

Earth Science

Earth Science

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CAREER OPPORTUNITIES

Examples of occupations open to graduates of Earth Science bachelor programs are: exploration geologist, hydrogeologist, engineering geologist, environmental scientist, science manager,

science technician, government regulator, environmental technician, and engineering technician. Current employment opportunities for graduates from Earth Science programs are strong.

PROGRAMS

Students in Earth Science may receive: Bachelor of Science in Earth Science with an Emphasis in Geology; Bachelor of Science in Earth Science with an Emphasis in Environmental Management; Bachelor of Science in Earth Science Education; Bachelor of Science or Arts in Integrated Studies with an emphasis in Earth Science.

Certificate in Water and Wastewater Operations

Discipline Core Requirements:		22 Credits
• ENVT 1200	Environmental Worker Safety	3.0
• ENVT 1210	Introduction to Water Reclamation (3.0)	
or ENVT 1360	Introduction to Water Treatment	3.0
• ENVT 1300	Environmental Lab and Sampling	3.0
• ENVT 3280	Environmental Law	3.0
• ENGL 1010	Introduction to Writing	3.0
• DGM 2010	Business Computer Proficiency	3.0
or Business Computer Proficiency Exam		
• MAT 1010	Intermediate Algebra	4.0
Elective Requirements:		9 Credits
Must take three of the following courses		
• ENVT 3320	Hydraulics of Water (3.0)	
• ENVT 1510	Hazardous Materials Emergency Response (3.0)	
• ENVT 3630	Introduction to Geographic Information Systems (4.0)	
• ENVT 3790	Hydrology (3.0)	
• ENVT 1270	Environmental Microbiology (3.0)	
• ENVT 3330	Water Resources Management (3.0)	

AS Pre Major in Physical Science

General Education Requirements:		38 Credits
• ENGL 1010	Introduction to Writing	3.0
• ENGL 2010	Intermediate Writing--Humanities/Social Sciences	3.0
or ENGL 2020	Intermediate Writing--Science and Technology (3.0)	
• MATH 1050	College Algebra	4.0
Complete one of the following:		
• HIST 2700	US History to 1877 (3.0)	
or HIST 2710	US History since 1877 (3.0)	
• HIST 1700	American Civilization (3.0)	
• HIST 1740	US Economic History (3.0)	
• POLS 1000	American Heritage (3.0)	
• POLS 1100	American National Government (3.0)	
Complete the following:		
• PHIL 2050	Ethics and Values	3.0
• HLTH 1100	Personal Health and Wellness	2.0
or PES 1097	Fitness for Life (2.0)	
Distribution Courses		
• Biology		3.0
• PHYS 2210	Physics for Scientists and Engineers I	4.0
• PHYS 2220	Physics for Scientists and Engineers II	4.0
• Humanities Distribution		3.0
• Fine Arts Distribution		3.0
• Social/Behavioral Science		3.0
Discipline Core Requirements:		17 Credits
• CHEM 1210	Principles of Chemistry I	4.0
• CHEM 1215	Principles of Chemistry I Laboratory	1.0
• MATH 1210	Calculus I	5.0
• MATH 1220	Calculus II	5.0
• PHYS 2215	Physics for Scientists and Engineers I Lab	1.0
• PHYS 2225	Physics for Scientists and Engineers II Lab	1.0
Elective Requirements:		8 Credits
Complete 8 credits from the following:		
• CHEM 1220	Principles of Chemistry II (4.0)	
• CHEM 2310	Organic Chemistry I (4.0)	

- CHEM 2315 Organic Chemistry I Laboratory (1.0)
- CHEM 2325 Organic Chemistry II Laboratory (1.0)
- ENGR 2450 Computational Methods for Engineering Analysis (3.0)
- GEO 1010 Introduction to Geology (3.0)
- GEO 1220 Historical Geology (3.0)
- GEO 1080 Introduction to Oceanography (3.0)
- MATH 2210 Calculus III (3.0)
- MATH 2040 Principles of Statistics (4.0)
- MATH 2270 Linear Algebra (3.0)
- MATH 2280 Ordinary Differential Equations (3.0)
- METO 1010 Introduction to Meteorology (3.0)

Graduation Requirements:

1. Completion of a minimum of 63 semester credits.
2. Overall grade point average of 2.0 (C) or above (departments may require a higher GPA).
3. Residency hours: minimum of 20 credit hours through course attendance at UVSC.
4. Completion of GE and specified departmental requirements.

