MISSION STATEMENT

The College of Arts and Sciences is a scholarly community committed to providing comprehensive, high quality education for students in a rapidly changing world. We provide a supportive teaching and learning environment where diversity is fundamental to the achievement of excellence. Integral to the college instructional mission is the generation of new knowledge through research and creative activity. We value disciplinary and interdisciplinary instruction that employs new technologies and integrates ideas across intellectual boundaries. The College is committed to mutually beneficial partnerships with local and global communities.

ABOUT THE COLLEGE

The College of Arts and Sciences at CSU San Marcos is home to the fundamental academic disciplines in the liberal arts and sciences.

Complementing its strong academic discipline offerings, the college also offers students a coordinated General Education Program designed to broaden basic knowledge and skills, "The San Marcos Experience." In addition to undergraduate coursework, the college offers graduate studies in several disciplines. The curriculum of the college is crafted to weave its commitment to diversity, interdisciplinary study, international perspectives, technology, and community partnerships into the fabric of all of its academic programs.

The college faculty and staff are dedicated to excellence in teaching, research/creative efforts, and service. Students can expect a supportive learning atmosphere to pursue their studies, primarily in small classes, which provides rich opportunities for interaction, discovery, and cooperative learning. The college encourages student learning across traditional academic disciplinary boundaries and active exploration of new teaching and learning strategies.

Graduates of the college are well-prepared for a variety of careers, or for graduate study leading to advanced academic and professional degrees. Our courses teach students how to write, to analyze, and to think creatively and critically. The college offers students the opportunity to master new technologies for application to a range of challenges. In addition, students develop language skills and cultural sensitivity designed to prepare them for life in a globally interdependent 21st Century society.

THE COLLEGE OF ARTS AND SCIENCES OFFERS COURSES IN THE FOLLOWING AREAS, AND THE DEGREES INDICATED:

Discipline	Course Prefix	Undergraduate Programs	Graduate Programs
Anthropology	ANTH	Minor	
Biological Sciences	BIOL	Minor, BS	MS
Chemistry	CHEM	Minor, BS	
Communication	COMM	Minor, BA	
Computer Science	CS	Minor, BS	MS
Criminology and Criminal Justice	*See Note 1*	Minor	
Dance	DNCE	*See Note 4*	
Economics	ECON	Minor, BA	
Earth Science	ES		
Film Studies	FMST	Minor	
Foreign Languages	FLAN		
French	FREN		
General Education	*See Note 2*		
Geography	GEOG		
German	GRMN		
History	HIST	Minor, BA	
Human Development	HD	BA	
Humanities	HUM		
Interdisciplinary Studies	ID		
Japanese	JAPN		
Liberal Studies	LBST	BA	
Linguistics	LING		
Literature and Writing Studies	LTWR	Minor, BA	MA
Mathematics	MATH	Minor, BS	MS
Music	MUSC	*See Note 4*	
Philosophy	PHIL		
Physical Education	PE		
Physics	PHYS		
Political Science	PSCI	Minor, BA	
Psychology	PSYC	Minor, BA	MA
Social Sciences	*See Note 3*	Minor, BA	
Sociological Practice	*See Note 1*		MA
Sociology	SOC	Minor, BA	
Spanish	SPAN	Minor, BA	MA
Special Major	*See Note 3*	BA	
Theatre Arts	TA	*See Note 4*	
Visual and Performing Arts	VPA	Minor, BA	
Visual Arts	VSAR	*See Note 4*	
Women's Studies	WMST	Minor, BA	

Note 1: Courses for the Minor in Criminology and Criminal Justice and the MA in Sociological Practice are offered by the Sociology Program, and use the SOC course prefix.

Note 2: General Education courses are offered under several different course prefixes. See the description of the General Education Program (The San Marcos Experience) in Section J.

Note 3: An interdisciplinary degree program in which coursework for the major is taken in at least two different disciplines.

Note 4: See the BA degree program and the Minor in Visual and Performing Arts.

CONTACT INFORMATION FOR COURSES IN AREAS WITHOUT DEGREE PROGRAMS

Discipline	*Course Prefix*	*Contact Person or Program*
Dance	DNCE	Visual and Performing Arts Program Director
Earth Science	ES	Chemistry Department Chair
Foreign Languages	FLAN	Spanish/Foreign Languages Program Director
French	FREN	Spanish/Foreign Languages Program Director
General Education	GEH, GEL, GEM, GEO, GES, GESS, GEW	General Education Coordinator
Geography	GEOG	Liberal Studies Department Chair
German	GRMN	Spanish/Foreign Languages Program Director
Humanities	HUM	History Department Chair
Interdisciplinary Studies	ID	(for most courses) Liberal Studies Department Chair
Japanese	JAPN	Spanish/Foreign Languages Program Director
Linguistics	LING	Liberal Studies Department Chair
Philosophy	PHIL	Michael McDuffie, Ph.D.
Physical Education	PE	Office of the Dean, College of Arts and Sciences
Physics	PHYS	Graham Oberem, Ph.D.

Academic Major Advising

Advising in the College of Arts and Sciences is provided by faculty who teach in each discipline. Each academic major may vary in how students are assigned to faculty advisors. Students should consult with the Program Director regarding their particular field of study (Liberal Studies students are advised by the Liberal Studies advisors, located in CRA 6202). The Assistant Dean for Advising Services is located in CRA 6218.

Graduation Advising

The College of Arts and Sciences provides a Graduation Advisor (CRA 6204) to help students understand the requirements and process for graduation. The advisor also works with undeclared major students, students considering a change of academic major, and students with other general questions.

Peer Advising
http://www.csusm.edu/A_S/Academic_Advising

The College of Arts and Sciences provides trained peer advisors to provide students with information about academic advising and other University services. Peer advisors are located on the sixth floor of Craven Hall outside the advising offices and on the third floor in the Lower-Division Advising Center. Students are invited to utilize this resource.

PRE-PROFESSIONAL PREPARATION

Pre-professional Planning

Careers in Health

CSUSM offers prerequisite courses and advising for a variety of health careers including medicine, dentistry, chiropractic, pharmacy, veterinary medicine and other health professions. Students planning for careers in the health professions should regularly consult with the Health Professions Advisor, CRA 6205, as well as faculty advisors. The Health Professions Advisor also has information for students interested in the mental health professions.

Regardless of their major, all pre-health students will need to complete a range of lower-division courses in biology, chemistry, mathematics, and physics. Pre-health students should consult with the Health Professions Advisor and faculty advisors about choice of major and academic planning. Also, it is highly recommended that pre-health students complete courses in the humanities and behavioral sciences (e.g. sociology, psychology, anthropology). Pre-health students are also encouraged to take Service-Learning courses and engage in a variety of volunteer/community service activities. Professional schools do vary with respect to the specific courses they expect applicants to have completed. It is the responsibility of the student to carefully check in advance the requirements and prerequisites of all professional schools they are considering and to take this into account when selecting courses.

The Health Professions Advising Office houses a number of publications conveniently listing the specific requirements of many professional schools in the U.S. and Canada.

The following is a menu of lower-division CSUSM science and mathematics courses recommended for pre-chiropractic, pre-dental, pre-medical, pre-optometry, pre-osteopathic, pre-pharmacy and pre-veterinary students. It may not be necessary to take all of the recommended courses listed below. Other courses not listed may also be required. Which courses you do complete will depend upon the health profession you have chosen and the prerequisites of the specific professional schools to which you will be submitting an application. Students planning careers in other health professions may also use this list as a guide for selecting science and mathematics courses.

Recommended Science and Mathematics Courses for Pre-health Students

BIOLOGY
BIOL 210

CHEMISTRY
CHEM 150, 211, 201, 201L, 202, 202L, 250

MATHEMATICS*
MATH 160

PHYSICS**
PHYS 101, 102
OR
PHYS 201, 202, 203

**Students lacking the prerequisite for MATH 160 should consult an academic advisor as soon as possible to determine which prerequisite math courses they need to complete before enrolling in MATH 160. All students are required to complete the Entry Level Mathematics (ELM) requirement within one year of beginning coursework at CSUSM.*
***The 200 level physics course sequence requires additional math courses (MATH 162 and MATH 260).*

Pre-law Advising

CSUSM offers undergraduate courses related to law. Students interested in applying to law school should note that law schools do not require any particular majors or prerequisites. However, several departments at CSUSM offer undergraduate courses related to law. Students seeking advice on preparation for law schools should consult with their departmental advisor. Students also may want to visit the pre-law website: *http://www.csusm.edu/public/sbeavers/prelaw.html*

TEACHER PREPARATION

CSUSM offers several state-approved Subject Matter Preparation Programs. Completion of a Subject Matter Preparation Program is one way to demonstrate the subject matter competency necessary for admission to a Teacher Credential Program. Single Subject Matter Preparation Programs for potential junior high school and high school teachers are available in English, Mathematics, Social Science and Spanish. Students seeking to become elementary or middle school teachers may complete the Multiple Subject Preparation Program with a Liberal Studies major, by completing special tracks in the Human Development major and the Visual and Performing Arts major, or through some other major by combining specific Multiple Subject requirements with major requirements.

