Our Bachelor of Science in Marine Biology aims to provide students with a solid foundation in marine biology, with flexibility to explore ocean and coastal processes, marine biogeochemistry, the ecology and evolution of marine organisms, and the ocean’s role and responses in global change. Core, skills-based courses are designed to prepare students for in-depth examination of the contemporary issues facing marine organisms and ecosystems, while helping to develop resumes that are strengthened by experiential learning. This major also provides options for students following a prevet or premed track.

Faculty teaching the courses are experts who are dedicated to marine research and experiential learning, providing students the opportunities to learn new, valuable skills and to expand their professional science network. Students may actively participate in field and lab work, internships at Northeastern University’s Marine Science Center in Nahant, MA, study abroad through Dialogue of Civilizations programs or the long-standing Three Seas Program (see below). Additional opportunities exist for students in this strong, interdisciplinary program that prepares students for direct entry into the job market or a competitive graduate program.

Students majoring in Marine Biology cannot be combined with majors in Biology, Ecology and Evolutionary Biology, or Environmental and Sustainability Sciences, nor can they minor in Biology, Ecology and Evolutionary Biology, or Environmental and Sustainability Sciences.

THREE SEAS PROGRAM
The Three Seas Program, now in its 38th year, delivers a unique combination of inquiry-based, global study, fieldwork, and research across three distinct locations: the Gulf of Maine, tropical coastal Panama, and the Pacific Northwest. This optional, two-semester program is designed to teach students to plan and execute marine field research to enhance their future opportunities, whether in top doctoral programs or careers with government agencies or private consulting firms. Students finish the program as active scientists who are certified in scientific diving, have an expanded skill set, and a robust professional network.

For more information, please see the Three Seas Program website (https://cos.northeastern.edu/marine-environmental-sciences/three-seas/).

Program Requirements
Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

University-Wide Requirements
All undergraduate students are required to complete the University-Wide Requirements (http://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/).

NUpath Requirements
All undergraduate students are required to complete the NUpath Requirements (http://catalog.northeastern.edu/undergraduate/university-academics/nupath/).

Marine Biology Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENVR 1000</td>
<td>Marine and Environmental Sciences at Northeastern</td>
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<tr>
<td>EEMB 1101</td>
<td>Foundations in Ecology and Evolutionary Biology</td>
<td>5</td>
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<tr>
<td>EEMB 1106</td>
<td>Foundations in Ecological and Evolutionary Genomics and Lab for EEMB 1105</td>
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<tr>
<td>BIOL 2301</td>
<td>Genetics and Molecular Biology and Lab for BIOL 2301</td>
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<tr>
<td>EEMB 2302</td>
<td>Ecology and Lab for EEMB 2302</td>
<td>5</td>
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<tr>
<td>EEMB 2700</td>
<td>Marine Biology and Lab for EEMB 2700</td>
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<tr>
<td>EEMB 3460</td>
<td>Conservation Biology</td>
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<tr>
<td>ENVR 4000</td>
<td>Science Communication and Professional Development</td>
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Capstone
Complete one of the following: 1-4
- BIOL 4701 Biology Capstone
- ENVR 4900 Earth and Environmental Science Capstone
- ENVR 4997 Senior Thesis

MARINE BIOLOGY OPTIONS
Requirements for Students Not Participating in Three Seas

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>ENVR 3125</td>
<td>Global Oceanic Change</td>
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<tr>
<td>ENVR 3600</td>
<td>Oceanography</td>
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<tr>
<td>BIOL 5587</td>
<td>Comparative Neurobiology</td>
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<td>EEMB 2420</td>
<td>Fisheries Biology, Policy, and Conservation</td>
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<td>EEMB 2290</td>
<td>Ecology and Evolution of Behavior</td>
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<td>EEMB 3001</td>
<td>Genetics and Evolution in Action</td>
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<td>EEMB 3450</td>
<td>Physiological Adaptations to the Environment</td>
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<td>EEMB 3455</td>
<td>Ecosystems Ecology</td>
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<td>EEMB 3465</td>
<td>Ecological and Conservation Genomics</td>
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<td>EEMB 3466</td>
<td>Disease Ecology</td>
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<tr>
<td>EEMB 3555</td>
<td>Networks and Natural Systems</td>
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EEMB 5130 and EEMB 5131
Ecological Dynamics and Lab for EEMB 5130

