

# Natural Resources (BS): Marine and Coastal Concentration

To see more about what you will learn in this program, visit the Learning Outcomes website (<https://apps.oirp.ncsu.edu/pgas/>)!

The degree of Bachelor of Science in Natural Resources is available with a concentration in Marine and Coastal Resources.

Marine scientists explore all aspects of the seas and coastal regions, seeking to understand how the oceans, their biological communities, the solid earth and the atmosphere interact. As professionals with interdisciplinary training, marine scientists are needed to advise business, industry and governments on the potential impact of human activities and the wise use of marine resources. Marine scientists work for consulting firms; regulatory agencies; the mass media; business and industry; federal, state and local governments; academic laboratories; research and education organizations; and nonprofit environmental watchdog groups.

## Plan Requirements

Code	Title	Hours	Counts towards
<b>Major Core Courses</b>			
MEA 100	Earth System Science: Exploring the Connections	4	
MEA 101	Geology I: Physical	3	
MEA 110	Geology I Laboratory	1	
MEA 130	Introduction to Weather and Climate	3	
MEA 135	Introduction to Weather and Climate Laboratory	1	
MEA 200	Introduction to Oceanography	3	
MEA 210	Oceanography Lab	1	
MEA 220	Marine Biology	3	
MEA 250	Introduction to Coastal Environments	3	
MEA 251	Introduction to Coastal Environments Laboratory	1	
MEA 459	Field Investigation of Coastal Processes	5	

MEA 469	Ecology of coastal Resources	3
GIS 280	Introduction to GIS	3
Advised Elective <sup>1</sup>		3
Advised electives to be chosen with advisor and should be a science, math, engineering or GIS course at the 400 level or higher.		
Select one of the following		3
Chemistry options:		
MEA 323	Geochemistry of Natural Waters	
MEA 473	Principles of Chemical Oceanography	
MEA 573	Principles of Chemical Oceanography	
NR 400	Natural Resource Management	4
<b>Math/Statistics/Orientation</b>		
MA 131	Calculus for Life and Management Sciences A <sup>2</sup>	3
MA 231	Calculus for Life and Management Sciences B	3
ST 311	Introduction to Statistics	3
COS 100	Science of Change	2
<b>Chemistry/Physics/Natural Sciences</b>		
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4
CH 101	Chemistry - A Molecular Science	3
CH 102	General Chemistry Laboratory	1
ZO 350	Animal Phylogeny and Diversity	4
CH 201	Chemistry - A Quantitative Science	3
CH 202	Quantitative Chemistry Laboratory	1
AEC 360 or PB 360	Ecology	4

Select one of the following Physics courses:	4
PY 211 College Physics I	
PY 205 & PY 206 Physics for Engineers and Scientists I and Physics for Engineers and Scientists I Laboratory	

Select one of the following Physics courses:	4
PY 212 College Physics II	
PY 208 & PY 209 Physics for Engineers and Scientists II and Physics for Engineers and Scientists II Laboratory	

SSC 200 & SSC 201 Soil Science and Soil Science Laboratory	4
AEC 420 Introduction to Fisheries Science	3

**English/Writing**

ENG 101 Academic Writing and Research <sup>2</sup>	4
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Select one of the following:	3
ENG 331 Communication for Engineering and Technology	
ENG 332 Communication for Business and Management	
ENG 333 Communication for Science and Research	

**Humanities/Social Sciences**

PS 201 American Politics and Government	3
or PS 202 State and Local Government	

Select one of the following Economics courses:	3
ARE 201 Introduction to Agricultural & Resource Economics	
ARE 201A Introduction to Agricultural & Resource Economics	
EC 201 Principles of Microeconomics	
EC 205 Fundamentals of Economics	

ARE 336 Introduction to Resource and Environmental Economics	3
or EC 336 Introduction to Resource and Environmental Economics	
PS 336 Global Environmental Politics	3

**Health & Exercise Science**

GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	1
HESA 226 Skin and Scuba Diving I	1
or HESO 253 Orienteering	

**GEP Courses**

GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )	6
GEP US Diversity, Equity, and Inclusion ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/</a> )	3
GEP Global Knowledge ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/</a> ) (verify requirement)	
Foreign Language Proficiency ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/</a> ) (verify requirement)	

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**Total Hours** **120**

<sup>1</sup> Students should consult their academic advisors to determine which courses fill this requirement.  
<sup>2</sup> A grade of C- or higher is required.

## Semester Sequence

Critical Path Courses -Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

This is a sample.

