UNIVERSITY
OF
CALIFORNIA
MERCED

CATALOG ADDENDUM
2012-2013

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How To Use This Addendum

The 2011-2013 General Catalog contains UC Merced's official degree and program requirements, as well as campus policies. Its contents apply to you if you initiated your degree-seeking enrollment at UC Merced during the 2011-2013 academic years.

The purpose of this addendum is to report significant policy changes, additions or changes to majors and minors, fee increases and other important updates that can affect your education if you are a newly arrived student in 2012-13. Please review the section on "Catalog Year" in this document carefully to understand your role in adhering to the published content in your current catalog.

Please note that it is the student's responsibility to maintain awareness of changes to programs and requirements, and to read all email alerts from academic advising offices. Students are expected to meet with their academic advisers at least once each semester, and to check for updates to the current General Catalog's content each term at registrar.ucmerced.edu.

CATALOG YEAR

OFFICIAL DEGREE AND MAJOR REQUIREMENTS ARE LISTED IN THIS CATALOG.

Undergraduate and graduate students are subject to requirements based on a particular catalog, referred to as the student's "catalog year." The catalog year is determined for new students as the catalog in effect at the time of their initial enrollment in courses at UC Merced, provided there is no break of more than three consecutive terms (e.g., two semesters and one summer) in enrollment.

It is campus policy to introduce changes in graduation requirements such that students who began their careers with UC Merced before the change will not be hindered substantially in the orderly pursuit of their degrees.

Requirement changes that increase the number or distribution of courses required normally will not be applied to students with earlier catalog years, provided there is no break in enrollment exceeding three terms.

The student's catalog year determines both the major and general education requirements for degree completion. Students can adhere to a different catalog year if they wish to follow the general education and major requirements listed in a catalog published subsequently to the one in place at the time of their initial enrollment; however, the student must note this in a petition to his or her School.

Students transferring from other institutions may elect either those major requirements in effect at the time of transfer to UC Merced; or those in effect up to two years before matriculation, provided their transcripts from earlier schools indicate commitment to the major within that period and that they have adequate preparation for upper-division coursework.

FEES AND EXPENSES (update: page 25)

Changes to the 2012-2013 Fee Schedule can be found here: http://registrar.ucmerced.edu/policies/fees.

System wide tuition and fees for 2012-13 have not yet been determined. Figures shown on the website represent an estimate of 2012-13 system wide tuition and fees based on what we anticipate will be proposed for approval by The Regents of the University of California in July. Fees are subject to change; final approved of 2012-13 tuition and fee levels may end up higher or lower than the amounts presented.

Undergraduate Admissions

TRANSFER APPLICANTS (update: page 33)

Prospective transfer applicants are advised to complete lower-division course work for their intended majors. Major Preparation and Selection Requirements are explained online under the Admission Requirements link at transfer.ucmerced.edu (http://transfers.ucmerced.edu/2.asp?uc=1&lvl2=26&lvl3=26&lvl4=28&contentid=6).

CREDIT FOR AP/IB EXAMS (update: page 37)

AP Mathematics Calculus BC: 5.3 Units: Score of 3 exempts math placement exam, SSHA's Quantitative Reasoning Requirement and MATH 011/021.

New Advanced Placement Examinations in French, German and Italian Languages and Cultures were offered by the College Board in May 2012. Decisions about credit and course exemptions have not yet been determined.

Financial Aid and Scholarships

SATISFACTORY ACADEMIC PROGRESS POLICY (update: page 42)

UNDERGRADUATE FINANCIAL AID SATISFACTORY ACADEMIC PROGRESS POLICY

Beginning July 1, 2011, Satisfactory Academic Progress (SAP) standards were updated to comply with Federal Regulations. SAP standards will be monitored annually at the end of the spring term beginning with the completion of the 2011-2012 academic year.

In order to maintain satisfactory academic progress for financial aid eligibility, students must meet four standards: a GPA requirement, a pace requirement, a minimum cumulative unit requirement and a maximum time-frame requirement.

If a student fails to maintain satisfactory academic progress, he or she will be notified that he or she is ineligible for financial aid beginning with the term immediately following the term the SAP requirements were not met.

Because SAP is monitored annually at the end of the spring term, the first term of ineligibility will typically be the following summer or fall term. Students pursuing a double major or second baccalaureate degree will be held to the same standards as all other students.

Eligibility for continued financial aid will only be re-established if the student subsequently meets the Satisfactory Academic Progress requirements; or the student successfully appeals and his or her aid is reinstated. A student who has financial aid eligibility reinstated as the result of an appeal is placed on SAP probation and becomes subject to the terms of an academic plan. All work performed to regain eligibility under this SAP policy must be completed at UC Merced.

The Office of Financial Aid and Scholarships (OFAS) will evaluate whether the student is adhering to the plan on a term-by-term basis. If the student has made up all deficiencies, he or she will no longer be considered on probation and instead will be considered an eligible student meeting the SAP requirements.

Appeals are only accepted one time per year, at the end of spring semester.

Requirements for Satisfactory Academic Progress

The following requirements for satisfactory academic progress for receipt of financial aid apply to all applicants for any financial aid awards administered by the UCM Office of Financial Aid and Scholarships. These requirements are separate and distinct from UC Merced's policy regarding satisfactory academic progress set by The Office of the Registrar. Note: Some funds have higher academic and/or enrollment requirements.

Qualitative Measurement

An undergraduate student will be ineligible for aid unless an appeal is approved if one of the following occurs:

- The student's cumulative University of California grade point average is less than 2.0.

Pace Requirement

All undergraduates must complete enough at least 66.6 percent of the units attempted each year to keep pace toward graduation.

$$\text{STUDENT'S PACE} = \frac{\text{UCM Completed Units + Accepted Transfer Units}}{\text{UCM Attempted Units + Accepted Transfer Units}}$$

- The number of attempted units counted in the formula reflect the units attempted as they appear on the student's transcript.
- Units granted for AP and IB coursework are excluded; college level units earned by the student while still enrolled in high school are included.
- All transfer credits UC Merced accepts toward a student's program are included in the pace calculation, both as attempted units as well as completed units.
- Units for the following grades will not be counted as completed units toward meeting the pace requirement for undergraduate students: F (failure), I (incomplete), NP (not pass), U (unsatisfactory), W (withdraw), NR (no grade reported).
- These pace calculations include all completed and attempted units from the academic year's summer term.
- If a student repeats a previously passed course, only the first repeat will apply toward the completed unit count; subsequent repeats will not. This does not apply to courses that are repeatable for credit (i.e. independent study courses).
- Required remedial courses will count toward the graduate pace requirement.

Quantitative Measurement (minimum unit requirement)

Undergraduate financial aid applicants must comply with the following minimum unit requirements by the end of each academic year.

