

OLD DOMINION UNIVERSITY 2004-2006 Catalog

Bachelor of Science—Ocean and Earth Science Major

Students earning the AS, AA, or AA&S (or university parallel) degree from a Virginia Community College automatically satisfy the lower division general education requirements. **Courses marked with * require a grade of C or better to transfer, even with the AS degree. The remaining lower division courses are automatically satisfied by the AS (including foreign language), regardless of the grade earned.** Additionally, courses in which a grade of AC-A or below were earned will not transfer. Therefore Community College degree holders may require additional credits to meet the 120 credit hour graduation minimum. (AS=Associate degree)

LOWER DIVISION GENERAL EDUCATION (required of all emphasis areas)

A. Skills

Written Communication

ENGL 110C _____ 3 _____
 ENGL 111C, 131C, PHIL 111C, or _____ 3 _____
 HIST 111C _____

Oral Communication _____ 3 _____

(Satisfied by OCEN 442)

Mathematics _____ 3 _____*

(Requires 162M or higher)

Foreign Language Skills _____ 3 _____

(Competence must be at the 102 level)

Computer Skills _____ 3 _____*

(Requires CS 149D or higher; satisfied by ECI 304 in Earth Science Education track)

B. Perspectives

Fine and Performing Arts _____ 3 _____

ARTH 121A, ARTS 122A, MUSC 264A, DANC 185A, THEA 241A

History _____ 3 _____

HIST 101H, 102H, 103H, 104H, _____ 3 _____
 or 105H _____

Literature _____ 3 _____

ENGL 112L, 144L, or FLET 100L

Philosophy _____ 3 _____

PHIL 110P, 120P, or 150P

Natural Science and Technology

(CHEM 115N-116N required) _____ 4 _____*

_____ 4 _____*

Technology Requirement _____ 3-4 _____

(Met in the major)

Social Sciences _____ 3 _____

_____ 3 _____

ANTR 110S; COMM 200S; CRJS 215S; ECON 200S, 201S, 202S
 GEOG 100S, 101S; POLS 100S, 101S; PSYC 201S, 203S; SOC
 201S; WMST 201S

Students must select one of the following options:

Course Requirements-Biological Oceanography Emphasis

BIOL 115N General Biology 1 _____ 4*
 BIOL 116N General Biology 2 _____ 4*
 CHEM 115N-116N College Chemistry _____ 8*
 (satisfies natural science perspective)
 CS 149D Elements of Computer Science _____ 3*
 (satisfies computer skills requirement)
 GEOL 111N Physical Geology _____ 4*
 MATH 211-212 Calculus I and II _____ 8*
 OCEN 306 Oceanography _____ 3
 PHYS 231N-32N University Physics I and II _____ 8*
 STAT 330 Intro to Probability and Statistics _____ 3
 OCEN 310 Global Earth Systems _____ 3
 OCEN 403W Aquatic Pollution _____ 3

OCEN 440 Biological Oceanography Lec/Lab _____ 4
 BIOL 203 Evolution _____ 3
 BIOL 415 Marine Ecology _____ 3
 CHEM 311, 312, 313 Organic Chemistry Lec/Lab _____ 8
 CHEM 445 Biochemistry _____ 3
 Elective (from GEOL 420, OCEN 404, 410, 412, 414, STAT 310W) _____ 3

OCEN 441-442 Ocean and Earth Science Field Study _____ 6
 (OCEN 442 satisfies oral communication requirement)

Students in the Biological subdiscipline are strongly encouraged to complete a minor in Biology. The following courses are required:

BIOL 316 General Ecology _____ 3
 BIOL 331 Marine Biology _____ 3
 BIOL 442 Marine Ecology Lab _____ 2
 BIOL Elective (cannot include BIOL 313 or 317) _____ 2

