

Marine and Coastal Science

The major in Marine and Coastal Science focuses on the interdisciplinary nature of marine sciences by exposing students to core, breadth, and focus area courses in the discipline, in addition to a strong foundation of science preparatory material. The major builds upon existing strengths at UC Davis in marine and coastal sciences as well as field-based courses offered at Bodega Marine Laboratory to provide students a unique, interdisciplinary, "hands on" education. Advising is provided by the Department of Earth and Planetary Sciences for interested students.

The Program. The major begins with introductory courses in mathematics, chemistry, physics, biology, and earth sciences. These are followed by core courses in Marine Science. The major requirements provide focus and breadth, so that each student gains mastery in one area and broad exposure to many facets of Marine and Coastal Science. Focus and Breadth areas include: Coastal Environmental Processes, Marine Ecology and Organismal Biology, Marine Environmental Chemistry, and Oceans and the Earth System.

In this major, students will be exposed to the foundation disciplines within marine science (biology, chemistry, geology, physics) as well as modern issues facing marine and coastal environments; e.g., climate change, pollution, carbon cycling, conservation. The major requires field experience, independent research or internship, and concludes with a capstone course featuring current research in marine science. These integrative experiences will require students to synthesize the interdisciplinary topics that they have encountered through this degree program. The mastery achieved provides a strong foundation for future careers in academic science, government, policy, and the private sector.

Internships and Career Alternatives. A B.S. in Marine and Coastal Science will provide students with knowledge and practical experience needed to pursue careers in marine science (government, private sector, research) and/or advanced degree programs. The major program includes both research and internship experiences to help prepare students for these career paths.

Advising. Students majoring in Marine and Coastal Science are strongly encouraged to meet with their faculty adviser (assigned, based upon Focus Area choice) once per year to review their coursework plans. Staff advising is available through the Department of Earth and Planetary Sciences, and student peer advisers are available. Faculty advisers include: Tessa Hill (College of Letters and Science), Anne Todgham and John Largier (College of Agricultural and Environmental Sciences), and Brian Gaylord (College of Biological Sciences).

The student's chosen Focus Area will determine the college into which the student is admitted, the college where the degree is awarded, and the associated department:

- **Coastal Environmental Processes.** College of Agricultural and Environmental Sciences; Environmental Science & Policy
- **Marine Ecology & Organismal Biology.** College of Biological Sciences; Evolution & Ecology
- **Marine Environmental Chemistry.** College of Agricultural and Environmental Sciences; Environmental Toxicology
- **Oceans and the Earth System.** College of Letters and Science; Earth and Planetary Sciences

B.S. Major Requirements:

† denotes courses only offered at Bodega Marine Laboratory.

UNITS

Preparatory Subject Matter 51-63
 Biological Sciences 2A-2B-2C..... 15

It prepares students for the analysis of management and policy issues in business, finance, marketing, production, agriculture, food distribution, natural resources, the environment, resource allocation, and international trade and development. Students specialize in one or more emphases selected from the following: (1) Business Economics focuses on the economic aspects of managerial decision-making essential for solving problems in business, management, marketing, and finance. (2) International Business Economics explores the economic drivers and policy challenges in the major emerging markets and focuses on how these markets are impacting the world economy. (3) Environmental and Resource Economics concentrates on issues related to the use of resources and environmental quality. (4) Agricultural Economics focuses on the economic and policy aspects of production and marketing of foods and fibers.

Students in the Managerial Economics program develop valuable skills and strengths that lead to careers in business and government.

Internships and Career Alternatives. Students in Managerial Economics have opportunities to gain additional career information and preparation through internships in a variety of business enterprises and governmental agencies. Graduates qualify for supervisory and management training positions in banking, finance, accounting, commodity and stock brokerages in the private sector, farm and ranch production, food and agricultural processing, sales and service, and a variety of agency career positions in local, state, and federal government. Graduates are well qualified to seek advanced degrees in agricultural and resource economics, economics, business administration, accounting, public policy, or law. For more information, see <http://iccvweb.ucdavis.edu>.

Study Abroad. The Agricultural and Resource Economics department encourages students to complement their Managerial Economics degree or minor with a study abroad experience. Two upper-division courses, a maximum of 4 units per course, (excluding core courses) may be taken at international campuses. Students must select courses from the pre-approved list at UC Davis Study Abroad and seek pre-approval from a Managerial Economics staff adviser.

