.

NEW GRADUATE COURSES
English (Engl)

270. Writing Workshop for Teachers (4)
Prerequisite: undergraduate major or minor in English or permission of instructor. Workshop emphasizing writing theory. Study of current writing theory and pedagogical techniques will be integrated with discussions of writing produced during the course.

281. Current Writing Theory (4)
Prerequisite: undergraduate major or minor in English or permission of instructor. Designed to acquaint the student with current key issues in composition theory and the theoretical implications for course design and pedagogy.

282. Practicum in the Teaching of Writing (1)
Prerequisite: permission of instructor. Discussion of theoretical issues as they apply to the writing classroom. Normally taken concurrently with the composition option teaching requirement. CR/NC grading only.

Ethnic Studies

See Page 323

COURSES

African American (Af Am) and American Indian Studies (A I S)

195. Diversity in the United States: Race and Gender Issues (3)
(See CLS 195.) (Former Eth S 195) (*Prefix, title change.*)

Foreign Languages and Literatures

See Page 327

In the degree requirements for the French Major, two changes have been made to accommodate the senior major requirement. With the addition of Fren 170, the "major requirements" have been increased by 2 units for a range from 32-46 units, and the "electives" have been decreased by 2 units for a range from 27-47 units.

In the degree requirements for the German Major, two changes have been made to accommodate the senior major requirement. With the addition of Germ 170, the "major requirements" have been increased by 2 units for a range from 32-46 units, and the "electives" have been decreased by 2 units for a range from 27-47 units.

See Page 328

In the degree requirements for the Russian Major, two changes have been made to accommodate the senior major requirement. With the addition of Russ 170, the "major requirements" have been increased by 2 units for a range from 26-39 units, and the "electives" have been decreased by 2 units for a range from 34-50 units.

Geography

See Pages 337 and 339

COURSES

Geography (Geog)

108. Spatial Analysis in Geographic Information Systems (3)
Prerequisite: Geog 107. Spatial analysis and modeling in a GIS environment. Spatial geometry, pattern analysis, terrain analysis, path analysis, network analysis, surface modeling, spatial autocorrelation,

spatial regression, spatial classification, and spatial interpolation. (Two 3-hour labs) (Former Geog 188T section) (*New course.*)

130. Economic Geography (3)
Evolution and change in the location of major economic (agricultural, commercial, transportation, mineral, and industrial) activities. An examination of the diverse phenomena that influence the location of economic activities. (Former Geog 3) (*Number, description change.*)

176. Geography of the Commonwealth of Independent States (3)
Comprehensive study of the economic, cultural, physical, and political geographic foundations of the Commonwealth of Independent States, followed by intensive study of selected regions. General Education CAPSTONE Cluster course. (*Title, description change.*)

Gerontology

NEW COURSE

Gerontology (Geron)

150. Communication and Aging (3)
(See Spch 150.) (Former Spch 188T section)

Health Science

See Page 350

COURSE

Health Science (H S)

92. Public Health Statistics (3)
Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course. (*Prerequisite change.*)

History

COURSES

History (Hist)

135. European Cultural History (3)
(*Deleted.*)

135A. European Cultural History (3)
Not open to students with credit in Hist 135. Prerequisite: Hist 2 or permission of instructor. Analysis of European thought from the Enlightenment to the present. Major movements in philosophy, religion, literature, art, and architecture; ideologies such as conservatism, liberalism, socialism, communism, nationalism, racism, and fascism. Emphasis on ideas of lasting and worldwide influence. "A" section may be taken without taking "B" section. General Education CAPSTONE Cluster course, Critical Thinking. (*New course.*)

See Page 354

The following information reflects changes in degree requirements for the Master of Arts in History.

