

UNIVERSITY PROGRAMS

KELLOGG HONORS COLLEGE

Suketu Bhavsar, Director

The Cal Poly Pomona Kellogg Honors College challenges talented students to achieve academic and personal goals. The College provides an intellectually and socially stimulating environment for students of all majors to come together as a community of scholars. Admission is selective, a faculty committee chooses Honors students based on their application packages. Honors students must maintain a 3.3 GPA to remain in the Kellogg Honors College during their time at Cal Poly Pomona. Students may graduate from the Honors College by participating in special Honors classes; some in their majors and several which satisfy the university's general education requirements. (Please see the section on Special Programs for more information on the Kellogg Honors College.)

THE CENTER FOR COMMUNITY SERVICE-LEARNING and VolunteerBASE (Bronco Advancing Service Excellence)

The Center for Community Service-Learning and VolunteerBASE facilitate curricular and co-curricular civic engagement opportunities for the Cal Poly Pomona community. For further information, please see our full description of programs in the Special University Centers section of this catalog.

INTERDISCIPLINARY GENERAL EDUCATION PROGRAM

The Interdisciplinary General Education Program (IGE) offers students a unique and stimulating choice to fulfill general education requirements. These requirements, which apply to all California State University campuses, help students broaden their skills and understanding in areas beyond the major and develop the qualities of an educated individual. Founded in 1983, IGE is one of the longest-lived interdisciplinary programs in the California State University and has earned national recognition for its success in general education, team teaching, outcomes assessment and learning communities.

The IGE curriculum encourages students to connect personal experience with course readings, to explore their values and goals, and to develop their own ideas and interpretations. Students learn through discussions, papers and team projects. IGE students also attend music, theatre, museum and other cultural experiences that enhance the curriculum. The IGE Program satisfies 32 units of lower-division humanities and social sciences general education requirements.

IGE 120 Consciousness and Community (4)

First knowings; origin of consciousness, myth, symbol, performance, and ceremony; prehistory and patterns of living, making of meaning; university experience. 4 Lecture/discussion. Activity fee may be required. Pre-requisite: eligibility for or completion of college level writing course.

IGE 121 Rationalism and Revelation: The Ancient World (4)

The nature of tragedy; the ways of warriors, prophets, tyrants, philosophers, and citizens; ethics, convictions, and the sacred. 4 Lecture/discussions. Activity fee may be required. Prerequisite: IGE 120 or eligibility for or completion of college level writing course and IGE 120 as corequisite.

IGE 122 Authority and Faith: The Medieval and Renaissance Worlds (4)

Visions of hell, politics, social order, and redemption; constructions of the sacred and secular selves; journey of the soul; private lives and

public spaces. 4 Lecture/discussions. Activity fee may be required. Prerequisite: IGE 121.

IGE 220 Ways of Knowing: Culture and Contact (4)

Explorations of self and other; constructing Otherness; presentations of difference; colonial encounters, cultural collisions; ways of knowing in relation to culture. Inquiries are historically grounded in both the modern world and the colonial period. 4 Lecture/discussions. Prerequisite: IGE 122. Activity fee may be required.

IGE 221 Ways of Coexisting: Reform and Revolution (4)

Exploration of meanings of "coexistence"; negotiation difference; crossing borders; domination and resistance; reform and revolution. Inquiries are historically grounded in both the modern world and the American revolutionary and Constitutional periods. 4 Lecture/discussions. Prerequisite: IGE 220. Activity fee may be required.

IGE 222 Ways of Doing: Technology and Human Purpose (4)

Explorations of technology and human purpose; construction of science as a way of knowing gender, class, and race in science and technology; ethical frameworks. Inquiries are historically grounded in both the modern world and the Industrial Age. 4 Lecture/discussions. Prerequisite: IGE 221. Activity fee may be required.

IGE 223 Ways of Living: The Contemporary World (4)

Explorations of environment epistemology, ethics, and aesthetics; environmental education and responsibility; communities and cultures engaging sustainable practices; global thinking and doing; global citizenship and justice. Inquiries are historically grounded in the modern and postmodern worlds. 4 Lecture/discussions. Prerequisite: IGE 222. Activity fee may be required.

IGE 224 Connections Seminar: Exploration and Personal Expression (4)

Research and presentation of an interdisciplinary project which extends and synthesizes themes from the IGE experience. 4 Lecture/discussions. Pre-requisite: IGE 223.

INTERNATIONAL PROGRAMS

Faiza W. Shereen, Director, International Center

These course designations serve Cal Poly Pomona students participating in Cal Poly Pomona Exchange Programs or in CSU International Programs (IP) overseas as vehicles for residence credit and are administered by the International Center.

IPC 198 Foreign Study Topics (1-6)

Study undertaken in a foreign university under the auspices of The California State University International Programs.

IPC 398 Foreign Study Topics (1-6)

Study undertaken in a foreign university under the auspices of The California State University International Programs.

IPC 598 Foreign Study Topics (1-6)

Graduate study undertaken in a foreign university under auspices of The California State University International Programs or Cal Poly Pomona Exchange Programs. Maximum credit 9 units.

NATIONAL STUDENT EXCHANGE

Cynthia Chatfield, Coordinator

These course designations serve Cal Poly Pomona students participating in the National Student Exchange Consortium at various universities and colleges in the United States as vehicles for Cal Poly Pomona residence maintenance.

NSE 198 National Student Exchange Study Topics: (1-15)

Study undertaken at a member campus of the National Student Exchange Consortium.

NSE 398 National Student Exchange Study Topics: (1-15)

Study undertaken at a member campus of the National Student Exchange Consortium.

LIBRARY

Harold B. Schleifer, Dean

Library Instruction/Information Competence

The Library's program for Information Competence is designed to introduce students to the basic sources and library research strategies needed for a specific course or assignment. The presentations are designed for the particular course assignment, while also emphasizing general principles applicable to future information gathering needs in support of lifelong learning. During the presentation, the librarian will illustrate to the students how to think critically about their information needs, as well as how to evaluate sources of information for relevance, reliability and objectivity. We offer instructional sessions in a computerized classroom that allows for the demonstration and hands on learning of library resources. The class period may include the following: introduction to library services and collections; the Library Catalog; periodical indexes and databases in various formats—print, online, CD-ROM; internet resources; use of reference books and other library materials. Students receive printed bibliographies listing important sources or procedures. We also offer individual instruction, web based tutorials, and printed guides. Instructors may schedule classes by calling the Reference/Instruction/Collections office at (909) 869-3076 or via the web at www.csupomona.edu/~library/reference/teachingservices.html

COLLEGE READING SKILLS PROGRAM

The College Reading Skills Program offers a series of four one-unit nonbaccalaureate courses for students who need an extra unit to maintain full-time status. These courses do not count toward degree requirements or GPA. Participants enrolled in the program receive individualized reading tutoring, academic advising, and may qualify for supplemental financial aid.

LRC 090 College Reading Skills (1)

Beginning course in reading skills development for students in the College Reading Skills Program. Diagnosis of reading skills; individual placement in developmental reading materials; individual tutorial programs; workshops. Independent study/supervised activities. This is a nonbaccalaureate-level course for students who need an extra unit to maintain full-time status, but it does not count toward degree requirements or GPA. Prerequisites: consult the director of the College Reading Skills Program.