Graduate Study. Students who meet the admission requirements of Graduate Studies and the Department of Agricultural and Resource Economics may pursue studies leading to the M.S. and Ph.D. degrees. For information on admission to graduate study, degree requirements, consult the Graduate Program Coordinator in the Department of Agricultural and Resource Economics; also see <http://agecon.ucdavis.edu>.

B.S. Major Requirements:

UNITS

Major English Requirement 8
 Choose one course from: Communications 1 or 3 4
 University Writing Program 104A 4
 (The upper-division composition exam will not satisfy this requirement.)

Preparatory Subject Matter..... 39-41
 Agricultural and Resource Economics 18... 4
 Economics 1A-1B 8
 One course from: Plant Sciences 21, Engineering Computer Science 10, 15 or 30 3-4
 Management 11A-11B 8
 Mathematics 16A-16B-16C, 17A-17B, or 21A-21B 8-9
 Statistics 13, 103 8

Total Depth Subject Matter 52-55

Core 20
 Agricultural and Resource Economics 100A, 100B, 106, 155 and Economics 101

Restricted Electives..... 32-35
 Choose at least one of the emphases below:

Business Economics emphases

Choose at least 16 units from: Agricultural and Resource Economics 112, 118, 119, 136, 157, 171A, 171B.

Select the remaining 16 units from the above list or from Agricultural and Resource Economics 115A, 115B, 120, 121, 130, 132, 138, 139, 140, 143, 144, 145, 146, 150, 156, 175, 176, 194HA-194HB, Economics 115A, 115B, 121A, 121B, 151A, 151B, 160A, 160B.

International Business Economics emphases

Choose at least 20 units from Agricultural and Resource Economics 115A, 115B, 138, 139, 146, Economics 115A, 115B, 160A, 160B, 171.

Select the remaining 12 units from the above list or from Agricultural and Resource Economics 130, 171A, 171B, 175, 176, Economics 121A, 121B, Political Science 130.

Environmental and Resource Economics emphases

Agricultural and Resource Economics 175 and 176 8

Choose at least 20 units from: Agricultural and Resource Economics 120, 132, 138, 140, 145, 146, 150, 156, Economics 125, 130 Environmental Science and Policy 168A, 168B, 178.

Select the remaining 4 units from the above list or upper-division courses in Agricultural and Resource Economics, Economics, or Environmental Science and Policy 160, 161, 163, 165N, 166N, 167, 171, 172, 173 or Environmental Toxicology 138.

Agricultural Economics emphases

Choose at least 16 units from Agricultural and Resource Economics 120, 121, 130, 132, 138, 139, 140, 145, 150.

Select the remaining 16 units from the above list or upper division courses in Agricultural and Resource Economics and/or Economics.

* Students must attain a major GPA of at least a C average (2.000) in courses taken for depth subject matter (core and restricted electives). These courses must be taken for a letter grade. All restricted elective courses taken will be calculated as part of the major GPA, including courses with F grades that have not been repeated.

Total Units for the Major 99-104

Minor Program Requirements:

UNITS

Managerial Economics 24

Agricultural and Resource Economics 100A, 100B, and 106 12

Select the remaining 12 units from Agricultural and Resource Economics 107, 112, 130, 136, 138, 139, 143, 145, 146, 150, 155, 156, 157, 171A, 171B, 175, 176.

NOTE: Preparation for the minor includes Economics 1A, 1B; Mathematics 16A-16B-16C or 17A-17B or 21A-21B; Statistics 13 and 103.

Prerequisites for courses taken for the minor are mandatory and students should plan accordingly. One upper-division class to satisfy the minor may be taken for passed/not passed grading. All minor courses must be taken in residence. Two upper-division courses, a maximum of 4 units per course, may be taken through UC Study Abroad. Students must seek pre-approval from a Managerial Economics staff adviser for any international courses.

Chemistry 2A-2B-2C 15
 Mathematics 16A-16B-16C, 17A-17B-17C,
 or 21A-21B-21C 9-12
 Note: Students in Marine Ecology &
 Organismal Biology focus area must take
 17A-17B-17C or 21A-21B.
 Physics 7A-7B-7C or 9A-9B-9C 12-15
 Chemistry 8A-8B for students in Marine
 Ecology & Organismal Biology focus
 area 6
 Evolution & Ecology 12 and Geology 16 are
 strongly recommended.