STATUS OF STUDENT	UNITS REQUIRED
1 year attended - full time	24
1 year attended - part time	12
1 year attended - 1 full time term/1 part time term	18
1 term attended - full time	12
1 term attended - part time	6

Units for the following grades will not be counted as completed units toward meeting the unit requirement for undergraduate students: F (failure), I (incomplete), NP (not pass), U (unsatisfactory), W (withdraw), NR (no grade reported).

Transfer courses and required remedial courses will count toward the undergraduate student unit requirement. Only the transfer units earned during the academic year for which the Financial Aid SAP processing is being run will count.

Maximum Time-Frame Requirement

All undergraduate financial aid applicants exceeding the following year limits will be ineligible for financial aid consideration. Students will not be granted additional years of eligibility solely by reason of changing their field of study (major) or pursuing more than one major or a minor. Students are allowed up to six years of financial aid eligibility, depending on their class standing when they are admitted. The initial class level is assigned by the Office of Admissions, based on transfer credits accepted, including Advanced Placement units.

- Terms in which the student withdraws are counted toward a student's maximum year limit.
- Terms in which the student did not receive aid are counted toward the maximum year limit.
- Maximum Time-frame measure also includes all of the bulleted items under the Pace Requirement section.

GRADE LEVEL AT ENTRANCE:	NUMBER OF YEARS OF ELIGIBILITY:
Units Accepted For Transfer At Entrance	Academic Year Standing
0-29	1
30-59	2
60-89	3
90-119	4
120+	4+

ACADEMIC YEAR STANDING	YEARS OF ELIGIBILITY
1	6
2	4.5
3	3
4+	1.5

- Every term in which the student was enrolled with official part-time status is counted as a quarter-year of eligibility used.
- Summer terms attended are counted when determining if a student has reached the maximum year limit. If a student attempts more than 9 units in summer, he will have used one half-year of eligibility. If a student attempts 9 or fewer units in summer, he will have used one quarter-year of eligibility.
- Accepted transfer units taken between (non-concurrent) enrollment at UC Merced will be added to the total number of transfer units the student has and will be used to determine remaining years of eligibility.
- Units taken while concurrently enrolled at UC Merced do not count as a separate year of eligibility.
- Students acquiring a second bachelor's degree will have up to two years of additional Title IV financial aid eligibility (no institutional aid will be awarded), not to exceed eight years (six years of Title IV eligibility for the first bachelor's and an additional two for the second bachelor's).

Appeal Process for Financial Aid Satisfactory Academic Progress

If a student fails to maintain satisfactory academic progress, he or she will be notified that he or she is ineligible for financial aid beginning with the term immediately following the term the SAP requirements were not met.

Because SAP is monitored annually at the end of the spring term, the first term of ineligibility will typically be the following summer or fall term. Eligibility for continued financial aid will only be re-established if the student subsequently meets the Satisfactory Academic Progress requirements; or if the student successfully appeals and his or her aid is reinstated.

Undergraduate students wishing to appeal must submit a UC Merced SAP Appeal to the UC Merced Office of Financial Aid and Scholarships. The appeal form is available online and instructions are sent to all students who do not meet the SAP standards.

All appeals must state the reason(s) for failing to meet the SAP requirements. Students must demonstrate some type of extenuating circumstances during the term(s) in question that hindered academic performance, such as prolonged hospitalization, death or extreme sickness in the family, etc. Supporting documentation of these extenuating circumstances should be submitted with the appeal.

Furthermore, students must submit, as part of the appeal, information regarding what has changed that would prevent a recurrence and would now allow them to re-establish the satisfactory academic requirements by the conclusion of the outlined time frame.

As part of the appeal, students must propose an academic plan that details how they will make up their deficiencies:

- If deficient in units, what they will do to ensure they pass the minimum number of units the following academic year to meet the minimum unit or pace requirements by the conclusion of the plan;
- If deficient in GPA, the minimum GPA required for each future term to eventually meet the minimum cumulative GPA requirement by the conclusion of the plan;
- If maximum number of terms of eligibility has been reached, the number of additional future terms required to complete degree requirements.

In all circumstances, students must report which future terms of enrollment will be required to complete any and all academic deficiencies.

Academic advisers will review and approve all academic plans submitted via the on-line appeal. By approving a plan, an adviser concurs that, if followed, the plan will permit the student to meet the SAP requirements at the end of the plan's duration.

Students cannot apply retroactively for aid eligibility for a term that has ended. Deadline dates for each term are published annually on the financial aid website. Once received by the aid office, the appeal is reviewed for completeness.

If the student indicated he or she is attaching supporting documentation, the application will be considered incomplete until the documentation is received. An email is sent to the student with instructions to submit the documentation to the OFAS. Once accepted, appeals will be evaluated by the Financial Aid Appeal Committee.

If the appeal is denied, the student will be informed via email letter that the decision is final and no subsequent review of the appeal will be permitted. If the appeal is approved, a copy of the student's approved academic plan will be emailed with the decision email letter.

GRADUATE FINANCIAL AID SATISFACTORY ACADEMIC PROGRESS POLICY

Beginning July 1, 2011, Satisfactory Academic Progress (SAP) standards were updated to comply with Federal Regulations. These updated SAP standards will be monitored annually at the end of the spring term beginning with the completion of the 2011-2012 academic year. In order to maintain satisfactory academic progress for financial aid eligibility, students must meet four standards: a GPA requirement, a pace requirement, a minimum cumulative unit requirement and a maximum time-frame requirement.

If a student fails to maintain satisfactory academic progress, he or she will be notified that he or she is ineligible for financial aid beginning with the term immediately following the term the SAP requirements were not met.

Because SAP is monitored annually at the end of the spring term, the first term of ineligibility will typically be the following summer or fall term. Eligibility for continued financial aid will only be re-established if the student subsequently meets the Satisfactory Academic Progress requirements; or if the student successfully appeals and his or her aid is reinstated.

A student who has his or her financial aid eligibility reinstated is placed on probation and becomes subject to the terms of an academic plan.

The Office of Financial Aid and Scholarships (OFAS) will evaluate whether the student is adhering to the plan on a term-by-term basis. If the student has made up all of his or her deficiencies, he or she will no longer be considered on probation and instead will be considered an eligible student meeting the SAP requirements.

Requirements for Satisfactory Academic Progress

The following requirements for satisfactory academic progress for receipt of all Federal Title IV financial aid apply to all applicants. These requirements are separate and distinct from UCM's policy regarding satisfactory academic progress set by the Graduate Division or the Schools. Note: Some funds have higher academic and/or enrollment requirements.

Grade Point Average (GPA) Requirement

Graduate students must have at least a 3.0 GPA at the conclusion of the spring term each academic year.