**First Year**

Fall Semester		Hours
MA 131	Calculus for Life and Management Sciences A (CP) <sup>1</sup>	3
MEA 100	Earth System Science: Exploring the Connections <sup>2</sup>	4
MEA 101	Geology I: Physical <sup>2</sup>	3

MEA 110	Geology I Laboratory <sup>2</sup>	1
COS 100	Science of Change	2
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1
<b>Hours</b>		<b>14</b>
<b>Spring Semester</b>		
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity (CP) <sup>3</sup>	4
ENG 101	Academic Writing and Research <sup>1</sup>	4
MA 231	Calculus for Life and Management Sciences B (CP) <sup>3</sup>	3
MEA 130	Introduction to Weather and Climate <sup>2</sup>	3
MEA 135	Introduction to Weather and Climate Laboratory <sup>2</sup>	1
<b>Hours</b>		<b>15</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
CH 101	Chemistry - A Molecular Science (CP) <sup>1</sup>	3
CH 102	General Chemistry Laboratory <sup>3</sup>	1
MEA 200	Introduction to Oceanography (CP) <sup>2</sup>	3
MEA 210	Oceanography Lab <sup>2</sup>	1
PS 336	Global Environmental Politics	3
MEA 220	Marine Biology <sup>2</sup>	3
<b>Hours</b>		<b>14</b>
<b>Spring Semester</b>		
CH 201	Chemistry - A Quantitative Science <sup>3</sup>	3
CH 202	Quantitative Chemistry Laboratory <sup>3</sup>	1
Economics Elective		3
MEA 250	Introduction to Coastal Environments <sup>2</sup>	3
MEA 251	Introduction to Coastal Environments Laboratory <sup>2</sup>	1
HESA 226	Skin and Scuba Diving I	1
ZO 350	Animal Phylogeny and Diversity <sup>3</sup>	4
<b>Hours</b>		<b>16</b>
<b>Third Year</b>		
<b>Fall Semester</b>		
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
PB 360	Ecology <sup>3</sup>	4
PY 211	College Physics I <sup>1</sup>	4
ST 311	Introduction to Statistics <sup>3</sup>	3
<b>Hours</b>		<b>14</b>
<b>Spring Semester</b>		
Chemistry Option Elective (p. 1) <sup>2</sup>		3
Advanced Writing Elective (p. 1)		3
ARE/EC 336	Introduction to Resource and Environmental Economics	3
MEA 469	Ecology of coastal Resources <sup>2</sup>	3
PY 212	College Physics II <sup>3</sup>	4
<b>Hours</b>		<b>16</b>

**Summer**

MEA 459	Field Investigation of Coastal Processes <sup>2</sup>	5
<b>Hours</b>		<b>5</b>

**Fourth Year**

**Fall Semester**

GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
GEP US Diversity, Equity, and Inclusion ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/</a> )		3
PS 336	Global Environmental Politics	3
Advised Elective <sup>2</sup>		3
<b>Hours</b>		<b>12</b>

**Spring Semester**

AEC 420	Introduction to Fisheries Science <sup>3</sup>	3
GIS 280	Introduction to GIS <sup>2</sup>	3
NR 400	Natural Resource Management <sup>2</sup>	4
SSC 200	Soil Science <sup>3</sup>	3
SSC 201	Soil Science Laboratory <sup>3</sup>	1
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> A grade of C- or higher is required.

<sup>2</sup> No more than one D will be accepted in major core courses.

<sup>3</sup> No more than one D will be accepted in other basic math or science courses.

## Career Opportunities

MEAS undergraduate degree programs provide talented students with the foundation of scientific knowledge required for careers in government, industry, or academia. Many students pursue graduate degrees and pursue careers in industry, at government agencies and in academia.

Marine Sciences graduates go on to become oceanographers, to manage our coastal resources, model air-sea interaction, and explore global climate change. They conduct basic and applied research, serving as environmental consultants for industry and governmental agencies, policy and management experts for governmental agencies, and environmental science educators. Graduates with a Natural Resources degree are versed in the fundamental processes and interdisciplinary nature of the coastal zone. As scientists, managers, administrators, and regulators, they make decisions regarding use and conservation of coastal and marine resources.

Geology graduates address society's needs for dealing effectively with earth processes, such as water resources and the stability of land forms. They work for engineering firms, permit-issuing agencies, and industries that rely on geological resources. Historical geologists are familiar with the evolution of earth through time and provide a perspective on potential long-term reactions of the earth systems to change. Those who concentrate in Environmental Geology are trained to assess and monitor geological resources such as ground water. Marine geologists are experts in the complex issues facing industry, municipalities, and residents in the dynamic and ecologically vulnerable coastal zone.

Meteorology graduates enjoy careers in weather forecasting, air quality assessment, development of weather products and services, broadcast communications, and advanced research. Marine meteorologists study ocean-generated weather systems. Their research is yielding

practical benefits such as refined prediction of storm surge, which has streamlined evacuation efforts during severe storms along the Carolina coast. Meteorology graduates with an air quality emphasis work for environmental firms, regulatory agencies, and in applied research. Study of air quality and how air pollution is transported and dispersed is a rapidly expanding field in the atmospheric sciences.

MEAS graduates play a key service role for the State of North Carolina, assisting in everything from forecasting severe storms and analyzing the impact of atmospheric pollutants on agriculture and our estuaries, to determining the effects of toxic waste disposal on quality of surface and ground water.