

# Marine Biology, BS with Three Seas

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

- 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
<b>Introduction to College</b>		
ENVR 1000 or INSC 1000	Marine and Environmental Sciences at Northeastern Science at Northeastern	1
<b>Foundations Courses</b>		
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
<b>Genetics</b>		
BIOL 2301 and BIOL 2302	Genetics and Molecular Biology and Lab for BIOL 2301	5
<b>Ecology</b>		
EEMB 2302 and EEMB 2303	Ecology and Lab for EEMB 2302	5
<b>Evolution</b>		
EEMB 2400	Introduction to Evolution	4
<b>Marine Biology</b>		
EEMB 2700 and EEMB 2701	Marine Biology and Lab for EEMB 2700	5
<b>Conservation</b>		
EEMB 3460	Conservation Biology	4

**Scientific Communication**

ENVR 4000	Science Communication and Professional Development	4
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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	

**Supporting Courses for Marine Biology**

Code	Title	Hours
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**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
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**Biostatistics**

ENVR 2500 and ENVR 2501	Biostatistics and Lab for ENVR 2500	5
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**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
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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
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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
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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	

### Marine Biology Major Credit/GPA Requirements

Complete 105 semester hours in the major with a cumulative GPA of 2.000.

### Program Requirement

134 total semester hours required

### Plan of Study

#### Sample Plan of Study: Four Years, One Co-op in Spring/Summer 1

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
ENVR 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					
		<b>18</b>			<b>19</b>		
<b>0</b>							
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					
		<b>19</b>			<b>0</b>		
<b>0</b>							
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 4900		1			
ENGW 3307		4 Elective		4			
		<b>17</b>			<b>14</b>		
<b>0</b>							

**Year 4**

<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>
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
	<b>18</b>		<b>20</b>

**Total Hours: 134**