## 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 the Bodega Marine Laboratory to provide students a unique, interdisciplinary, “hands on” education. Initial advising is provided by the Department of Earth and Planetary Sciences for interested students.

### The Program

The program 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 foundations of 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 and/or a capstone, 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 throughout 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 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 career paths.

### Advising

Students majoring in Marine and Coastal Science are strongly encouraged to meet with their faculty advisor (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 advisors are available. Faculty advisors include: Tessa Hill (College of Letters and Science), Gary Cherr (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.

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<tr>
<th>Preparatory Subject Matter</th>
<th>BIOL</th>
<th>CHEM</th>
<th>MATH</th>
<th>PHYS</th>
<th>CHEM</th>
<th>DEPT</th>
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<tbody>
<tr>
<td>Biological Sciences 2A, B, C</td>
<td>15</td>
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<td>Chemistry 2A, B, C, 101</td>
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<td>Mathematics 16A, B, C, 17A, B, C, or 21 A, B, C</td>
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Note: Students in Marine & Ecology & Organismal Biology focus area must take 17 series of or 112 courses.

- **Physics 7A, B, or 9A, B, C | 12-15**: Chemistry 8A, B for students in Marine & Ecology & Organismal Biology focus area. (Environmental Science and Policy 111)...
- **Evolution & Ecology 12 and Geology 16 are strongly recommended.**

### Depth Subject Matter

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<th>GEOL</th>
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<tr>
<td>116</td>
<td>115</td>
<td>100</td>
<td>150C</td>
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<td>101</td>
<td>102</td>
<td>103N</td>
<td>103N</td>
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<tr>
<td>156</td>
<td>157</td>
<td>166N</td>
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The major begins with introductory science preparatory material. The major requirements include both research and educational breadth areas and focus areas. These courses can be completed over the course of two or three years, depending upon the student’s chosen Focus Area, totaling equal or greater than 12 units.

### Coastal Environmental Processes

Emphasis is on processes and the coastal system, and the strong physical-biological connection that exists here. Courses highlight the critical terrestrial-marine interface and fundamental physical processes in the coastal zone.

This focus area requirement can be fulfilled using:


*Some courses may require additional prerequisites, such as: Atmospheric Sciences 120, 121, Geology 117, 115, 153, 155, 166N, Geology 156, 158, 198, Hydrology 103N, 134, 143, 144, Wildlife, & Conservation Biology 157.*


- **Some courses may require additional prerequisites, such as: Atmospheric Sciences 120, 121, Geology 117, 115, 153, 155, 166N, Geology 156, 158, 198, Hydrology 103N, 134, 143, 144, Wildlife, & Conservation Biology 157.*

### Marine Ecology and Organismal Biology

Focus on the ecological 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 of marine organisms and the patterns and mechanisms of evolution in the ocean.

The focus area requirement can be fulfilled using:

- 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 157, and Ecology 112, Wildlife Fish Conservation 120, Environmental Toxicology 101.*

### Ocean and the Earth System

A study of our changing oceans in the context of earth system history, including climate change, paleoceanography, ecological shifts, conservation, and marine policy.

### Oceans and the Earth System


*Some courses may require additional prerequisites, such as: Atmospheric Sciences 60, Chemistry 8A, B, Geology 1, Economics 1A, Hydrology 145, Environmental Resources Sciences 100, International Relations 131.*

### Breadth Requirement

Complete one course from each category below that is not the student’s chosen Focus Area, totaling equal or greater than 8 units.

### Coastal Environmental Processes

The breadth requirement can be fulfilled using the following courses: Atmospheric Sciences 120, Environmental Science & Policy 155, Geology 182, Wildlife, Fish & Conservation Biology 157.

### Marine Ecology and Organismal Biology

The breadth requirement can be fulfilled using the following courses: Environmental Science & Policy 100, Evolution & Ecology 106, 1114N, 114P.

### 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 120, Environmental Science & Policy 166N, Evolution & Ecology 120, Geology 107, 108, Wildlife, Fish and Conservation Biology 154.

*Some courses may require additional prerequisites; see above.*

### Field Requirement

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. 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.
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

Faculty
Shannon W. Anderson, Ph.D., Professor
Roger Edelen, Ph.D., Associate Professor
Michelle Yetman, Ph.D., Associate Professor
N.V. Ramanan, Ph.D., Assistant Professor
Hollis A. Skaife, Ph.D., Professor
Robert Yetman, Ph.D., Professor

Affiliated Faculty
Will Snyder, M.B.A., C.P.A., Professor (Executive Director)

Graduate Adviser. Contact the Group office.

