

**OLD DOMINION UNIVERSITY 2008-2009 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 C- 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)**

<i>A. Skills</i>	<i>VCCS Equivalents</i>
<b>Written Communication</b>	
ENGL 110C _____	3 See <a href="#">Transfer Guide</a>
ENGL 111C or 131C _____	3 See <a href="#">Transfer Guide</a>
<b>Oral Communication</b> _____ 3 _____	
(Satisfied by OEAS 441-442W)	
<b>Mathematics</b> _____ 3 See <a href="#">Transfer guide</a>	
(Requires 162M or higher)	
<b>Foreign Language Skills</b> _____ 3 See <a href="#">Transfer guide</a>	
(Competence must be at the 102 level)	
<b>Computer Skills</b> _____ 3 See <a href="#">Transfer guide</a>	
(Requires CS 149D or higher; satisfied by ECI 430 in Earth Science Education track)	
<b>B. Perspectives</b>	
<b>Fine and Performing Arts</b> _____ 3 See <a href="#">Transfer guide</a>	
ARTH 121A, ARTS 122A, MUSC 264A, DANC 185A, THEA 241A, COMM/THEA 270A	
<b>History</b> _____ 3 See <a href="#">Transfer guide</a>	
HIST 101H, 102H, 103H, 104H, _____ 3 _____	
or 105H	
<b>Literature</b> _____ 3 See <a href="#">Transfer guide</a>	
ENGL 112L, 144L, or FLET 100L	
<b>Philosophy</b> _____ 3 See <a href="#">Transfer guide</a>	
PHIL 110P, 120P, or 150P	
<b>Natural Science and Technology</b>	
(CHEM 115N-116N required) _____ 4 <u><b>CHM 111 &amp; CHM 112*</b></u>	
_____ 4 _____	
Technology Requirement _____ 3-4 _____	
(Met in the major)	
<b>Social Sciences</b> _____ 3 See <a href="#">Transfer guide</a>	
_____ 3 _____	
ANTR 110S; COMM 200S; CRJS 215S; ECON 200S, 201S, 202S	
GEOG 100S, 101S; POLS 100S, 101S; PSYC 201S, 203S; SOC 201S; WMST 201S	
<b>Students must select one of the following options:</b>	
<b>Course Requirements-Biological Oceanography Emphasis</b>	
BIOL 115N General Biology 1 _____	4 <u><b>BIO 101*</b></u>
BIOL 116N General Biology 2 _____	4 <u><b>BIO 102*</b></u>
CHEM 115N-116N College Chemistry _____	8 <u><b>CHM 111 &amp; 112*</b></u>
(satisfies natural science perspective)	
CS 149D Elements of Computer Science _____	3*
(satisfies computer skills requirement)	
OEAS 111N Physical Geology _____	4 <u><b>GOL 105*</b></u>
MATH 211-212 Calculus I and II _____	8*MTH
	<u>173,273,174,274</u>
OEAS 306 Oceanography _____	3
PHYS 231N-232N University Physics I and II _____	8*PHY
	<u>231,241,232,242</u>