BS in Earth Science 121-123 CREDITS

General Education Requirements:		27 Credits
• ENGL 1010	Introduction to Writing	3.0
• ENGL 2020	Intermediate Writing--Science and Technology	3.0
• MATH 1050	College Algebra	4.0
Complete one of the following:		
• HIST 2700	US History to 1877 (3.0)	
and HIST 2710	US History since 1877 (3.0)	
• HIST 1700	American Civilization (3.0)	
• HIST 1740	US Economic History (3.0)	
• POLS 1000	American Heritage (3.0)	
• POLS 1100	American National Government (3.0)	
Complete the following:		
• PHIL 2050	Ethics and Values	3.0
• HLTH 1100	Personal Health and Wellness (2.0)	
or PES 1097	Fitness for Life	2.0
Distribution Courses		
• Biology*		
• Physical Science*		
• Additional Biology or Physical Science*		
• Humanities Distribution		3.0
• Fine Arts Distribution		3.0
• Social/Behavioral Science		3.0
Discipline Core Requirements:		56 Credits
• BIOL 1010	General Biology	3.0
• CHEM 1210	Principles of Chemistry I	4.0
• CHEM 1215	Principles of Chemistry I Laboratory	1.0
• CHEM 1220	Principles of Chemistry II	4.0
• CHEM 1225	Principles of Chemistry II Laboratory	1.0
• CHEM 3020	Environmental Chemistry	3.0
• GEO 1010	Introduction to Geology	3.0
• GEO 1015	Introduction to Geology Laboratory	1.0
• GEO 3080	Earth Materials	4.0
• GEO 3210	Environmental Geology	4.0
• MATH 1060	Trigonometry	3.0
• MATH 2040	Principles of Statistics	4.0
Complete 21 credits from the following list:		
• BIOL 3800	Conservation Biology (3.0)	
or BIOL 4500	Principles of Evolution (3.0)	
• ENVT 2730	Introduction to Soils (3.0)	
• ENVT 3280	Environmental Law (3.0)	
• ENVT 3290	Environmental Permits and Reports (3.0)	
• ENVT 3790	Hydrology (3.0)	
• ENVT 482R	Geologic/Environmental Internship (1.0)	
or GEO 482R	Geologic/Environmental Internship (1.0)	
• GEOG 3630	Introduction to Geographic Information Systems (4.0)	
• GEO 1220	Historical Geology (3.0)	
and GEO 1225	Historical Geology Laboratory (1.0)	
• GEO 1080	Introduction to Oceanography (3.0)	
and GEO 1085	Introduction to Oceanography Laboratory (1.0)	
• GEO 3400	Forensic Geology (4.0)	
• METO 1010	Introduction to Meteorology (3.0)	
and METO 1020	Introduction to Meteorology Laboratory (1.0)	
• METO 3100	Earth Systems (3.0)	
Emphasis:		
Complete one of the following:		
* Environmental Management		40.0
or Geology		38.0
Graduation Requirements:		
1. Completion of a minimum of 121-123 semester credits.		
2. Overall grade point average of 2.0 (C) or above.		
3. Grade of C- or better in every GEO course.		

- 4 Residency hours--minimum of 30 credit hours through course attendance at UVSC, with at least 10 hours earned in the last 45 hours.
- 5 Completion of GE and specified departmental requirements.

Note: *This requirement is satisfied within the discipline core requirements.