Master of Arts Degree Requirements

The History Department offers a 30-unit Master of Arts program with two options: *Thesis and Examination*. The basic requirements for both are:

- A. **Core:** 15 units, consisting of Hist 200 (3 units) Hist 210 or 220 (3 units) Hist 230, 235, 242, or 245 (3 units) Hist 250, 260, or 270 (3 units) Hist 280T (3 units).
- B. **Six units from among** 100-level history courses and/or Hist 210, 220, 230, 235, 242, 245, 250, 260, and 270 (except Hist 100W, 190, 198). With the approval of the departmental graduate adviser, up to 6 units of related courses in other departments may be substituted.
- C. **Three units from among** Hist 290 and 292. Those taking the Examination Option must take Hist 290.

Thesis Option: 6 units of Hist 299A-B.

Examination Option: 6 additional units from Category B, plus a written comprehensive examination in three fields chosen from among the following. No more than two may be taken from any one group.

- Group I:**
 - a) Ancient History
 - b) Medieval History
 - c) Early Modern Europe to 1815
 - d) Modern Europe since 1789
- Group II:**
 - a) The United States to 1865
 - b) The United States since 1865
- Group III:**
 - a) Latin America
 - b) Asia
 - c) Africa

Comprehensive examinations are given during the first week in November and the first week in April of each year. In addition students must write formal comprehensive bibliographic essays on each of the three fields on which they are being examined. For other specifics, consult the department graduate adviser; for general requirements see the *Division of Graduate Studies and Research*.

Foreign Language Requirement. All graduate students of the Department of History must pass a reading competency examination in at least one foreign language approved by the graduate adviser before being advanced to candidacy. For further information, consult the department graduate adviser.

See Page 358

**GRADUATE COURSES
History (Hist)**

230. Seminar: Interpretations in Ancient History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in the history of the ancient Mediterranean, classical Greece, and Rome. (*Title, description change.*)

235. Seminar: Interpretations in Medieval History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Medieval history. (*New course.*)

242. Seminar: Interpretations in Early Modern European History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Early Modern European history, 1450 to 1815. (*New course.*)

245. Seminar: Interpretations in Modern European History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in European history since 1789. (Former Hist 240) (*Number, description change.*)

250. Seminar: Interpretations in Latin American History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Latin American history. (*New course.*)

260. Seminar: Interpretations in African History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in African history. (*New course.*)

270. Seminar: Interpretations in Asian History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Asian history. (*New course.*)

280T. Research Seminar (3)
Prerequisite: 6 units from among Hist 200, 210, 220, 230, 235, 242, 245, 250, 260, and 270 or approval of graduate adviser. (*Prerequisite change.*)

Liberal Studies

See Page 366

In the degree requirements for the Liberal Studies Major under "content requirements," add Hist 1 to Social Science and Geol 1 to Mathematics/Science.

Linguistics

New Japanese Minor

A Minor in Japanese consists of at least 18 units.

| | <i>Units</i> |
|---|--------------|
| Japn 1A, 1B, 2A, and 2B | 12 |
| Electives | 6 |
| Select from the following: | |
| Japn 100, Ling 140T (Japanese Language and Culture), Ling 140T (Japanese Linguistics), and Ling 190 (Independent Study) | |
| Total | 18 |

See Page 369

The following information reflects changes in the French and German Emphases of the Linguistics Graduate Program.

French and German Emphases

Students wishing master's degrees with concentrations in French or German may select the French or German emphases in the master's degree in linguistics (see *linguistics adviser*). Graduate courses in French and German are available for use in these options. All have prerequisites of 24 upper-division units in the language or permission of the instructor.

Emphasis in French. Any two graduate courses in French.

Emphasis in German. Any two graduate courses in German.

**NEW GRADUATE COURSE
Linguistics (Ling)**

251. Seminar in Discourse Analysis (3)
Prerequisite: Ling 100 or equivalent. Exploration and analysis of the functional and other linguistic basis for the organization of units larger than the sentence. (Former Ling 140T section)

Mathematics

See Page 373

**COURSES
Mathematics (Math)**

11. Elementary Statistics (3)
Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course. (*Prerequisite change.*)

45. What is Mathematics? (3)
Prerequisite: Students must take the ELM exam; students who do not pass the exam

must record a grade of C or better in a college-taught intermediate algebra course. (Prerequisite change.)