Courses in Master of Professional Accountancy (ACC)

201. Financial Reporting (4)
Lecture—4 hours. Prerequisite: 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, cash flow, and statements of stockholders’ equity.—I. (I)

Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to graduate students in the Graduate School of Management. Focuses on the preparation of complex financial statements. Topics include accounting recognition, measurement, and disclosure, as well as the theoretical foundations of and motivations for financial reporting choices.—II. (II)

205. Advanced Financial Reporting (4)
Lecture—4 hours. Prerequisite: course 203. Restricted to graduate students in the Graduate School of Management. Advanced treatment of recognition, measurement, and disclosure of long-term assets, intangibles, accounts receivable, and liabilities. Includes an emphasis on the details of tax law and accounting requirements. Topics include individual, partnership, and corporate taxation, as well as tax theory. Not open for credit to students who have completed Management 264.—I. (I)

213. Intermediate Tax Reporting and Analysis (4)
Lecture—4 hours. Prerequisite: course 211 or Management 264. Restricted to graduate students in the Graduate School of Management. Detailed analysis of federal taxation of individuals, partnerships, and corporations. Topics include the taxation of income recognition, deductions and credits for tax purposes, as well as the basics of property transactions.—II. (II)

215. Advanced Tax Reporting and Analysis (4)
Lecture—4 hours. Prerequisite: course 213. Restricted to graduate students in the Graduate School of Management. Advanced treatment of complex tax transactions and entities. Topics include aspects of federal taxation of entities and the applicable impact upon individual taxpayers. Coverage includes basis analysis as applicable to pass through entities and an introduction to professional responsibilities.—III. (III)

217. Taxation of Individuals, Property, and Estates (4)
Lecture—4 hours. Prerequisite: course 213. Restricted to graduate students in the Graduate School of Management. In-depth analysis of individual income tax issues and property transactions including non-taxable exchanges, compensation, gifts, and transfer taxes. Expanded analysis of multi-state tax issues and the interactions of complex individual transactions as well as planning techniques.—III. (III)

219. Taxation of Business Entities (4)
Lecture—4 hours. Prerequisite: course 213. Restricted to graduate students in the Graduate School of Management. Analysis of detailed business entity tax issues including basis calculations, alternative minimum tax, multistate and multinational taxation, stock transactions, and mergers and acquisitions. Tax planning for entities and relationships between business entities and their owners. Offered irregularly.—III. (III)

231. Analysis and Use of Accounting Reports (4)
Lecture—4 hours. Prerequisite: course 203. Restricted to graduate students in the Graduate School of Management. Evaluation of complex financial accounting reports by managers and persons outside the firm, such as investors, creditors, and financial analysts. Topics include cash flow vs. income measurement, ratio and valuation analysis, and the effects of international accounting standards. Not open for credit to students who have completed Management 272.—II. (II)

241. Auditing and the Accounting Profession (4)
Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to Graduate School of Management students. Introduction to the audit environment, professional standards, the accounting profession, and the professional responsibilities of accountants. Integrates audit topics across the areas of financial, tax, and tax systems accounting. (S/U grading only).—I. (I)

243. Auditing and Attestation Services (4)
Lecture—4 hours. Prerequisite: course 241. Restricted to graduate students in the Graduate School of Management. Advanced treatment of the audit process and environmental impact planning and performance, evidence, internal controls, professional standards, and audit reports. Reviews, compilations and attest service examinations are examined, as are governmental agency audits.—III. (III)

251. Managerial Accounting and Controls (4)
Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to graduate students in the Graduate School of Management. Analysis of management accounting systems including cost accounting, performance measurement, and compensation and reward systems. Focuses on the production of information useful for managerial decision-making, as well as the design of these systems. Not open for credit to students who have completed Management 272.—II. (II)

253. Accounting Information and Control Systems (4)
Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to graduate students in the Graduate School of Management. Analysis of information systems used for accounting, record-keeping, and control. Topics include the regulatory requirements of accounting control systems as well as their implementation and auditing considerations.—III. (III)

261. Communications for Professional Accountants (4)
Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to graduate students in the Graduate School of Management. Overview of written and oral professional communications with an emphasis on structuring and delivering reports, and understanding audiences (investors, creditors, regulators, and other stakeholders), and consideration of ethical and regulatory responsibilities.—II. (II)

271. Accounting Ethics (4)
Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to Graduate School of Management students. Analysis of accountants’ professional responsibilities and ethics. Topics include the behavioral foundations of ethics in a business environment, how those elements affect accountants’ integrity, objectivity, and independence. Professional standards related to accountants’ conduct are also covered.—I. (I)

Master of Preventive Veterinary Medicine (A Graduate Group)

Ashley Hill, D.V.M., M.P.V.M., Ph.D., Chairperson of the Group

Faculty
John Adaska, D.V.M., M.P.V.M., Ph.D., Associate Professor of Clinical (Pathology, Microbiology & Immunology)
Sharif Aly, BVSc, M.P.V.M., Ph.D., Assistant Professor (Population Health and Reproduction)
Robert Atwill, D.V.M., M.P.V.M., Ph.D., Professor (Population Health and Reproduction)
Chris Barker, M.S., Ph.D., Assistant Adjunct Professor (Pathology, Microbiology & Immunology)