Course Requirements-Chemical Oceanography Emphasis

BIOL 115N General Biology 1 _____ 4*
 BIOL 116N General Biology 2 _____ 4*
 CHEM 115N-116N College Chemistry _____ 8*
 (satisfies natural science perspective)
 CS 149D Elements of Computer Science _____ 3*
 (satisfies computer skills requirement)
 GEOL 111N Physical Geology _____ 4*
 MATH 211-212 Calculus I and II _____ 8*
 OCEN 306 Oceanography _____ 3
 PHYS 231N-32N University Physics I and II _____ 8*
 STAT 330 Intro to Probability and Statistics _____ 3
 OCEN 310 Global Earth Systems _____ 3
 OCEN 403W Aquatic Pollution _____ 3
 OCEN 410 Chemical Oceanography Lecture/Lab _____ 4
 CHEM 311/313 Organic Chemistry Lecture _____ 6
 CHEM 331/333 Physical Chemistry Lecture _____ 6
 CHEM 332 Experimental Physical Chemistry _____ 6
 Or 452 Inorganic Chemistry Laboratory _____ 2
 CHEM 451 Advanced Inorganic Chemistry _____ 3
 Elective (from GEOL 414, OCEN 412, 418) _____ 3
 OCEN 441-442 Ocean and Earth Science Field Study _____ 6
 (OCEN 442 satisfies oral communication requirement)

Students in the chemical subdiscipline are strongly encouraged to complete a minor in chemistry. The following courses are required:

CHEM 311-313 Organic Chemistry Lecture _____ 6
 CHEM 312-314 Organic Chemistry Laboratory _____ 4
 CHEM 321 Analytical Chemistry Lecture _____ 3
 CHEM 322 Analytical Chemistry Laboratory _____ 2

Course Requirements-Physical Oceanography Emphasis

BIOL 115N General Biology 1 _____ 4*
 BIOL 116N General Biology 2 _____ 4*
 CHEM 115N-116N College Chemistry _____ 8*
 (satisfies natural science perspective)
 CS 149D Elements of Computer Science _____ 3*
 (satisfies computer skills requirement)
 GEOL 111N Physical Geology _____ 4*
 MATH 211-212 Calculus I and II _____ 8*
 PHYS 231N-32N University Physics I and II _____ 8*
 STAT 330 Intro to Probability and Statistics _____ 3
 OCEN 306 Oceanography _____ 3

OCEN 310 Global Earth Systems	_____3
OCEN 405 Physical Oceanography	_____3
OCEN 415 Waves and Tides	_____3
OCEN 451W Data Collection /Analysis in Oceanography	_____3
OCEN 452 Geophysical Fluid Dynamics	_____3
MATH 307 (MATH 280-does not meet minor requirements)	
Ordinary Differential Equations	_____3
ME 303 Mechanics of Fluids	_____3
ME 311 Thermodynamics	_____3
PHYS 319 Analytical Mechanics	_____3
STAT 437 Regression and Analysis of Variance	_____3
OCEN 441-442 Ocean and Earth Science Field Study	_____6
(OCEN 442 satisfies oral communication requirement)	
Students in the physical subdiscipline are strongly encouraged to complete a minor in applied mathematics. The following courses are required:	
MATH 312 Calculus III	_____3
MATH 316 Intro Linear Algebra	_____3
MATH 317 Calculus IV	_____3
MATH 401 Partial Differential Equations	_____3
Course Requirements—Geology Emphasis	
BIOL 115N General Biology 1	_____4*
BIOL 116N General Biology 2 or	
GEOL 303 Palenotology	_____3-4*
CHEM 115N-116N College Chemistry	_____8
(satisfies natural science perspective)	
CS 149D Elements of Computer Science	_____3
(satisfies computer skills requirement)	
GEOL 111N-112N Physical Geology/Historical Geology	_____8
MATH 205-206 Intro Calculus I and II	_____6
PHYS 231N-32N University Physics I and II	_____8
STAT 330 Intro to Probability and Statistics	_____3
OCEN 306 Oceanography	_____3
OCEN 310 Global Earth Systems	_____3
GEOL 313 Mineralogy	_____3
GEOL 314 Petrology	_____3
GEOL 344W Geomorphology	_____3
GEOL 320 Sedimentology/Stratigraphy	_____4
GEOL 411 Structural Geology	_____4
GEOL 420 Hydrogeology OR	
GEOL 434 Intro to Geophysical Methods	_____3
Two GEOL/OCEN electives chosen from GEOL 303, 340, 368, 408, 414, 420, 431, 434, 435, 446, 450; OCEN 403, 412, 414, 415, 419, 436	_____6
OCEN 441-442 Ocean and Earth Science Field Study	_____6
(OCEN 442 satisfies oral communication requirement)	