LRC 091 College Reading Skills (1)

Continued work in developmental reading for students in the College Reading Skills Program. Evaluation of reading strengths and weaknesses; individual placement in developmental reading materials;

individual tutorial programs; workshops. Independent study/ supervised activities. This is a nonbaccalaureate-level course for students who need an extra unit to maintain full-time status, but it does not count toward degree requirements or GPA. Prerequisite: consult the director of the College Reading Skills Program.

LRC 092 College Reading Skills (1)

Developmental reading for students in the College Reading Skills Program who wish to augment the reading skills developed in LRC 090 and LRC 091. Evaluation of reading strengths and weaknesses; individual placement in developmental reading materials; individual tutorial programs; workshops. Independent study/supervised activities. This is a nonbaccalaureate-level course for students who need an extra unit to maintain full-time status, but it does not count toward degree requirements or GPA. Prerequisite: consult the director of the College Reading Skills Program.

LRC 093 College Reading Skills (1)

Developmental reading for students in the College Reading Skills Program who wish to augment the reading skills developed in LRC 090, LRC 091, and LRC 092. Evaluation of reading strengths and weaknesses; individual placement in developmental reading materials; individual tutorial programs; workshops. Independent study/supervised activities. This is a nonbaccalaureate-level course for students who need an extra unit to maintain full-time status, but it does not count toward degree requirements or GPA. Prerequisite: consult the director of the College Reading Skills Program.

MILITARY SCIENCE AND LEADERSHIP - ARMY ROTC

Major Randall Cartmill, Officer in Charge

MSL 101/101A Foundations of Officership (2/0)

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establishes framework for understanding officership, leadership, and Army values followed and "life skills" such as physical fitness and time management. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 101A. Participation in a weekend exercise is optional, but highly encouraged.

MSL 102/102A Basic Leadership I (2/0)

Establishes foundation of basic leadership fundamentals such as problem solving, communications, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 102A. Participation in a weekend exercise is optional, but highly encouraged.

MSL 103/103A Basic Leadership II (2/0)

Continuation of Basic Leadership I. Establishes foundation of basic leadership fundamentals such as problem solving, communications, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 103A. Participation in a weekend exercise is optional, but highly encouraged.

MSL 150 American Military History (4)

Integration of the basic knowledge of military history into the education of a future officer. Employs American military history as a tool for studying military professionalism and for applying critical-thinking skills and decision-making skills to military problems while pursuing education as an officer. 4 hours lecture.

MSL 179A Basic Course Physical Fitness (1)

Only open to students in MS 101, 102, 201 and 202. Optional in MS 101, MS 102 and MS 103; required in MS 201, MS 202 and 203 series, with different roles for students at different levels in the program. Participate in and learn to lead a physical fitness program. Emphasis on the development of an individual fitness program and the role of exercise and fitness in one's life. 2 hours activity.

MSL 201/201A Individual Leadership Studies (2/0)

Students identify successful leadership characteristics through observation of self and others through experiential learning exercises. Students record observed traits in a dimensional leadership journal and discuss observations in small group settings. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 201A. Participation in a weekend exercise is optional, but highly encouraged.

MSL 202/202A Leadership and Teamwork I (2/0)

Study examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 202A. Participation in a weekend exercise is optional, but highly encouraged.

MSL 203/203A Leadership and Teamwork II (2/0)

Continuation of Leadership and Teamwork I. Study examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 203A. Participation in a weekend exercise is optional, but highly encouraged.

MSL 210 Leaders Training Course (0)

A 28-day summer camp conducted at an Army post. The student receives a stipend for this activity. Travel, lodging and most meal costs are defrayed by the Army. The environment is rigorous, and is similar to Army Basic Training. No military obligation is incurred. Open only to students who have not taken all six of MSL 101, 102, 103, 201, 202 and 203, and who pass a physical examination (provided by ROTC). Completion of MSL 210 qualifies a student for entry into the Advanced Course. Three different cycles are offered during the summer, but spaces are limited by the Army. Candidates can apply for a space any time during the school year prior to the summer. Graded on a CR/NC basis only.

MSL 279A Advanced Course Physical Fitness (1)

This is a required course open only to students in the Advanced Course Series (MSL 301, 302, 303, 401 402 and 403), of which this program is an integral part, with different roles for students at different levels in the program. Participate in and learn to plan and lead physical fitness programs. Develops the physical fitness required of an officer in the Army. Emphasis on the development of an individual fitness program and the role of exercise and fitness in one's life. 2 hours activity.

NOTE:

The Advanced Course consists of the courses MSL 301, 302, 303, 401, 402 and 403. It is open only to students who have completed the Basic Course or earned placement credit for it. A monthly stipend is paid during fall-winter-spring quarters to full-time enrolled 300- and 400-level students. Students must complete all courses above the 300-level, including a five-week summer Advanced Camp (taken usually between

the junior and senior years) to qualify for a commission as an officer in the United States Army. The courses must be taken in sequence unless otherwise approved by the Professor of Military Science.

MSL 301/301A Leadership and Problem Solving (2/0)

Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem-solving techniques. Students receive direct feedback on leadership abilities. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 301A.

MSL 302/302A Leadership and Ethics I (2/0)

Examines the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, consideration of others, spirituality in the military, and survey Army leadership doctrine. Emphasis on improving oral and written communication abilities. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 302A.

MSL 303/303A Leadership and Ethics II (2/0)

Continuation of Leadership and Ethics I. Examines the role that communications, values, and ethics play in effective leadership. Topics include ethical decision-making, consideration of others, spirituality in the military, and survey Army leadership doctrine. Emphasis on improving oral and written communication abilities. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 303A.

MSL 379A Advanced Course Army Physical Fitness Trainer (1)

Only offered to (and required of) students in MSL 301, 302, 303 of which this program is an integral part of the leadership training and physical conditioning of ROTC Cadets. Participate in, learn to plan and lead physical fitness programs. Develops the physical fitness conditioning required of an officer in the Army. Emphasis is on the development of an organizational fitness program and the role of exercise and fitness to the organization. 2 hours activity.

MSL 401/401A Leadership and Management (2/0)

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 401A.

MSL 402/402A Officership I (2/0)

Study includes case study analysis of military law and practical exercises on establishing an ethical command climate. Students must complete a semester long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 402A.

MSL 403/403A Officership II (2/0)

Study includes case study analysis of military law and practical exercises on establishing an ethical command climate. Students must complete a semester long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills. 2 hours lecture, 1 two-hour activity. Co-requisite: MSL 403A.

MSL 479A Advanced Course Army Physical Fitness Evaluator (1)

Students participate as senior members, learn to evaluate the plans and leading of physical fitness programs. Evaluates the development of the physical fitness conditioning required of an officer in the Army. Emphasis is on the development of an organizational fitness program and the role of exercise and fitness in the organization. Restricted to students in MSL

401, or 402, or 403 of which this program is an integral part in the leadership training and physical conditioning of ROTC Cadets. 2 hours activity.

