

OCEAN SCIENCE OPTION

This option is offered within the following major(s):

- Earth Sciences - College of Earth, Ocean, and Atmospheric Sciences (<http://catalog.oregonstate.edu/college-departments/earth-ocean-atmospheric-sciences/earth-sciences-bs-hbs/>)

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(<https://ceoas.oregonstate.edu/ocean-science-earth-sciences/>)

The Ocean Science Option is a rigorous interdisciplinary major that focuses on understanding the ocean in its entirety and how it interacts with and influences planet Earth including humankind. The curriculum is broad with instruction in ecology, chemistry, physics and geology of diverse marine environments. Students gain hands-on experience through cruises in the NE Pacific and Yaquina Bay using our regional and coastal research vessels, as well as have opportunities for independent research or internships. A focus of the program is on transferrable skills, such as data analysis and visualization, teamwork, and written and oral communication, which are integrated in courses throughout the curriculum. Electives allow students to pursue additional coursework to prepare them in their specific career interests. Graduates of the program will be prepared for positions in state and local governments, consulting firms, non-profits, and private industry, as well as further study in graduate school.

Option Code: 659

| Code | Title | Credits |
|--|--|---------|
| Requirements | | |
| Select one of the following: | | 5 |
| CH 232 & CH 262 | GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 232 | |
| CH 122 | *GENERAL CHEMISTRY | |
| Select one of the following: | | 5 |
| PH 212 & PH 222 | *GENERAL PHYSICS WITH CALCULUS and RECITATION FOR PHYSICS 212 | |
| PH 202 | *GENERAL PHYSICS | |
| Select one of the following to complete a third term of either chemistry or physics: | | 5 |
| CH 233 & CH 263 or CH 123 | GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 233 *GENERAL CHEMISTRY | |
| PH 213 & PH 223 or PH 203 | *GENERAL PHYSICS WITH CALCULUS and RECITATION FOR PHYSICS 213 *GENERAL PHYSICS | |
| Select two of the following biology courses: | | 8 |
| BI 221 | *PRINCIPLES OF BIOLOGY: CELLS | |
| BI 222 | *PRINCIPLES OF BIOLOGY: ORGANISMS | |
| BI 223 | *PRINCIPLES OF BIOLOGY: POPULATIONS | |
| MTH 252 | INTEGRAL CALCULUS | 4 |
| OC 295 | INTRODUCTION TO FIELD OCEANOGRAPHY - LAND | 1 |
| OC 332 | COASTAL OCEANOGRAPHY | 3 |
| OC 333 | OCEANS, COASTS, AND PEOPLE | 3 |
| OC 334 | *POLAR OCEANOGRAPHY | 3 |
| OC 430 | PRINCIPLES OF PHYSICAL OCEANOGRAPHY | 4 |

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| OC 440 | BIOLOGICAL OCEANOGRAPHY | 4 |
| OC 450 | CHEMICAL OCEANOGRAPHY | 4 |
| OC 460 | GEOLOGICAL OCEANOGRAPHY | 4 |
| Experiential Learning | | |
| Select 6 credits of the following (combinations of these are allowed): ¹ | | 6 |
| OC 401 | RESEARCH PROJECTS | |
| OC 403 | THESIS | |
| OC 410 | INTERNSHIP | |
| Select 2 credits of the following for two terms of enrollment in a marine-oriented seminar series: | | 2 |
| OC 407 | SEMINAR | |
| Electives | | |
| Select at least 18 credits of the following: ² | | 18 |
| <i>Biological</i> | | |
| BI 221 | *PRINCIPLES OF BIOLOGY: CELLS | |
| BI 222 | *PRINCIPLES OF BIOLOGY: ORGANISMS | |
| BI 223 | *PRINCIPLES OF BIOLOGY: POPULATIONS | |
| BI 351 | MARINE ECOLOGY | |
| BI 370 | ECOLOGY | |
| FW 464 | MARINE CONSERVATION BIOLOGY | |
| GEO 484 | INTRODUCTION TO BIOGEOCHEMISTRY | |
| OC 434/FW 434 | ESTUARINE ECOLOGY | |
| <i>Climate</i> | | |
| ATS 301 | CLIMATE DATA ANALYSIS | |
| ATS 310 | METEOROLOGY | |
| ATS 420 | CLIMATE PHYSICS | |
| ATS 421 | CLIMATE MODELING | |
| GEO 481 | GLACIAL GEOLOGY | |
| GEO 486 | QUATERNARY PALEOCLIMATOLOGY | |
| GEOG 323 | *CLIMATOLOGY | |
| <i>Fluids</i> | | |
| CE 311 | FLUID MECHANICS | |
| CE 412 | HYDROLOGY | |
| OC 433 | COASTAL AND ESTUARINE OCEANOGRAPHY | |
| <i>Geological</i> | | |
| GEO 370 | STRATIGRAPHY AND SEDIMENTOLOGY | |
| GEO 433 | COASTAL GEOMORPHOLOGY | |
| GEO 463 | *GEOPHYSICS AND TECTONICS | |
| <i>Remote Sensing</i> | | |
| GEOG 370 | CARTOGRAPHY | |
| GEOG 480 | REMOTE SENSING I: PRINCIPLES AND APPLICATIONS | |
| Total Credits | | 79 |

*
Baccalaureate Core Course (BCC)

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Writing Intensive Course (WIC)

1
The program must contain at least 6 credits of experiential learning that may include an internship, research or senior thesis. Combinations of these are allowed (e.g., 3 credits of internship or 3 credits of research). Students are urged to work with advisors and the program head at an early stage of their study to plan their experiential learning.

2
Students could choose to focus on a specific area or sample from a wide range. Additional MTH courses would be appropriate for some students planning on graduate studies in ocean science.

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