Depth Subject Matter 46-75

Geology 116N (Environmental Science &
 Policy 116N) 3
 Statistics 100 or 102 4
 Two courses from: Geology 150A
 (Environmental Science & Policy 150A),
 Geology 150B (Environmental Science &
 Policy 150B), †Geology 150C
 (Environmental Science & Policy 150C) .. 7-8
 Two courses from: Atmospheric Sciences 120,
 Environmental Science and Policy 100, 110,
 Environmental Toxicology 101, Evolution and
 Ecology 100, 101, 112+112L, Hydrology
 103N 8-9
 Evolution & Ecology 111 (Environmental
 Science and Policy 111) 1
 Marine Ecology & Organismal Biology focus
 area: Biological Sciences 101, 102+103 or
 105, and 104 10-13
 Courses cannot be utilized to fulfill multiple
 requirements, with the exception that any
 Bodega Marine Laboratory course
 simultaneously fulfills the field requirement
 below.

Focus Area Requirement 12

Complete at least four courses from one category
 below, totaling at least 12 units.

Coastal Environmental Processes. Emphas-
 is on processes and environments of the coastal
 zone, and the strong physical-biological connec-
 tion that exists here. Courses highlight the critical
 terrestrial-marine interface and fundamental phys-
 ical processes in the coastal zone.

This focus area requirement can be fulfilled using:
 Atmospheric Sciences *121A, *121B, 158, Envi-
 ronmental Toxicology *102A, Environmental Sci-
 ence & Policy †152, 155, 155L, 166N, Geology
 *156, 182, Hydrology 103N, 134, *143,
 *144, Wildlife, Fish & Conservation Biology
 *157.

* Some courses may require additional prerequi-
 sites, such as: Atmospheric Sciences 120, Math
 21D, Chemistry 8B, Environmental Science and
 Policy 100, Hydrology 103N, Hydrology 141,
 Hydrology 145, Engineering: Civil and Environ-
 mental 144.

Marine Ecology and Organismal Biology.

Focus on physiological adaptations to the marine
 environment, and the biology of marine species from
 the molecular to population levels. Courses include
 emphasis on the ecological processes that determine
 the distribution and abundance of marine organ-
 isms, and the patterns and mechanisms of evolution
 in the ocean.

The focus area requirement can be fulfilled using:
 Animal Science *131, Biological Sciences †122,
 †122P, Environmental Science & Policy 100,
 121, †124, *155, 155L, Evolution & Ecology
 100, 101, * †106, 112, 112L, *†114, 115,
 Environmental Toxicology *†127, Neurobiology,
 Physiology, and Behavior †141 and †141P,
 Wildlife, Fish and Conservation Biology 120,
 120L, 121, 122, 130 *Some of these courses
 may require additional prerequisites, such as:
 Environmental Science and Policy 100, Evolution
 and Ecology 112, Wildlife Fish Conservation
 120, Environmental Toxicology 101.

Marine Environmental Chemistry. Emphasis
 on major themes in marine chemistry, geochemistry,

the carbon cycle, and contaminant fate and trans-
 port.

The focus area requirement can be fulfilled using:
 Chemistry 100, Environmental Toxicology *101,
 *102A, *120, *†127, Civil & Environmental
 Engineering 140, 140L, Geology *148, 182,
 Hydrology 134, 141, Wildlife, Fish and Conser-
 vation Biology 153

* Some courses may require additional prerequi-
 sites, such as: Chemistry 8B, Geology 50, 60,
 Hydrology 145, Civil and Environmental Engi-
 neering 144.

Oceans and the Earth System. A study of our
 changing oceans in the context of earth system his-
 tory, including climate change, paleoceanography,
 ecological shifts, conservation, and marine policy.

The focus area requirement can be fulfilled using:
 Atmospheric Sciences 116, Environmental Sci-
 ence and Management 120, 121, Environmental
 Science & Policy *110, 161, 162, 166N, *169,
 198, Evolution & Ecology *120, Geology 107,
 107L, 108, 109, 109L, 144, International Rela-
 tions *131, Science & Society 120, Wildlife, Fish
 and Conservation Biology 154

* Some courses may require additional prerequi-
 sites, such as: Atmospheric Sciences 60, Chem-
 istry 8A,B, Geology 1, Economics 1A, Hydrology
 145, Environmental Resource Sciences 100, Inter-
 national Relations 1

Breadth Requirement 8

Complete one course from each category below that
 is not the student's chosen Focus Area, totaling at
 least 8 units.

