

Marine Biology, BS

The Bachelor of Science in Marine Biology provides 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 resumés that are strengthened by experiential learning. This major also provides options for students following a pre-vet or pre-med track.

Faculty teaching the courses are experts who are dedicated to marine research and experiential learning, providing students the opportunities to learn 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 or study abroad through Dialogue of Civilizations programs. 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.

Program Requirements

- Concentrations and course offerings may vary by campus and/or by program modality. Please consult with your advisor or admissions coach for the course availability each term at your campus or within your program modality.
- Certain options within the program may be *required* at certain campuses or for certain program modalities. Please consult with your advisor or admissions coach for requirements at your campus or for your program modality.

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.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/>).

NUPath Requirements

All undergraduate students are required to complete the NUPath Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/nupath/>).

Marine Biology Major Requirements

Code	Title	Hours
Introduction to College		
ENVR 1000 or INSC 1000	Marine and Environmental Sciences at Northeastern Science at Northeastern	1
Foundations Courses		
EEMB 1101 and EEMB 1102	Foundations in Ecology and Evolutionary Biology and Lab for EEMB 1101	5
EEMB 1105 and EEMB 1106	Foundations in Ecological and Evolutionary Genomics and Lab for EEMB 1105	5
Genetics		
BIOL 2301 and BIOL 2302	Genetics and Molecular Biology and Lab for BIOL 2301	5
Ecology		
EEMB 2302 and EEMB 2303	Ecology and Lab for EEMB 2302	5
Evolution		
EEMB 2400	Introduction to Evolution	4
Marine Biology		
EEMB 2700 and EEMB 2701	Marine Biology and Lab for EEMB 2700	5
Conservation		

EEMB 3460	Conservation Biology	4
Scientific Communication		
ENVR 4000	Science Communication and Professional Development	4
Capstone		
Complete one of the following:		1-4
BIOL 4701	Biology Capstone	
ENVR 4900	Earth and Environmental Science Capstone	
ENVR 4997	Senior Thesis	

Supporting Courses for Marine Biology

Code	Title	Hours
Mathematics		
MATH 1251 or MATH 1241 or MATH 1341	Calculus and Differential Equations for Biology 1 Calculus 1 Calculus 1 for Science and Engineering	4
Introduction to Data		
ENVR 1500 and ENVR 1501	Introduction to Environmental, Social, and Biological Data and Lab for ENVR 1500	5
Biostatistics		
ENVR 2500 and ENVR 2501	Biostatistics and Lab for ENVR 2500	5
Chemistry		
CHEM 1161 and CHEM 1162 and CHEM 1163	General Chemistry for Science Majors and Lab for CHEM 1161 and Recitation for CHEM 1161	5
Complete one of the following:		4-5
CHEM 2311 and CHEM 2312	Organic Chemistry 1 and Lab for CHEM 2311	
ENVR 3410	Environmental Geochemistry	
ENVR 4504	Environmental Pollution	
Physics		
Complete a lecture/lab set for Physics 1:		5
<i>Physics 1</i>		
PHYS 1145 and PHYS 1146	Physics for Life Sciences 1 and Lab for PHYS 1145 (recommended)	
PHYS 1151 and PHYS 1152 and PHYS 1153	Physics for Engineering 1 and Lab for PHYS 1151 and Interactive Learning Seminar for PHYS 1151	
PHYS 1161 and PHYS 1162 and PHYS 1163	Physics 1 and Lab for PHYS 1161 and Recitation for PHYS 1161	
PHYS 1171 and PHYS 1172 and PHYS 1173	Physics 1 for Bioscience and Bioengineering and Lab for PHYS 1171 and Interactive Learning Seminar for PHYS 1171	

Marine Biology Electives

Code	Title	Hours
ENVR 3125 or ENVR 3600	Global Oceanic Change Oceanography	4
Complete five of the following:		20-21
BIOL 5587	Comparative Neurobiology	
EEMB 3455	Ecosystems Ecology	
EEMB 3465	Ecological and Conservation Genomics	
EEMB 3466	Disease Ecology	
EEMB 3600	Animal Behavior	
EEMB 5130	Population Dynamics	

ENVR 3125	Global Oceanic Change (If not used to fulfill another requirement of this program)
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
EEMB 5542	Marine Spatial Planning

Elective courses available at Nahant campus to students approved for PlusOne admission to the MS Marine Biology program:

EEMB 5510	New England Marine Biomes
EEMB 5522	Experimental Design Marine Ecology
EEMB 5525	Advanced Field Methods in Marine Ecology
EEMB 5546	Sustainability of the Land-Sea Interface

MARINE BIOLOGY MAJOR CREDIT/GPA REQUIREMENTS

Complete 91 semester hours in the major with a cumulative GPA of 2.000.

Program Requirement

128 total semester hours required

Plan of Study

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

Year 1								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
ENVR 1000		1 EEMB 1105 and EEMB 1106		5 Vacation		Elective		4
EEMB 1101 and EEMB 1102		5 EEMB 2700 and EEMB 2701		5		Elective		4
MATH 1251		4 CHEM 1161 and CHEM 1162 and CHEM 1163		5				
ENGW 1111		4 Elective		4				
Elective		4						
		18		19		0		8
Year 2								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
EEMB 2302 and EEMB 2303		5 Co-op		0 Co-op		0 PHYS 1161 and PHYS 1162 and PHYS 1163		5
EEMB 2400		4				Elective		4
ENVR 1500 and ENVR 1501		5						
Elective		4						
EESC 2000		1						
		19		0		0		9
Year 3								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
ENVR 2500 and ENVR 2501 and ENVR 2502		5 Co-op		0 Co-op		0 ENGW 3303		4
ENVR 3410		4				Elective		4
ENVR 3600		4						
Marine biology elective		4						
		17		0		0		8

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Year 4

Fall	Hours	Spring	Hours
BIOL 2301 and BIOL 2302		5 ENVR 4000	4
EEMB 3460		4 ENVR 4900	1
Marine biology elective		4 Marine biology elective	4
Marine biology elective		4 Marine biology elective	4
	17		13

Total Hours: 128