

MARINE SCIENCES

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Carroll University offers access to majors in marine biology and oceanography via a cooperative arrangement with Hawaii Pacific University (HPU). The objective of the Marine Science Program at HPU is to help students gain a scientific understanding of the world's oceans and the life they contain, and a sense of appreciation for their beauty and fragility. Students are given a theoretical framework in the basic and applied sciences as well as ample opportunities to get hands-on experience conducting laboratory and field observations and experiments. Lecture and laboratory facilities are located on the Hawaii Loa Campus of Hawaii Pacific University. The campus is only a twenty-minute drive from Kaneohe Bay, a large natural embayment protected from the open ocean by the only true barrier reef in the Hawaiian Islands. This bay serves as one of the finest natural laboratories in the world for studying the marine sciences, and its protected nature allows HPU students to do field work in almost any type of weather.

Students desiring to major in marine biology or oceanography will spend two years at Carroll University taking basic science and liberal arts courses. After the two years, students transfer to Hawaii Pacific University and complete the requirements for a Marine Biology/Oceanography degree from Hawaii Pacific University.

Marine Biology or Oceanography Major Bachelor of Science

Science and mathematics courses taken at Carroll University

Biology 120, General Biology I

Biology 125, General Biology II

Chemistry 109, Principles of Inorganic Chemistry

Chemistry 110, Principles of Analytical Chemistry

Computer Science 107, Problem Solving Using Information Technology

Environmental Science 105, Earth Science (required for Oceanography majors only)

Mathematics 112, Introduction to Statistics

Mathematics 160, Calculus I

Mathematics 161, Calculus II

Physics 101 or 203, Physics I (may be taken at HPU)

Physics 102 or 204, Physics II (may be taken at HPU)

Additional Courses to fulfill HPUs General Education Curriculum (contact a Marine Biology advisor for a listing of all approved general education courses)

Communication Skills: English 170, Writing Seminar; plus 1 additional course, e.g. Spanish 101 or Communication 101

Global Systems: 1 course, e.g., Environmental Science 138 or History 104

Research and Epistemology: Requirements are completed at HPU

Values and Choices: CCS 100, Cultural Seminar; plus 2 additional courses, e.g., Environmental Ethics 292 or Philosophy 101

World Cultures: 3 courses, e.g. Art 103, Politics 101, or Theater 101

Sample program at Carroll University

	<u>Fall</u>	<u>Spring</u>
Freshman	CCS 100, Cultural Seminar BIO 120, General Biology I COM 101, Prin.of Comm. MAT 130, Elem. Functions	ENG 170, Writing Seminar BIO 125, General Biology II ART 103, History of Art MAT 160, Calculus I
Sophomore	CHE 109, Prin. of Inorganic Chem MAT 161, Calculus II CSC 107, Prob. Solving PHI 101, Intro. to Philosophy HIS 104, Europe and the Modern World	CHE 110, Prin. of Analytical Chem ENV 105, Earth Science (Oceanography majors only) MAT 112, Intro. to Statistics SOC 110, Social Anthropology

Sample program for Marine Biology at Hawaii Pacific University

Summer at CU or HPU before Junior Year

PHY 101, Intro Physics I and PHY 102, Intro Physics II or
HPU Physics I and HPU Physics II

Fall and Spring Junior Year

Oceanographic Field Techniques

Ecology

General Oceanography I and II

Argument, Research, Writing

Marine Biology

Cell and Molecular Biology

plus Elective

Senior Year

Marine Ecology

Evolutionary Genetics

Plant Biology

Marine Invertebrate Zoology

Seminar: Marine Biology Seminar

The World Problematique

MARINE SCIENCES

Fundamental Organic Chemistry
Comparative Animal Physiology
Biometry
plus Elective

Sample program for Oceanography at Hawaii Pacific University

Summer at CU or HPU before Junior Year

PHY 101, Intro Physics I and PHY 102, Intro Physics II or
HPU Physics I and HPU Physics II

Fall and Spring Junior Year

Oceanographic Field Techniques
General Oceanography I
Marine Biology
Argument, Research, Writing
Physical Geology
Ecology
Aquatic Chemistry
Geological Oceanography
plus Elective

Senior Year

Environmental Microbiology
Chemical Oceanography
Descriptive Regional Oceanography
Oceanography
Hydrogeology
Dynamic Physical Oceanography
The World Problematique
Organic Chemistry
plus Elective