CAL POLY POMONA UNIVERSITY

The CPU designation means that such courses are offered for the entire university community regardless of major or school. Many CPU courses have been specifically designed to meet the requirements of general education or to assist students in career/academic choices. For further information in CPU coursework please contact the Office of Undergraduate Studies, Building 98.

GENERAL EDUCATION COURSES

CPU 210/210A Actualized Living (3/1)

Lifelong physiological and socio-psychological aspects of the leisure phenomenon. Experience in assessing student's leisure knowledge and habits coupled with a comprehensive leisure counseling follow-through. Includes a one unit component in death and dying. Team taught. 2 lectures, 1 lecture/discussion, 1 two-hour activity. Corequisites: CPU 210/210A.

ACADEMIC/CAREER GUIDANCE COURSES

CPU 100 Career and Personal Exploration (1-4)

Systematic development of information about (1) self—including values, interests, and skills, (2) environment—including career clusters, fields and occupational information, (3) decision-making, and (4) career search techniques. Includes vocational testing and use of the computer-based System of Interactive Guidance and Information (SIGI PLUS). Materials fee required.

CPU 102 Fundamental Principles of Learning Skills (3)

Introduction to and practice in college study techniques and learning skills including: listening, notetaking, memory improvement, and time management. Topics discussed among others: class scheduling, career planning, use of the library and advisory centers, and co-curricular programs. 3 lecture discussions.

CPU 109 Fundamental Principles of Residential Leadership (2)

This course offers students an on-going orientation to effective residential leadership. The course covers the foundation of residential leadership, and current issues as they relate to community development. A special focus is placed on the individual student's growth as a leader by applying principles and concepts through experiential situations. The course concerns such topics as multicultural leadership, service learning, group leadership, transferable leadership skills, and logistical leadership. Prerequisite: permission of instructor. Instruction is by lecture, laboratory, or a combination.

CPU 123 Community Engagement (1-4)

Experiential learning through volunteer opportunities on-site at approved community service agencies. Student meets with faculty and community partner to establish learning objectives. Periodic meetings with instructor paired with final reflection assignment. Activity/Discussion. May be repeated for credit. CR/NC grading only. Prerequisite: English 104; consent of instructor. Student should confer with instructor and community partner to set-up a volunteer placement prior to enrolling in the course.

CPU 299/299A/299L Special Topics for Lower Division Students (1-4)

Group study of a selected topic, the title to be specified in advance. Total credit limited to eight units, with a maximum of four units per quarter.

Prerequisite: permission of instructor. Instruction is by lecture, laboratory, or a combination. Corequisites may be required.

CPU 499/499A/499L Special Topics for Upper Division Students (1-4)

Group study of a selected topic, the title to be specified in advance. Total credit limited to eight units, with a maximum of four units per quarter. Prerequisite: permission of instructor. Instruction is by lecture, laboratory, or a combination. Corequisites may be required.

SCIENCE, TECHNOLOGY, AND SOCIETY MAJOR

Peter Ross, Director

The Science, Technology, and Society (STS) Major is an interdisciplinary program which integrates knowledge in the natural sciences, and in technology as well as in history, philosophy, sociology, economics, political science, geography, and anthropology. Consequently, courses included in the STS Major curriculum are taught by faculty in seven of the University's Colleges as well as the Lyle Center for Regenerative Studies.

STS examines the goals and practices of science and technology, including how such goals and practices are affected by economic, cultural, and political events, and conversely, how these events are in turn affected by developments in science and technology.

STS focuses on the following sorts of issues: (1) general issues about the authority of science, such as the questions of what science is, and how it is different from pseudoscience, and the reliability of research science; (2) questions regarding the impact of science and technology on societies; and (3) questions regarding how local, national and global political interests affect scientific inquiry and technological development.

Moreover, these three sorts of questions interrelate in complicated ways. Consider the debate about global warming. This debate obviously raises issues concerning the impact of technology on societies, but it also raises issues about the reliability of the scientific research involved in identifying this impact, the use and interpretation of this research by political leaders and public policy makers, and the effect of public policy in driving possible technological solutions.

Students are capable of earning a Bachelor of Arts in Science, Technology, and Society. The STS Major prepares students who seek a job requiring a broader perspective on science and technology than that provided by a traditional science or technology major; such jobs include those in law or business which are engaged with aspects of science and technology, in science and technology public policy making or analysis, in science and technology public interest advocacy, and in science journalism. In brief, the STS Major prepares students for jobs that require scientific and technological literacy as well as a broad perspective on science and technology and an ability to write and argue from this perspective.

Required Core Courses

Introduction to Science, Technology, and Society . . . STS	201	(4)
Ethical Consideration in Technology and Applied Science EGR	402	(4)
History of American Science and Technology HST	408	(4)
Philosophy of Science PHL	483	(4)
Technology and Society SOC	440	(4)
Science, Technology, and Society Capstone Seminar STS	461	(4)
Science, Technology, and Society Senior Project STS	462	(3)
Science, Technology, and Society		

Senior Project	STS	463	(3)
Required Core Units		30	

Elective Core Courses

History of Science & Technology			
<i>Select 1 course from the following:</i>		4	
History of Anthropology Theory	ANT	380	(4)
History and Philosophy of Chemistry	CHM	306	(4)
History and Philosophy of Systems Science	CSA	300	(4)
The Scientific Revolution	HST	421	(4)
Modern Science in World History	HST	423	(4)
Technology in World History	HST	432	(4)
History of Mathematics	MAT	306	(4)
History of Technology in Music	MU	310	(4)
History of Physics	PHY	306	(4)
History and Systems	PSY	410	(4)

Social and Cultural Studies of Science & Technology			
<i>Select 2 courses from the following:</i>		8	
Plants and Civilization	AGR	311	(4)
Environment, Technology and Culture	ANT	350	(4)
Plants and People	BOT	307/307A	(3/1)
Literature of Science and Fiction	ENG	222	(4)
Beyond Curie: Women in Math	EGR/EIS/SCI	475	(4)
Gender, Identity, and Technology	EWS	425	(4)
Environmental Geography	GEO	330/330A	(3/1)
Visions of Science and Technology	IGE	320	(4)
Energy and Society	PHY	301	(4)
Physics of Everyday Experience	PHY	302	(4)
Life Support Processes	RS	301	(4)
Global Regenerative Systems	RS	302	(4)
Organization for Regenerative Practices	RS	303	(4)
Sustainable Communities	RS	450	(4)
Social Change	SOC	340	(4)

Ethics and Policy of Science and Technology			
<i>Select 2 courses from the following:</i>		7-8	
Ethical Issues in Food,			
Agricultural and Apparel Industries	AG	401	(4)
Genetics and Human Issues	BIO	300	(4)
Environment and Society	BIO	304	(4)
Chemistry in Life, Civilization, and World	CHM	210	(4)
Computers and Society	CS	375	(4)
Seminar in Natural Resource Economics	EC	429	(4)
Seminar in Environmental Economics	EC	435	(4)
Air Resource Management	EC	436	(4)
Waste Management	EC	438	(4)
Water Resource Management	EC	439	(4)
Industry Studies	EC	441	(4)
Asset Allocation in Technical Decision Making	EGR	403	(4)
Role of Design Professionals in Society	EGR/BUS	445	(4)
Politics of Food and Agriculture	FMA	313	(3)
Food Safety and Current Issues	FST	325	(4)
Environment Law	GEO	413	(4)
Studies of a Blue Planet	GSC	320	(4)
Natural Disasters	GSC	350	(4)
Agriculture and International Development	FN/IA	445	(4)
Ethics, Environment and Society	PHL	330	(4)
Bioethics	PHL	433	(4)
Understanding Rationality			
through Urban Planning	URP	302	(4)
Planning Policy Analysis	URP	334/334A	(2/2)
Cities in a Global Economy	URP	475	(4)

