Oceanography

Bachelor of Science degree with a major in Oceanography

Minor in Oceanography

Department Chair
Jeffrey Abell, Ph.D.

Department of Oceanography
Natural Resources Building 200
707-826-3540, fax 707-826-4145
humboldt.edu/oceanography

The Program

Students completing this program will have demonstrated:

- utilization of scientific concepts from biology, chemistry, geology, physics, and mathematics to understand fundamental oceanographic processes and functions
- the ability to employ appropriate sampling, laboratory, and computer techniques to collect, measure, and interpret oceanographic information
- integration of conceptual and technical understanding to address complex interdisciplinary problems in oceanography
- utilization of reading, writing, and oral skills to effectively communicate oceanographic information.

Humboldt’s students have the advantage of living in an ideal natural environment for marine studies, close to both the ocean and a number of estuaries and lagoons. Humboldt State University has a fully equipped marine laboratory in the nearby town of Trinidad and a research vessel docked in Humboldt Bay, allowing students to supplement classroom learning through laboratory and seagoing experiences and field trips.

Flexible coursework and experiences allow students a variety of choices while still providing an education of considerable breadth, an understanding of fundamental concepts unique to oceanography, and an appreciation of how concepts from allied fields interrelate. The intent is to develop an interdisciplinary train of thought essential for understanding the marine environment.

Participants also study in depth a science related to oceanography, such as geology, chemistry, physics, or biology. This program allows a student to:

- prepare as an ocean scientist to collect, process, and aid in interpreting scientific data collected on oceanographic cruises and other field work conducted by federal, state, educational, or private institutions and agencies;
- prepare for graduate study in oceanography or a related science by acquiring a broad, sound science background;
- secure a broad science background and sound fundamental education (for those with an interest in the major who do not intend to use it as a career).

Humboldt’s program prepares ocean scientists who collect, process, and interpret scientific data. Graduates excel in these careers: oceanographer, research assistant, marine biologist, marine products salesperson, aquatic biologist, marine geophysicist, hydrologist, water pollution technician, environmental specialist, scientific officer, hydrographic surveyor, earth scientist, aquatic chemist.

Preparation

Students should have a good background in biology, chemistry, physics, and mathematics. Competence with computers and a language other than English is recommended.

REQUIREMENTS FOR THE MAJOR

For a description of degree requirements to be fulfilled in addition to those listed below for the major, please see “The Bachelor’s Degree” section of the catalog, pp. 67-82. The Upper Division Area B General Education requirement is met by the coursework within the major.

Core Courses

Lower Division Core

| BIOL 105 (4) Principles of Biology |
| CHEM 109 (5) General Chemistry I |
| CHEM 110 (5) General Chemistry II |
| GEOL 109 (4) General Geology |
| OCN 109 (3) General Oceanography & Laboratory |
| OCN 109L (1) Sampling Techniques & Field Studies |

Upper Division Core

| OCN 310 (4) Biological Oceanography |
| OCN 320 (4) Physical Oceanography |
| OCN 330 (4) Chemical Oceanography |
| OCN 340 (4) Geological Oceanography |
| OCN 370 (2) Library Research & Report Writing |
| OCN 420 (3) Oceans & Climate |
| OCN 485 (1) Undergraduate Seminar |
| OCN 495 (3) Field Cruise I |
| OCN 496 (2) Field Cruise II |

And one of the following two groups:

Group 1:

| MATH 109 (4) Calculus I |
| MATH 110 (4) Calculus II |
| MATH 210 (4) Calculus III |
| PHYX 109 (4) General Physics A |
| PHYX 210 (4) General Physics B |

Group 2:

| MATH 105 (3) Calculus for the Biological Sciences & Natural Resources |
| MATH 215 (3) Multivariate Calculus for the Biological Sciences & NR |
| PHYX 106 (4) College Physics: Mechanics & Heat |
| PHYX 107 (4) College Physics: Electromagnetism & Modern Physics |
| STAT 109 (4) Introductory Biostatistics |

Plus an 11-unit package of approved electives, tailored individually to the student’s educational goals.

Besides satisfying the major requirement, the elective package commonly leads to completion of a minor in a related field of study.

REQUIREMENTS FOR THE MINOR

| OCN 109 (3) General Oceanography & Laboratory |
| OCN 260 (1) Sampling Techniques & Field Studies |

Two of the following:

| OCN 310 (4) Biological Oceanography |
| OCN 320 (4) Physical Oceanography |
| OCN 330 (4) Chemical Oceanography |
| OCN 340 (4) Geological Oceanography |
| OCN 350 (4) Marine Ecosystems — Human Impact |
| OCN 304 (3) Resources of the Sea |
| OCN 410 (3) Zooplankton Ecology |
| OCN 420 (3) Oceans & Climate |
| OCN 495 (3) Field Cruise I |
| FISH 430 (3) Intertidal Ecology |
| CHEM 370 (3) Earth System Chemistry |
| FISH 310 (4) Ichthyology |
| FISH 335 (3) US & World Fisheries |
| GEOL 460 (3) Solid Earth Geophysics |

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