Bachelor of Science
Ocean and Earth Science with a Major in Environmental Sciences (BS)

Richard Hale, Advisor

Students in the Ocean and Earth Science program focus on global systems that control environmental conditions on the planet. They also learn to develop solutions to complex environmental problems by working in interdisciplinary teams. All majors in the department complete courses in the basic sciences and mathematics and core courses in Earth systems science. Students majoring in Environmental Science complete a course-based research experience including both field work and laboratory analysis. In addition, students complete a suite of specialty courses specified in each major. A minimum grade of C or higher in all major and prerequisite courses is required for graduation.

Ocean and Earth Science with a Major in Environmental Sciences

The environmental sciences major is designed for students broadly interested in earth and ocean sciences. Students in this major gain a solid background in basic sciences (e.g., chemistry, physics, math, and biology) while also taking courses in geology, oceanography, and atmospheric sciences. The major is also designed to allow students the freedom to focus their upper-level coursework across disciplinary fields related to the natural environment they find most compelling. Students in this major will be prepared for a wide range of future scientific pursuits (including graduate studies in appropriate fields), as well as careers that apply their interdisciplinary skills to policy development and interpretation. Specific employment opportunities include work in local, state, and federal government agencies, environmental consulting firms, and non-governmental organizations (NGOs).

Requirements

Lower-Division General Education

Written Communication: grade of C or better required in both courses
Mathematics: MATH 211 or MATH 205
Information Literacy and Research: met in the major by OEAS 130G
The Nature of Science: CHEM 121N & CHEM 122N, CHEM 123N & CHEM 124N
Impact of Technology: met in the major by OEAS 220T

Upper-Division General Education

Requirements for Graduation

Requirements for Graduation include the following:

- Minimum of 120 credit hours.
- Minimum of 30 credit hours overall and 12 credit hours of upper-level courses in the major program from Old Dominion University.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward the major.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward a minor.
- Completion of ENGL 110C, ENGL 211C or ENGL 231C, and the writing intensive (W) course in the major with a grade of C or better. The W course must be taken at Old Dominion University.
- Completion of Senior Assessment.

Environmental Sciences Major

General Education

Complete lower-division requirements 35-42
Complete upper-division requirements (minimum of 6 credit hours) 6

Environmental Sciences

OEAS 111N Physical Geology 4
OEAS 130G Research Skills and Information Literacy for the Natural Sciences 3
BIOL 121N General Biology I 4
& BIOL 122N and General Biology I Lab 4
BIOL 123N General Biology II 4
& BIOL 124N and General Biology II Lab 4
PHYS 111N Introductory General Physics 4
or PHYS 231N University Physics I 4
PHYS 112N Introductory General Physics 4
or PHYS 232N University Physics II 4
OEAS 220T Introduction to Meteorology 3
BIOL 291 or OEAS 320 Ecology 3
or Sedimentology and Stratigraphy

STAT 310 Introductory Data Analysis 3
OEAS 306 Oceanography 3
OEAS 307 Research Experience in Oceanography 3
OEAS 310 Global Earth Systems 4
OEAS 406 Matlab 1
GEOG 402 Geographic Information Systems 3

Upper-Division Electives (OEAS 250N or 300-400 Level OEAS courses excluding 302 and 468W) 17
The following courses include a structured laboratory or field requirement:

- **OEAS 250N** Natural Hazards and Disasters (L)
- **OEAS 303** Paleontology (L)
- **OEAS 315** Minerals and Rocks (L)
- **OEAS 320** Sedimentology and Stratigraphy (L; can be used as an elective only if not taken as required course above)
- **OEAS 420** Hydrogeology (L)
- **OEAS 440** Biological Oceanography (L)
- **OEAS 452** Microbial Ecology of the Oceans (L)
- **OEAS 453W** Marine Molecular Ecology (L)

**Total Credit Hours**: 104-111

For these upper-division courses please pay careful attention to prerequisites that may not necessarily also be required courses in the major. A minimum of two courses must have a structured laboratory or field requirement (indicated by L). Up to 4 credits of 200-level courses may be used to satisfy this upper-division requirement. Up to six credit hours of electives from departments outside of Ocean and Earth Sciences on an approved electives list can be used to satisfy this requirement (see the Chief Departmental Advisor for details). At least one writing-intensive "W" course must be taken within the major.

**Elective Credit**

Elective credit may be needed to meet the minimum requirement of 120 credit hours.