Environmental Factors in Regional Planning	URP	487	(4)
Elective Core Units		19-20	

Required Support Course

Logic and Computing (B4)	CS/PHL	218	(4)
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Elective Support Courses

<i>Select 1 course from the following:</i>		3-4	
Statistics with Applications (B4)	STA	120	(4)
Statistical Methods in Engineering			
and the Physical Sciences	STA	309	(3)
<i>Select 1 course from the following:</i>		4	
Ways of Doing: The Industrial Age	IGE	222	(4)
Principles of Sociology (D3)	SOC	201	(4)

Elective Support Units		7-8	
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Other Requirements

Qualifying Minor

A Qualifying Minor (i.e. a minor in Biological Sciences, Chemistry, Computer Science, Geological Sciences, Physics, Mathematics, Statistics, Comparative Systems Analysis, or Computer Information Systems)

Qualifying Minor Units		29-42	
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Unrestricted Electives 8-31

Select a sufficient number of courses so that the total from "Elective Core," "Unrestricted Support," "Other Requirements," "G.E.," and "Unrestricted Electives" is at least 149 units.

GENERAL EDUCATION REQUIREMENTS

Students should consult the catalog website www.csupomona.edu/~academic/catalog/ for current information regarding this requirement. Unless specific courses are stated under Support Courses, see the list of approved courses under General Education Requirements, Areas A through E.

Area A. Communication and Critical Thinking (12 units)

1. Oral Communication
2. Written Communication
3. Critical Thinking

Area B. Mathematics and Natural Sciences (16 units)

1. Physical Science
2. Biological Science
3. Laboratory Activity
4. Mathematics/Quantitative Reasoning
5. Science and Technology Synthesis

Area C. Humanities (16 units)

1. Visual and Performing Arts
2. Philosophy and Civilization
3. Literature and Foreign Language
4. Humanities Synthesis

Area D. Social Sciences (20 units)

1. U.S. History, Constitution, and American Ideals
2. History, Economics, and Political Science
3. Sociology, Anthropology, Ethnic and Gender Studies
4. Social Science Synthesis

Area E. Lifelong Understanding and Self-development (4 units)

COURSE DESCRIPTIONS

STS 201 Introduction to Science, Technology, and Society (4)

Examines the interrelation among science, technology, and society. History of STS as an interdisciplinary field, and case studies focusing on STS in practice. 4 lecture problem-solving.

STS 461 Science, Technology, and Society Capstone Seminar (4)

Intensive study of the historical, social, political, economic, and ethical dimensions of a topic in science or technology. Selection and development of project for STS majors and minors. 4 seminars. Prerequisites: STS 201 and senior standing.

STS 462, STS 463 Science, Technology, and Society Senior Project (3) (3)

Implementation of project development in STS 461. Project results presented in a formal report to the campus community. 3/3 field work. Prerequisite STS 461. Open only to STS majors.

SCIENCE, TECHNOLOGY, AND SOCIETY MINOR

Peter Ross, Director

The Science, Technology, and Society (STS) Minor is an interdisciplinary program which integrates knowledge in the natural sciences and in technology as well as in the humanities and social sciences. However, the goals of the STS Minor are quite different from those of the STS Major, and the Minor serves a distinct group of students.

The STS Minor requires science and technology majors to systematically consider the historical, social, cultural, political, and ethical aspects of science and technology. This gives science and technology majors a better understanding of important practical aspects of science and technology, in particular, the complex interaction between science and technology on the one hand and society on the other. Such practical understanding helps put in clearer focus such issues as political influence on science and technology funding and the public understanding of science and technology.

In providing this broadening of perspective on science and technology, the STS Minor prepares science and technology majors to be better sensitive to social needs and to better understand the public's complex reaction to science and technology. In addition, the STS Minor also facilitates communication across disciplinary standpoints, even across standpoints as diverse as those in the natural sciences, engineering, the humanities, and the social sciences.

In sum, the STS Minor provides science and technology majors with a sense of how science and technology exists in a broader human context. (By contrast the Major opens opportunities for writing- and argument-intensive science- and technology-related careers (such as those in science- and technology-related law and public policy) which are alternative to careers as scientists and technologists.)

Required

Introduction to Science, Technology, and Society . . . STS 201 (4)

Select 12 units from the curriculum requirements of a minor in Biological Sciences, Chemistry, Computer Science, Geological Sciences, Physics, Mathematics, Statistics, Comparative Systems Analysis, Computer Information Systems, or Regenerative Studies

Philosophy of Science PHL 483 (4)
 Science, Technology, and Society
 Capstone Seminar STS 463 (4)

History of Science and Technology

Select 1 course from the following: 4

History of Anthropological Theory	ANT	380	(4)
History and Philosophy of Chemistry	CHM	306	(4)
History and Philosophy of Systems Science	CSA	300	(4)
History of American Science and Technology (C4/D4)	HST	408	(4)
The Scientific Revolution (C4/D4)	HST	421	(4)
Modern Science in World History (C4/D4)	HST	423	(4)
History of Technology in Music (B5/C4/D4)	MU	310	(4)
History of Physics (B5)	PHY	306	(4)

Social and Cultural Studies of Science and Technology

Select 1 course from the following: 4

Plants and Civilization (B5)	AGR	311	(4)
Beyond Curie: Women in Math, Science and Engineering (B5/D4)	EGR/EIS/SCI	475	(4)
Gender, Identity and Technology (B5/D4)	EWS	425	(4)
Visions of Science and Technology (C4)	IGE	320	(4)
Energy and Society (B5)	PHY	301	(4)
Life Support Processes (B5)	RS	301	(4)
Organization for Regenerative Practices (C4/D4)	RS	303	(4)
Sustainable Communities (C4/D4)	RS	450	(4)

Ethics and Policy of Science and Technology

Select 1 course from the following: 4

Ethical Issues in Food, Agricultural and Apparel Industries (C4/D4)	AG	401	(4)
Genetics and Human Issues (B5)	BIO	300	(4)
Environment and Society (B5)	BIO	304	(4)
Computers and Society (B5/D4)	CS	375	(4)
Ethical Considerations in Technology and Applied Science (B5/C4)	EGR	402	(4)
Asset Allocation in Technical Decision Making (B5/D4)	EGR	403	(4)
Role of Design Professionals in Society (D4)	EGR/BUS	445	(4)
Food Safety and Current Issues	FST	325	(4)
Environmental Law	GEO	413	(4)
Studies of a Blue Planet (B5)	GSC	320	(4)
Natural Disasters (B5)	GSC	350	(4)
Agriculture and International Development (B5/D4)	FN/IA	445	(4)
Ethics, Environment and Society	PHL	330	(4)
Bioethics (B5/C4)	PHL	433	(4)
Cities in a Global Economy (D4)	URP	475	(4)

Total Units. 36

ENVIRONMENTAL HEALTH SPECIALIST MINOR

The minor provides Biological Sciences majors, Agricultural Biology majors, and other majors with courses which prepare students for careers in the California Department of Health Services as Environmental Health Specialists. Increasing awareness of pollution and other health-related environmental problems has led to a demand for specialists to enforce and administer laws governing water, food, and air contamination, noise, land use planning, occupational health hazards, and animal vectors of disease. Many job opportunities exist in California for individuals trained as Environmental Health Specialists according to the California Department of Health Services.