MINOR IN ANTHROPOLOGY

Office: Craven Hall, Sixth Floor

Telephone: (760) 750-4104

Faculty: Bonnie Bade, Ph.D.

Program Offered:

- Minor in Anthropology

The Anthropology Minor at California State University San Marcos provides students with opportunities to engage in interdisciplinary and integrated studies of human nature, society and culture. Employing the comparative, holistic, and evolutionary frameworks that are the hallmark of the anthropological perspective, the minor aims to provide students with theoretical and methodological perspectives that enable integrated understanding of human cultural achievements such as medicine, religion, mythology, migration, environmental adaptation, and technology. Rather than duplicating anthropology programs offered at other regional institutions that emphasize the four traditional subfields of anthropology – social/cultural anthropology, archeology, biological anthropology, and linguistic anthropology – the Anthropology Minor at CSUSM is unique in that it draws upon areas of specialization, such as medical anthropology, cultural ecology, Latin-American Studies, women's studies, art, ethnic studies, and border studies, that reflect the strengths of CSUSM scholars. Emphasis is placed on achieving an understanding of human behavior as influenced by the social, political, economic, and cultural contexts in which it occurs. A fundamental goal of the minor is to provide students with opportunities to engage in active, community-based ethnographic research that stimulates self-reflection and critical analysis of their own world view assumptions and cultural belief systems. The minor prepares students for careers that require multicultural and culture-sensitive perspectives such as social services, health and medical services, education, and civil services, and provides a balanced foundation in anthropological concepts for students wishing to attend graduate school.

Completion of twenty-one (21) units of credit, eighteen (18) of which must be at the upper-division level. Twelve (12) units must be completed at CSUSM, three (3) of which must be at the 400 level. Each course counted toward the minor must be completed with a grade of C (2.0) or better.

Preparation

High school graduates or equivalent are encouraged to seek diverse and broad exposure to all natural and behavioral sciences, social sciences, humanities, and interdisciplinary courses.

Transfer Students

Transfer students may transfer a maximum of nine (9) units, three (3) of which may be at the lower-division level.

Lower-division (3)	**Units**
ANTH 200	3

Upper-division (15)	**Units**
Twelve (12) units selected from:	
ANTH 301	3
ANTH 302	3
ANTH 310	3
ANTH 315	3
ANTH 325	3
ANTH 330	3
ANTH 370	3
Three (3) units selected from:	
ANTH 498	1-3
ANTH 499	1-3
Three (3) units of electives that examine health, culture, gender, ethnicity, mythology, religion, art, community, environment, or Latin America. Chosen in consultation with an advisor.	
Total Units	21

THIS PAGE
INTENTIONALLY LEFT
BLANK ...

BIOLOGICAL SCIENCES

Office: Craven Hall, Sixth Floor

Telephone: (760) 750-4103

Program Director:
Richard Bray, Ph.D.

Faculty:
Richard N. Bray, Ph.D.
Barbara S. Chapman, Ph.D.
Larry W. Cohen, Ph.D.
Victoria J. Fabry, Ph.D.
Denise Garcia, Ph.D.
Brian J. Norris, Ph.D.
Betsy Read, Ed.D.
Margaret Roark, Ph.D.
Victor Rocha, Ph.D.
George L. Vourlitis, Ph.D.
Thomas M. Wahlund, Ph.D.

Instructional Support Technician:
Christina Wilde

Programs Offered:
- Bachelor of Science in Biological Sciences, Concentrations in:
  - Cell and Molecular Biology
  - Ecology
  - General Biology
- Minor in Biological Sciences
- Master of Science in Biological Sciences

Biology is the study of living processes from the interaction of species with each other and their environment to the operant molecular mechanisms. The CSU San Marcos Biological Sciences Program presents a broad program of courses that deal with life on the ecosystem, population, organismal, and molecular levels. One common principle that extends throughout our curriculum is that biological processes should ultimately be biochemically explainable and mathematically describable. Life is a complicated series of chemical reactions and interactions, and we seek to understand the relationship of organisms to each other, to their environment, and within themselves in biochemical terms. Biological Sciences majors may choose between: 1) a general concentration, 2) a cell and molecular concentration, or 3) an ecology concentration. The general concentration provides wide exposure to the range of biological sciences while the cell/molecular and ecology concentrations offer majors the opportunity to focus their studies. With appropriate choice of biological sciences electives and General Education electives, graduates can meet the requirements of admission to graduate, medical, dental, optometry, veterinary, and other professional schools.

Modern biological science has progressed from the purely analytical to now include manipulative capability. Recombinant DNA techniques enable the investigator to generate specified changes in components of organisms for the purpose of better understanding some process, and in some cases to introduce new traits that will be of practical usefulness to society. The CSUSM program in biological sciences exposes students to cloning techniques, illustrates the techniques involved as part of the student's general education, and trains students for research positions.

Society is the beneficiary of modern technology and is also at its mercy. Products of the industrial process and of our use of natural resources can perturb the dynamic balance in the environment, and by leading to the extinction of species, reduce the diversity of living forms. The CSU San Marcos Biological Sciences Program addresses fundamental problems in the ecological and environmental sciences.

The Biological Sciences Program has well-equipped, modern laboratories. The academic atmosphere is enriched by a close faculty/student interaction (reminiscent of the better, small liberal arts colleges), and by numerous field trips to research facilities and sites in the area. Students receive training that will enable them to gain rewarding employment in a number of areas, including teaching, research, the health sciences, biotechnology, ecology, and environmental science.

Preparation

First-time freshman applicants must complete, with a grade of C or better, a comprehensive pattern of college preparatory study totaling 15 units. For more details, see the section on Admission Policies.

Transfer students entering the program at the junior and senior levels will be expected to have completed the equivalent of lower-division requirements elsewhere during their first two years, including four semesters of chemistry, two semesters of physics, and two semesters of college-level calculus or one semester of calculus and one semester of statistics.

Pre-health professions students (pre-chiropractic, dental, medical, optometry, osteopathic, pharmacy, and veterinary) are recommended to take BIOL 210, 211, 351, 352, 353, two semesters of physics, and several chemistry courses (see the description for the Chemistry Program for additional information).

Special Conditions for the Bachelor of Science in Biological Sciences and the Minor in Biological Sciences

All courses taken for the major and the minor, including supporting courses, must be completed with a grade of C (2.0) or better. No more than a total of six (6) units of any combination of BIOL 489, BIOL 495 (3 units only), BIOL 496, BIOL 498, and BIOL 499 may be applied toward the major. A minimum of eighteen (18) units in biology must be completed at CSUSM.

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

	Units
Total Required	128
General Education*	48
Preparation for the Major*	32-33
Concentration Requirements	42
General Electives	0-6

**Nine (9) lower-division GE units in Area B (Math and Science) are automatically satisfied by combinations of CHEM 150, MATH 160, and BIOL 211 if taken in preparation for the major.*

Preparation for the Major

Non-Biology Supporting Courses (32-33 units)

	Units
CHEM 150	5
CHEM 201	3
CHEM 201L	2
CHEM 202	3
CHEM 250	3
MATH 160	5

Choose one of the following course sequences:

PHYS 101	4
PHYS 102	4
or	
PHYS 201	4
PHYS 202	4

Choose one of the following courses:

MATH 162	4
MATH 240	3
BIOL 360**	4

***BIOL 360 is highly recommended for biology majors in the ecology concentration.*

Cell and Molecular Biology Concentration Requirements

Lower-division (8 units)

BIOL 210	4
BIOL 211	4

Upper-division (34 units)

BIOL 351	5
BIOL 352	4
BIOL 353	4
BIOL 354	4

Choice of 2 courses (at least one must have a lab) 7-8
BIOL 368 and 368L
BIOL 370
BIOL 376
BIOL 377

Science Electives 9-10
Chosen with consent of advisor from upper-division biology excluding courses numbered BIOL 300 to BIOL 349. May include one chemistry course with consent of advisor.

