

# OCEAN AND ESTUARINE SCIENCE MINOR

**Banner Code: OES**

## Academic Advising

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

Website: [science.gmu.edu/academics/departments-units/atmospheric-oceanic-earth-sciences/majors-minors](http://science.gmu.edu/academics/departments-units/atmospheric-oceanic-earth-sciences/majors-minors)

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 AP.5.3.4 Minors (<http://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                   |         |
| Total Credits                          |                                  | 9-10    |

### 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="http://catalog.gmu.edu/mason-core/">http://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   |      |
| BIOL 454      | Marine Mammal Biology and Conservation  |      |
| & BIOL 455    | and Marine Mammal Biology and Conservation Field Course <sup>2</sup>                  |      |
| or EVPP 419   | Marine Mammal Biology and Conservation  |      |
| & EVPP 420    | and Marine Mammal Biology and Conservation Field Course                               |      |
| EVPP 350      | Freshwater Ecosystems   |      |
| EVPP 419      | Marine Mammal Biology and Conservation  |      |
| & EVPP 420    | and Marine Mammal Biology and Conservation Field Course <sup>2</sup>                  |      |
| EVPP 536      | The Diversity of Fishes   |      |
| EVPP 581      | Estuarine and Coastal Ecology   |      |
| & EVPP 582    | 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.