The California Health and Safety Code outlines the standards for admission to the state internship program to become a registered

specialist. The minimum educational qualifications are possession of a bachelor's degree from an approved institution with a minimum of 45 quarter units of basic science. The basic science requirement would be met by most students in Biological Sciences and in Agriculture. Students interested in more information may contact Dr. Richard Kaae or Dr. Lester Young (Horticulture/Plant and Soil Sciences Department), or Dr. John Chan (Biological Sciences Department).

Core Courses

Basic Biology	BIO	115/115L	(5)
or Foundations of Biology	BIO	123/123L	(5)
General Chemistry	CHM	121/121L	(4)
General Chemistry	CHM	122/122L	(4)
Elements of Organic Chemistry	CHM	201	(3)
Fundamentals of Physics	PHY	102	(4)
College Algebra	MAT	105	(4)
Statistics with Applications	STA	120	(4)
Units			(28)

Support Courses

Required of all students:			
Public Administration	PLS	314	(4)
Introduction to Arthropods	PLT	233	(4)
or			
Introduction to Entomology	ZOO	426/426L	(4)
Basic Microbiology	MIC	201/201	(5)
General Epidemiology	MIC	330	(4)
Units			(17)

Select 3 courses from the following:

Applied Microbiology	MIC	310/310L	(5)
Water Pollution Biology	BIO	420	(3)
Radiation Biology	BIO	431/431	(5)
Air Pollution Problems	CHM	460	(3)
Public Health Entomology	ZOO	435/435	(4)
Units			(10-14)

Select 3 courses from the following:

Pesticide and Hazardous Material Laws	PLT	303	(3)
Urban Pest Management	PLT	324/324L	(4)
Invertebrate Vector Control	PLT	342/342L	(4)
Postharvest Physiology	PLT	351/351L	(4)
Units			(11-12)

Total units for the minor

INTERDISCIPLINARY MINOR IN GEOGRAPHIC INFORMATION SYSTEMS

The interdisciplinary GIS Minor was created for Cal Poly Pomona students whose majors include engineering, business, design, science, urban planning, education, agriculture, social sciences, and humanities in an effort to create a GIS-literate campus. The minor serves students who are interested in the application of GIS to their area of knowledge, or who seek to develop their skills in GIS-related areas. GIS technology offers new and powerful ways of combining data, mapping and spatial analysis to support research, management and policy-making. GIS users are trained in spatial modeling and know how to manipulate digital data, create databases, and develop software. The GIS minor provides fundamentals of GIS for students without previous work in GIS, but allows for modifications to the core for students with prior experience.

Components of the program include: data acquisition and manipulation; development of spatial thinking and visualization skills; creation of

models and use of analytic methods; programming; problem solving using applied GIS technology; learning to create effective output; process management; GIS theory and ethics; and an interdisciplinary focus.

For more information students may contact Boykin Witherspoon III, Minor Coordinator, Center for GIS Research, (909) 869-6913, or look on the web at www.cgisr.csupomona.edu/

Core Courses

Introduction to Interdisciplinary GIS Studies	ENV/EGR/CLS/SCI	215/215A	(4)
or Introduction to GIS	GEO	240/240A	(4)
Visual Basic for Geographic Information Systems	EGR	302/302A	(4)
or Computer Cartography	GEO	421/421L	(4)
Advanced Geographic Information Systems I	GEO	442/442A	(4)
Advanced Geographic Information Systems II	GEO	443/443A	(4)
Total Core Units			16

All GIS minors must take at least 12 units outside of their Major in order to be awarded the GIS Minor. These 12 units must be approved by the GIS Minor Coordinator.

Electives

All GIS Minors are required to take 12 units in upper division GIS elective courses to complete the program in consultation with the GIS Minor coordinator and the GIS advisor for the student's department. All electives must have the approval of the GIS Minor coordinator.

Course Descriptions

ENV/EGR/CLS/SCI 215/215A Introduction to Interdisciplinary GIS Studies (3/1)

Introduction to GIS and cartographic principles. Interdisciplinary overview of geographic information system (GIS) applications, and basic computer mapping techniques. Diagnostic assessment of student skills and development of study plans. 3 hours lecture/problem-solving, 2 hours activity.

GEO 240/240A Introduction to Geographic Information Systems (3/1)

Concepts in the framework of geographic information systems. Basic techniques for the computer processing of geographical systems analysis and modeling. 3 hours lecture/problem-solving, 2 hours activity. Prerequisites: GEO 105/105A or permission of instructor.

EGR 302/302A Visual Basic for Geographic Information Systems (3/1)

Logical methods and techniques in algorithm development. The Visual Basic environment and Visual Basic programming. Structure of object oriented programs. Concept of class organization and manipulation. Programming Geographical Information Systems (GIS) related algorithms using Visual Basic and their integration in the GIS environment. 3 hours lecture, 2 hours activity. Pre-requisite: MAT106 or STA120.

GEO 421/421L Computer Cartography (3/1)

Explore the fundamentals of cartographic communication principles, processes, and technology. Obtain basic skills in designing and making effective maps with Geographic Information Systems and current computer technology, including interactive mapping and web based mapping. 3 lectures/problem solving, 1 three-hour laboratory. Prerequisites: GEO 240/240A or consent of instructor.

GEO 442/442A Advanced Geographic Information Systems I (3/1)

First course in a two course project based sequence. Technical issues in geographic information, including data structures and applied spatial statistics. Progress toward completion of a research project. 3 hours lecture/problem solving, 2 hours activity. Prerequisites: GEO 240/240A or EGR/ENV/CLS/SCI 215/215A, or consent of instructor.

GEO 443/443A Advanced Geographic Information Systems II (3/1)

Second course in a two course project based sequence. Technical issues in geographic information, including data structures and applied spatial statistics. Completion of a research project. 3 hours lecture/problem solving, 2 hours activity. Prerequisites: GEO 442/442A, or consent of instructor.

INTERDISCIPLINARY MINOR IN INTERNATIONAL STUDIES

The interdisciplinary International Studies minor was created for Cal Poly Pomona students in any major who want to complement their major degree studies with a self-structured course of study that will enhance their understanding of the world in which they will be living. The minor requires that students participate in at least one program of study outside the United States and that they either demonstrate or gain proficiency in a language other than English equivalent to at least one year of university-level study. Coursework selected for the minor, along with the overseas experience and language acquisition, should help the student gain an appreciation for the history, culture, and social systems in another part of the world.

