COLBY-BIGELOW PARTNERSHIP

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The complex scientific, policy, and economic challenges of our world require coordinated interdisciplinary solutions. The Colby-Bigelow academic partnership brings this collaborative approach to life with a research and educational accelerator that creates a centralized space for integrative ocean science research. Building on Colby's strong, collaborative liberal arts tradition, the partnership fosters research and educational curricula in ocean science and policy, molecular and computational biology, biogeochemistry, environmental modeling, biotechnology, and data analytics, all integrated with robust training in environmental communications and leadership. This holistic approach unites researchers, faculty, and students from across the academic spectrum who will work together to define and resolve the ocean's most pressing challenges.

Courses taught or co-taught by scientists from Bigelow Laboratory for Ocean Sciences (listed below) are accredited by Colby and included on Colby student transcripts. These courses can be counted towards major credit in biology, chemistry, environmental studies, and geology.

A primary opportunity for engagement is through participation in the fall Sea Change semester-in-residence program at Bigelow. The program is intended primarily for juniors, although qualified sophomores and seniors have also participated. Graduates of the program have gone on to masters and Ph.D. programs in marine and environmental fields, law school, masters of public health, as well as careers with environmental nonprofits and government agencies.

There are also opportunities for students to engage in mentored research with Bigelow scientists during the summer and during January Term. Students who conduct research in the summer or fall Sea Change semester typically have the opportunity to continue this research during the academic year or subsequent summer, as well as for credit and as the basis for honors research.

The partnership provides an outcome-driven education and research experience for students at Colby engaging in work with and at Bigelow. It embodies Colby's and Bigelow's shared commitment to provide real-world student research and engagement experiences that are transformational for students.

COLBY AT BIGELOW – SEA CHANGE SEMESTER

Ocean science is in the middle of a revolution. Climate change is rapidly reshaping life in the oceans, and new tools are being developed to reveal what it means for our planet. Bigelow Laboratory offers a transformative, 14-week fall semester experience that puts these cutting-edge tools in your hands and empowers you to answer critical questions about the future of the ocean.

General Program Requirements

Juniors with a minimum GPA of 3.0 who have taken at least three lab science courses and one semester each of chemistry, biology, and calculus are eligible to apply. Some exceptionally prepared sophomores may also be eligible on a case-by-case basis. Please see additional biology requirements for the Marine Omics track.

Students in all academic disciplines who meet program requirements and are interested in hands-on lab work and ocean science or policy are welcome to apply. Desirable applicants will have a genuine curiosity about how the ocean works and how scientists work to understand complex ocean systems.

Colby at Bigelow Semester: Changing Oceans Track

Students in this track take three intensive, four-week courses in series and a research course that extends over the entire semester.

ES383: The Ocean Environment: A Cross-Disciplinary Foundation

BI384: Biological Oceanography: Diversity and Function of Life in Marine Ecosystems

CH385: Ocean Biogeochemistry on a Changing Planet

Research Course: ES/BI386: Oceanographic field methods and independent research

Colby at Bigelow Semester: Marine Omics Track

Students in the Bigelow Marine Omics semester take three, intensive, four-week courses in series and a molecular research course that extends over the entire semester.

ES383: The Ocean Environment: A Cross-Disciplinary Foundation

BI384: Biological Oceanography: Diversity and Function of Life in Marine Ecosystems

BI385: Marine 'Omics: Deciphering the Genetic Code of the Ocean

Molecular Research Course: BI 387: Molecular Tools to Understand the Environment

Course Mappings to other Colby Majors

Oceans Track
Biology: BI384 = field-based biology credits, ES/BI386 = counts as full lab course toward fulfilling major requirements when focused on biology research topic

Chemistry: CH385 = CH261 (with lab)

Environmental Science: ES383, BI384 = two focus areas courses; ES386 = ES Capstone

Geology: ES383 and CH385 = two elective courses counted toward the major

Omics Track
Biology and Chemistry: BI385 and BI387 = BC378 requirement of the CMBB major

Environmental Science: ES383, BI384 = two focus areas courses; BI387 = ES Capstone

Geology: ES383 = one elective course counted toward the major

Partnership Courses at Colby College

In addition to the Sea Change semester, Bigelow scientists actively contribute to the Colby College curriculum on campus. These courses give students an introduction to marine topics at multiple levels in the curriculum.

BI282j/ES282j Extreme Climate Change in the Gulf of Maine

BI397j Synthetic Biology

CH297 Fate and Effects of Organic Pollutants in the Ocean

ES239s Seafood Forensics: Uncovering Fraud in Ocean Food Systems

ES297B Climate Geoengineering: Evaluating Strategies to Sequester CO2

ES494f Problems in Environmental Science (ES Capstone)

ES397j Global Change Impacts on Marginal Marine Ecosystems

GE161/ES161 Introduction to Ocean Science

ES297D/JP297D Ocean Forecasting: AI, Ecology, and Data Justice on the Seas