Emphasis in Environmental Management

40 Credits

Emphasis Requirements: 22 Credits

- ENVT 1110 Introduction to Environmental Management 3.0
- ENVT 1200 Environmental Worker Safety 3.0
- ENVT 1300 Environmental Lab and Sampling 3.0
- ENVT 1510 Hazardous Materials Emergency Response 3.0
- ENVT 2560 Environmental Health 3.0
- ENVT 2710 Environmental Careers 1.0
- ENVT 1270 Environmental Microbiology 3.0
- ENVT 3850 Environmental Policy 3.0

Emphasis Elective Requirements: 18 Credits

Take 18 credits from the following: 18.0

- ENVT 1210 Introduction to Water Reclamation (3.0)
- ENVT 1360 Introduction to Water Treatment (3.0)
- ENVT 2600 Skills for Humanitarian Projects (3.0)
- ENVT 2730 Introduction to Soils (3.0)
- ENVT 282R Environmental Internship (1.0)
- ENVT 3010 Environmental Toxicology (3.0)
- ENVT 3320 Hydraulics of Water (3.0)
- ENVT 3330 Water Resources Management (3.0)
- ENVT 3530 Environmental Management Systems (3.0)
- ENVT 3630 Introduction to Geographic Information Systems (4.0)
- ENVT 3550 Site Investigation (3.0)
- ENVT 3700 Current Topics in Environmental Management (3.0)
- ENVT 3750 Land Use Planning (3.0)
- ENVT 3770 Natural Resources Management (3.0)
- ENVT 3800 Energy Use on Earth (3.0)
- ENVT 495R Special Projects in Environmental Management (1.0)
- GEO 4500 Sedimentary Geology (4.0)
- CHEM 2310 Organic Chemistry I (4.0)

Emphasis in Geology

38 Credits

Emphasis Requirements: 38 Credits

- MATH 1210 Calculus I 5.0
- MATH 1220 Calculus II 5.0
- PHYS 2210 Physics for Scientists and Engineers I 4.0
- PHYS 2220 Physics for Scientists and Engineers II 4.0
- GEO 3200 Geologic Hazards 4.0
- GEO 3700 Structure and Tectonics 4.0
- GEO 4500 Sedimentary Geology 4.0
- GEO 4510 Paleontology 4.0
- GEO 4600 Field Experience 4.0

BS in Earth Science

Education

121 CREDITS

Matriculation Requirements:

- 1 Complete the following courses: GEO 1010, GEO 1015, MATH 1050, MATH 1060, BIOL 1610 with a grade of "C-" or higher in each.
- 2 Complete a minimum of 30 semester hours of college credit.
- 3 Apply to the department of Earth Science for admission.

General Education Requirements: 27 Credits

- ENGL 1010 Introduction to Writing 3.0
 - ENGL 2010 Intermediate Writing--Humanities/Social Sciences 3.0
 - or ENGL 2020 Intermediate Writing--Science and Technology (3.0)
 - MATH 1050 College Algebra 4.0
- Complete one of the following: 3.0

- and HIST 2700 US History to 1877 (3.0)
- and HIST 2710 US History since 1877 (3.0)
- HIST 1700 American Civilization (3.0)
- HIST 1740 US Economic History (3.0)
- POLS 1000 American Heritage (3.0)
- POLS 1100 American National Government (3.0)

Complete the following:

- PHIL 2050 Ethics and Values 3.0
- HLTH 1100 Personal Health and Wellness (2.0)
- or PES 1097 Fitness for Life 2.0

Distribution Courses

- Biology*
- Physical Science*

- Additional Biology or Physical Science* 3.0
- Humanities Distribution 3.0
- Fine Arts Distribution 3.0
- Social/Behavioral Science 3.0

Discipline Core Requirements: 84 Credits

- PHYS 1040 Elementary Astronomy 3.0
- BIOL 1010 General Biology 3.0
- BIOL 2500 Environmental Biology 3.0
- CHEM 1210 Principles of Chemistry I 4.0
- CHEM 1215 Principles of Chemistry I Laboratory 1.0
- CHEM 1220 Principles of Chemistry II 4.0
- CHEM 1225 Principles of Chemistry II Laboratory 1.0
- GEO 1010 Introduction to Geology 3.0
- GEO 1015 Introduction to Geology Laboratory 1.0
- GEO 3080 Earth Materials 4.0
- GEO 3700 Structure and Tectonics 4.0
- GEO 4500 Sedimentary Geology 4.0
- GEO 4200 Teaching Methods in Science 3.0
- MATH 1060 Trigonometry 3.0
- METO 3100 Earth Systems 3.0
- PHYS 2010 College Physics I 4.0
- PHYS 2015 College Physics I Lab 1.0
- PHYS 2020 College Physics II 4.0
- PHYS 2025 College Physics II Lab 1.0