70. Mathematics For Life Sciences (4)
Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course. (Prerequisite change.)

71. Elementary Mathematical Analysis I (3)
Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course; elementary geometry. (Prerequisite change.)

75. Mathematical Analysis I (4)
Prerequisite: Students must take the ELM exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course; elementary geometry, trigonometry, or Math 6. (Prerequisite change.)

Military Science

See Page 377

The Minor in Military Science has been increased from 18 to 21 units. Students must now elect 3 of 4 courses from M S 141, 142, 192, or Hist 180 for a total of 9 units under the electives category.

NEW COURSES

Military Science (M S)

134A. Freshman Leadership Laboratory (1; max total 2)
Open to freshman Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is voluntary. (Former M S 134)

134B. Sophomore Leadership Laboratory (1; max total 2)
Open to sophomore Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is voluntary. (Former M S 134)

134C. Junior Leadership Laboratory (1; max total 2)
Open to junior Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is mandatory. Must

be taken each semester a student is enrolled in the Advanced Course. (Former M S 134)

134D. Senior Leadership Laboratory (1; max total 2)
Open to senior Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is mandatory. Must be taken each semester a student is enrolled in the Advanced Course. (Former M S 134)

142. Advanced Leadership Training (3)
Prerequisite: permission of instructor. Required course for MS IV cadets. Instruction focuses on transitioning cadets to lieutenants. Topics include responsibilities of army officers, army leadership doctrine, and the army promotion system. Emphasis on skills used early in an officer's career.

Natural Science — Interdisciplinary Courses

NEW COURSE

Natural Science (N Sci)

180. Practicum in Secondary Science Teaching (2)
Concurrent enrollment in EHD 155B required; for single subject life/physical science student teachers. Application of best science teaching research/practice; emphasis on reflection/discussion of current teaching, effective management of students/time, authentic assessments, laboratory/curriculum resources, sheltered techniques, student motivators. (Former Biol 280)

NEW IN-SERVICE COURSE

Natural Science (N Sci)

380T. Topics in Natural Sciences (1-4; max total 6)
Studies in the natural sciences integrating topics from biology, chemistry, computer science, geology, mathematics, and physics.

Nursing

See Page 386

The following information supplements catalog copy on admission and transfer procedures for nursing majors:

Policies and Procedures for Admission

The Department of Nursing is on impacted status; applicants are selected according to the following criteria:

1. Eligibility to *apply* to the nursing major:
 - a. Recorded grades for at least two

natural sciences and two other prerequisites by document deadline.

- b. Intended completion of all prerequisites by date of intended enrollment in the major.
- c. Minimum grade of C in all prerequisite courses; one repeat per course allowed to improve grade.

(Students not in the major may apply to the university as prenursing majors.)

2. Minimum requirements for *enrollment* in nursing:
 - a. Completion of *all* prerequisites with a minimum grade of C (CR grades are not accepted).
 - b. GPA of 2.5 or above in *all* prerequisites.
 - c. Only one repeat per course allowed to improve grade.
3. Selection of admission to major:
 - a. Recent California veterans who are admissible to the university and meet minimum enrollment requirements (2b. above).
 - b. Remaining qualified applicants will be ranked according to:
 - GPA of completed prerequisites
 - Prerequisites completed without repetition by document deadline
 - Underrepresentation in nursing (African American, Asian American, Hispanic American, Native American, male)
 - First reapplication, if applying for immediate subsequent semester
4. Application dates:
 - Fall Admission: November 1-30; document deadline, February 1.
 - Spring Admission: August 1-30; document deadline, September 15.

Note: Students who have been admitted to the major, have made no arrangements with the department, and fail to attend the first day of class will be dropped from the major and not considered for future admission.