ENVR 3201
Coastal Sustainability; Ecology and Coupled Human-Natural Systems in Southeast Asia

ENVR 3202
Coastal Sustainability: The Blue Economy of the Gulf of Maine

ENVR 3300 and ENVR 3301
Geographic Information Systems and Lab for ENVR 3300

ENVR 4504
Environmental Pollution

ENVR 4505
Wetlands

ENVR 5220
Ecosystem-Based Management

ENVR 5242 and ENVR 5243
Ancient Marine Life and Lab for ENVR 5242

EEMB 5510
New England Marine Biomes

EEMB 5522
Experimental Design Marine Ecology

EEMB 5525
Advanced Field Methods in Marine Ecology

EEMB 5542
Marine Spatial Planning

EEMB 5546
Sustainability of the Land-Sea Interface

EEMB 5589
Diving Research Methods

MATH 1251
Calculus and Differential Equations for Biology 1

or MATH 1241
Calculus 1

or MATH 1341
Calculus 1 for Science and Engineering

ENVR 1000
Introduction to Environmental, Social, and Biological Data and Lab for ENVR 1500

ENVR 1500
Introduction to Environmental, Social, and Biological Data and Lab for ENVR 1500

ENVR 1500
Introduction to Environmental, Social, and Biological Data and Lab for ENVR 1500

ENVR 2500
Biostatistics and Lab for ENVR 2500

CHEM 1161
General Chemistry for Science Majors and Lab for CHEM 1161

and CHEM 1163
and Recitation for CHEM 1161

CHEM 2311
Organic Chemistry 1 and Lab for CHEM 2311

or ENVR 3410
Environmental Geochemistry

Physics
Complete a lecture/lab set for Physics 1:

PHYS 1145
Physics for Life Sciences 1 and Lab for PHYS 1145 (recommended)

PHYS 1151
Physics for Engineering 1 and Lab for PHYS 1151

and Interactive Learning Seminar for PHYS 1151

PHYS 1161
Physics 1 and Lab for PHYS 1161

and Recitation for PHYS 1161

PHYS 1171
Physics 1 for Bioscience and Bioengineering and Lab for PHYS 1171

and Interactive Learning Seminar for PHYS 1171

Marine Biology Major Credit/GPA Requirements
Complete 89 semester hours in the major with a cumulative GPA of 2.000.

Program Requirement
137 total semester hours required

Plan of Study
Four Years, Two Co-ops in Spring/Summer 1

Year 1

Fall
ENVR 1500 1
EEMB 1105
and EEMB 1106
ENVR 1500 5
Elective
4
Summer 1

EEMB 1101
and EEMB 1102
CHEM 1161
and CHEM 1162
and CHEM 1163
5
Elective
4

Summer 2

ENVR 1500
PHYS 1161
and PHYS 1162
and PHYS 1163
5

Elective
4

Mathematics

MATH 1251
Calculus and Differential Equations for Biology 1

or MATH 1241
Calculus 1

or MATH 1341
Calculus 1 for Science and Engineering

Introduction to Data
### Marine Biology—Three Seas Program, Four Years, One Co-op in Spring/Summer 1

#### Year 1

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours Spring</th>
<th>Hours Summer 1</th>
<th>Hours Summer 2</th>
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<td>ENVR 1000</td>
<td>1 EEMB 1105 and EEMB 1106</td>
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Total Hours: 143-146

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<th>Hours Spring</th>
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<td>EESC 2000</td>
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<td>CHEM 2311 and CHEM 2312</td>
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<th>Year 3</th>
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<th>Hours Summer 1</th>
<th>Hours Summer 2</th>
<th>Hours</th>
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<tr>
<td>EEMB 2302 and EEMB 2303</td>
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<tr>
<th>Year 4</th>
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<tr>
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<td>4 BIOL 4701, ENVR 4900, or ENVR 4997</td>
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<td>ENVR 3600 (Oceanography)</td>
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| | | | |
| 16 | 13-16 |

Total Hours: 137-140