Ecology Concentration Requirements

Lower-division (8 units)

BIOL 210	4
BIOL 211	4

Upper-division (34 units)

BIOL 351	5
BIOL 352	4
BIOL 353	4
BIOL 354	4

Choice of 2 courses (at least one must have a lab) 7-8
BIOL 360***
BIOL 362
BIOL 379
BIOL 387

****If not taken as a supporting course.*

Science Electives 9-10
Chosen with consent of advisor from upper-division biology excluding courses numbered BIOL 300 to BIOL 349. May include one chemistry course with consent of advisor.

General Concentration Requirements

Lower-division (8 units)

	Units
BIOL 210	4
BIOL 211	4

Upper-division (34 units)

BIOL 351	5
BIOL 352	4
BIOL 353	4
BIOL 354	4

Choice of 2 courses (at least one must have a lab) 7-8

Choice of one course:
BIOL 368 and 368L
BIOL 370
BIOL 376
BIOL 377

Choice of one course:
BIOL 360***
BIOL 362
BIOL 379
BIOL 387

****If not taken as a supporting course.*

Science Electives 9-10
Chosen with consent of advisor from upper-division biology excluding courses numbered BIOL 300 to BIOL 349. May include one chemistry course with consent of advisor.

MINOR IN BIOLOGICAL SCIENCES

Lower-division (16 units)

	Units
CHEM 150	5
CHEM 201	3
BIOL 210	4
BIOL 211	4

Upper-division (17 units)	Units
BIOL 351	5
BIOL 352	4
BIOL 353	4
BIOL 354	4

Total Units *33*

MASTER OF SCIENCE IN BIOLOGICAL SCIENCES

Graduate Advisor: Brian J. Norris, Ph.D.

The graduate program in biological sciences leads to a research-based Master of Science degree. The program provides the opportunity for participants to receive advanced training in biological sciences and to pursue independent research investigations in specialized areas of interest. Laboratory and/or field research is an integral component of the program, which emphasizes a "hands-on" approach with close faculty mentoring. The research experience also enables students to hone investigative skills relating to experimental design, implementation, data analysis, and interpretation. Another important feature of the program is the Teaching Assistantship requirement, which is designed to give students the opportunity to discuss and implement pedagogical strategies employed in science education.

Graduates with an M.S. in Biological Sciences will be prepared to continue study at the Ph.D. level, to successfully pursue careers in private industry or government affiliated labs, and to teach at the elementary, secondary, or community college level.

The graduate program in biological sciences fosters the integration of many disciplines. The wide range of faculty expertise and research interests enables the department to offer a curriculum that spans fields of molecular genetics and development, aquatic biology, evolution, ecology, physiology, biotechnology, microbiology, immunology, and molecular cell biology. Students may develop a program of courses and research tailored to their individual needs within the areas of faculty expertise. In addition, students may choose a research supervisor outside of the Biological Sciences Program, allowing them to pursue interdisciplinary studies, special field research, or industrial projects. Seminar courses focus on the primary literature and are presented as a forum for open interchange and dissemination of scientific knowledge.

Available programs in this degree cover a wide spectrum of biology and include both laboratory and field study. The department has sophisticated research laboratories equipped with state-of-the-art instrumentation. Facilities include a vivarium, greenhouse, tissue culture laboratory, scanning electron microscope, environmental growth chambers, a 21 foot boat, numerous aquaria, and equipment for radioisotope and modern molecular biology work. Excellent computer facilities are also available. The close proximity of the campus to marine, chaparral, and desert environments provides many opportunities for field studies.

This degree requires a thesis based on original scientific research. A list of research areas with the names of faculty specializing in these areas can be obtained from the Program Director.

Admission Requirements

The Program in Biological Sciences will consider applicants having the following qualifications:

1. The applicant must meet the general requirements for admission to graduate studies at CSU San Marcos. These are described in this catalog under Graduate Admission Requirements.
2. The applicant must have earned a bachelor's degree in the biological or related sciences, with minimum coursework and grade point requirements equivalent to the Minor in Biological Sciences at CSUSM.
3. The applicant must have maintained an undergraduate grade point average in all completed science and math courses of at least 2.75, or a grade point average of at least 3.0 in the last 35 semester units of science and math.

The Graduate Record Examination (GRE) Subject Test in Biology, or the Subject Test in Biochemistry, Cell, and Molecular Biology should be taken prior to applying to the program. Graduate students admitted without GRE subject test scores must take this examination by the end of their second semester in residence. Under normal circumstances, a minimally acceptable score on the GRE subject test would be above the 50th percentile.

All applicants, regardless of citizenship, who do not possess a bachelor's degree from a post-secondary institution where English is the principal language must take the combined Test of English as a Foreign Language (TOEFL) and the Test of Written English (TWE) examination. A minimum score of 550 on the TOEFL and a minimum of 4.5 on the TWE are required.

Application

All applicants must file a completed Graduate and Postbaccalaureate Admission form with the CSUSM Office of Admissions, and pay the

application fee. The following documents must be submitted directly to the Biological Sciences program secretary no later than February 15th for the following Fall semester:

1. A completed Biological Sciences Application Form, available from the Biological Sciences Program office. In addition to other information, this form requires a statement of educational and career goals.
2. Official transcripts of all college level academic work, including that done at CSUSM.
3. Official score reports of the GRE Subject Test in Biology or the GRE Subject Test in Biochemistry, Cell, and Molecular Biology, if taken. If applicable, scores for the TOEFL/TWE must be included.
4. Two letters of recommendation from persons familiar with the applicant's academic performance and potential for independent research.

Review and Acceptance

The Graduate Studies Committee will review all files received by the deadline, and either accept the applicant as a classified or conditionally classified graduate student or deny admission. All accepted students who expect to enroll in the following fall semester must schedule an interview during the week before the beginning of the semester with the faculty member identified in the acceptance letter. This interview will focus on counseling and orienting the applicant with special attention to any academic deficiencies.

Admission as a Classified Graduate Student

The Graduate Studies Committee will admit as a classified graduate student any applicant who has:

1. met all CSUSM and Biological Sciences Program prerequisites;
2. submitted GRE Subject Test scores at or above the 50th percentile;
3. submitted all required documents; and
4. obtained agreement of a Biological Sciences faculty member to serve as the chair of the student's thesis committee.

Graduate students admitted to classified status should meet with their thesis committee chairs to set up a program of study (see next page).

Admission as a Conditionally Classified Graduate Student

Applicants who fail to meet the criteria above for classified admission to the Program in Biological Sciences and who fall into one of the following four categories may be considered by the Graduate Studies Committee for admission as conditionally classified graduate students. These would include:

1. Applicants with course and/or unit deficiencies. The Graduate Studies Committee will determine the deficiencies of each applicant relative to the courses required for the CSUSM minor in Biological Sciences. The Committee will indicate which course(s) the applicant must take to make up those deficiencies. These courses are taken in addition to the minimum 30 units required for the Master of Science degree and may be included in the student's program of study. The applicant must make up all such deficiencies before attaining classified status.
2. Applicants with GPA deficiencies. An applicant with an undergraduate GPA in science and mathematics between 2.5 and 2.75 and a GPA in the last 35 semester units of science and mathematics courses between 2.75 and 3.0 may be admitted as a Conditionally Classified Graduate Student. The applicant must first obtain sponsorship from a faculty member in the Program in Biological Sciences who must indicate, in writing, to the Graduate Studies Committee a willingness to serve as the chair of the applicant's thesis committee and the reasons why the Graduate Studies Committee should admit the applicant. In addition, an applicant receiving Conditional classification must complete, with a grade of B (3.0), or better, three approved courses totaling at least nine units acceptable to the Graduate Studies Committee. These approved courses may appear on the student's graduate program of study. If the conditionally classified student receives less than a B (3.0) in any of the three courses, he or she will be disqualified from the Master of Science program.
3. Applicants who meet all prerequisites but who do not yet have chairs for their thesis committee. Each student must obtain a thesis committee chair and set up a graduate program of study by the end of the second semester in residence following admission to the Master of Science program. Students without a thesis committee chair and program of study cannot be advanced to candidacy and will be dropped from the program.
4. Applicants who have not taken the GRE subject test in Biology or Biochemistry, Cell and Molecular Biology, or who have failed to score at or above the

50th percentile. Applicants may be admitted as conditionally classified students prior to establishing minimally acceptable GRE subject test scores. Minimally acceptable scores would normally be at or above the 50th percentile. Students will be reclassified when evidence of acceptable GRE subject test scores is presented to the Graduate Studies Committee. Students failing to present such evidence by the end of their second semester in residence will be dropped from the program. Only in unusual situations will students with GRE Subject Test scores below the 50th percentile be allowed to continue.