The minor works closely with the Cal Poly Pomona International Center which offers a wide range of international study programs ranging from intensive courses over a few weeks during a school break to quarter-, semester- and year-long programs at overseas locations. The coursework required includes an introductory course designed in part to help prepare students for the overseas experience and a capstone seminar designed to help students evaluate the overseas experience when they return to campus. The additional coursework is drawn from the many offerings that various departments across campus already provide to their students. Each student will develop an agreement with an International Study Minor adviser about which courses will best serve the student's interests and needs.

Depending on whether the student is required to learn a completely new language for the minor, the number of units required by the major ranges from 29 (the student is already competent in a second language) to 41 (the student needs to take three quarters of a foreign language at Cal Poly Pomona).

For more information, students may contact the College of Letters, Arts, and Social Sciences Dean's Office at (909) 869-3500.

Core Courses (5 units)

Introduction to International Studies	CLS	205	(2)
Capstone Seminar in International Studies	CLS	405	(3)

Theme Courses (12 units)

Select 4 units of course work from each of the following three clusters of courses for a total of 12 units.

Cultural Courses (select 4 units)

Cultures in Performance	ANT	356	(4)
Magic, Shamanism and Religion	ANT	360	(4)
History of Japanese Art	ART	309	(4)
Art of Mexico, Central and South America	ART	314	(4)
Art of the Ancient Near East	ART	315	(4)
Intercultural Communication	COM	327	(4)

Literature of the Third World	ENG	334	(4)
Literature of Exile	ENG	425	(4)
20th Century British Literature	ENG	450	(4)
Latin American Women Writers in Translation	ENG	485	(4)
French Civilization	FL	307	(4)
Contemporary France	FL	308	(4)
Intro to the Literature of the French-speaking World	FL	309	(4)
German Civilization	FL	317	(4)
Chinese Culture and Civilization	FL	371	(4)
Musics of Mexico	MU	311	(4)
Music Histories of Europe, North and South America	MU	418	(4)
Music Histories of Africa, Asia, and the Middle East	MU	419	(4)
Philosophy and Religion of Japan	PHL	401	(4)
Philosophy and Religion of China	PHL	402	(4)
Philosophy and Religion of India	PHL	403	(4)
Comparative Philosophy: East and West	PHL	485	(4)
Spanish Civilization	SPN	352	(4)
Latin American Civilization	SPN	354	(4)
Contemporary Latin American Civilization	SPN	355	(4)
Survey of Spanish Literature	SPN	356	(4)
Survey of Spanish American Literature	SPN	358	(4)
Spanish Golden Age Literature	SPN	454	(4)
Literature of Mexico	SPN	455	(4)
Latin American Women Writers	SPN	456	(4)
Through Artists' Eyes: Visions of World Artists	TH	301	(4)

History Courses (select 4 units)

China Since 1800	HST	303	(4)
Modern India	HST	306	(4)
South Asia	HST	307	(4)
Modern Southeast Asia	HST	309	(4)
Middle East: Ottoman Empire	HST	314	(4)
Middle East: Problems of the 20th Century	HST	315	(4)
Colonial Africa	HST	332	(4)
African Nationalism and Decolonization	HST	333	(4)
Latin America: Colonial Period	HST	335	(4)
Latin America: The Era of Nation-Building	HST	336	(4)
Latin America since 1900	HST	337	(4)
The Caribbean	HST	338	(4)
Britain to 1689	HST	351	(4)
Britain since 1689	HST	352	(4)
Medieval Russia	HST	354	(4)
Imperial Russia	HST	355	(4)
Soviet Union	HST	356	(4)
East Central Europe	HST	359	(4)
Brazil	HST	361	(4)
Mexico to 1810	HST	362	(4)
Mexican History since 1810	HST	363	(4)
China Since 1949	HST	365	(4)
Japan to 1868	HST	368	(4)
Women in Asia	HST	441	(4)

Social Science (select 4 units)

Anthropology of Development	ANT	352	(4)
Language and Culture	ANT	353	(4)
Social Anthropology	ANT	358	(4)
Culture Areas of the World	ANT	379	(4)
Economic Development	EC	411	(4)
Comparative Economic Systems	EC	412	(4)
Economywide Country Studies	EC	442	(4)
Legal Aspects of International Business	FRL	426	(4)

Tourism in a Globalizing World	GEO	345	(4)
Geography of Asia	GEO	357	(4)
Geography of Africa	GEO	358	(4)
Europe: Land and People	GEO	359	(4)
Politics of Developing Areas	PLS	342	(4)
Sub-Saharan Governments and Politics	PLS	442	(4)
Latin American Governments and Politics	PLS	444	(4)
Middle Eastern Governments and Politics	PLS	446	(4)
Russian Republic	PLS	447	(4)
East Asian Governments and Politics	PLS	448	(4)
Southeast Asian Governments and Politics	PLS	449	(4)
Multicultural Psychology	PSY	325	(4)
Social Change	SOC	340	(4)

Foreign Language (0-12 units)

Students must demonstrate competence in a language other than English at the level expected of a student who completed the first three quarters of language study at Cal Poly Pomona. The Foreign Language program may test the student for proficiency or the student may complete the requirement by coursework. Language proficiency is not limited to languages offered at Cal Poly Pomona. Students who are not U.S. citizens and who are not native-English speakers will be deemed to have met this requirement upon completion of ENG 104.

Overseas Study (4-12 units)

Students are required to participate in one of the Cal Poly Pomona international study programs or one of the CSU system-wide international study programs. Other international study programs may be approved as equivalents.

Electives (0-8 units)

Students who earn 12 units in overseas study are not required to take additional courses. Students who earn fewer than 12 units in overseas study should select additional course offerings from among the Cultural, History, and Social Science course offerings so that the total of Overseas Study and Electives is equal to 12 units. However, 4 units earned in overseas study is a minimum requirement for the minor.

PHYSIOLOGY MINOR

The Physiology Minor can be taken by students from any department in the University but it is particularly appropriate for students with the following majors: Animal Science (AS), Psychology (PSY), Biology (BIO), Biotechnology (BTC), Chemistry (CHM), Electrical and Computer Engineering (ECE Biomedical Engineering), Foods and Nutrition (FN), Kinesiology and Health Promotion (KHP), Biology (BIO), Microbiology (MIC), and Zoology (ZOO). It is intended to assist students interested in physiology to discover and prepare for careers in: medicine; dentistry; veterinary science; high school teaching; graduate study in general or comparative physiology, kinesiology, exercise physiology or physiological psychology, and; allied health professions such as human and animal nutrition, exercise and health counseling, biomedical engineering, and domestic animal reproduction. It will do this by exposing students to the diversity of disciplines and careers available to people with an understanding of physiology. It will also provide them with a broad basic background and then permit them to tailor a program of advanced courses to suit their general interests and career goals. The program is administered by a steering committee composed of the following individuals: S. Bassin (KHP), D. Clark (ECE), E. Cogger (AVS), D. Lewis (HNFS), N. Harkey (BHS), D. Hoyt (BIO/ZOO), P. Mobley (CHM), and S. Eskandari (BIO/ZOO). Students interested in more information should contact Dr. Sepehr Eskandari.