Pace Requirement

All graduates must complete enough at least 66.6 percent of the units attempted each year to keep pace toward graduation.

$$\text{STUDENT'S PACE} = \frac{\text{UCM Completed Units + Accepted Transfer Units}}{\text{UCM Attempted Units + Accepted Transfer Units}}$$

- The number of attempted units counted in the formula reflect the units attempted as they appear on the student's transcript.
- All transfer credits UC Merced accepts toward a student's program are included in the pace calculation, both as attempted units as well as completed units.
- Units for the following grades will not be counted as completed units toward meeting the pace requirement for undergraduate students: F (failure), I (incomplete), NP (not pass), U (unsatisfactory), W (withdraw), NR (no grade reported).
- If a student repeats a previously passed course, only the first repeat will apply toward the completed unit count; subsequent repeats will not. This does not apply to courses that are repeatable for credit (i.e. independent study courses).
- Required remedial courses will count toward the graduate pace requirement.

Minimum Cumulative Unit Requirement

Graduate financial aid applicants must comply with the following minimum unit requirements by the end of each academic year:

STATUS OF STUDENT	UNITS REQUIRED
1 year attended - full time	16
1 year attended - part time	8
1 year attended - 1 full time term/1 part time term	12
1 term attended - full time	8
1 term attended - part time	4

Units for the following grades will not be counted as completed units toward meeting the minimum cumulative unit/clock hour requirement for graduate students: F (failure), I (incomplete), NP (not pass), U (unsatisfactory), W (withdraw), NR (no grade reported). Required remedial courses will count toward the graduate student unit/clock hour requirement.

Maximum Time-frame Requirement

All graduate financial aid applicants exceeding the following term limits will be ineligible for financial aid consideration. Students will not be granted additional terms of eligibility solely by reason of changing their field of study.

MASTER'S DEGREE STUDENTS are eligible for financial aid for up to three years of academic year attendance following completion of their baccalaureate degrees (regardless of whether they received financial aid during these terms).

- Terms in which the student withdraws are counted toward a student's maximum term limit.
- Terms in which the student did not receive aid are counted toward the maximum term limit.
- Summer terms attended are counted when determining if a student has reached his maximum term limit. If a student attempts more than 8 units in summer, he will have used one term of eligibility. If a student attempts 8 or fewer units in summer, he will have used a half-term of eligibility.
- Every term in which the student was enrolled with official part-time status is counted as a half-term of eligibility used.

DOCTORAL STUDENTS may be eligible for financial aid for up to 7.5 years of academic-year attendance following the completion of their baccalaureate degrees (regardless of whether they received financial aid during these terms).

- Terms in which the student withdraws are counted toward a student's maximum term limit.
- Terms in which the student did not receive aid are counted toward the maximum term limit.
- Summer terms attended are counted when determining if a student has reached his maximum term limit. If a student attempts 9 or more units in summer, he will have used one term of eligibility. If a student attempts 8 or fewer units in summer, he will have used a half-term of eligibility.
- Every term in which the student was enrolled as official part-time status is counted as a half-term of eligibility used.

Appeal Process for Financial Aid Satisfactory Academic Progress

If a student fails to maintain satisfactory academic progress, he or she will be notified that he or she is ineligible for financial aid beginning with the term immediately following the term the SAP requirements were not met.

Because SAP is monitored annually at the end of the spring term, the first term of ineligibility will typically be the following summer or fall term. Eligibility for continued financial aid will only be re-established if the student subsequently meets the Satisfactory Academic Progress requirements; or the student successfully appeals and his or her aid is reinstated.

Graduate students wishing to appeal must submit a UC Merced SAP Appeal to the UC Merced Office of Financial Aid and Scholarships. The appeal form is available online and instructions are sent to all students who do not meet the SAP standards.

All appeals must state the reason(s) for failing to meet the SAP requirements. Students must demonstrate some type of extenuating circumstances during the term(s) in question that hindered academic performance, such as prolonged hospitalization, death or extreme sickness in the family, etc.

Supporting documentation of these extenuating circumstances should be submitted with the appeal.

Furthermore, students must submit, as part of the appeal, information regarding what has changed that would prevent a recurrence and would now allow them to re-establish the satisfactory academic requirements by the conclusion of the outlined time-frame.

In the appeal, students must propose an academic plan that details how they will make up their deficiencies:

- If deficient in units, what they will do to ensure that they pass the minimum number of units the following academic year to meet the minimum unit or pace requirements by the conclusion of the plan;
- If deficient in GPA, the minimum GPA required for each future term to eventually meet the minimum cumulative GPA requirement by the conclusion of the plan;
- If maximum number of terms of eligibility has been reached, the number of additional future terms required to complete degree requirements.

In all circumstances, students must report which future terms of enrollment will be required to complete any and all academic deficiencies.

Students must consult with their academic counselors, as counselors must sign and approve all academic plans. By approving a plan, a counselor concurs that, if followed, the plan will permit the student to meet the SAP requirements at the end of the plan's duration.

Students cannot apply retroactively for aid eligibility for a term that has ended. Deadline dates for each term are published annually on financial aid website. Once received by the aid office, the appeal is reviewed for completeness.

If the student indicates he or she is attaching supporting documentation, the application will be considered incomplete until the documentation is received. An email is sent to the student with instructions to submit the documentation to the OFAS. Once accepted, appeals will be evaluated by the Dean of the Graduate Division or an appointed committee.

The recommended decision will be communicated to the Director of Financial Aid and Scholarships for final approval. If the appeal is denied, the student will be informed via email letter that the decision is final and no subsequent review of the appeal will be permitted. If the appeal is approved, a copy of the student's approved academic plan will be emailed with decision email letter.

Academic Policies and Procedures

DROPPING A COURSE (update: page 44)

The deadline to drop a course has been changed to the end of the third week. The full updated policy can be found here: http://registrar.ucmerced.edu/policies/adddropwithdraw

RE-ADMISSION (update: page 52)

The full updated policy can be found here: http://registrar.ucmerced.edu/policies/reinstatement

• COMPUTER SCIENCE AND ENGINEERING MAJOR (update: page 62)

Changes were made to the Technical Electives requirement: A total of 16 units of CSE technical electives are required. CSE technical electives are all upper division CSE courses, MATH 131 and MATH 141. Upper division core courses taken in excess of the core requirements may be counted as technical electives. Other upper division courses outside your major area of study can be selected with approval.

• ENVIRONMENTAL ENGINEERING MAJOR (update: page 62)

The undergraduate major in Environmental Engineering prepares students for careers in both industry and government agencies concerned with managing water, energy, public health and the environment. The program is also a good foundation for further study in Earth science, engineering, business, management, law and public health. The curriculum provides students with a quantitative understanding of the physical, chemical and biological principles that control air, water and habitat quality and sustainability on Earth, along with expertise in the design, development, implementation and assessment of engineering solutions to environmental problems.

Environmental engineers are distinguished from other environmental professionals through their focus on problem solving, design, and implementation of technological or management systems.

Environmental engineers search for creative and economical ways to use resources efficiently, limit the release of residuals into the environment, develop sensitive techniques to track pollutants once released and find effective methods to remediate spoiled resources. They serve as the vital link between scientific discovery, technological development and the societal need for protecting human health and ecological integrity.