Degree Requirements

The Master of Science degree requires a minimum of 30 semester units of study at the advanced level (500-698 courses). At least 15 and preferably 21 of these units must be in courses organized for graduate students (courses numbered 600-698). A maximum of six (6) units of Directed Studies (BIOL 697) and six (6) units of Thesis (BIOL 698) may be included in the 30 units required for the degree.

All of the following requirements must be met within five years to earn the degree of Master of Science in Biological Sciences at CSUSM:

1. Advancement to candidacy. In order to be considered for advancement, graduate students must have obtained approval of their program of study, have developed a thesis proposal, and have presented the proposal to their thesis committee. On approval of their thesis proposal, classified graduate students will be advanced to candidacy for the Master of Science degree.
2. A completed program of study. This program is composed of at least 30 units of graduate-level work including seven required courses and research, all of which must have been approved by the student's thesis committee and must have been completed with a GPA of at least 3.0.
3. Completion of a written thesis based on original field or laboratory research. This thesis must be approved by the student's thesis committee and defended in an oral presentation to the faculty and students of the Biological Sciences Program.
4. Completion of at least one semester as a teaching assistant. Because effective communication is important to success at the Master's level, the Program in Biological Sciences requires that a graduate student serve as a Teaching Assistant. Candidates who can demonstrate that this requirement would pose an undue hardship may petition the Graduate Studies Committee to waive this requirement.

Program of Study

Each graduate student must establish a specific plan (program of study) that will lead to fulfillment of requirements for the Master of Science degree. It must be approved before the student advances to candidacy. This program must contain at least 30 units of courses at the graduate level, of which at least 15 units (and preferably 21 units) are in 600-level courses, and the remaining 9-15 units are in 500-level courses. Additional courses for the area of study may be required. The program of study should be developed in consultation with the chair of the student's thesis committee with a focus on gaining depth of knowledge in a particular subdiscipline of biological science. Required courses are: Research Methods I and II (BIOL 610 and BIOL 611), Internship in Biology Instruction (BIOL 685), two seminars chosen from BIOL 560-566, Directed Studies (BIOL 697), and Thesis (BIOL 698). This plan should include a minimum of five (5) units of Directed Studies (BIOL 697) and at least five (5) units of Thesis research (BIOL 698). The program of study may include additional courses needed to satisfy prerequisites for classified status. The formal program of study must be submitted for approval to the student's thesis committee before the end of the second semester after admission to the program.

A typical full-time student, enrolled in nine (9) units per semester (see Academic Regulations/Student Course Load), is expected to complete his or her program of study after four semesters in residence. Units earned not in residence at CSUSM may not exceed six (6) and they must be approved by the student's thesis committee. Part-time students must complete their program of study within ten semesters in residence.

Advancement to Candidacy

To be eligible for advancement to candidacy for the Master of Science degree, a graduate student must have attained classified status and have constituted a thesis committee. Each student must obtain the permission of a tenured or tenure-track Biological Sciences faculty member to serve as the chair of his or her thesis committee. The thesis committee chair and student then recommend two additional members for the thesis committee. A student's research supervisor need not be a member of the CSUSM Biological Sciences faculty, but must be a member of the thesis committee. The Graduate Studies Committee must approve the composition of the student's committee. The thesis committee chair will assist the student in establishing a program of study and in developing a thesis research proposal. A formal written thesis proposal will be orally presented to the thesis committee no later than the beginning of the second year of full-time study, or after twelve (12) units of graduate coursework have been completed. The student will be advanced to candidacy after the official program of study has been approved by the thesis committee, the written thesis proposal has been presented, and the thesis committee has approved the proposal.

Continuation

Graduate students must maintain an overall GPA of 3.0 and earn at least a C (2.0) in each course, except those graded credit/no credit (see Academic Regulations/Definition of Terms). Students who are conditionally classified because of GPA deficiencies may not earn less than a B (3.0) in the courses on their approved list. Any student whose overall GPA falls below 3.0 for two semesters, or who receives more than three grades of C (2.0) or lower, will be dropped from the program. A full-time graduate student should be enrolled in at least nine (9) units per semester. Full-time students serving as teaching assistants or graduate assistants should be enrolled in at least six (6) units during the semester of service. Each student must present a formal thesis proposal no later than the beginning of the second full year of study, or after twelve (12) units of graduate coursework. In addition, except in unusual circumstances, a completed thesis must be submitted and defended not later than eight semesters following advancement to candidacy, and normally not later than five years after entry into the program. The student must be registered in BIOL 698 or 699 when the completed thesis is granted final approval.

Financial Aid

Several sources of financial aid are available to graduate students. Students are responsible for identifying other sources of aid, and may wish to consult with the Office of Financial Aid and Scholarship.

CHEMISTRY

Office: Craven Hall, Sixth Floor

Telephone: (760) 750-4103

Department Chair:
Paul G. Jasien, Ph.D.

Faculty:
Paul G. Jasien, Ph.D.
José A. Mendoza, Ph.D.
Karno Ng-Alston, Ph.D.
Michael H. Schmidt, Ph.D.
Jacqueline A. Trischman, Ph.D.
Steven C. Welch, Ph.D.

Instructional Support Technician:
Sally-Jo Divis

Programs Offered:

- Bachelor of Science in Chemistry
  Options in:
  - Biochemistry
  - Chemistry
  - Science Education
- Minor in Chemistry

CSU San Marcos offers a program of courses leading to a Bachelor of Science in Chemistry with options in Biochemistry, Chemistry, and Science Education. Chemistry is the study of matter and its changes. This includes everything in the universe from a simple hydrogen atom to very large replicating molecules in life processes. Chemistry is involved with the development of medicines that control and cure diseases; food through specific and safe agricultural chemicals; consumer products such as cleaners, plastics, and clothing; new methods of energy production, transfer and storage; new materials for electronic components; and new methods for protection and cleanup of the environment. Chemistry majors are needed to help solve some of society's most difficult technological problems through research, development, and teaching.

As an integral part of this program, each student is required to do a senior research project, thesis, and thesis defense. Also, each student will have the opportunity to flavor his or her degree in chemistry by taking advanced elective courses in analytical, inorganic, organic, physical, or biochemistry. With appropriate choices of chemistry and general education electives, graduates can meet the requirements for admission to graduate, medical, dental, optometry, pharmacy, veterinary, and other professional schools.

The goal of the Chemistry Program is to provide chemistry majors with the best education within the guidelines of the American Chemical Society. Each student will learn the basics of analytical, inorganic, organic, physical, and biochemistry, including the most recent technology in instrumentation. An atmosphere of small class size, close faculty/student interaction, and new facilities/equipment are some of the advantages of the Chemistry Program at CSU San Marcos.

Up to five (5) units of chemistry credit can be applied toward a B.S. degree in Chemistry (Chemistry, Biochemistry or Science Education options) at CSUSM for students who have successfully completed high school chemistry with a laboratory and who have successfully completed the Advanced Placement Test in chemistry. It is recommended that students with a score of 4-5 on the AP Test in chemistry and who have completed high school chemistry with a laboratory consider auditing CHEM 150 during the fall semester in preparation for CHEM 201/201L in the spring semester. It is recommended that students with a score of 3-5 on the AP Test in chemistry and who have completed high school chemistry without a laboratory take CHEM 150 during the fall semester in preparation for CHEM 201/201L in the Spring semester.

Preparation

All courses taken for the major must be completed with a grade of C (2.0) or better. Transfer students must complete a minimum of 24 hours counted toward the chemistry major at CSUSM.

BACHELOR OF SCIENCE IN CHEMISTRY

Chemistry Option

This option is for students wishing a broad training in the traditional areas of chemistry. This option is recommended for students wishing to enter a chemistry graduate program or seek a position in industrial chemistry.