Policies and Procedures for Direct Transfer into the Nursing Major

1. Students must have completed at least 2 semesters or 12 semester units of nursing courses in the major (all other students must follow the admission procedures for basic or advanced placement majors).
2. Students must submit all transcripts, course descriptions of nursing courses,

and two letters of recommendation from their current school to be considered for transfer.

3. Students must meet all CSU Fresno criteria for admission and continuation in the major to be eligible for transfer.
4. Students are admitted and placed in the major at the discretion of the department chair.
5. Transfer students who have written notification of acceptance into the program enter the major on a space-available basis and must receive department permission to enroll in classes.

Leave of Absence from Nursing Program

1. Request for leave of absence:
 - a. Students must request a leave of absence (LOA) in writing from the department chair. Students who don't request a LOA may not be readmitted into the major.
 - b. Leaves will be granted only for students who have completed at least one semester in the program and are in good standing.
2. Request to return from leave of absence:
 - a. Students must request in writing to be reinstated in the program specifying:
 - Date of LOA
 - Reason for LOA
 - Disposition of circumstances requiring the LOA
 - Activities (e.g., working in hospital) engaged in during LOA
 - b. Students will be notified in writing of requirements for returning to program, denial, or reinstatement.
 - c. Requirements for return may include any or all of the following, based on the discretion of the department chair:
 - Letters of recommendation from individuals such as counselors or physicians
 - Enrolling in up to 5 units of Independent Study to update theoretical and/or clinical skills
 - d. Students who receive written notice of reinstatement in the major return on a space-available basis and must receive permission from the department to enroll in classes.

Physical Education and Human Performance

See Page 400

COURSE
Individual Activities (PE AC)

130. Intermediate Golf (2)
(Approximate course fee, \$50) (Fee change.)

Physical Therapy

Published in its entirety due to extensive changes

Physical therapy is a health profession that is involved with restoration of function of persons who have suffered loss or disturbance of locomotion due to disease or injury to the neurological, musculoskeletal, cardiopulmonary, and integumentary systems. The physical therapist, through evaluation and treatment planning, utilizes physical agents, heat, light, electricity, ultrasound, and a variety of therapeutic exercise techniques to bring about physical restoration of function.

The Bachelor of Science degree in Physical Therapy provides the student with a liberal arts foundation integrated with professional coursework designed to provide understanding of basic skills needed to perform direct patient care in a variety of practice settings. After successful completion of the postbaccalaureate internship, the student will be eligible to seek a license to practice physical therapy in the state of California.

Faculty and Facilities

The physical therapy bachelor's program consists of eight faculty, each of whom has special expertise in major areas of physical therapy. The curriculum design is a regional integrated approach to patient management with special emphasis on problem solving. Clinical laboratory experiences are conducted in a variety of clinical facilities throughout the state of California. Internships are available in selected facilities throughout the state.

The Physical Therapy Program is a popular major and receives more applicants than can be accommodated. The program accepts 40 students in the fall of each year. Class size is limited due to the clinical component of the program curriculum and by accreditation standards. Therefore, the program has supplemental criteria for selection into the major. These criteria appear on the next page.

Career Opportunities

Physical therapists work in a variety of settings, including hospitals, rehabilitation centers, private practices, extended care facilities, home health agencies, public and private schools for the handicapped, and sports medicine clinics. Recent studies indicate that the current manpower shortage will continue and that there will continue to be a strong job market for physical therapists. The starting salaries and opportunities are very good.