Coastal Environmental Processes. The breadth
 requirement can be fulfilled using the following
 courses: Atmospheric Sciences 158, Environmental
 Science & Policy †152, *155, Geology 182, Wild-
 life, Fish & Conservation Biology *157

Marine Ecology and Organismal Biology.
 The breadth requirement can be fulfilled using the
 following courses: Environmental Science & Policy
 124, *155, Evolution & Ecology * †106, * †114,
 115, Environmental Toxicology *†127, Neurobiol-
 ogy, Physiology, and Behavior †141+ †141P

Marine Environmental Chemistry. The breadth
 requirement can be fulfilled using the following
 courses: Environmental Toxicology *120, Chemistry
 100, Geology 182, Hydrology 134, 141

Oceans and the Earth System. The breadth
 requirement can be fulfilled using the following
 courses: Atmospheric Sciences *116, Environmental
 Science & Policy 166N, Evolution & Ecology *120,
 Geology 107, 108, Wildlife, Fish and Conservation
 Biology 154

* Some courses may require additional prerequi-
 sites; see above.

Field Requirement 0-14

The Field Requirement provides exposure to
 field techniques, experimental design, and the
 marine environment itself. It is highly
 recommended that students fulfill this
 requirement by residence at Bodega Marine
 Laboratory for one or more courses; see
 courses denoted with †. Bodega Marine
 Laboratory courses may simultaneously fulfill
 an additional requirement in categories
 above 0

OR
 Alternatively, students may fulfill the Field
 Requirement by taking two of the following
 courses; these courses cannot fulfill multiple
 requirements: Geology 109L, Evolution and
 Ecology 112L, 115, Environmental Science &
 Policy 123, 151L, Geology 182, Wildlife,
 Fish & Conservation Biology 100, 102L,
 157 4-14

Internship/Research 3

Biological Sciences 124, Geology 192, Environmen-
 tal Science & Policy 192, Evolution and Ecology
 192, 199 or equivalent.

Total Units for the Major (by chosen Focus Area):

Coastal Environmental Processes....97-119
Marine Ecology & Organismal
Biology113-138
Marine Environmental Chemistry ...97-119
Oceans and the Earth System.....97-119

Master of Education (M.Ed.) (A Graduate Group)

The Master of Education (M.Ed.) program is no longer admitting students; admissions are suspended.

Master of Professional Accountancy (A Graduate Group)

Robert Yetman, Ph.D., Chairperson of the Group

Group Office. Gallagher Hall
 530-752-7658; Fax 530-754-9355;
[http://gsm.ucdavis.edu/
 master-professional-accountancy](http://gsm.ucdavis.edu/master-professional-accountancy)

Faculty

- Shannon W. Anderson, Ph.D., Professor
(Graduate School of Management)
- Brad Barber, Ph.D., Professor
(Graduate School of Management)
- Joseph Chen, Ph.D., Associate Professor
(Graduate School of Management)
- Roger Edelen, Ph.D., Associate Professor
(Graduate School of Management)
- Paul A. Griffin, Ph.D., Professor
(Graduate School of Management)
- Robert Marquez, Ph.D., Professor
(Graduate School of Management)
- Hollis A. Skaike, Ph.D., Professor
(Graduate School of Management)
- Victor Stango, Ph.D., Associate Professor
(Graduate School of Management)
- Ayako Yasuda, Ph.D., Associate Professor
(Graduate School of Management)
- Michelle Yetman, Ph.D., Associate Professor
(Graduate School of Management)
- Robert Yetman, Ph.D., Professor
(Graduate School of Management)
- Paul Wong, Ph.D., Assistant Professor
(Graduate School of Management)

Affiliated Faculty

Will Snyder, M.B.A, C.P.A., Executive Director
(Graduate School of Management)

Graduate Adviser. Contact the Group office.

Courses in Master of Professional Accountancy (ACC)

Graduate

201. Financial Reporting (4)

Lecture—4 hours. Restricted to Master of Professional Accountancy graduate students. Coverage includes the fundamentals of accounting and reporting economic events and transactions. Emphasizes the preparation of balance sheets, income statements, statements of cash flow, and statements of stockholders' equity. Not open for credit to students who have taken any Management 200A. —F. (F.) Yetman

203. Intermediate Financial Reporting (4)

Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to students enrolled in the Master of Professional Accountancy degree program. Focuses on the preparation of complex financial statements. Topics include accounting