	Units
General Education*	48
Preparation for the Major*	45-46
Option Requirements	40
General Electives	3
Total Required	*125*

**Up to nine (9) lower-division General Education units in Area B (Math and Science) may be satisfied by courses taken in preparation for the major.*

Preparation for the Chemistry Option

Non-Chemistry Supporting Courses (24-25 units)

	Units
CS 111* or CS 301*	3-4
MATH 160*	5
MATH 162*	4
MATH 260*	4
PHYS 201*	4
PHYS 202	4

Lower-division (21 units)

CHEM 150*	5
CHEM 201 & 202	6
CHEM 201L & 202L	4
CHEM 250	3
CHEM 275	3

**Some courses supporting the preparation or electives in the major may satisfy the Mathematics and Physical Science requirements of General Education. The courses fulfilling this double requirement are denoted by *.*

OPTION REQUIREMENTS

Upper-division (25 units)

CHEM 300	2
CHEM 351	3
CHEM 401, 402	6
CHEM 404	3
CHEM 405	2
CHEM 416	5
CHEM 498 or 499	4

Science Electives (15 units) Chosen from Biology and/or the following:

CHEM 351	3
CHEM 351L	2
CHEM 352	3
CHEM 305	3
CHEM 398	2
CHEM 399	2
CHEM 404L	2
CHEM 410	3
CHEM 412	3
CHEM 420	3
CHEM 490	3
CHEM 491	3
CHEM 492	3
CHEM 493	3
CHEM 494	3
CHEM 497	1

General Electives (4) units

Biochemistry Option

This option is for students who wish to emphasize the biological aspects of chemistry. This option is recommended for students wishing to attend graduate school in biochemistry, a health related professional school or seek a position in the biotechnology industry. CHEM 402 is highly recommended for students wishing to attend graduate school.

	Units
Total Required	125
General Education**	48
Preparation for the Major**	49-50
Option Requirements	39

***Up to 12 units in Area B (Math and Science) may be satisfied by courses taken in preparation for the major.*

Preparation for the Biochemistry Option

Non-Biology/Chemistry Supporting Courses (20-21 units)

	Units
CS 111*** or CS 301***	3-4
MATH 160***	5
MATH 162***	4
PHYS 201***	4
PHYS 202	4

Lower-division Biology/Chemistry (29 units)

BIOL 210***	4
BIOL 211***	4
CHEM 150***	5
CHEM 201 & 202	6
CHEM 201L & 202L	4
CHEM 250	3
CHEM 275	3

****Some courses supporting the preparation or electives in the major may satisfy the Mathematics and Physical Science requirements of General Education. The courses fulfilling this double requirement are denoted by ***.*

OPTION REQUIREMENTS

Upper-division Biology/Chemistry (31-32 units)

BIOL 351 or 355	5/4
CHEM 300	2
CHEM 351	3
CHEM 351L	2
CHEM 352	3
CHEM 401	3
CHEM 404	3
CHEM 416	5
CHEM 498 or 499	4

Upper-division Science Elective Units (7 units)

Science major courses in the natural or mathematical sciences, chosen in consultation with the academic advisor, will be used to meet this requirement.

Science Education Option

This option is for students who wish to seek training in Chemistry as well as pursue a career as a high school science instructor. (Evaluation of this option for a Single Subject Credential Waiver is currently under consideration.)

	Units
General Education*	48
Preparation for the Major*	43-55
Option Requirements	26
General Electives	8
Total Required	*125*

**Up to nine (9) lower division General Education units in Area B (Math and Science) may be satisfied by courses taken in preparation for the major.*

Preparation for the Science Education Option

Non-Chemistry Supporting Courses (34-35 units)

	Units
BIOL 210**	4
BIOL 211**	4
CS 111** or CS 301**	3-4
ES 101	3
ES 102	3
MATH 160**	5
MATH 162**	4
PHYS 201**	4
PHYS 202	4

Lower-division (21 units)

CHEM 150**	5
CHEM 201 and 202	6
CHEM 201L and 202L	4
CHEM 250	3
CHEM 275	3

***Some courses supporting the preparation or electives in the major may satisfy the Mathematics and Physical Science requirements of General Education. The courses fulfilling this double requirement are denoted by a **.*

Proficiency in Spanish is strongly encouraged for the Science Education option and can be included as part of the Humanities Requirement of the General Education Requirement.

OPTION REQUIREMENTS

Upper-division (20 units)

CHEM 351	3
CHEM 351L	2
CHEM 352	3
CHEM 398^	2
CHEM 401	3
CHEM 404 and 404L or CHEM 404 and 405 or CHEM 416	5
CHEM 499	2

^When topics relate and address scientific ethics.

Science Electives (6 units)

Science major courses in the natural or mathematical sciences, chosen in consultation with the academic advisor, will be used to meet this requirement.

General Electives (8 units)

MINOR IN CHEMISTRY

Requirements (20 units)

	Units
CHEM 150	5
CHEM 201 & 202	6
CHEM 201L & 202L	4
CHEM 250	3
CHEM 275	2

Choice of 8 additional units from the following:

	Units
CHEM 351	3
CHEM 351L	2
CHEM 352	3
CHEM 398	2
CHEM 399	2
CHEM 401	3
CHEM 402	3
CHEM 404	3
CHEM 404L	2
CHEM 405	2
CHEM 410	3
CHEM 412	3
CHEM 416	5
CHEM 490	3
CHEM 491	3
CHEM 492	3
CHEM 493	3
CHEM 494	3
Total Units	28

COMMUNICATION

Office: Craven Hall, Sixth Floor

Telephone: (760) 750-4104

Program Director:
G.H. (Bud) Morris, Ph.D.

Faculty:
Dreama Moon, Ph.D.
Michael Huspek, Ph.D.
Liliana Castañeda Rossmann, Ph.D.
G.H. (Bud) Morris, Ph.D.
Barry Saferstein, Ph.D.

Program Offered:
- Bachelor of Arts in Communication
- Minor in Communication

The undergraduate degree in communication is designed to provide students with a comprehensive knowledge of the nature of communication, its varied forms and uses, and its multiple effects within and across societies and cultures. This involves introducing students to the significance of communication within their own lives, and showing its relevance to the complex relationships they enter into as interpersonal and organizational actors, as representatives of one or more cultures, as consumers of mass-mediated information, and as interested citizens who may desire to influence the changing course of human affairs.

The undergraduate degree in communication has two emphases. First, students are expected to acquire some sophistication in being able to identify and utilize a range of communication theories and methods with the aim of sharpening and clarifying our ways of thinking about communication issues and problems. Second, and closely related, students are encouraged to develop critical descriptive and analytical skills and, where appropriate, to prescribe means of improving communication practices within interpersonal, institutional, and larger societal settings. To this end, theory and method are valued as essential tools of thought to assist in (1) judging whether contemporary communication processes are meeting adequately the needs of institutions and the people involved within them, (2) locating and identifying problems that may be bound up in communicative relations and processes, and (3) devising solutions or stratagems as means of effectively addressing those problems.

Career Opportunities

Communication is increasingly recognized as an extremely significant, multifaceted phenomenon that deserves our focused attention. There are at least three reasons for this need. First, the rapid development of complex technologies has increased the need for intense interactions among people from diverse cultures. This brings with it new challenges, as well as previously unimagined potentials with respect to what is to be gained from communicating across cultural boundaries, and as how we are best to go about doing it.

Second, as the world becomes more complex, the forms of communication needed to interact on numerous levels also become more complex. This is especially evident within contemporary institutions where gender, race, and social class differences must be negotiated on an ongoing basis through communication.

Third, with the emergence of the mass media and its increased presence and influence in our lives, it becomes essential that we learn how to analyze this complex institution in terms of its channels and messages. It is important to know the extent to which it offers reasonable access to diverse populations, its multiple effects upon cultures and the values that sustain them, and its potential as an instrument for effecting genuine societal change.

A communication degree increasingly offers interesting career possibilities in the areas of conflict mediation, community relations, advertising and market research, government, public affairs, business management, international trade, foreign service, teaching, and law. In addition, the fast-growing communication industry is very receptive to communication majors, as are private and public organizations and agencies which often hire communication majors as consultants and problem solvers.

Preparation

High school students should take four years of English, including composition. Social science and civics courses, including history and economics, are encouraged. A familiarity with computers is also desirable.