In the coming decades, environmental engineers will increasingly be called upon to address broader issues of environmental sustainability by minimizing the release of residuals through altered production processes and choice of materials; by capturing the resource value of wastes through recovery, recycling and reuse; and by managing natural resources to meet competing societal objectives.

UC Merced emphasizes a highly interdisciplinary approach to environmental engineering, combining a strong theoretical foundation with field studies, laboratory experiments and computations. Core courses within the major provide students with a firm foundation in the physical and life sciences and the ways that they apply to energy, hydrology, and air- and water-quality issues. Emphasis areas allow students the flexibility to study in more depth by following tracks developed in consultation with their academic adviser(s). The main areas of emphasis for Environmental Engineering at UC Merced are hydrology, water quality, air pollution and sustainable energy.

Hydrology focuses on the sources, balance and use of water in both natural and managed environments, including precipitation, mountain snowpack, river runoff, vegetation, water use and groundwater. Both the physical and chemical aspects of the water cycle are included.

Water quality focuses on engineering solutions to water and waste issues, including measurement technology, water-quality assessments, treatment systems and remediation of contaminated waters. Physical, chemical and biological aspects are included.

Air pollution and sustainable energy focus on engineering solutions to air quality and energy problems, both regionally and globally. The sources, fate, effects of air pollutants, as well as the planning and design of solar and other renewable energy systems are included.

Engineers need to understand not only the technical but also the social and political contexts of their work. They must be able to communicate and plan, finance and market their products and ideas. Social sciences, business, humanities and arts courses are an important part of the curriculum. The result is a major that is hands-on and creative, engaging and adaptable.

Environmental Engineering Program Learning Outcomes

The ENVE program has six learning outcomes that characterize an ENVE graduate in terms of what he or she will be enabled to accomplish after graduation:

1. ENVE graduates will have gained a strong foundation in basic mathematics, science, social science, humanities and arts, along with engineering principles, enabling active engagement as citizens in their communities.
2. ENVE graduates will be adept at applying critical thinking, problem solving, engineering principles and reasoning, the scientific method and teamwork to solve environmental resource problems and to restore and sustain the global environment.
3. ENVE graduates will be prepared for advanced studies and research and/or employment advancement in a broad spectrum of industries and government agencies.
4. ENVE graduates will communicate effectively in written, spoken and visual formats with technical, professional and broader communities.
5. ENVE graduates will practice engineering according to the highest professional standards, demonstrating respect for social, ethical, cultural, environmental, economic and regulatory concerns.
6. ENVE graduates will be instilled with a desire to pursue life-long learning opportunities including continued education, professional licensure, challenging professional experiences and active participation in professional organizations.

Requirements for the Environmental Engineering (Enve) Major

The additional requirements that must be met to receive a Bachelor of Science in Environmental Engineering at UC Merced are: General Chemistry II (CHEM 010, 4 units), Engineering Fundamentals (18 units), Environmental Engineering Core (23 units), and Technical electives (15 units, specified areas, including at least one Field Methods course).

Engineering Fundamentals [18 Units; 3 Units Specified]

THE FOLLOWING FUNDAMENTALS COURSE IS REQUIRED:

Engineering Economic Analysis (ENGR 155) . . . . . 3 units

Fundamentals courses, designated by the *, are recommended for environmental engineering students preparing for the Fundamentals of Engineering (FE) examination. Students can petition to substitute other courses. Please consult your faculty adviser for recommendations.

Statics and Dynamics (ENGR 057)* . . . . . 4 units

Fluid Mechanics (ENGR 120)* . . . . . 4 units

Thermodynamics (ENGR 130)* . . . . . 3 units

Circuit Theory (ENGR 065)* . . . . . 3 units

Introduction to Materials (ENGR 045)* . . . . . 4 units

Strength of Materials (ENGR 151)* . . . . . 4 units

Spatial Analysis and Modeling (ENGR 180) . . . . . 4 units

Environmental Engineering Core [23 Units]

The environmental engineering core consists of six courses designed to give all students core knowledge specific to the discipline and a culminating design experience:

Lower Division Courses

Introduction to Environmental Science and Technology (ENVE 020) . . . . . 4 units

Upper Division Courses

Environmental Chemistry (ENVE 100) . . . . . 4 units

Hydrology and Climate (ENVE 110) . . . . . 4 units

Meteorology and Air Pollution (ENVE 130) . . . . . 4 units

Sustainable Energy (ENVE 160) . . . . . 4 units

Environmental Engineering Capstone Design (ENVE 170) . . . 3 units

Additional Degree Requirements [5 Units]

THE FOLLOWING COURSES ARE REQUIRED:

General Chemistry II (CHEM 010) . . . . . 4 units

Professional Seminar (ENGR 191) . . . . . 1 unit

Technical Electives [At Least 15 Units]

Technical electives should be selected in a manner that is complementary to, yet integrated with, your major area of study, and should be determined through close interaction with your major area adviser. Check carefully for current offerings, as some of the courses are offered only in alternate years. Courses should be selected from the following list of approved technical electives, or students can petition to include other upper division courses outside their majors.

AT LEAST ONE OF THE FOLLOWING FIELD METHODS COURSES IS REQUIRED:

Field Methods in Snow Hydrology (ENVE 181) . . . . . 1-3 units

Field Methods in Surface Hydrology (ENVE 182) . . . . . 1-3 units

Field Methods in Subsurface Hydrology (ENVE 183) . . . . . 1-3 units

Field Methods in Environmental Chemistry (ENVE 184) . . . . . 1-3 units

AT LEAST ONE OF THE FOLLOWING UPPER DIVISION EARTH SCIENCES COURSES IS REQUIRED:

Geochemistry of Earth Systems (ESS 103) . . . . . 3 units

Biogeochemistry (ESS 105) . . . . . 3 units

Subsurface Hydrology (ESS 112) . . . . . 4 units

Fundamentals of Soil Science (ESS 170) . . . . . 3 units

AT LEAST ONE OF THE FOLLOWING UPPER DIVISION BIOLOGY COURSES IS REQUIRED:

Biogeochemistry (ESS 105) . . . . . 3 units

Intro to Ecological and Environmental Microbiology (ESS 120) . . . . . 4 units

Terrestrial Ecosystem Ecology (ESS 124) . . . . . 3 units

Fundamentals of Ecology (ESS 148) . . . . . 4 units

Conservation Biology (ESS 149) . . . . . 4 units

A maximum of 4 Service Learning (ENGR 97/197) and/ or Undergraduate Research (ENGR 99/199) units may be used as technical elective units.

