

# MARINE SCIENCES MINOR




The minor in marine sciences is designed to allow students access to departmental courses, facilities, and advisors in order to develop marine specializations related to their majors and to prepare for postgraduate study in marine sciences or a related field.


## Requirements

In addition to the program requirements listed below, students must:

- take at least nine hours of their minor "core" requirements at UNC–Chapel Hill
- earn a minimum cumulative GPA of 2.000 in the minor core requirements. Some programs may require higher standards for minor or specific courses.

For more information, please consult the degree requirements section of the catalog (<http://catalog.unc.edu/undergraduate/degree-requirements/>).

Code	Title	Hours
<b>Core Requirements</b>		
One course emphasizing global oceanic processes:		3
EMES 103	 The Marine Environment <sup>1</sup> or EMES 401 Oceanography	
One course emphasizing the coastal ocean		3
ENEC 222	Estuarine and Coastal Marine Science	
EMES 55	 First-Year Seminar: Change in the Coastal Ocean	
EMES/ENEC 220	North Carolina Estuaries: Environmental Processes and Problems	
EMES/ENEC 411	Oceanic Processes in Environmental Systems	
EMES 431	Major World Rivers and Global Change: From Mountains to the Sea	
EMES/ENEC 433	Wetland Hydrology	
EMES 442/ BIOL 457	Marine Biology	
EMES/ENEC 448	Coastal and Estuarine Ecology	
EMES/ENEC 471	Human Impacts on Estuarine Ecosystems	
EMES 472	Barrier Island Ecology and Geology	
MASC 440/ BIOL 462	Marine Ecology	
or an equivalent course with a focus on the coastal ocean and approved by the director of undergraduate studies		
One course featuring practical experience in marine sciences.		3
Choose one from the following four groups:		
Group 1:		
ENEC 222	Estuarine and Coastal Marine Science	
EMES 52	 First-Year Seminar: Living with Our Oceans and Atmosphere	
EMES/ENEC 220	North Carolina Estuaries: Environmental Processes and Problems	

EMES 431	Major World Rivers and Global Change: From Mountains to the Sea	
EMES/ENEC 448	Coastal and Estuarine Ecology	
EMES/ENEC 471	Human Impacts on Estuarine Ecosystems	
EMES 472	Barrier Island Ecology and Geology	
EMES 503/ BIOL 657/ ENVR 520	Marine Geology	
EMES 507	Biological Oceanography	
or an equivalent field course approved by the director of undergraduate studies		
Group 2:		
EMES/ENEC 415	Environmental Systems Modeling	
EMES 483	Geologic and Oceanographic Applications of Geographical Information Systems	
EMES 561	Time Series and Spatial Data Analysis	
or an equivalent mathematical modeling or data analysis course approved by the director of undergraduate studies		
Group 3:		
EMES 444/ BIOL 456/ ENEC 444	Marine Phytoplankton	
or an equivalent laboratory course approved by the director of undergraduate studies		
Group 4:		
EMES 395	 Undergraduate Research in Earth, Marine, and Environmental Sciences	
A marine sciences course of the student's choosing		3
<b>Total Hours</b>		<b>12</b>

<sup>1</sup> Students may not receive credit for both EMES 103 and EMES 401.

Earth, Marine, and Environmental Sciences (EMES) course descriptions (<http://catalog.unc.edu/courses/emes/>).

## Special Opportunities in Marine Sciences Undergraduate Research

The department offers opportunities to undergraduates to conduct directed research in our laboratories. Students work directly with faculty members and may enroll for credit as part of an honors or research project. The liaison for undergraduate research provides information about research opportunities in marine sciences, and assists undergraduates in finding a faculty advisor/research group that matches their interests.

## Experiential Education

There are three opportunities for experiential education in Marine Sciences:

- EMES 220 is taught during Maymester at the main campus with one week at the UNC–Chapel Hill Institute of Marine Sciences in Morehead City, NC.
- EMES 395 can be taken with the permission of a faculty advisor.

- EMES 472 is taught at the UNC–Chapel Hill Institute of Marine Sciences in Morehead City, NC, during the summer session and provides an experience in the field.

Amy Bartenfelder  
amy.bartenfelder@unc.edu

## Department Programs

### Majors

- Geological Sciences Major, B.A.–Earth Science (<http://catalog.unc.edu/undergraduate/programs-study/geological-sciences-major-ba-earth-science-concentration/>)
- Earth and Marine Sciences Major, B.S. (<http://catalog.unc.edu/undergraduate/programs-study/earth-marine-sciences-major-bs/>)

### Minors

- Environmental Microbiology Minor (<http://catalog.unc.edu/undergraduate/programs-study/environmental-microbiology-minor/>)
- Geological Sciences Minor (<http://catalog.unc.edu/undergraduate/programs-study/geological-sciences-minor/>)
- Marine Sciences Minor (p. 1)

### Graduate Programs

- M.S. in Geological Sciences (<http://catalog.unc.edu/graduate/schools-departments/geological-sciences/>)
- M.S. in Marine Sciences (<http://catalog.unc.edu/graduate/schools-departments/marine-sciences/>)
- Ph.D. in Geological Sciences (<http://catalog.unc.edu/graduate/schools-departments/geological-sciences/>)
- Ph.D. in Marine Sciences (<http://catalog.unc.edu/graduate/schools-departments/marine-sciences/>) (<http://catalog.unc.edu/graduate/schools-departments/geological-sciences/>)

## Contact Information

### Department of Earth, Marine, and Environmental Sciences

Visit Program Website (<https://emes.unc.edu/>)

Murray and Mitchell Halls

#### Chair

Eric Kirby  
ekirby@unc.edu

#### Director of Graduate Studies (GEOL)

Donna Surge  
donna64@email.unc.edu

#### Director of Graduate Studies (MASC)

Brent McKee  
bamckee@email.unc.edu

#### Director of Undergraduate Studies (GEOL)

Kevin Stewart  
KGSTEWAR@email.unc.edu

#### Director of Undergraduate Studies (MASC)

Antonio Rodriguez  
abrodrig@email.unc.edu

#### Student Services Manager

Violet Anderson  
vmanders@email.unc.edu

#### Student Services (Undergraduate)