Transfer Students

Community college transfer students may transfer a maximum of six (6) lower-division units in Communication. Students must have earned a grade of C (2.0) or higher in the coursework to be counted for credit toward the major.

Requirements for the Major

To be counted toward the major, a communication course must be completed with a grade of C (2.0) or higher. A minimum of eighteen (18) units of upper-division credits must be earned at CSUSM.

No more than six (6) hours of independent study and/or internship may be applied toward the major. Independent study may be applied to field distribution requirements at the discretion of the instructor under whose supervision the student is doing the study. Internship does not count toward field distribution requirements but may be used as elective credit. Communication majors must complete nine (9) upper-division units selected from at least two of the social sciences.

BACHELOR OF ARTS IN COMMUNICATION

Graduation Requirements

	Units
General Education	48
Preparation for the Major	9
Major Requirements	39
General Electives	28
Total Required	*124*

Preparation for the Major

Lower-division (9 units)

	Units
COMM 100	3
COMM 200	3
PSYC 220 or SOC 201	3

(Other introductory statistics courses may be accepted upon approval of the communication advisor.)

Major Requirements

Upper-division (39 units)

	Units
COMM 300	3
COMM 330	3
COMM 360	3
COMM 390	3

Eighteen (18) additional upper-division units in at least two of the three areas of communication (Communication Theory and Methods; Communication, Culture and Social Context; Mass Communication) 18

Approved Electives (9 units)

Nine (9) units of upper-division courses selected from at least two of the social sciences 9

MINOR IN COMMUNICATION

Lower-division (3 units)

	Units
COMM 100	3

Upper-division (15 units)
Nine units selected from:

COMM 300	3
COMM 330	3
COMM 360	3
COMM 390	3

Six (6) units of communication electives. 6

Total Units *18*

Upper-division Communication courses are grouped into three categories. These categories are: Communication Theory and Methods (CTM), Communication, Culture and Social Context (CCSC), and Mass Communication (MC). Specific courses under these designations are given below and described in Section N.

Communication Theory and Methods (CTM)

COMM 300	Communication Theory
COMM 340	Interviewing Principles and Practice
COMM 390	Communication Research Designs, Methods, and Approaches
COMM 400	Discourse Analysis
COMM 401	Rhetorical Theory
COMM 420	Topics in Communication Theory

Communication, Culture and Social Context (CCSC)

COMM 330	Intercultural Communication
COMM 333	Language and Social Interaction
COMM 320	Conflict and Communication
COMM 425	Communication and Mediation
COMM 430	Power, Discourse and Social Identity
COMM 435	Communication and Gender
COMM 437	Interpersonal Communication
COMM 440	Organizational Communication
COMM 450	Topics in Intercultural Communication

Mass Communication (MC)

COMM 316	Student Newspaper
COMM 360	Mass Media and Society
COMM 460	Political Economy of Mass Media
COMM 465	Communication and Popular Culture
COMM 470	Political Communication
COMM 480	Topics in Mass Media
COMM 499	Independent Study

COMPUTER SCIENCE

Office: University Hall, 220

Telephone: (760) 750-4118

Department Chair:
Rochelle L. Boehning, Ph.D.

Faculty:
Rochelle L. Boehning, Ph.D.
Rocio Guillén-Castrillo, Ph.D.
Hung-Yu Lin, Ph.D.
Youwen Ouyang, Ph.D.
Stanley Wang, Ph.D.
Shaun-inn Wu, Ph.D.
Rika Yoshii, Ph.D.

Programs Offered:
- Bachelor of Science in Computer Science
- Minor in Computer Science
- Master of Science in Computer Science

Computer Science is basically the study of problem solving on computers. We utilize the power of computers in the problem solving process while dealing with the constraints of computers. We offer to the undergraduate and graduate student a rich mix of modern computer science courses. Common to these offerings are the power, beauty, and utility of computational thought.

Applications of Computer Science knowledge include almost every field from business to education, from humanities to social sciences, or from natural sciences to engineering. Therefore, the study of Computer Science contains many fields such as computer architecture, programming languages, computer networking, database systems, information management, artificial intelligence and numerical analysis.

Hundreds of job advertisements looking for Computer Science professionals appear in newspapers, professional magazines and newsletters. Due to the enormous demand, degree holders in Computer Science have multiple paths to reach their career goals. They can easily find jobs with excellent pay in many business and industries and their job titles include positions such as: programmers, system analyst/ engineer/managers, software analyst/engineer/managers, database managers, network/telecommunications administrators, customer service representative/managers, computer instructors, technical trainers, technical support, management information system managers, and sales representatives.

The CSUSM undergraduate study in Computer Science emphasizes both theoretical foundations and practical applications. Students will learn algorithms, data structures, software design, the concepts of programming languages, computer organization, and computer architecture. The program stresses analysis and design experiences with substantial laboratory work, including software development. The Computer Science major prepares students for careers in applications programming, systems analysis, and software engineering, as well as for entrance into graduate and professional schools.

Preparation

High school students are encouraged to take four (4) years of English, four years of mathematics including trigonometry, one year of biological science, and one year of physical science. Courses in calculus, physics, and computer programming are recommended. Experience in clear, concise, and careful writing is valuable for success in all courses.

Transfer Credits

A maximum of thirty-two (32) lower-division units including courses in Computer Science, mathematics, and physics may be applied toward the preparation for the major requirements. Of the thirty-two (32) units, twelve (12) units must appropriately match the description for CS 111, 211, and 231 (depending on the articulation agreement between CSUSM and other institutions; transfer students are also advised to consult with their articulation officer to determine if they need to take CS 112, 212, and 232); twelve (12) units must appropriately match the description for MATH 160*, 162, and 264; and eight (8) units must appropriately match the description for PHYS 201* and 202.

**Seven (7) units of the above-transferred courses, MATH 160 and PHYS 201, will count toward the lower-division General Education requirements in Area B. Students are encouraged to consult their faculty advisor to learn about courses that fulfill the General Education requirements.*

Special Requirements for the Bachelor of Science

Each course submitted toward the Computer Science major must be completed with a grade of C (2.0) or better. No more than a total of three (3) units of either CS 498 or CS 499 may be applied to the major. A minimum of fifteen (15) upper-division units counted toward the major must be completed at CSU San Marcos.

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

	Units
General Education	48
Preparation for the Major	42
Major Requirements	30
General Electives	9
Total Required	*129*

Preparation for the Major

Lower-division (12 units)

CS 111	4
CS 211	4
CS 231	4

Non-Computer Science Supporting Courses (30 units)

	Units
MATH 160	5
MATH 162	4
MATH 370	3
PHYS 201	4
PHYS 202	4
PHYS 301	4
Choose one of the following courses: MATH 242 MATH 440	3
Choose one of the following courses: MATH 264 MATH 374	3

Major Requirements

Upper-division (30 units)

	Units
CS 311	3
CS 331	3
CS 351	3
CS 421	3
CS 433	3
CS 441	3
Computer Science electives Chosen from CS courses numbered 400 or higher, MATH 464 and MATH 480.	12

MINOR IN COMPUTER SCIENCE

The minor in Computer Science consists of at least twenty-three (23) units of study in Computer Science. Each course submitted toward the Computer Science minor must be completed with a grade of C (2.0) or better.

Required courses (11 units)

	Units
CS 111	4
CS 211	4
CS 311	3
At least twelve (12) units from any CS courses numbered 200 or higher; at least nine (9) units must be numbered 300 or higher. MATH 464 and MATH 480 may be applied toward this requirement	12
Total Units	23

MASTER OF SCIENCE IN COMPUTER SCIENCE

The mission of the graduate program in Computer Science at CSUSM is to provide graduate education of the highest caliber to qualified students from the local community and beyond, leading to the Master of Science degree. Its objective is to prepare students for a variety of positions in business, industry, and the public sector; for continued study at the doctoral level; or for academic careers at the two-year college level. We believe that excellent graduate education is best accomplished in an atmosphere in which graduate students are closely mentored by the faculty. The faculty in Computer Science is committed to the study of Computer Science as a scientific enterprise, and the Master of Science in Computer Science will encourage the development of critical thinking and quantitative reasoning skills. In keeping with the mission of the University, we offer a curriculum that includes opportunities for applied experiences to enhance the professional development of our students and to contribute to the community around us. In addition, our program seeks to recognize the global awareness of the computing world and to build links with higher education institutions in the world.