Spatial Analysis and Modeling (ENGR 180) . . . . . 4 units

Environmental Data Analysis (ENVE 105) . . . . . 3 units

Mountain Hydrology of the Western States (ENVE 114) . . . . . 4 units

Applied Climatology (ENVE 116) . . . . . 3 units

Global Change (ENVE 118) . . . . . 4 units

Environmental Microbiology (ENVE 121) . . . . . 4 units

Water Resources and Management (ENVE 140) . . . . . 3 units

Remote Sensing of the Environment (ENVE 152) . . . . . 4 units

Decision Analysis in Management (ENVE 155) . . . . . 4 units

Sustainable Energy (ENVE 160) . . . . . 4 units

Modeling and Design of Energy Systems (ENVE 162) . . . . . 3 units

Energy Policy and Planning Modeling (ENVE 164) . . . . . 4 units

Contaminant Fate and Transport (ENVE 170) . . . . . 3 units

Environmental Organic Chemistry (ENVE 171) . . . . . 3 units

Water and Wastewater Treatment (ENVE 176) . . . . . 3 units

Watershed Biogeochemistry (ESS 105) . . . . . 3 units

Air Pollution Control (ENVE 132) . . . . . 3 units

LIST OF COURSES FOR EMPHASIS TRACKS

Hydrology

Subsurface Hydrology (ENVE 112) . . . . . 4 units

Mountain Hydrology of the Western US (ENVE 114) . . . . . 4 units

Applied Climatology . . . . . 3 units

Remote Sensing of the Environment (ENVE 152) . . . . . 4 units

Watershed Biogeochemistry (ESS 105) . . . . . 3 units

Decision Analysis in Management (ENVE 155) . . . . . 4 units

Environmental Data Analysis (ENVE 105) . . . . . 3 units

Field Methods in Snow Hydrology (ENVE 181) . . . . . 1-3 units

Field Methods in Surface Hydrology (ENVE 182) . . . . . 1-3 units

Field Methods in Subsurface Hydrology (ENVE 183) . . . . . 1-3 units

Water quality

Subsurface Hydrology (ENVE 112) . . . . . 4 units

Environmental Microbiology (ENVE 121) . . . . . 4 units

Decision Analysis in Management (ENVE 155) . . . . . 4 units

Environmental Data Analysis (ENVE 105) . . . . . 3 units

Water Resources and Management (ENVE 140) . . . . . 3 units

Contaminant Fate and Transport (ENVE 170) . . . . . 3 units

Environmental Organic Chemistry (ENVE 171) . . . . . 3 units

Water and Wastewater Treatment (ENVE 176) . . . . . 3 units

Field Methods in Surface Hydrology (ENVE 182) . . . . . 1-3 units

Field Methods in Subsurface Hydrology (ENVE 183) . . . . . 1-3 units

Field Methods in Environmental Chemistry (ENVE 184) . . . . . 1-3 units

Air Pollution and Sustainable Energy

Decision Analysis in Management (ENVE 155) . . . . . 4 units

Remote Sensing of the Environment (ENVE 152) . . . . . 4 units

Air Pollution Control (ENVE 132) . . . . . 3 units

Applied Climatology (ENVE 116). . . . . 3 units

Modeling and Design of Energy Systems (ENVE 162) . . . . . 3 units

Energy Policy and Planning Modeling (ENVE 164) . . . . . 4 units

Heat Transfer (ENGR 135) . . . . . 3 units

• MATERIALS SCIENCE AND ENGINEERING MAJOR (update: page 64)

UC Merced students majoring in Materials Science and Engineering (MSE) will be equipped for leadership in a field that dictates the pace of technological progress. Since the beginnings of civilization, technological progress has always relied on the materials people were able to acquire from nature, through trade or by innovation.

Wood, stone, bronze, iron, steel, aluminum, cements, plastics, semiconductors, liquid crystals, nanomaterials and quantum dots all have unique properties that enable — but also limit — what humans can make and do. Nations continue to go to war over access to particular raw materials.

The construction of safe dwellings, the conveniences of rapid travel, the efficiency of telecommunications, the calculating and archiving power of computers, the life-prolonging gifts of surgical implants and the dazzling performances of athletes all require dependable materials. Future technological progress, of any kind, will always be driven by the available materials.

Materials Science and Engineering applies fundamental principles of physics and chemistry to designing materials with desired combinations of mechanical, optical, electrical, magnetic, electrochemical and other properties.

Increasingly, innovative materials are being developed with the benefit of lessons that have been learned from nature. Examples include armor based on the structure of abalone shells and rats' teeth; optical materials that owe a debt to sea urchin spines and peacock feathers; high-performance ballistic fibers modeled on spider silk; self-cleaning surfaces copied from lotus leaves; and strong, reusable adhesives that emulate the behavior of gecko feet.

Also encompassed in MSE are the methods by which particular atomic and molecular arrangements (nanostructures and microstructures) are achieved, the overall cost of the ingredients and processes used to produce particular materials, the effects of the environment on materials, the effects of materials and materials processing on the environment, and characterization of materials structure and properties.

Because MSE embraces skills from physics, chemistry, mathematics and biology, it is especially appealing to anyone who enjoys interdisciplinary studies and who seeks to apply such knowledge to solving practical engineering problems.

MSE graduates are in demand in a great variety of fields including manufacturing, energy, utilities, patent law, the financial sector, construction, transportation, aerospace, computer industries, sports, consulting, public policy, education and research. Employers appreciate the ability of MSE graduates to relate to colleagues across a broad spectrum of expertise.

Recent surveys of employment prospects nationally point to a steady growth in the overall MSE job market over the next decade, at least. The growth will likely be focused in areas related to the development of new materials, including materials for nanotechnology and biotechnology, rather than traditional areas of materials manufacturing. The MSE major at UC Merced reflects this expectation, with an emphasis on materials issues that will ensure the long-term relevance of our MSE degree.

MATERIALS SCIENCE AND ENGINEERING LEARNING OUTCOMES

Upon graduation, our graduates demonstrate the following:

A) The ability to apply advanced science (such as chemistry and physics) and engineering principles to materials systems;

B) An integrated understanding of the scientific and engineering principles that underlie the four major elements of the field: structure, properties, processing and performance related to materials systems appropriate to the field;

C) The ability to apply and integrate knowledge from each of the above four elements of the field to solve materials selection and design problems;

D) The ability to utilize experimental, statistical and computational methods in the context of materials systems;

E) Professional and ethical responsibility.

Requirements for the Materials Science and Engineering (MSE) Major

The additional requirements that must be met to receive a Bachelor of Science in Materials Science and Engineering at UC Merced are: Engineering Fundamentals (18 units), MSE Core (26 units), and Technical electives (at least 9 units).