General information about the Physical Therapy Program can be obtained from:

Admissions Office
Physical Therapy Clerk
California State University, Fresno
5150 N. Maple Avenue
Fresno, California 93740-0057
(209) 278-6079

Bachelor of Science Degree Requirements

| <i>Physical Therapy Major</i> | <i>Units</i> |
|---|--------------|
| Major requirements | 43 |
| Clinical Sciences — Ph Th 120, 121, 123, 124, 125, 126, 127, 128, 130, 131, 132, 133, 134, 142, 151, 152 | |
| Prerequisite requirements | 43 |
| (Prephysical therapy preparation) | |
| Natural Sciences | |
| Chem 1A, 1B or 3A, 3B; Phys 2A, 2B; H S 92 | 19 |
| Biological Sciences | |
| PhyAn 64, 65, 130, 140 | 15 |
| Behavioral Sciences | |
| Psych 10, 166; Ph Th 110 | 9 |
| General Education | 42 |
| Including CAPSTONE, see Note 2. | |
| Total | 128 |

Postbaccalaureate Certification

(units are not applicable toward the B.S. degree) Ph Th 175

Advising Notes

1. Nine units of the 43 prerequisite courses may be used to satisfy both General Education and prerequisite requirements concurrently. As a result, if courses are taken judiciously, the minimum unit requirement for the physical therapy major is 128 units.
2. All General Education requirements including CAPSTONE and upper-division writing skills must be met prior to selection into the physical therapy major.
3. Some physical therapy courses may be offered CR/NC.

4. General Education prerequisite requirements and elective units also may be used toward a dual major or minor. (See *Dual Major* or departmental minor.) Consult the appropriate department chair, program coordinator, or faculty adviser for further information.

Supplemental Criteria for Selection into the Major

An application for admission to the university must be completed to determine the student's eligibility. A separate application with observation documentation must be submitted to the Admissions Office on or before December 1 for consideration into the program for the following year. All required prerequisites must be completed by the end of the spring semester 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 are reviewed by the screening committee:

1. The student must apply to the university.
2. Completion of the prerequisite units as listed above.
3. A grade of C or better in each prerequisite and a total prerequisite GPA of 3.0 is required. An overall GPA of 2.5 is required. CR/NC grades, correspondence courses or independent study courses cannot be used for prerequisite requirements. Only those prerequisite courses completed by the end of the fall semester in which application is made will be counted toward ranking of candidates for selection into the major.
4. Completion of General Education requirements.
5. Evidence of knowledge of physical therapy through employment, volunteering, or observation in a physical therapy department for a minimum of 100 hours. Fifty hours must be in a general acute care setting; 50 hours may be in a special area of practice. All observation hours must be under the supervision of a licensed physical therapist.
6. Participation 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 are 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, must purchase an appropriate laboratory coat, and must provide their own transportation to hospitals and clinics for off-campus classes and clinical laboratories. Additional laboratory fees may be required. Students must also provide for all expenses while taking the postbaccalaureate clinical internship. Expenses include student fees, housing, meals, and travel. For a supplemental application form, write to the Admissions Office, California State University, Fresno; 5150 N. Maple, Fresno, California 93740-0057 and include a stamped, self-addressed legal size envelope for requested return information.

COURSES

Physical Therapy (Ph Th)

105. Medical Terminology for Health Professionals (2)

Recommended for physical therapy majors, but open to all students. Study of word parts, definitions, spelling, analysis, synthesis, and use of medical vocabulary.

110. Patient Advocacy for Health Practitioners (3)

Prerequisite: Psych 10. May be taken concurrently with Psych 166. Recommended for health professions students, but open to all students. Exploration of psychosocial and cultural considerations and community resource management for persons with physical impairment. (Former HSW 101)

120. Professional Orientation (1)

An introduction to the professional practice of physical therapy, including roles and functions within the health care delivery system and professional responsibilities.

121. Patient Management Skills (3)

Selected theory and clinical application of therapeutic modalities and procedures in the treatment of physical disabilities, including physical agents, exercise, and massage. (2 lecture, 3 lab hours)

123. Introduction to Supervision for Physical Therapy Services (1)

Prerequisite: Ph Th 120. Principles of delegation of duties in provision of physical therapy services. Study of the role of the

staff therapist in provision of health care services. (Former Ph Th 143)

124. Research Methods in Physical Therapy (2)

Prerequisite: H S 92 or Math 11. Study of research design and critical reading of research literature.