Requirements

(Prerequisites listed in parentheses)

Assumed entry level skills: high school chemistry and algebra.

Core (required of all students)

Basic Biology (none)	BIO	115/115L	(5)
or Foundations of Biology	BIO	123/123L	(5)
General Chemistry (none)	CHM	121/121L	(4)
General Chemistry (CHM 121/121L)	CHM	122/122L	(4)
Statistics with Applications	STA	120	(4)
Units			(17)

Restricted Electives

Anatomy (select one course)

Human Anatomy (BIO 115/115L or BIO 121/L, 122/L and 123/L)	ZOO	234/234L	(4)
Comparative Vertebrate Anatomy (ZOO 138/138L or BIO 121/L, 122/L and 123/L)	ZOO	451/451L	(5)
Anatomy & Physiology of Domestic Animals (BIO 115/115L)	AVS	350	(5)
Neuroanatomy (BIO 115/115L or BIO 121/L, 122/L and 123/L)	BIO	426/426L	(5)
Units			(4-5)

Physiology (select one course)

Human Physiology (BIO 115/115L)	ZOO	235/235L	(4)
Animal Physiology (BIO 211/L, BIO 310, CHM 123/L, PHY 123/L; ZOO 138/L or ZOO 201/L or ZOO 238/L)	ZOO	428/428L	(5)
Units			(4-5)

Chemistry

Elements of Organic Chemistry or equivalent (CHM 122)	CHM	201	(3)
Elements of Organic Chemistry Lab (CHM 122)	CHM	250L	(1)
Units			(4)

Total Units, Restricted Electives. (12-14)

Advanced Physiology Courses

One or more courses from each of the following four clusters totalling at least 20 units. Two courses must be from outside the major school.

Physicochemical Principles

Elements of Biochemistry (CHM 201, CHM 250L)	CHM	321	(4)
Biochemistry (CHM 315, CHM 317)	CHM	327	(4)
Biochemistry (CHM 327)	CHM	328	(4)
Biochemistry (CHM 328)	CHM	329	(4)
Elements of Physical Chemistry (MAT 116, CHM 123, PHY 133)	CHM	304	(4)
Elements of Physical Chemistry (CHM 304)	CHM	305	(3)
Thermodynamics (PHY 132)	ME	301	(4)
Thermodynamics (ME 301, MAT 215)	ME	302	(4)
Fluid Mechanics (ME 215, PHY 132)	ME	311	(3)
Fluid Mechanics (ME 301, ME 311)	ME	312	(4)
Cellular Physiology (CHM 201)	BIO	435/435L	(4)
Advanced Cell Biology (BIO 435, CHM 327 or consent)	BIO	535	(4)

Biophysics (PHY 123 or consent)	PHY	410	(4)
<i>Physiology</i>			
Neuroscience (CHM 201/250L or CHM 314/317L)	BIO	424	(4)
Physiological Ecology (ZOO 428/428L or consent of instructor)	ZOO	440/440L	(4)
Endocrinology (CHM 327, ZOO 428/428L and/or consent)	BIO	520/520L	(4)
Physiological Psychology (BHS 204, 205, PHY 202, 203)	PSY	303	(5)
Mammalian Endocrinology (AVS 350)	AVS	412	(4)
Physiology of Lactation (AVS 350 and AVS 412)	AVS	413	(3)
Reproductive Physiology of Food Animals (AVS 350 or ZOO 428/428L)	AVS	414	(4)
Avian Physiology (none)	PS	431	(3)
Biomedical Instrumentation and Measurements (BIO 115/115L, ECE 323 or ECE 333 or consent)	ECE	435	(3)
Biomedical Instrumentation and Measurements Laboratory (ECE 435 concurrent)	ECE	485	(1)
<i>Nutrition</i>			
Nutrition	FN	235	(3)
Advanced Nutrient Metabolism I (CHM 321, FN 235, ZOO 235/235L)	FN	433	(4)
Advanced Nutrient Metabolism II (FN 433)	FN	434	(4)
Medical Nutrition Therapy I (FN 434)	FN	443	(4)
Medical Nutrition Therapy II (FN 443)	FN	444	(3)
Animal Nutrition (CHM 321)	AVS	402	(4)
Ruminant Nutrition (CHM 321)	AVS	403	(4)
Advanced Nutrition (FN 434)	FN	533	(3)
Recent Advances in Nutrient Metabolism (consent)	FN	535	(2)
Nutrition Through the Life Cycle (FN 433)	FN	536	(3)
Biological Control Systems (upper division course in control systems)	EGR	588	(4)
<i>Ergonomics</i>			
Physiology of Exercise (ZOO 235/235L)	KIN	303/303L	(3/1)
Lifespan Motor Development (Junior or Senior standing)	KIN	312/312A	(3/1)
Growth, Aging, and Physical Activity	KIN	365/365A	(3/1)
Biomechanical Kinesiology (KIN 302)	KIN	402/402L	(3/1)
Physiology of Exercise II (KIN 303/303L)	KIN	403/403L	(3/1)
Motor Learning & Human Performance (KIN 303/303L, 425/425A)	KIN	430/430L	(3/1)
Sports Medicine (KIN 303/303L)	KIN	455	(4)
Exercise Metabolism and Weight Control (KIN 303/303L, FN 205 or FN 235 and FN 236L)	KIN	456	(3)
Advanced Motor Learning & Human Performance (KIN 430/430L)	KIN	580	(3)
Advanced Motor Development (KIN 312/312A)	KIN	583	(3)
Total Units—Advanced Courses			(20)
Total Units—Minor			(49-51)

QUANTITATIVE RESEARCH MINOR

The Quantitative Research Minor may be taken by students having any major in the University other than Mathematics. This is particularly appropriate for students having majors in the following areas: Operations Management, Marketing Management, Agricultural Business Management, Animal Science, Psychology, Sociology,

Economics, Political Science, Kinesiology, Biological Sciences, Urban and Regional Planning. The minor is intended to prepare students to perform quantitative analyses within their area of interest by providing the working knowledge required in statistics, principles of experimental design, survey and data analysis techniques. This includes learning to understand and use some of the statistical software packages available on computers. Students are expected to complete a project in their major having a significant quantitative component.

The project is jointly directed by the Statistics Coordinator and a faculty advisor selected from the student's own department. Through such experience our graduates become more able and prepared to perform quantitative studies in their chosen field of employment. For more information students may contact any of the following reference sources: Dr. D. S. Gill (Statistics Coordinator), Dr. John Korey (Political Science), Dr. David Horner (Psychology and Sociology), Dr. Ralph Miller (Technology and Operations Management), Dr. Vernon Stauble (Marketing Management), Dr. Richard Willson (Urban and Regional Planning), Dr. David Moriarty (Biological Sciences), Dr. Anne E. Bresnock (Economics), Dr. Wanda Rainbolt (Kinesiology and Health Promotion) or Nancy Merlino (Food Marketing and Agribusiness Management).