Engineering Fundamentals [18 Units Specified]

THE FOLLOWING FUNDAMENTALS COURSES ARE REQUIRED:

Statics and Dynamics (ENGR 057). . . . . 4 units

Strength of Materials (ENGR 151). . . . . 4 units

Fluid Mechanics (ENGR 120). . . . . 4 units

Thermodynamics (ENGR 130) . . . . . 3 units

Engineering Economic Analysis (ENGR 155) . . . . . 3 units

Materials Science And Engineering Core [26 Units; Specified]

The MSE core consists of courses designed to give all students a common foundation of core knowledge and skills specific to the discipline:

LOWER DIVISION COURSES

Introduction to Materials (ENGR 045). . . . . 4 units

UPPER DIVISION COURSES

Materials Thermodynamics (MSE 109) . . . . . 4 units

Condensed Matter Physics (PHYS 141) . . . . . 4 units

Materials Kinetics and Processing (MSE 111) . . . . . 4 units

Materials Selection and Performance (MSE 112) . . . . . 3 units

Materials Characterization (MSE 113) . . . . . 4 units

Materials Capstone Design (MSE 120) . . . . . 3 units

ADDITIONAL DEGREE REQUIREMENTS

Professional Seminar (ENGR 191) . . . . . 1 unit

ADDITIONAL DEGREE RECOMMENDATIONS:

Six Service Learning units, at least three of which should be upper division (up to 2 credits could be freshman seminars).

Service Learning (ENGR 097 or ENGR 197). . . . . 6 units

Technical Electives [At Least 9 Units]

Technical electives should be selected in a manner that is complementary to, yet integrated with, your major area of study, and should be determined through close interaction with your major area adviser. They should be selected from the following approved list:

Polymeric Materials (MSE 114) . . . . . 4 units

Ceramic Materials (MSE 115) . . . . . 3 units

Composites (MSE 116) . . . . . 3 units

New Materials (MSE 117) . . . . . 3 units

Introduction to Nanotechnology and Nanoscience (MSE 118) 3 units

Materials Simulations (MSE 119) . . . . . 3 units

Introduction to Electron Microscopy (ENGR 170) . . . . . 3 units

Self-Assembling Molecular Systems (BIOE 110) . . . . . 3 units

Biomembranes (BIOE 111) . . . . . 3 units

Biomolecule-Substrate Interactions (BIOE 112). . . . . 3 units

Quantum Chemistry and Spectroscopy (CHEM 112) . . . . . 3 units

Nanodevice Fabrication (MSE 126) . . . . . 3 units

NANOTECHNOLOGY EMPHASIS:

An emphasis in nanotechnology concurrent to a bachelor of science degree is offered to students who complete the following two required courses and one elective course. Students will learn both solution- and vapor-based nanomaterial synthesis first hand, and they will be exposed to morphology characterization as well as basic property studies.

REQUIRED COURSES:

Nanodevice Fabrication (MSE 126) . . . . . 3 units

Introduction to Nanotechnology and Nanoscience (MSE 118) . . . . . 3 units

ELECTIVE COURSES:

Polymeric Materials (MSE 114) . . . . . 4 units

New Materials (MSE 117) . . . . . 3 units

Materials Simulations (MSE 119) . . . . . 3 units

Self-assembling Molecular Systems (BIOE 110) . . . . . 3 units

Nanoscale Materials Chemistry (CHEM 140). . . . . 3 units

Introduction to Electron Microscopy (ENGR 170) . . . . . 3 units

School of Natural Sciences

• APPLIED MATHEMATICAL SCIENCES MAJOR (update: page 70)

Changes were made to the Additional Requirements for Physics Emphasis Track: PHYS 010 is required and any upper division physics courses, except PHYS 116 or 160, totaling at least 14 units.

• BIOLOGICAL SCIENCES MAJOR, HUMAN BIOLOGY EMPHASIS (update: page 73)

Changes were made to the Upper Division Elective Courses: At least four courses chosen from the Human Biology elective list below:

One upper division Cognitive Science, Psychology or Neurology Course . . . . . 4 units

Three additional courses, two of which must be BIO . . . . . 12 units minimum

ANTH 100 - History of Anthropological Thought and Practice
ANTH 114 - Social Memory

ANTH 120 - Introduction to Medical Anthropology

ANTH 121 - Ethnomedicine

ANTH 130 - Archaeology of Colonialism

ANTH 155 - Paleodemography

ANTH 160 - Human Origins

ANTH 162 - Growth, Development and Human Evolution

ANTH 169 - Trends in Biological Anthropology

ANTH 172 - Ethnohistory

BIO 104 - Biophysics

BIO 104L - Biophysics Laboratory

BIO 105 - Enzymology

BIO 107 - Physical Biochemistry

BIO 111 - Cells, Tissues and Organs

BIO 120 - General Microbiology

BIO 120L - General Microbiology Laboratory

BIO 122 - Microbial Pathogenesis

BIO 123 - Human Parasitology

BIO 127 - Virology

BIO 142 - Genome Biology

BIO 150 - Embryos, Genes and Development

BIO 151 - Molecular Immunology

BIO 151L - Molecular Immunology Laboratory

BIO 152 - Cancer Genetics and Tumor Biology

BIO 164 - Human Anatomy

BIO 170 - Neurobiology

BIO 170L - Neurobiology Laboratory

BIO 175 - Biostatistics

BIO 180 - Mathematical Modeling for Biology

BIO 181 - Introduction to Biomolecular Simulation

BIO 182 - Bioinformatics

COGS 101 - Mind, Brain and Computation*

COGS 103 - Introduction to Neural Networks in Cognitive Science*

PH 125 - Emerging Public Health Threats

PSY 121 - Cognitive Psychology

PSY 123 - Alcohol, Drugs and Behavior

PSY 130 - Developmental Psychology

PSY 140 - Clinical Psychology

PSY 145 - Human Sexuality

PSY 180 - Physiological Psychology

• ECONOMICS MAJOR (update: page 89)

UPDATES WERE MADE TO THE PROGRAM LEARNING OUTCOMES FOR THE ECONOMICS MAJOR.

A. Demonstrate an understanding of the role of organizations and institutions in a society, the impact of organizations and institutions on the economic environment and outcomes, and how incentives influence individual and organizational behavior and performance.

B. Recognize and describe how government actions affect economic performance and how economic interests influence government decisions.

C. Design and conduct research that will inform managerial and policy decision-making, including the collection, analysis and interpretation of data using familiar software packages.

D. Define problems and identify multifaceted explanations for complex economic phenomena by using information and data from multiple sources to answer the questions at hand.

E. Demonstrate critical thinking about the information encountered, whether it is in coursework or reported in the media.

F. Communicate clearly and cogently in written and oral form using modern technology.

• MANAGEMENT MAJOR (update: page 92)

UPDATES WERE MADE TO THE PROGRAM LEARNING OUTCOMES FOR THE MANAGEMENT MAJOR.

A. Analyze and solve problems related to management from a holistic, multidisciplinary perspective.

B. Apply theories and concepts from the discipline of Management and related fields (e.g. accounting, economics, statistics, finance, marketing, human resource management, strategy and business law) to management situations.

C. Use effective written and oral communication consistent with the discipline and professional environments.

D. Apply appropriate information technology to analyze and problem solve, develop business research, report key data, and recommend management strategies and actions.