125. Applied Human Anatomy of the Musculoskeletal System (4)

Prerequisite: PhyAn 64, 65. Study of the structure and function of the neuromusculoskeletal systems with emphasis on surface, muscle anatomy and joint anatomy, nerve and blood supply. Includes dissection lab and prosected materials. (3 lecture, 3 dissection lab hours)

126. Applied Pathophysiology (4)

Prerequisite: PhyAn 64, 65. Advanced study of physiology of body systems and responses to normal aging, environmental influences and pathological dysfunction, including cardiovascular, pulmonary, endocrine, and integumentary systems. Includes dissection lab and prosected materials. (3 lecture, 3 dissection lab hours)

127. Neuromuscular Processes in Human Development and Aging (3)

The study of human development from birth to senescence with focus on concepts of motor and neurological development processes integral to evaluation and treatment intervention in neurological disability. (2 lecture, 3 lab hours)

128. Applied Human Anatomy and Biomechanics of the Neuromusculoskeletal System (2)

Prerequisite: Ph Th 125. Open to physical therapy majors only. Study of the structure, function and biomechanics of neuromusculoskeletal systems with emphasis on joints, spine, and gait. Includes dissection lab and prosected materials. (1 lecture, 3 dissection lab hours) (Former Ph Th 116)

130. Evaluation and Clinical Management of Musculoskeletal Conditions I (4)

A study of musculoskeletal disabilities with emphasis on evaluation techniques, methods of therapeutic intervention, and program planning. Includes selected lectures by medical practitioners in the medical-surgical management of orthopedic conditions. (3 lecture, 3 lab hours)

131. Evaluation and Clinical Management of Musculoskeletal Conditions II (4)

Prerequisite: Ph Th 130. A continuation of Evaluation and Clinical Management of

Musculoskeletal Conditions I. (3 lecture, 3 lab hours)

132. Evaluation and Clinical Management of Neurological Systems I (3)

A study of neurological disabilities in therapeutic intervention and program planning. Includes selected lectures by medical practitioners in the medical-surgical management of neurological conditions. (2 lecture, 3 lab hours)

133. Evaluation and Clinical Management of Neurological Systems II (3)

Prerequisite: Ph Th 132. Continuation of Evaluation and Clinical Management of Neurological Systems I. (2 lecture, 3 lab hours)

134. Evaluation and Clinical Management of Selected Body Systems (3)

Evaluation and therapeutic intervention in the clinical management of normal and pathological conditions of the cardiopulmonary and other selected body systems. (2 lecture, 3 lab hours)

142. Concepts of Patient Compliance (3)

Study of theories and concepts which influence patient management effectiveness and compliance.

151. Clinical Lab I (1)

Prerequisite: Ph Th 121. Clinical experience under the direct supervision of academic faculty in selected hospitals. CR/NC grading only.

152. Clinical Lab II (2)

Prerequisite: Ph Th 151. The application of physical therapy skills and procedures in selected hospitals. CR/NC grading only.

175. Postbaccalaureate Clinical Internship (12)

Prerequisite: Ph Th 152. Final clinical experience for majors. The internship is 18 weeks of clinical experience at selected hospital settings throughout the state. Certification of internship completion is required before the graduate is eligible to take the state examination for licensure. CR/NC grading only.

180T. Topics in Physical Therapy (1-3; max total 12 if no topic repeated)

Prerequisite: permission of instructor. Advanced techniques in physical therapy and new trends relating to the care of patients.

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

See *Academic Placement — Independent Study*. Approved for SP grading.