STAT 330 Intro to Probability and Statistics _____	3
Or STAT 310W Intro Data Analysis	
OEAS 310 Global Earth Systems _____	3
OEAS 440 Biological Oceanography Lec/Lab _____	4
BIOL 292 Evolution _____	3
BIOL 415 Marine Ecology _____	3
CHEM 211, 212, 213 Organic Chemistry Lec/Lab _____	8 <u><b>CHM 241,242</b></u>
	<u>243*</u>
CHEM 445 Biochemistry _____	3
Elective (from OEAS 403W, 404, 410, 412, 414, 420, STAT 310W) _____	6
OEAS 441-442W Ocean and Earth Science Field Study _____	6
(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
<b>Course Requirements-Chemical Oceanography Emphasis</b>	
BIOL 115N General Biology 1 _____	4 <u><b>BIO 101*</b></u>
BIOL 116N General Biology 2 _____	4 <u><b>BIO 102*</b></u>
CHEM 115N-116N College Chemistry _____	8 <u><b>CHM 111&amp;112*</b></u>
(satisfies natural science perspective)	
CS 149D Elements of Computer Science _____	3 <u><b>CSC 130,</b></u>
	<u>200,EGR 125, ITP 120,130,132,156,230,232,236*</u>
(satisfies computer skills requirement)	
OEAS 111N Physical Geology _____	4 <u><b>GOL 105*</b></u>
MATH 211-212 Calculus I and II _____	8 <u><b>MTH 173,273,174,274*</b></u>
OEAS 306 Oceanography _____	3
PHYS 231N-32N University Physics I and II _____	8 <u><b>PHY 231,241</b></u>
	<u>323,243*</u>
STAT 330 Intro to Probability and Statistics _____	3
Or STAT 310W Intro Data Analysis	
OEAS 310 Global Earth Systems _____	3
OEAS 410 Chemical Oceanography Lecture/Lab _____	4
CHEM 211/213 Organic Chemistry Lecture _____	6 <u><b>CHM 241, 242*</b></u>
CHEM 331/333 Physical Chemistry Lecture _____	6
CHEM 332 Experimental Physical Chemistry _____	
Or 452 Inorganic Chemistry Laboratory _____	2
CHEM 451 Advanced Inorganic Chemistry _____	3
Electives (from OEAS 403W, 414, 412, 418)	
OEAS 441-442W Ocean and Earth Science Field Study _____	6
(satisfies oral communication requirement)	
Students in the chemical subdiscipline are strongly encouraged to complete a minor in chemistry. The following courses are required:	
CHEM 211-213 Organic Chemistry Lecture _____	6
CHEM 212-214 Organic Chemistry Laboratory _____	4
CHEM 321 Analytical Chemistry Lecture _____	3
CHEM 322 Analytical Chemistry Laboratory _____	2
<b>Course Requirements-Physical Oceanography Emphasis</b>	
BIOL 115N General Biology 1 _____	4 <u><b>BIO 101*</b></u>
BIOL 116N General Biology 2 _____	4 <u><b>BIO 102*</b></u>
CHEM 115N-116N College Chemistry _____	8 <u><b>MTH173,273,174,274*</b></u>

(satisfies natural science perspective)	
CS 149D Elements of Computer Science	_____3*
(satisfies computer skills requirement)	
OEAS 111N Physical Geology	_____4*
MATH 211-212 Calculus I and II	_____8*
PHYS 231N-232N University Physics I and II	_____8 <u>PHY</u> <u>231,241,232, 242*</u>

STAT 330 Intro to Probability and Statistics	_____3
OEAS 306 Oceanography	_____3
OEAS 310 Global Earth Systems	_____3
OEAS 405 Physical Oceanography	_____3
OEAS 415 Waves and Tides	_____3
OEAS 451W Data Collection /Analysis in Oceanography	_____3
GEOG 402 or 404 Geo Info Sys or Digital Remote Sensing	_____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
OEAS 441-442W Ocean and Earth Science Field Study	_____6

(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	_____4 <u>BIO 101*</u>
BIOL 116N General Biology 2 or	<u>BIO 102</u>
OEAS 303 Palenotology	_____3-4*
CHEM 115N-116N College Chemistry	_____8 <u>CHM 111, 112</u>

(satisfies natural science perspective)	
CS 149D Elements of Computer Science	_____3
(satisfies computer skills requirement)	
OEAS 111N-112N Physical Geology/Historical Geology	_____8
MATH 205-206 Intro Calculus I and II	_____6
PHYS 231N-232N University Physics I and II	_____8 <u>PHY</u> <u>231,241,232,242*</u>
STAT 330 Intro to Probability and Statistics	_____3
OEAS 306 Oceanography	_____3
OEAS 310 Global Earth Systems	_____3
OEAS 313 Mineralogy	_____3
OEAS 314 Petrology	_____3
OEAS 344W Geomorphology	_____3
OEAS 320 Sedimentology/Stratigraphy	_____4
OEAS 411 Structural Geology	_____4
OEAS 420 Hydrogeology OR	
OEAS 434 Intro to Geophysical Methods	_____3
Two electives chosen from OEAS 303,	
340, 368, 408, 414, 420, 431, 434, 435, 446, 450;	
OEAS 403, 412, 414, 415, 419, 436	_____6
OEAS 441-442W Ocean and Earth Science Field Study	_____6

