Bachelor of Science

Ocean and Earth Science with a Major in Middle School Science Education (6-8) (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, as well as 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 Middle School Science Education (6-8)

The middle school science education major is designed for students preparing to teach middle school science. This program meets the requirements for teacher licensure in Virginia as established by the Virginia Board of Education licensure regulations.

Due to changing University requirements, national accreditation standards, and the Virginia Board of Education licensure regulations, the teacher preparation programs in the College of Sciences are under constant revision. Any changes resulting from these factors supersede the program requirements described in this Catalog. Students are encouraged to obtain current program information from their advisors and the Office of Clinical Experiences website at www.odu.edu/oece (http://www.odu.edu/oece).

Admission

Students must first declare Ocean and Earth Science with a major in middle school science education with the chief departmental advisor. All students must apply for and be admitted into the approved middle school science education program. Students must meet the required criteria for admission by earning the minimum required grade point averages (GPA).

Prescribed Virginia Board of Education Assessment for Admission to an Approved Teacher Education Program

Old Dominion University students seeking admission to an approved teacher education program must satisfy the Virginia Board of Education required assessment for admission into an approved teacher education program. The requirement can be satisfied by meeting a passing score in the following:

- Virginia Communication and Literacy Assessment (VCLA): Scaled passing score of 235 for the reading subtest and score of 235 for the writing subtest OR a composite score of 470 for the assessment.

For the most current information on the prescribed Virginia Board of Education assessment visit the Virginia Department of Education at https://www.doe.virginia.gov/.

Required grade point averages (GPA)

- A cumulative GPA of 2.75 is required.
- A major/content GPA of 2.75 is required - all Ocean and Earth Science courses and all other science and mathematics content courses must be passed with a grade of C (2.0) or higher.
- A professional education GPA of 2.75 is required – all professional education courses must be passed with a grade of C- or higher.

Although students may enroll in a limited number of education courses, students must be admitted into the approved Earth science teacher preparation program prior to enrolling in any instructional strategies practicum education course. Students must also meet with an education advisor in the Office of Clinical Experiences.

Continuance

Students must maintain a cumulative GPA of 2.75, a major/content GPA of 2.75 and a professional education GPA of 2.75. Ocean, Earth and Atmospheric Sciences content courses must be passed with a grade of C (2.0) or higher. Courses in the professional education core must be completed with a grade of C- or higher for continuance. A professional education GPA of 2.75 is required for continuance. Students must take and pass the Praxis Subject Assessment, Earth and Spaces Sciences content knowledge (formerly Praxis II) prior to or while enrolled in the instructional strategies course. All assessments must be passed prior to the start of the Teacher Candidate Internship Orientation session.

Background Clearance Requirement

Old Dominion University requires a background clearance check of candidates interested in many of the professional education programs. Professional education programs have several field experiences that are required for continuance and graduation from the program. The background clearance must be successfully completed prior to a field experience placement. Candidates will be provided a field experience placement when the background check process is completed with resolution of any issues. The process to complete the ODU background check is located at: https://www.odu.edu/clinical-experiences/placement/background-checks (https://www.odu.edu/clinical-experiences/placement/background-checks/). The ODU clearance process includes: an FBI fingerprint, a child protective service/social service review, and a Virginia State Police sex offender registry review. Candidates interested in the professional education programs are advised to complete this clearance process immediately upon entry into the program since the clearance process takes a minimum of eight weeks to complete.

Virginia Board of Education Prescribed Assessments for Licensure

- Praxis Subject Assessment, Earth and Spaces Sciences content knowledge (test code: 5442) – passing score of 147 required.

To review more information on the Virginia Board of Education prescribed assessments visit the Office of Clinical Experiences website, www.odu.edu/oece (http://www.odu.edu/oece/).

Requirements

Lower-Division General Education

- Written Communication (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#written) 6
- Oral Communication (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#oral) 3
- Mathematics (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#math) 3
- Language and Culture (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#language) 0-6
- Information Literacy and Research (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#information) 3
- Human Behavior (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#behavior) 3
- Human Creativity (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#creativity) 3
- Interpreting the Past (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#interpret) 3
- Literature (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#literature) 3
- Philosophy and Ethics (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#philosophy) 3
The Nature of Science (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#nature) 8
Impact of Technology (http://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#impact) 3
Written Communication: grade of C or better required in both courses
Oral Communication: met in the major by OEAS 444.
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
The professional education core satisfies the Upper-Division General Education requirement.

Requirements for Graduation
Requirements for graduation include 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, completion of the Senior Assessment, a minimum cumulative 2.75 GPA, in the major area, and in the professional education core, with no grade less than a C in the major and C- in the professional education core; successful completion of the Teacher Candidate Internship and a minimum of 121 credit hours, which must include both a minimum of 30 credit hours overall and 12 credit hours in upper-level courses in the major program from Old Dominion University. Note that a C (2.0) must be earned in all Ocean and Earth Science courses used to satisfy departmental requirements.

Licensure requirements also include certificate of completion in First Aid/AED/CPR, Dyslexia Awareness Training, Child Abuse and Neglect Recognition and Intervention Training, and Regulations Governing the Use of Restraint and Seclusion in Elementary and Secondary Schools, and Cultural Competence Training.

Professional Education Core Courses
STEM 103 Foundations of STEM Teaching: An Inquiry-Based Approach 2
STEM 201 Knowing and Learning in STEM Education 3
STEM 202 Classroom Interactions in STEM Education 3
STEM 401 Project Based Instruction in STEM Education 3
STEM 402 Perspectives on STEM 3
STEM 485 Apprentice Teaching 9
OEAS 468W Research Methods in Math and Sciences 3
Total Credit Hours 26

Middle School Science Education Major (6-8)

General Education
Complete lower-division requirements 32-39
Complete upper-division requirements (met by the professional education core) 26

Professional Education Core
Complete professional education core requirements 26

Middle School Science Education
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
STAT 310 Introductory Data Analysis 3

PHYS 111N & PHYS 112N Introductory General Physics 8
OEAS 111N Physical Geology 4
OEAS 112N Historical Geology 4
OEAS 130G Research Skills and Information Literacy for the Natural Sciences 3
OEAS 220T Introduction to Meteorology 3
OEAS 306 Oceanography 3
OEAS 310 Global Earth Systems 4
OEAS 444 Communicating Ocean Science to Informal Audiences (satisfies oral communication requirement) 3

Additional upper-division science electives: 20 credits chosen from the following options
OEAS 303 Paleontology
OEAS 315 Minerals and Rocks
OEAS 320 Sedimentology and Stratigraphy
OEAS 403W Aquatic Pollution
OEAS 452 Microbial Ecology of the Oceans
ASTP 408 Astronomy for Teachers
BIOL 291 Ecology
BIOL 292 Evolution
BIOL 294 Genetics
BIOL 307 Invertebrate Zoology
BIOL 308 Botany
PHYS 309 Physics on the Back of an Envelope

Total Credit Hours 121-128

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.

Course Title Credit Hours
Freshman
Fall
ENGL 110C English Composition (C or better required) 3
BIOL 121N and BIOL 122N 4
Human Creativity 3
Philosophy and Ethics 3
STEM 103 Foundations of STEM Teaching: An Inquiry-Based Approach 2

Spring
BIOL 123N and BIOL 124N 4

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Language and Culture I & II may be met in high school and are not included in this four-year plan. Please see requirement details.

**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/) 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/). For additional information, please contact the School of Public Service in the Strome College of Business.