

# OCEAN AND ESTUARINE SCIENCE MINOR

**Banner Code:** OES

## Academic Advising

Email: [geology@gmu.edu](mailto:geology@gmu.edu)

Website: <https://science.gmu.edu/academics/departments-units/atmospheric-oceanic-earth-sciences/ocean-and-estuarine-science-minor>

This minor is designed for students interested in oceans and coastlines. The fundamental courses include topics in oceanography, physical oceanography, coastal morphology and processes, marine geology, chemical oceanography, and marine ecology.

## Admissions & Policies

### Policies

Eight credits of coursework must be unique to the minor.

For policies governing all minors, see AP5.3.4 Minors (<https://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-4>).

## Requirements

### Minor Requirements

Total credits: 18-22

Students should refer to the Admissions & Policies tab for specific policies related to this program.

Students must successfully complete the following coursework with a minimum GPA of 2.00.

### Core Requirements

Code	Title	Credits
GEOL 309	Oceanography	3
Select two courses from the following:		6-7
CLIM 412	Physical Oceanography	
GEOL 363	Coastal Morphology and Processes	
or EVPP 363	Coastal Morphology and Processes	
GEOL 364	Marine Geology	
GEOL 458	Chemical Oceanography	
or CHEM 458	Chemical Oceanography	
BIOL 449	Marine Ecology	
<b>Total Credits</b>		<b>9-10</b>

### Additional Courses

Code	Title	Credits
Select 9-12 credits from the following: <sup>1</sup>		9-12
CLIM 101	Global Warming: Weather, Climate, and Society (Mason Core) ( <a href="https://catalog.gmu.edu/mason-core/">https://catalog.gmu.edu/mason-core/</a> )	
CLIM 412	Physical Oceanography	

GEOL 304	Sedimentary Geology
GEOL 308	Igneous and Metamorphic Petrology
GEOL 312	Invertebrate Paleontology
GEOL 363	Coastal Morphology and Processes
or EVPP 363	Coastal Morphology and Processes
GEOL 364	Marine Geology
GEOL 458	Chemical Oceanography
or CHEM 458	Chemical Oceanography
BIOL 440	Field Biology (up to 4 credits of only marine or estuarine-oriented field courses)
BIOL 449	Marine Ecology
BIOL 450	Marine Conservation
or EVPP 421	Marine Conservation
EVPP 350	Freshwater Ecosystems
EVPP 419 & EVPP 420	Marine Mammal Biology and Conservation
	and Marine Mammal Biology and Conservation Field Course <sup>2</sup>
EVPP 536	The Diversity of Fishes
EVPP 581 & EVPP 582	Estuarine and Coastal Ecology and Estuarine and Coastal Ecology Laboratory <sup>2</sup>
INTS 495	Field-Based Work (up to 4 credits of only marine or estuarine-oriented field courses)

**Total Credits** **9-12**

<sup>1</sup> Courses taken to satisfy the core requirements above cannot be repeated to count toward the additional courses requirement.

<sup>2</sup> If chosen, students must take both the lecture and lab for a total of 4 credits.

### Notes

RECR 161 Scuba Diving: Basic is strongly recommended, but is not required.