**Course Requirements-Earth Science Education Emphasis**

**Admission.** Students applying for admission to the teacher education programs must (1) complete at least one semester at Old Dominion University, (2) have a 2.75 grade point average overall, in the major, and in the professional education core with no grade less than C in all courses taken in the major and C- in the professional

education core, (3) have passed PRAXIS I or achieved State Board of Education approved scores on the SAT or ACT, (4) present written recommendations from two faculty members from the Occupational and Technical Studies Department, and (5) have an interview with the program leader. Although students may enroll in a limited number of education courses, admission into the teacher education program and passing PRAXIS I scores or approved equivalent test scores must be on file in the Teacher Education Services Office prior to students enrolling in any professional education practicum course.

**Continuance.** Student in education licensure programs must (1) satisfy University requirements, (2) continue to maintain a 2.75 grade point average overall, with no grade less than C in the major and no grade less than C- in the professional education core, and (3) successfully complete a student teaching interview.

**Assessments required for teacher education programs and licensure.** In order to obtain a Virginia teaching license, all teacher education students must attain passing scores on the appropriate teacher licensure exams. Students who complete their programs after December 1, 2006 are required to take the Virginia Communication and Literacy Assessment (VCLA) to be eligible for licensure. The VCLA should be taken during the semester of student teaching. It is recommended that the VCLA be taken after students have completed their English and reading course requirements. In addition, all students must take and pass the Exit Examination of Writing Proficiency to be eligible for student teaching. The University recommends that students take this exam in their junior year. All students will take and attain a passing score on the appropriate PRAXIS II specialty test in order to be eligible for student teaching and licensure. Score reports of all examinations must be on file in the Teacher Education Services Office in room 152 of the Education Building.

**Exit.** Students in marketing education and technology education licensure programs must have (1) a 2.75 grade point average overall, in the major, and in the professional education core, (2) earned a passing grade in student teaching, and (3) completed the senior assessment.

NOTE: Due to changing University requirements, national accreditation standards, and Commonwealth licensure regulations, the programs in the Darden College of Education are under constant revision. Any changes resulting from these factors supersede the program requirements described here or in the University catalog. Students should obtain current program information from their academic advisor and the Darden College of Education website at <http://www.education.odu.edu>.

The curriculum is as follows:

BIOL 115N General Biology 1	_____4 <u>BIO 101*</u>
CHEM 115N-116N College Chemistry	_____8 <u>CHM 111, 112*</u>
(satisfies natural science perspective)	
OEAS 111N-112N Physical Geology/Historical Geology	_____8*
	<u>GOL 105,106</u>
MATH 163 Pre-calculus II	_____3 <u>MTH 164*</u>
PHYS 111N-112N Intro General Physics I and II	_____8*
	<u>PHY 111, 201, 112, 202*</u>
OEAS 306 Oceanography	_____3
OEAS 310 Global Earth Systems	_____3
OEAS 303 Paleontology	_____3
OEAS 313 Mineralogy	_____3
OEAS 314 Petrology	_____3
OEAS 344W Geomorphology	_____3
OEAS 360 Environmental Systems Education	
(satisfies oral communication requirement)	_____3
OEAS 443 General Meteorology	_____3
PHYS 408 Astronomy for Teachers	_____3
OEAS 441-442W Ocean and Earth Science Field Study	_____6

(satisfies oral communication requirement)

**Professional Education Courses**

ECI 301 Foundations and Assessment	_____3	<u>EDU 200*</u>
ECI 360 Classroom Management and Discipline	_____2	
ECI 408 Reading and Writing in Content Areas	_____3	
ECI 430 PK 12 Instructional Technology		<u>EDU 580*</u>
(Satisfies computer skills requirement)	_____3	
ECI 454 Developing Instructional Strategies	_____3	
ECI 483 Practicum Seminar in Education	_____1	
ECI 485 Student Teaching	_____12	
ESSE 313 Fundamentals-Human Growth and Development	__3	
		<u>PSY 230*</u>
ESSE 406 Students with Diverse Learning	_____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.

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

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