The Master of Science Program in Computer Science provides breadth in several areas and depth in a specialized area in the rapidly advancing theoretical and practical aspects of Computer Science. Common to these offerings are the intelligent challenges and analytical skills of computational problem-solving methodologies.

Preparation and Training Offered by the Program

The Master of Science degree is traditionally seen either as a preparatory or terminal degree. Our program is designed to accommodate students with different goals. The active research programs of our faculty, and our recognition of Computer Science as a scientific enterprise, shall provide graduate students with the intensive research training and course work in primary content areas that are central to preparation for more advanced graduate or professional work. Students who have in mind careers in business, industry, community college teaching and computing services, will benefit from our program's emphasis on critical thinking, research methods, and advanced course work. Individual career goals will be served by allowing choices in the content of the research work of thesis or project and by providing a curriculum that provides flexibility in content areas. Students with interests in many areas in Computer Science will find opportunities to pursue course work and thesis topics at CSUSM that are related to their interests.

The Master of Science degree in Computer Science emphasizes both theoretical foundations and practical applications. Many students undertake graduate work in Computer Science in order to pursue careers in computer networking and information communications, algorithms, parallel processing, artificial intelligence, neural networks, programming languages concepts, and multimedia applications. Graduates of the program will be prepared for a wide range of career opportunities, since the skills and attitudes fostered in the program are in demand in business, industry, government and academia. In particular, graduates will be well prepared for careers in applications programming, systems analysis, and software engineering.

The program also prepares students to compete for admission to doctoral programs in Computer Science. There are several universities near CSUSM, including UCSD, UC Riverside, and UC Irvine, which offer such Ph.D. programs.

Admission

In general, students should have equivalent of the basic core knowledge in Computer Science. Experience in clear, concise, careful writing is valuable for success in all courses.

People with undergraduate degrees in non-computing fields may want to enroll in this program for career advancement. Those with undergraduate degrees in Computer Science can take more advanced courses to specialize in a particular area.

Admission to the program requires an undergraduate degree including the courses as required for the Bachelor's Degree in Computer Science at CSU San Marcos, or their equivalents. Admission also requires a 3.0 grade point average in the upper-division Computer Science courses and at least a 2.5 GPA in the last 60 semester units (or last 90 quarter units) attempted. Students who have deficiencies in the above admission requirements may be admitted with conditional graduate status. They may remove some academic deficiencies by either taking specific undergraduate courses for no credit toward the Master's degree, or passing appropriate proficiency examinations.

The general test of the Graduate Record Examination (GRE) is required of all applicants and the advanced test in Computer Science is encouraged.

All applicants who do not possess a bachelor's or graduate degree from a post-secondary institution in a country where English is a principal language must take the Test of English as a Foreign Language (TOEFL) and receive a minimum score of 550.

Applications, including verification of English proficiency (see above), should be received in the program office by March 15. However, applications will be accepted as long as space allows. An application consists of the following:

- a completed application for university admission,
- a completed application for the Master's program in Computer Science,
- two sets of official transcripts from all colleges and universities attended and official indication of graduation (if not in English, certified English translations must be included),
- official transcripts of GRE, and TOEFL if applicable, and
- three letters of recommendation.

Graduation Requirements

The Master of Science degree in Computer Science requires a minimum of 30 units of graduate courses with at least an overall 3.0 grade point average. Students must do exactly one of the following: pass a comprehensive written exam, complete a Master's thesis, or complete a research project. At least twelve (12) units must be numbered 600 or above. Only courses numbered 500 or higher can be counted towards the Master's degree requirement with the exceptions of CS 421, CS 433, and CS 441 which must be taken if these courses were not taken prior to admission to the program. No course or equivalent which was taken as a requirement for the completion of a Bachelor of Science in Computer Science or related fields can be used to satisfy these requirements. Not more than nine (9) units in approved extension and transfer courses may be used to satisfy the minimum units required for the degree; any such units must be approved by the Computer Science Department Chair or faculty advisor. Given the nature of rapid development in Computer Science, all requirements should be satisfied within five years of initial acceptance into the program or course work must be repeated.

Students are required to take at least one course from each of the following areas:

Algorithms and Parallel Processing:
CS 513
CS 514
CS 515
CS 614

Theory and Programming Languages:
CS 551
CS 553
CS 613

Operating Systems and Computer Architecture:
CS 531
CS 537
CS 633

Applications:

CS 535	CS 573
CS 543	CS 643
CS 571	CS 671

If CS 421, CS 433, and CS 441 have not been taken prior to the admission, students are required to include them in their study plan.

Continuation

A student must earn a 3.0 overall average in graduate coursework in order to graduate. No course in which a final grade below C (2.0) was earned can satisfy the degree requirement. If the GPA falls below 3.0 for two consecutive semesters, the student will be dropped from the program.

Financial Aid

Several sources of financial aid are available to graduate students. Applicants who choose to apply for Graduate Assistantships offered by the University should so indicate on the appropriate space in the Master's Program in Computer Science application form. Students are responsible for identifying other sources of aid, and may wish to consult with the University's Office of Financial Aid and Scholarship.

Advancement to Candidacy

Upon the completion of at least nine (9) units toward the degree, but prior to the completion of 18 units toward the degree, the student should obtain the permission of a tenured or tenure-track Computer Science faculty member to act as the student's advisor and as chair of the student's academic committee. The student and the advisor should recommend to the Computer Science Department Chair the names of two other tenured or tenure-track Computer Science faculty to fill out the academic committee.

The plan of study should include courses remaining to be taken and the names of the three faculty composing the committee. A copy of the study plan shall be submitted to the Computer Science Department Chair. The student is advanced to candidacy for the Master of Science degree upon submission of the study plan and completion of 18 units toward the degree with at least a 3.0 grade point average. Changes in the study plan must be approved by the student's advisor and the Computer Science Department Chair.

No student may enroll for CS 698, CS 699, or take a comprehensive examination before being advanced to candidacy.

Thesis, Project, or Comprehensive Written Exam

Each student will be assigned an advisor at the time of acceptance to the program. It is expected that the student and her/his advisor will work together closely to identify elective courses and choose possible research topics for the thesis or research project.

A thesis is the written result of a systematic study of a significant Computer Science problem. It defines, develops, and executes an investigation into a chosen problem area. The motivation, approach, and results of the investigation are communicated in a clear and logical fashion; it is grammatically correct, logically organized and technically sound. The finished product should evidence originality, and critical and independent thinking through documentation. The thesis must be planned, organized, executed, and completed while the student is enrolled in the Master's program. Guidelines on the preparation and official submission of the thesis can be obtained from the Department Chair's office. The final copies of the thesis are to be delivered to the committee members at least two (2) weeks prior to the oral defense of the thesis which must be held at least two weeks prior to the end of a regular semester.

A project is the written result of a comprehensive implementation or analysis of a particular computer system or problem encountered in the literature. The composite elements of the project are the same as for a thesis, but the scope is more narrow. The project must be completed while the student is enrolled in the Master's program. Project submission forms can be obtained from the Department Chair's office. The final copies of the project are to be delivered to the committee members at least two (2) weeks before an oral presentation, which must be held at least two weeks prior to the end of a regular semester.

A comprehensive written examination is administered during the student's final semester. It is intended as a culminating experience for the Master's degree, and it is used to assess the student's ability to integrate his/her knowledge of Computer Science, to think critically and independently, and to demonstrate mastery of their coursework. The problems will reflect the coursework of the student, and the student's responses will be evaluated both on the basis of logical correctness and on that of written presentation. The examination will be offered, as needed, at most once each regular semester, at least two (2) weeks prior to the end of the

semester. Students intending to take the exam during a given semester must notify the Department Chair before the end of the fourth week of that semester.

Graduation

A student planning to graduate at the end of a given regular semester must meet with the academic advisor by the end of the student's previous regular semester in order to evaluate those plans. All pertinent requirements described above concerning courses and the thesis, the project, or the comprehensive exam must be evaluated during this meeting.

MINOR IN CRIMINOLOGY AND CRIMINAL JUSTICE

Office: Craven Hall, Sixth Floor

Telephone: (760) 750-4117

Faculty: Therese Baker, Ph.D.
Donald Barrett, Ph.D.
Kristin Bates, Ph.D.
Sharon Elise, Ph.D.
Alicia M. Gonzales, Ph.D.
Darlene Piña, Ph.D.
Robert E.L. Roberts, Ph.D.
Garry Rolison, Ph.D.
Richard T. Serpe, Ph.D.
Linda Shaw, Ph.D.
Sheldon X. Zhang, Ph.D.