E. Evaluate ethical, social and external issues as they relate to the organization, operations, human resources and business ventures.

• PSYCHOLOGY MAJOR

THIS FOLLOWING PARAGRAPH WAS ADDED TO THE DESCRIPTION OF THE PSYCHOLOGY MAJOR: (Update: Page 93)

Psychology is the scientific study of the human mind and mental states, and of human and animal behavior.

The field of psychology can be both applied and theoretical, and is inherently interdisciplinary, drawing together aspects of the natural and social sciences, humanities and the arts to address specific problems. For example, research psychologists might study the biology of the brain, complex mathematical processes, how to collect and analyze data, the growth of children, health and behavioral physiology, learning in animals, psychological stress, the basis of artistic talent, evolution, sensory perception, parent-infant attachment, psychiatric disorders or any of a wide variety of other topics.

CHANGES WERE MADE TO THE UPPER DIVISION MAJOR REQUIREMENTS: (Update: Page 93)

Writing in the Disciplines: Psychology (WRI 101) . . . . . 4 units

At least seven upper division psychology courses, including: . 28 units

AT LEAST ONE COURSE IN EACH OF THE FOLLOWING THREE GROUPS:

Group A (Cognition, Brain and Behavior): PSY 160-169, PSY 180-189, or any upper division COGS course

Group B (Social-Personality, Development): PSY 130-139 or PSY 150-159

Group C (Applied Psychology): PSY 120-129, PSY 140-149 or PSY 170-179

At least two upper division advanced courses; these must be different courses than those used to meet the three groups requirement. Any course that has PSY 015 as prerequisite is an upper division advanced course. Consult a SSHA adviser or the SSHA Advising website for approved courses

At least two Psychology electives

AN EXIT EXAMINATION IS NO LONGER REQUIRED. (Update: Page 94)

• MINOR IN AMERICAN STUDIES (update: page 98)

PROGRAM LEARNING OUTCOMES WERE ADDED TO THE MINOR IN AMERICAN STUDIES.

A. Students analyze themes in American culture (past and present) and raise insightful questions from a multidisciplinary perspective.

B. Students name, understand, and apply interdisciplinary theories and methods to contemporary scenarios.

C. Students use professional written and oral communication.

D. Students demonstrate an understanding of American Studies as a field, including current and emerging issues in the discipline.

E. Students demonstrate an understanding of the political and historical dimensions of culture and demonstrate this skill in essay and/or exam formats.

• MINOR IN INTERDISCIPLINARY PUBLIC HEALTH (update: page 100)

CHANGES WERE MADE TO THE MINIMUM REQUIREMENTS:

Students must take the following four courses [16 units]:

Introduction to Public Health (PH 001) . . . . . 4 units

Introduction to Epidemiology (PH 100) . . . . . 4 units

Introduction to the Health System (PH 105) . . . . . 4 units

To Know Ourselves: Molecular Basis of Health and Disease (BIO 003). . . . . 4 units

Students must also take at least two courses [8 units] that address topics in health, disease, and disparities of which 8 units must be upper division:

PSY 124: Health Disparities

ANTH 120: Introduction to Medical Anthropology

ANTH 121: Ethnomedicine

BIO 010: Genetics, Stem Cells and Development

BIO 060: Nutrition

PH 125: Public Health Threats

PH 195: Undergraduate Supervised Research in Public Health

BIO 140: Genetics

BIO 161: Human Physiology

ECON 145: Health Economics

PSY 147: Health Psychology

SOC 161: Sociology of Health

• **MINOR IN SERVICES SCIENCE** (update: page 101)

PROGRAM LEARNING OUTCOMES WERE ADDED TO THE MINOR IN SERVICES SCIENCE.

A. Describe through a multidisciplinary lens the process of how knowledge is converted to value in the services sector.

B. Assess how goods and services can be improved, administered and optimized.

C. Apply appropriate information technology to analyze basic business processes and recommend strategies for improvement and optimization.

D. Present basic knowledge of the relationship between IT and service systems.

E. Use professionalism in writing and speaking that is consistent with the discipline

Graduate Studies

New graduate programs are under development; please check the Graduate Division website for more information: http://graduatedivision.ucmerced.edu

Course Descriptions

Below is a list of all new or changed courses. A full listing of course offerings with descriptions can be found at http://registrar.ucmerced.edu/go/schedule

ARTS 002B, 030, 060, 061, 062, 063, 100, 130, 131, 142, 160, 161, 162, 163, BEST 211, BIO 005, 110, 125, 185, BIOE 104, 150, CHEM 010, 101L, 113, COGS 101, 121, 140, 141, 152, 173, CSE 126, 177, 178, ECON 100, 101, 116, 141, 161, EECS 265, 267, 277, 290, ENGR 065, 135, 151, ENVE 020, 112, 190, ES 212, 227, ESS 112, GASP 103, 104, 105, 111, 171, 172, HIST 110, 112, 122, 127, 129, 170, 180, 191, LIT 042, 138, 173, 190, MATH 005, ME 135, 137, 141, MEAM 210, 261, MGMT 025, 026, 100, 101, 126, 141, 150, 152, 166, 173, MSE 109, 111, 117, NSED 023, 024, 033, 034, 043, 044, 053, 054, 063, 064, 073, 074, 098, 174, PH 001, 125, 195, PHIL 101, 103, 107, 190, PHYS 008H, 116, POLI 010, 175, PSY 105, 110, 123, 124, 125, 130, 133, 135, 136, 137, 138, 139, 140, 143, 145, 147, 150, 151, 159, 160, 161, 162, 170, 171, 172, 180, 181, 182, 183, 190, 202A, 202B, 209, 221, 224, 225, 280, SOC 107, 108, 140, 170, 175, 182, 185, USTU 020, WCH 264, WRI 040, WRI 090

University Administrative Officers

Additions/Changes: Page 181-182

JOANNE DUNLAP, Assistant Vice Chancellor, Human Relations

ANNETTE GARCIA, Assistant Chancellor and Chief of Staff

KYLE HOFFMAN, Vice Chancellor, University Development and Alumni Relations

SAMUEL J. TRAINA, Interim Provost and Executive Vice Chancellor

PATTI WAID, Assistant Vice Chancellor, University Communications

University Faculty

Additions/Changes: Pages 183-189

FRANCOIS BLANCHETTE Associate Professor, School of Natural Sciences

JESSICA BLOIS Assistant Professor, School of Natural Sciences
B.S., University of California, San Diego; M.A., Humboldt State University; Ph.D., Stanford University
Modern ecology, paleoecology, and phylogeography

ERIC BROWN Assistant Professor, School of Natural Sciences
B.S., Harvey Mudd College; Ph.D., University of California, Santa Barbara
Physics

YIHSU CHEN Associate Professor, Schools of Engineering and Social Sciences, Humanities and Arts