Physics and Physical Science

Bachelor of Arts in Physical Science/Waiver Program

Pending approval of appropriate campus committees, the Office of the Vice President for Academic Affairs, and the Chancellor's Office, the School of Natural Sciences hopes to offer a new degree program, the B.A. in Physical Science, beginning Fall 1992. This program will offer students a program of study leading to a broad background in the physical sciences as well as significant depth (emphasis) in one of those sciences. The program is designed for students seeking a teaching credential in physical science but offers an excellent opportunity for other students whose breadth of interest matches the program. Any of the four emphases in the new degree program—chemistry, earth sciences, physics, or physical science—should provide more than adequate preparation for the National Teachers Exam in Physical Science (NTE). The Physical Sciences Waiver Program requirements, the set of courses required for satisfaction of subject matter competency without taking the NTE, differ only slightly from the requirements for the degree. To receive more information, contact the office of the Dean of Natural Sciences, (209) 278-3936.

Political Science

See Page 413

In the degree requirements for the Political Science Major and the Public Administration Major, two changes have been made to accommodate the senior major requirement. With the addition of PI Si 193, the "major requirements" have been increased by 3 units for a total of 39 units, and the "electives" have been decreased by 3 units for a total of 34 units.

See Page 414

The following information supplements catalog copy on admission standards for the M.A. in International Relations:

Requirements for the Master of Arts in International Relations

Admission to the program is open to all graduates of a duly accredited college or university who meet the requirements for admission (see *Admissions*). Students with background deficiencies in political science usually may remedy these through a few upper-division political science courses selected by the program adviser. Any prerequisites required by extra-departmental

courses must also be fulfilled unless waived by the department or program concerned.

Admission. Applicants may qualify for admission to the program courses by achieving classified graduate standing. Classified standing requires:

1. An acceptable baccalaureate degree from an institution accredited by a regional accrediting association;
2. Good standing at the last college attended;
3. Submission to the university of transcripts of college work; scores from the Graduate Record Examination Aptitude Test (GRE); a written statement indicating why the applicant wishes to pursue the M.A. degree; and three letters of recommendation;
4. Recommendation for admission by the Admissions Committee of the Graduate Program in International Relations. Candidates will be recommended on the basis of the promise they show for successfully completing the program. Candidates will be evaluated using a combination of:
 - a. grade point average (those with averages of less than 2.8 overall or 3.0 on the last 60 semester units attempted must have compensating strength in other areas);
 - b. aptitude for academic work (those with scores of less than 500 on either the verbal or quantitative part of the GRE must have compensating strength in other areas); applicants whose native language is not English must also achieve a minimum score of 570 on the Test of English as a Foreign Language;
 - c. evaluation of the applicants written statement and letters of recommendation.

See Page 416

Graduate Program in City and Regional Planning

No new admissions to the MCRP degree program will be accepted for Academic Year 1992-93. The Master of Public Administration degree with a specialization of 12 or more units in City and Regional Planning is recommended as an alternative.

Psychology

See Page 424

COURSE

Psychology (Psych)

42. Introductory Statistics (4)

Prerequisite: Students must take the ELM

exam; students who do not pass the exam must record a grade of C or better in a college-taught intermediate algebra course.

See Page 426

GRADUATE COURSE

Psychology (Psych)

231. Ethics in Psychology (3)
(Same as A Eth 200.) (Unit change.)

Recreation Administration and Leisure Studies

See Pages 430 and 431

COURSES

Recreation and Leisure Studies (RLS)

142. Foundations of Therapeutic Recreation Service (3)
(Former Rec 165; RLS 165) (Number change.)

144A. Methods in Therapeutic Recreation (3)
Prerequisite: RLS 142. (Former Rec 166; RLS 166) (Number, prerequisite change.)

144B. Facilitation Techniques in Therapeutic Recreation (3)
Prerequisite: RLS 142; RLS 144A concurrently. (Former Rec 166L; RLS 166L) (Number, title, prerequisite change.)

192T. Topics in Recreation Administration (1-3; max total 8 if no topic repeated) (Unit change.)