Program Offered:

- Minor in Criminology and Criminal Justice

The Criminology and Criminal Justice minor is offered through the Sociology Department. All courses for this minor can be viewed within the Sociology listings (Section N). Advising for this minor is handled by the Sociology Department. Each course counted towards the minor must be completed with a grade of C (2.0) or better. A minimum of eighteen (18) units in sociology must be completed at CSUSM.

The major purpose of the Criminology Minor is to provide an expanded and more focused concentration on the study of criminology and the criminal justice system regarding 1) the study of deviance and the incidence and explanations for delinquency and crime; 2) methods of prevention and control of delinquency and crime; 3) characteristics and practices of the criminal justice system. Moreover, students will select a set of courses that add on to parts of this core, such as the study of women and crime, and the comparative study of crime in different societies. Students will broadly analyze the origins, causes, and consequences of crime and the structure of the criminal justice system in order to gain greater mastery of this socially important and very timely topic.

Students wishing to combine the minor in Criminology and Criminal Justice with a bachelor's degree in Sociology should consult their advisor.

Required Courses

Upper-division (12 units)

	Units
SOC 321	3
SOC 323	3
SOC 325	3
SOC 442	3

Upper-division Electives
(9 units) selected from:

SOC 306	SOC 329
SOC 322	SOC 396
SOC 324	SOC 443
SOC 327	SOC 444
SOC 328	SOC 445
	SOC 449

Total Units 21

THIS PAGE
INTENTIONALLY LEFT
BLANK ...

ECONOMICS

Office: Craven Hall, First Floor

Telephone: (760) 750-4152

Department Chair:
Robert Rider, Ph.D.

Faculty:
Roger A. Arnold, Ph.D.
Robert Brown, Ph.D.
Ranjeeta Ghiara, Ph.D.
Robert Rider, Ph.D.

Programs Offered:

- Bachelor of Arts in Economics
- Minor in Economics

The student majoring in economics will acquire a set of analytical tools and a way of thinking that will help him or her to better understand and predict the behavior of individuals, groups, and societies. Learning economics does for the undergraduate student what corrective lenses do for the person with impaired eyesight: it brings the world into focus. Things that were invisible become visible, the complex and hard-to-understand become simple and easily understood.

Economics is the study of human behavior as it relates to the condition of scarcity: that is, the condition where resources are limited in relation to human wants. An important part of economics is the study of how individuals, groups, and societies deal with scarcity through markets or exchange-like institutions. Economic theory is sufficiently powerful to explain many varieties of exchange relationships. This is evident in the number of fields in which economic analysis is currently utilized, such as business, history, law, psychology, political science, and sociology.

Economics has always been a highly respected field of study, but in the past three decades its reputation has soared. There are perhaps three major reasons for this change. First, many people have come to realize that economics plays an important role in their everyday lives. Recession, inflation, the exchange value of the dollar, the savings rate, interest rates, taxes, mergers, government expenditures, and economic growth all matter. These economic factors touch lives; they affect dreams. Second, economists have developed better tools and more refined methods of analysis: they have successfully extended their analytical apparatus and the economic way of thinking beyond the traditional confines of the science. Third, the one language that is becoming increasingly more universal is the language of economics. The American business person may not speak Japanese, and the Japanese business person may not speak English, but both of them know the language of supply and demand, profits, production, costs, international trade, and competition. Both of them know the language of economics.

Recommended Course of Study

For those students who are required to take ECON 201 and 202, it is recommended that ECON 201 be taken first. Students are also advised to complete their mathematics requirement (MATH 132) and their statistics requirement (BUS 304) early in their course of study. Students who expect to apply to do graduate work in economics are advised to speak to the program director in economics at their earliest convenience for a suggested course of study.

Educational and Career Opportunities

The economics major provides the undergraduate student with a solid academic background for graduate study in a wide variety of areas. The most relevant areas include economics, business, and law. Career opportunities include positions in business, banking, journalism, government, law, and teaching. Economists are well-represented in occupations in both the private and public sectors. Students interested in knowing more about educational and career opportunities in economics are invited to speak with economics faculty members.

Preparation

High school students are encouraged to take four years of English, three to four years of mathematics, and an economics course (if available).

Transfer Students

Students may transfer a maximum of six (6) lower-division semester units in economics and a maximum of (6) upper-division semester units in economics, which may be applied toward the economics major or minor. Three (3) of the six (6) lower-division semester units must be in a course that clearly fits the course description in this catalog for ECON 201; three (3) must be in a course that clearly fits the course description for ECON 202. Upper-division semester units must be in courses that clearly fit the course description in this catalog for any upper-division level course and satisfy any conditions or prerequisites. However, at least three of the four required upper-division theory courses (ECON 301, 302, 303, and 441) must be completed at CSUSM. All transfer courses must at least be equal in scope, content, and level to the equivalent CSUSM course.

Special Requirements for the Bachelor of Arts and the Minor in Economics

Each course counted towards the major or the minor must be completed with a grade of C (2.0) or higher. No more than three (3) units of ECON 497 may be counted toward the major. Only one of the courses listed, ECON 305 to 308, may be counted toward the major or minor. Students who have already received credit for ECON 250, may then consult with the Economics Department Chair to gain permission to count ECON 250 as replacing either ECON 201 or ECON 202 (but not both courses) for purposes of satisfying the Preparation for the Major requirements, lower-division Minor requirements, and certain upper-division economics course prerequisites.

BACHELOR OF ARTS IN ECONOMICS

	Units
General Education	48
Preparation for the Major	13
Major Requirements	30
General Electives	33
Total Required	*124*

Preparation for the Major

Non-Economics Supporting Courses (7 units)

	Units
BUS 304	4
MATH 132	3

Lower-division (6 units)

ECON 201	3
ECON 202	3

Major Requirements

Upper-division (30 units)

	Units
ECON 301	3
ECON 302	3
ECON 303	3
ECON 441	3

Upper-division electives in economics to be selected by students in consultation with their academic advisor 18

MINOR IN ECONOMICS

Lower-division (6 units)

	Units
ECON 201	3
ECON 202	3

Upper-division (15 units)

ECON 301	3
ECON 302	3
ECON 303	3
ECON 441	3

Upper-division electives in economics to be selected by students in consultation with their academic advisor 3

Total Units 21

FILM STUDIES

Office: Craven Hall, Sixth Floor

Telephone: (760) 750-4082
(760) 750-4141

Faculty:
Reneé R. Curry, Ph.D.
Terry Allison, Ph.D. (Candidate)
Barry Saferstein, Ph.D.
Jill Watts, Ph.D.
Zhiwei Xiao, Ph.D.

Program Offered:
- Minor in Film Studies

The primary purpose of the minor in Film Studies is to enhance student learning regarding 1) the production of film, 2) the global history of film, 3) the interpretation of film, 4) the uses of film, and 5) the art of filmmaking. The unique aspect of the minor is its combination production and interpretation format. Students who minor in Film Studies at CSUSM will better understand the art of filmmaking. They will do so not only by analyzing films with the help of theories, but also by having the collaborative experience of making at least one short film.

The secondary purposes of the minor in Film Studies are numerous. They loosely fit under three categories: educating an existing public, supporting the University Mission Statement, building long-term community linkages.

MINOR IN FILM STUDIES

Requirements for a Minor in Film Studies

Completion of eighteen (18) units of credit, twelve (12) units of which must be at the upper-division level.

	Units
Required core course FMST 100 or FMST 300	3

Three (3) units in each of the following areas. It is strongly recommended that students vary the disciplines from which they take the courses.

a. Film and Theory

Select one course COMM 360 COMM 400 LTWR 334 SOC 310 VSAR 422	3

b. Film and Production

Select one course VSAR 303 VSAR 304 VSAR 403	3

c. Film, Society, and Culture

Select one course COMM 480 LTWR 335 SOC 312 TA 323 WMST 450	3

d. Film and History

Select one course COMM 460 HIST 348 HIST 364	3
One (1) elective course approved for Film Studies credit The selection may include Independent Research or Internships. Work done under other disciplines, and not listed above, will require prior approval by the Film Studies Advisor.	3
Total Units	*18*

THIS PAGE
INTENTIONALLY LEFT
BLANK ...