Marine Biology, BS with Three Seas (Boston)

The Bachelor of Science in Marine Biology with Three Seas provides the same solid foundation in marine biology as the Bachelor of Science in Marine Biology program, while also delivering 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 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 have a robust professional network. This program is open only to existing Northeastern University students.

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

Students majoring in marine biology cannot combine 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

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		
INSC 1000	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:		4
BIOL 4701	Biology Capstone	
ENVR 4971	Junior/Senior Honors Project 2	
ENVR 4997	Senior Thesis	

Supporting Courses for Marine Biology

Code	Title	Hours
Mathematics		
MATH 1251	Calculus and Differential Equations for Biology 1	4
or MATH 1241	Calculus 1	
or MATH 1341	Calculus 1 for Science and Engineering	
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 one of the following lecture/lab sets:		5
Physics 1		
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 Field Research Courses—Three Seas Program

Code	Title	Hours
Complete the following at the Northeastern Nahant campus:		
EEMB 5303	Marine Biology Careers Seminar	1
EEMB 5510	New England Marine Biomes	4
EEMB 5522	Experimental Design Marine Ecology	4
EEMB 5542	Marine Spatial Planning	4
EEMB 5546	Sustainability of the Land-Sea Interface	3
EEMB 5589	Diving Research Methods	2
Courses completed at locations other than the Northeastern Nahant campus:		
EEMB 5504 and EEMB 5505	Biology of Corals and Lab for EEMB 5504	3
EEMB 5506 and EEMB 5507	Biology and Ecology of Fishes and Lab for EEMB 5506	3
EEMB 5508	Marine Birds and Mammals	3
EEMB 5518 and EEMB 5519	Ocean and Coastal Processes and Lab for EEMB 5518	3
EEMB 5520	Tropical Marine Ecology	2
EEMB 5538	Conservation and Restoration of Marine Systems	3
Complete one of the following:		3

EEMB 5533 and EEMB 5535	Marine Invertebrate Zoology and Botany and Lab for EEMB 5533
EEMB 5540 and EEMB 5541	Changing Global Oceans and Lab for EEMB 5540

NUPath Requirements

The following NUPath requirements are fulfilled by required courses in this major:

- Analyzing and Using Data (AD)
- Conducting Formal and Quantitative Reasoning (FQ)
- Demonstrating Thought and Action in a Capstone (CE)
- Engaging with the Natural and Designed World (ND)
- Two Writing-Intensive Courses in the Disciplines (WI)

Other NUPath requirements may be fulfilled by electives in the major.

Writing Requirements

Code	Title	Hours
ENGW 1111	First-Year Writing	4
or ENGW 1102	First-Year Writing for Multilingual Writers	
ENGW 3307	Advanced Writing in the Sciences	4
or ENGW 3303	Advanced Writing in the Environmental Professions	
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Co-op Requirements

Code	Title	Hours
Students who want to participate in co-op will need to complete EESC 2000 Professional Development for Co-op.		
EESC 2000	Professional Development for Co-op	1

Science GPA Requirement (Marine Biology)

A minimum 2.000 GPA in the following course codes is required: EEMB, ENVR

Marine Biology Major Credit Requirements

Complete 108 semester hours in the major.

Program Requirement

137 total semester hours required

Plan of Study

Sample Plan of Study

FOUR YEARS, ONE CO-OP IN SPRING/SUMMER FIRST HALF

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
INSC 1000	1	EEMB 1105 and EEMB 1106	5	Electives (if needed)		Elective (if needed)	
EEMB 1101 and EEMB 1102	5	EEMB 2700 and EEMB 2701	5				
MATH 1251	4	CHEM 1161 and CHEM 1162 and CHEM 1163	5				
ENGW 1111	4	Elective	4				
Elective	4						
	18		**19**		**0**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	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						
EESC 2000	1						
Elective	4						
	19		**0**		**0**		**9**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
ENVR 2500 and ENVR 2501 and ENVR 2502	5	BIOL 2301 and BIOL 2302	5	Electives (if needed)		Electives (if needed)	
ENVR 3410	4	ENVR 4000	4				
EEMB 3460	4	ENVR 4997	4				
ENGW 3307	4	Elective	4				
	17		**17**		**0**		**0**

Year 4

Fall	Hours	Spring	Hours
EEMB 5303	1	EEMB 5504 and EEMB 5505	3
EEMB 5510	4	EEMB 5506 and EEMB 5507	3
EEMB 5522	4	EEMB 5508	3
EEMB 5542	4	EEMB 5518 and EEMB 5519	3
EEMB 5546	3	EEMB 5520	2
EEMB 5589	2	EEMB 5538	3
		EEMB 5540 and EEMB 5541	3
	18		**20**

Total Hours: 137