**Honors Program in Ocean and Earth Science**

Students admitted by the faculty to the Ocean and Earth science honors program engage in supervised individual study in areas of their interest. Honors students must complete all courses required by the department with a minimum grade point average of 3.50 and a total of at least three credits in one of the following courses:

- **OEAS 487** Honors Research in Ocean and Earth Sciences 1-3
- **OEAS 497** Special Problems and Research 1-3

**Degree Program Guide**

The Degree Program Guide is a suggested curriculum to complete this degree program in four years. It is just one of several plans that will work and is presented only as broad guidance to students. Each student is strongly encouraged to develop a customized plan in consultation with their academic advisor. Additional information can also be found in Degree Works.

**Credit Hours** 16-17

**Sophomore**

**Fall**

- **CHEM 121N and CHEM 122N** 4
- **OEAS 130G** Research Skills and Information Literacy for the Natural Sciences (Meets Information Literacy and Research) 3
- **OEAS 320** or **BIOL 291** Sedimentology and Stratigraphy or Ecology 4
- **PHYS 111N** or **PHYS 231N** Introductory General Physics or University Physics I 4

**Spring**

- **CHEM 123N and CHEM 124N** 4
- **OEAS 306** Oceanography 3
- **OEAS 307** Research Experience in Oceanography 3
- **OEAS 300/400-level elective** 3
- **Human Behavior** 3
- **Elective or Language and Culture if required** 3

**Junior**

**Fall**

- **OEAS 300/400-level elective** 4
- **Human Creativity** 3
- **Upper-Division General Education Course (Option D)** or **Elective** 3

**Spring**

- **OEAS 310** Global Earth Systems 4
- **STAT 310** Introductory Data Analysis 3
- **OEAS 406** Matlab 1
- **OEAS 300/400-level elective** 4
- **Elective or Language and Culture if required** 3

**Senior**

**Fall**

- **OEAS 300/400-level elective** 3
- **OEAS 300/400-level elective** 4
- **Human Creativity** 3
- **Upper-Division General Education Course (Option D)** 3
- **Elective** 3

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**Course** | **Title** | **Credit Hours**
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**Freshman**

**Fall**

- **ENGL 110C** English Composition (C or better required) 3
- **OEAS 111N** Physical Geology 4
- **BIOL 121N and BIOL 122N** 4

**Literature**

**Credit Hours** 14

**Spring**

- **MATH 205 or MATH 211** Calculus for Life Sciences or Calculus I 3-4
### BA or BS to MBA (Master of Business Administration) Linked Program

The linked BA/MBA or BS/MBA program is an early entry to the MBA program of study. The early-entry program is designed for well-qualified non-business undergraduate ODU students to start their MBA program prior to completing their undergraduate degree. Well-qualified non-business undergraduate students may take MBA-level courses as early as three semesters prior to graduation and count up to 12 graduate credits toward their undergraduate degree. Students participating in the early-entry program must earn a minimum of 150 credit hours (120 discrete credit hours for the undergraduate degree and 30 discrete credit hours for the graduate degree). Early-entry program students should carefully consider their undergraduate degree program requirements when planning their course of study. Students in the early-entry program work in close consultation with the MBA Program Office and should refer to information in the Strome College of Business section in the graduate catalog [http://catalog.odu.edu/graduate/stromecollegeofbusiness/](http://catalog.odu.edu/graduate/stromecollegeofbusiness/) to develop an individualized plan of study based on the required coursework.

### BA or BS to MPA (Master of Public Administration) Linked Program

The linked BA/MPA or BS/MPA program provides qualified Old Dominion University undergraduate students with the opportunity to earn a master's degree in public administration while taking credits in the MPA program as an undergraduate student. The program is designed for highly motivated students with the desire to immediately continue their education after the bachelor's degree. The program is especially relevant to individuals seeking to work (or currently working) in the public or non-profit sectors, but is suitable for students from any undergraduate major. Graduate courses may be taken during the fall and spring semester of the student's senior undergraduate year. Up to 12 graduate credits can count toward both the undergraduate and graduate degree and can meet upper-level General Education requirements. After receiving the undergraduate degree, a student will continue with the MPA program, taking MPA courses until completing the required 39 credit hours. Students in the linked program must earn a minimum of 150 credit hours (120 discrete credit hours for the undergraduate degree and 30 discrete credit hours for the graduate degree).

Requirements for admission to the graduate program can be found in the School of Public Service section of the Graduate Catalog [http://catalog.odu.edu/graduate/business/public-service/](http://catalog.odu.edu/graduate/business/public-service/). For additional information, please contact the School of Public Service in the Strome College of Business.