Education Courses

- EDSC 2540 Development of the Adolescent Student 2.0
- EDSP 3400 Exceptional Students 2.0
- EDSC 3000 Educational Psychology 3.0
- EDSC 3050 Foundations of American Education 2.0
- EDSC 4450 Multicultural Instruction/ESL 2.0
- EDSC 4440 Content Area Reading and Writing 3.0
- EDSC 4550 Secondary Curriculum Instruction and Assessment 4.0
- EDSC 3250 Instructional Media 2.0
- EDSC 4200 Classroom Management I 1.0
- EDSC 4250 Classroom Management II 1.0
- EDSC 4850 Student Teaching--Secondary (4.0) 8.0

Elective Requirements: 10 Credits

Any 10 credit hours of the student's choosing. 10.0

Graduation Requirements:

- 1 Completion of a minimum of 121 semester credits.
- 2 Overall grade point average of 2.0 (C) or above. (Departments may require a higher GPA.)
- 3 Residency hours -- minimum of 20 credit hours through course attendance at UVSC.
- 4 Completion of GE and specified departmental requirements.
- 5 Grade of C- or higher in all GEO, BIOL, and METO courses.

Note: *This requirement is fulfilled with the core requirements.

Minor in Earth Science

23 CREDITS

Matriculation Requirements:

- 1 Admitted to a bachelor degree program at UVSC.

Discipline Core Requirements: 23 Credits

- GEO 1010 Introduction to Geology 3.0
 - and GEO 1015 Introduction to Geology Laboratory 1.0
 - and GEO 3080 Earth Materials 4.0
- Complete two from: 7.0
- GEO 1020 Prehistoric Life (3.0)
 - or GEO 1080 Introduction to Oceanography (3.0)
 - and GEO 1085 Introduction to Oceanography Laboratory (1.0)
 - or METO 1010 Introduction to Meteorology (3.0)
 - and METO 1020 Introduction to Meteorology Laboratory (1.0)

Complete two from: 8.0

- GEO 3200 Geologic Hazards (4.0)
- GEO 3210 Environmental Geology (4.0)
- GEO 3700 Structure and Tectonics (4.0)
- GEO 4500 Sedimentary Geology (4.0)
- GEO 4510 Paleontology (4.0)

BA/BS in

Integrated Studies

123 CREDITS

The following Integrated Studies Emphasis is available (see the Integrated Studies section of this catalog for complete degree requirement listings.)

Emphasis in Earth Science 18 Credits

Emphasis Requirements: 18 Credits

Earth Science Emphasis:

- GEO 1010 Introduction to Geology 3.0
- GEO 1015 Introduction to Geology Laboratory (highly recommended) (1.0)

Complete one of the following sets (lab is highly recommended) 3.0

- GEO 1220 Historical Geology (3.0)
- and GEO 1225 Historical Geology Laboratory (1.0)
- or GEO 1080 Introduction to Oceanography (3.0)

- and GEO 1085 Introduction to Oceanography Laboratory (1.0)
- or METO 1010 Introduction to Meteorology (3.0)
- and METO 1020 Introduction to Meteorology Laboratory (1.0)

Complete three courses from the following: 12.0

- METO 3100 Earth Systems (3.0)
- and METO 1020 Introduction to Meteorology Laboratory (1.0)
- or GEO 1015 Introduction to Geology Laboratory (1.0)
- or GEO 1225 Historical Geology Laboratory (1.0)
- GEO 3080 Earth Materials (4.0)
- GEO 3200 Geologic Hazards (4.0)
- GEO 3210 Environmental Geology (4.0)
- GEO 3700 Structure and Tectonics (4.0)
- GEO 4500 Sedimentary Geology (4.0)
- GEO 4510 Paleontology (4.0)

See Course Descriptions section of the catalog for detailed course information. This department manages the following course prefixes:

- ENVT, Environmental Management
- GEO, Geology
- METO, Meteorology