Speech Communication

See Page 441

In the degree requirements for the Speech Communication Major, two changes have been made to accommodate the senior major requirement. With the addition of Spch 190 (2 units) and Spch 199 (1 unit) added to the major, the upper-division electives have been decreased from 6 units to 3 units.

NEW COURSES

Speech Communication (Spch)

147. Contemporary Protest Rhetoric (3)
Examination and analysis of communication and rhetoric in significant contemporary protest movements in the United States. Includes an investigation of rhetorical theories and practices of protest organizations and control agencies. Analysis of strategies, outcomes, and implications that influenced American culture will be reflected in assignments and activities. (Former Spch 188T section)

150. Communication and Aging (3) (Same as Geron 150.) Focusing on the communication aspects of the aging process, organized around the major communication components of intrapersonal, interpersonal, and mass communication with addition of such topics as attitudes, stereotypes, nonverbal, and the communication aspects of health care. (Former Spch 188T section)

Theatre Arts — Drama and Dance

See Page 450

In the degree requirements for the Theatre Arts Major, the major requirement for Drama 15 and/or Drama 115 has been reduced by 2 units to accommodate the 2-unit requirement for Drama 117, the senior major requirement.

In the degree requirements for the Dance Option, Drama 15 and 115 (4 units) have been replaced by Dance 115 (2 units) and Dance 119, the senior major requirement (2 units).

NEW COURSE

Dance (Dance)

115. Dance Laboratory (1; max total 9)
Group laboratory experience in presentation of productions for public performance. Not available for CR/NC grading.

Women's Studies

See Pages 454 and 455


COURSES

Women's Studies (W S)

12. Critical Thinking About Sex and Gender (3)
(New General Education CORE, Critical Thinking course.)

195. Diversity in the United States: Race and Gender Issues (3)
(See CLS 195.) (Former Eth S 195) (Prefix, title change.)


Division of Graduate Studies and Research

 The following information supplements catalog copy on Admission Test Scores in the Division of Graduate Studies and Research section:

Admission Test Scores Required with Application to Graduate Degree Programs. Those intending to apply to a CSUF master's degree program to begin graduate studies in the Fall 1992


semester are required to submit appropriate admission test scores with the University Application to Graduate/Postbaccalaureate Studies. Admission to either conditionally classified or classified standing will require submission of scores on the Graduate Record Examination (GRE) Aptitude Test, or for accountancy and business students, the Graduate Management Admission Test (GMAT). Applicants for admission to the agricultural business and MPA programs may submit either GRE or GMAT scores. For application information to the GRE, visit the Graduate Office in Thomas Administration 132. GMAT information is available in the School of Business and Administrative Sciences Graduate Office in Peters Building 183.

University Administration and Policies

 The following information replaces catalog copy on page 476:

Advisory Board

- Donald H. Bruegman
- Sidney B. Cox, Chair
- Rutherford B. Gaston, Vice Chair
- Mildred Huddleston
- Lawrence Jones
- Sister Ruth Marie Nickerson
- Armando O. Rodriguez
- Donald J. Schafer
- Rose Shamlin
- Gerald L. Tahajian
- Ernest E. Velasquez
- John D. Welty
- Daniel K. Whitehurst

 The following information reflects changes in catalog copy, page 480, in the University Administration and Policies section:

Nondiscrimination Policy

Inquiries concerning the application of Title IX to programs and activities of CSU Fresno may be referred to Affirmative Action Director Arthur V.N. Wint, University Cafeteria 201, phone (209) 278-2364; Vice President and Dean of Student Affairs William H. Corcoran, Joyal Administration Building, Room 224, phone (209) 278-2541; Auxiliary Services Director Gaylord O. Graham, 2771 E. Shaw, phone (209) 278-2574; or the Office for Civil Rights, Region IX, Old Federal Building, 50 United Nations Plaza, Room 239, San Francisco, California 94102, phone (415) 556-7000.

California State
University, Fresno

A campus of The California State University