Requirements

Core

Statistics with Applications	STA	120	(4)
Sampling Survey Methods	STA	310	(4)
Units			(8)

Intermediate (Choose one sequence)

Managerial Statistics	TOM	302	(4)
Advanced Managerial Statistics	TOM	380	(4)

Data Management for Agribusiness	FMA	375	(4)
Advanced Managerial Statistics	TOM	380	(4)

Statistics for Behavior Sciences	BHS	307/307A	(3/1)
Computer Methods in Behavior Science	BHS	340/340A	(3/1)
Statistics in the Behavioral Sciences	BHS	307/307A	(3/1)
Policy Analysis and Program Evaluation	PLS	417/417A	(3/1)

Statistical Computing	STA	210	(4)
Nonparametric Statistics	STA	420	(4)

Statistical Computing	STA	210	(4)
Biometrics	BIO	411	(3)
Planning Research Methods I	URP	331/331L	(4/2)
Planning Research Methods II	URP	332/332L	(4/2)
Economic Statistics	EC	321	(4)
Economic Statistics	EC	322	(4)
Econometrics	EC	421	(4)
Units			(7-12)

Applied Methods (Choose one course from each group)

GROUP I

Marketing Research I	IBM	408	(4)
Real Estate Market Analysis	FRL	483	(4)
Survey Research	SOC	433/433A	(3/1)

GROUP II

Project Design and Development	TOM	460	(4)
Experimental Psychology: Research, Design and Methodology	PSY	433/433L	(4/1)

ANOVA and Design of Experiments	STA	435	(4)
Units			(8-9)

Project

Students will do a quantitative research project in their major field of study.			(4)
Total units for the minor.			(27-32)

TOTAL QUALITY MANAGEMENT MINOR

The Total Quality Management (TQM) Minor may be taken by students having any major in the University. It is particularly appropriate for students having majors in the following areas: Technology and Operations Management, Industrial and Manufacturing Engineering, Management and Human Resources, International Business and Marketing. The Minor is intended to allow students to gain the knowledge and skills necessary for effective application of quality management techniques in manufacturing, service, and not-for-profit organizations. The Total Quality Management Minor will help fill the need for graduates, especially from business and engineering, who are trained in the concepts, techniques, tools and methods of analysis used for the continuous improvement of product, service, and process quality. Computer-based approaches are used wherever they are available and appropriate. For more information, students may contact any of the following faculty members: Dr. John Knox (Operations Management), Dr. Peggy Snyder (Management and Human Resources), and Professor Phil Rosenkrantz (Industrial and Manufacturing Engineering).

Core Requirements

Prerequisites (12-26 units)

Completion of one of the following prerequisite options is required. In most instances, the prerequisites listed in an option package are part of the existing curriculum for the student in the indicated academic program area.

OPTION 1: (Business, Engineering Technology, and some Science majors. Also, all majors not included in Options 2 and 3 below)

Statistics with Applications	STA	120	(4)
Operations Management	TOM	301	(4)
Managerial Statistics	TOM	302	(4)

OPTION 2: (Engineering, and some Science majors)

Analytic Geometry and Calculus I	MAT	114	(4)
Analytic Geometry and Calculus II	MAT	115	(4)
Analytic Geometry and Calculus III	MAT	116	(4)
Calculus of Several Variables I	MAT	214	(3)
Statistical Methods in Engineering and the Physical Sciences	STA	309	(4)
Engineering Probability and Statistics	IME	312	(4)

OPTION 3: (Mathematics majors)

Analytic Geometry and Calculus I	MAT	114	(4)
Analytic Geometry and Calculus II	MAT	115	(4)
Analytic Geometry and Calculus III	MAT	116	(4)
Calculus of Several Variables I	MAT	214	(3)
Calculus of Several Variables II	MAT	215	(3)
Applied Probability Theory	STA	241	(4)
Applied Statistics	STA	341	(4)

Core Requirements (16 units)

(Note: OM majors are required to substitute a course outside their major, with minor advisor approval, for TOM 401.)

Processes and Measurement	IME	280	(4)
Total Quality Management	TOM	401	(4)
Quality Management	TOM	435	(4)
or Quality Control by Statistical Methods	IME	415	(4)
Total Quality Management Implementation	MHR	417	(4)

Directed Elective Courses (8 units)

Production and Inventory Management	TOM	432	(4)
Materials and Inventory Management	TOM	433	(4)
Purchasing Management	TOM	434	(4)
Operations Management in Services	TOM	453	(4)
Just-In-Time Production	TOM	455	(4)
Project Design and Development	TOM	460	(4)
First Line Management	MHR	313	(4)
Training and Development	MHR	405	(4)
Advanced Organizational Behavior	MHR	438	(4)
Design of Experiments	IME	435/435L	(3/1)
Fundamentals of Human Factors Engineering/Laboratory	IE	225/225L	(3/1)
Principles of Productivity Engineering	IE	392	(3)
Reliability Concepts and Techniques	IE	419	(3)
Human Engineering in Design/Laboratory	ME	438/448L	(2/1)
Geometric Dimensioning and Tolerancing/Laboratory	MFE	323/323L	(2/1)
Intro to Computer Integrated Manufacturing/Laboratory	MFE	450/450L	(3/1)
Producibility Engineering	MFE	484	(3)
Advanced Human Factors in Engineering Design	EGR	539	(4)
Nondestructive Evaluation I	ETP	437/437L	(1/1)
Nondestructive Evaluation II	ETP	438/438L	(1/1)
Analysis of Variance and Design of Experiments	STA	435	(4)

Total Core and Elective Units Required (24 units)



ATHLETIC DEPARTMENT

Brian Swanson, Director of Athletics
Tracee Passeggi, Associate Director of Athletics

Mike Ashman	Ruem Malasarn
Paul Caliguiri	Jim Sackett
Paul Helms	Paul Thomas
Greg Kamansky	Scott Tsuji
Sandy Kriezel	Rosie Wegrich

The Department of Intercollegiate Athletics offers opportunities for men and women in a wide variety of sports, which include (m) baseball, basketball, cross country, soccer, tennis, track and field and (w) volleyball. The University is a member of the National Collegiate Athletic Association (NCAA), Division II and competes in the California Collegiate Athletic Association (CCAA) conference. These opportunities are open to all qualified students. The University has gained National and International recognition from the performances of its many outstanding athletic teams.

Mission Statement

The mission statement for the Department of Intercollegiate Athletics is an integral part of the educational environment of the total university which allows the student to develop mental, physical, social, and emotional discipline, to develop the ability to work with others, and to enhance decision-making and leadership skills. Intercollegiate Athletics can also serve as a university focal point for public relations and social interaction.

Course Descriptions

KIN 181-195 Competitive Athletics (2)

May be taken by those students who compete on an intercollegiate athletic team and may be repeated for additional credit as long as normal academic progress is maintained.

181 Intercollegiate Basketball (Women)

182 Intercollegiate Baseball

183 Intercollegiate Basketball (Men)

184 Intercollegiate Soccer (Women)

185 Intercollegiate Cross Country (Men)

186 Intercollegiate Soccer (Men)

190 Intercollegiate Tennis (Men)

191 Intercollegiate Track and Field (Men)

192 Intercollegiate Volleyball (Women)

193 Intercollegiate Cross Country (Women)

194 Intercollegiate Tennis (Women)

195 Intercollegiate Track and Field (Women)