RICK DALE Associate Professor, School of Social Sciences, Humanities and Arts
B.A., University of Toronto; Ph.D., Cornell University
Cognition and action relationship; language learning and processing; coordination and interaction in learning and communication; dynamical and connectionist models of learning and processing; philosophy of cognitive science

BENOIT DAYRAT Associate Professor, School of Natural Sciences

GERARDO C. DIAZ Associate Professor, School of Engineering

FABIAN FILIPP Assistant Professor, School of Natural Sciences
B.Sc., University of Regensburg; M.Sc., Ph.D., University of Heidelberg
Systems biology of cancer metabolism

DAVID FORTUNATO Acting Assistant Professor, School of Social Sciences, Humanities and Arts
B.A., University of Miami; M.S., University of New Haven; M.A., Ph.D., Rice University
Coalition politics, legislative institutions, mass political behavior, ideal point estimation

JEFFREY GILGER Professor, School of Social Sciences, Humanities and Arts
B.A., M.S., CSU Hayward; M.A., Ph.D., UC Santa Barbara
Developmental Psychology

TANYA GOLASH-BOZA Associate Professor, School of Social Sciences, Humanities and Arts
B.A., University of Maryland; M.A., Ph.D., University of North Carolina
Race, human rights and immigration policy

AJAY GOPINATHAN Associate Professor, School of Social Sciences, Humanities and Arts

SACHIN GOYAL Assistant Professor, School of Engineering
B.Tech, Banaras Hindu University, India; M.S., Ph.D., University of Michigan, Ann Arbor
Continuum mechanics, dynamics and controls

QINGHUA GUO Associate Professor, School of Engineering

KATRINA HOYER Assistant Professor, School of Natural Sciences
B.S., University of California, Davis; Ph.D., University of California, Los Angeles
Immunology, specifically how cellular and signaling abnormalities lead to autoimmune and inflammatory disease.

KATHLEEN HULL Associate Professor, School of Social Sciences, Humanities and Arts

CHRISTINE M. ISBORN Assistant Professor, School of Natural Sciences
B.S., University of San Francisco; M.S., Ph.D., University of Washington
Theoretical and computational chemistry

DAVID KAMINSKY Assistant Professor, School of Social Sciences, Humanities and Arts
B.A., Macalester College; M.A., Ph.D., Harvard University
Ethnomusicology

MASASHI KITAZAWA Assistant Professor, School of Natural Sciences
B.S., CSU, San Bernardino; M.S., University of California, Irvine; Ph.D., Iowa State University
Toxicology

MIN HWAN LEE Assistant Professor, School of Engineering
B.S., Seoul National University, Korea; M.S., Ph.D., Stanford University
Energy storage

KARIN LEIDERMAN Assistant Professor, School of Natural Sciences
B.S., M.S., University of New Mexico; Ph.D., University of Utah
Mathematical Biology, specifically in biological fluid dynamics, biomechanics and biochemistry. Other interests include porous media flow, regularization methods and scientific computing.

TENY MAGHAKIAN Acting Assistant Professor, School of Social Sciences, Humanities and Arts
B.A., University of California, San Diego; M.A., Ph.D., University of California, Davis
Education, Health, Labor Economics, Public Economics

PAUL MAGLIO Professor, School of Engineering
S.B., Massachusetts Institute of Technology; M.S., Ph.D., University of California, San Diego
Cognitive science management in regards to the studies of work, models of web programming and human-computer interaction

ROUMMEL MARCIA Associate Professor, School of Social Sciences, Humanities and Arts

TEENIE MATLOCK Associate Professor and McClatchy Chair in Communication, School of Social Sciences, Humanities and Arts

SHAWN D. NEWSAM Associate Professor, School of Engineering

ERIK ROLLAND Professor, School of Engineering
B.S., M.A., Ph.D., Ohio State University; M.Sc., NHH and NTNU, Norway
Solving intractable management problems inspired by real management problems, often from the fields of operations research and information systems, but also from other domains, such as healthcare, service and risk management

WILLIAM R. SHADISH Distinguished Professor, School of Social Sciences, Humanities and Arts

JAY SHARPING Associate Professor, School of Natural Sciences

MUKESH SINGHAL Professor and Chancellor's Professorship, School of Engineering
B.S., Indian Institute of Technology, Roorkee, India; Ph.D., University of Maryland, College Park
Cybertrust, information security, distributed computing systems, operating systems, wireless networks and mobile computing, networks security, database systems, cloud computing, and wireless sensor networks and systems

ALEXANDER THEODORIDIS Acting Assistant Professor, School of Social Sciences, Humanities and Arts
B.A., University of Virginia; M.P.P., Harvard University; M.A., Ph.D., University of California, Berkeley
Political psychology, experimental methods and political attitude formation

JITSKE TIEMENSMA Assistant Professor, School of Social Sciences, Humanities and Arts
B.S., Leiden University Medical Center; M.S., Free University Amsterdam; Ph.D., Leiden University Medical Center
Biological health psychology and behavioral medicine

CHRISTINA TORRES-ROUFF Assistant Professor, School of Social Sciences, Humanities and Arts
A.B., University of California, Berkeley; M.A., Ph.D., University of California, Santa Barbara
Biological anthropology

JESSICA TROUNSTINE Associate Professor, School of Social Sciences, Humanities and Arts

THEOFANIS TSOULOUSHAS Professor and Ruiz Family Chair in Entrepreneurship, School of Social Sciences, Humanities and Arts
B.A., University of Athens; M.S., Ph.D., University of Illinois, Urbana-Champaign
Applied micro theory, particularly contract theory, and the economics of organizations and corporate finance.

VINCENT TUNG Assistant Professor, School of Engineering
M.S., National Tsing-Hua University, Taiwan; Ph.D., UCLA
Materials science and engineering

JESS VICKERY, Lecturer, PSOE, School of Natural Sciences
B.S., University of California, Santa Barbara; Ph.D., University of California, Davis
Chemistry and chemical biology

ERIC WALLE Acting Assistant Professor, School of Social Sciences, Humanities and Arts
B.S., Vanderbilt University; Ph.D., University of California, Berkeley
Emotion, social interaction, socio-emotional development, epigenetic phenomena

ANNE WARLAUMONT Acting Assistant Professor, School of Social Sciences, Humanities and Arts
B.A., Cornell University; Ph.D., University of Memphis
Communication sciences and disorders

ROLAND WINSTON Distinguished Professor, Schools of Engineering and Natural Sciences

FRED WOLF
Assistant Professor, School of Natural Sciences
B.S., University of Michigan; Ph.D., University of California, Berkeley
Molecular and cell biology

JING XU Assistant Professor, School of Natural Sciences
B.S., Caltech; Ph.D., University of California, Santa Barbara
Physics/biophysics

KENICHI YOSHIDA Assistant Professor, School of Social Sciences, Humanities and Arts
B.A., University of Michigan; Ph.D., University of California, Irvine
How the trope of objects and matter operated in art of modern Japan to posit a critical alternative to a Eurocentric and anthropocentric totality.