Course Requirements-Earth Science Education Emphasis

Admission. Students wanting to enroll in the teacher education program must have 2.75 grade point average in the major and overall, with no grade less than C- in the content area and the professional education core. Additionally, passage of the PRAXIS I exam prior to enrollment in any education practicum course or courses on developing instructional strategies is required. It is recommended that students take the PRAXIS I exam prior to, or during enrollment in ECI 301.

Continuance. Students must maintain a general grade point average of 2.75 in the academic major and complete all degree requirements for the major and in the professional education core with no grade less than a C- for continuance in the College of Education.

Graduation. Requirements for graduation include passage of the Exit Examination of Writing Proficiency; completion of the Senior Assessment; a minimum 2.75 grade point average overall and in the

major, with no grade less than a C- in the major, minor, and professional education core; and completion of a minimum of 127 credit hours. In order to obtain a Virginia teaching license, all teacher education students must attain passing scores on the appropriate PRAXIS II specialty area tests. A list of the passing scores established by the Virginia Department of Education is available on the Virginia Department of Education website or the Office of Teacher Education Services, Education Building room 152. The curriculum is as follows:

BIOL 115N General Biology 1	_____4*
CHEM 115N-116N College Chemistry	_____8*
(satisfies natural science perspective)	
GEOL 111N-112N Physical Geology/Historical Geology	_____8*
MATH 163 Pre-calculus II	_____3*
PHYS 111N-112N Intro General Physics I and II	_____8*
OCEN 306 Oceanography	_____3
OCEN 310 Global Earth Systems	_____3
GEOL 303 Paleontology	_____3
GEOL 313 Mineralogy	_____3
GEOL 314 Petrology	_____3
GEOL 344W Geomorphology	_____3
GEOL 360 Environmental Systems Education	
(satisfies oral communication requirement)	_____3
GEOL 442 General Meteorology	_____3
PHYS 408 Astronomy for Teachers	_____3
OCEN 441-442 Ocean and Earth Science Field Study	_____6
(OCEN 442 satisfies oral communication requirement)	

Professional Education Courses

ECI 301 Social Cultural Foundations of Education	_____3
ECI 304 Education Applications of Computers	
(Satisfies computer skills requirement)	
ECI 360 Classroom Management and Discipline	_____2
ECI 408 Reading and Writing in Content Areas	_____3
ECI 454 Developing Instructional Strategies	_____4
ECI 485 Student Teaching	_____12
ECI 406 Special Needs Children-General Ed	_____3
ECI 413 Fundamentals-Human Growth and Development	_____3

UPPER DIVISION GENERAL EDUCATION

(Teacher Education Core satisfies this requirement.)

Option A. Approved Minor, 12-24 hours; also second degree or second major. Students completing an oceanography emphasis should see the information in the emphasis areas encouraging them to complete specific minor requirements.

Option B. Cluster, 9 hours (3 hours may be in the major area of study.)

Requirements for graduation (non-teacher education tracks) include a minimum cumulative grade point average of 2.00 overall and in the major, 120 credit hours, passage of the Exit Examination of Writing Proficiency, and completion of Senior Assessment.