

B.S. IN GEOSCIENCE - GEOLOGY CONCENTRATION

Curriculum

Code	Title	Credits
GENERAL EDUCATION REQUIREMENTS (https://catalog.wcupa.edu/undergraduate/general-education-requirements/)		
Academic Foundations		
	First Year Experience requirement	4
	English Composition requirement	6-7
	Mathematics requirement	3-4
	Interdisciplinary requirement	3
	Diverse Communities requirement	3
	Ethics requirement	3
Distributed Disciplinary Foundations		
	Science requirement	6-8
	Behavioral & Social Science requirement	6
	Humanities requirement	6
	Arts requirement	3
ADDITIONAL BACCALAUREATE REQUIREMENTS (https://catalog.wcupa.edu/undergraduate/general-education-requirements/)		
University Requirements		
	Writing Emphasis requirement	9
	Speaking Emphasis requirement	9
Degree Requirements		
	Capstone requirement	1-15
MAJOR REQUIREMENTS		
Major Core Courses		
ESS 101	Introduction to Geology	3
ESS 201	Field Geology	3
ESS 204	Historical Geology	3
ESS 301	Environmental Geochemistry	3
ESS 302	Mineralogy	3
ESS 331	Introduction to Paleontology	3
ESS 343	Geomorphology	3
ESS 405	Igneous and Metamorphic Petrology	3
ESS 420	Structural Geology	3
ESS 439	Hydrogeology	3
ESS 450	Sedimentation & Stratigraphy	3
Other Required Courses		
MAT 115	Algebra, Functions, and Trigonometry	3
or MAT 131	Precalculus	
or MAT 143	Brief Calculus	
or MAT 145	Calculus for the Life Sciences	
or MAT 161	Calculus I	
MAT 121	Introduction to Statistics I	3
CHE 103	General Chemistry I	3
CRL 103	General Chemistry I Lab	1
PHY 130	General Physics I	4
or PHY 170	Physics I	
ESS/SCB/ENV 102	Humans and the Environment	3
ESS 347	Earth & Space Science Seminar	1
ESS 447	Earth and Space Science Senior Seminar	1
	Select one of the following:	3

ESS 321	Environmental Data Analysis
GEO 324	Intro to Geographic Information Systems
GEO 325	Intro Business GIS
CSC 115	Introduction to Computer Programming

Capstone Requirement

ESS 499	Geoscience Research Methods ¹	3
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Earth and Space Science Electives

Select any three ESS courses at the 300 or 400 level	9
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A grade of C- or better must be achieved for all required courses within the department including the required electives, as well as those in biology, chemistry, math, and physics.

Total Minimum Credits Required	120
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¹ This course fulfills the Capstone requirement.

Accelerated B.S. in Geoscience - Geology Concentration to M.S. in Geoscience Program

Any junior Geoscience - Geology student with a 3.0 cumulative GPA or higher may substitute up to 9 graduate credits to satisfy the B.S. in Geoscience - Geology Concentration.

Code	Title	Credits
Elective Courses		
Choose from the following:		9
ESS 507	Geology of the Solar System	
ESS 532	Advanced Oceanography	
ESS 535	Remote Sensing	
ESS 542	Geophysics	
ESS 544	Geomorphology II	
ESS 548	International Geology Field Studies	
ESS 549	Advanced Hydrogeology	
ESS 550	Sedimentation & Stratigraphy	
ESS 562	History of Astronomy	
ESS 571	Advanced Meteorology	
ESS 580	Special Problems	
ESS 590	Fundamentals of Soil	
ESS 591	Independent Study	
ESS 594	Geology of Northwestern National Parks	

Sample Course Plan

To track their individual degree progress, students are advised to access their Degree Audit via RamPortal regularly. For more information, visit the Degree Audit FAQ webpage (<https://www.wcupa.edu/academicEnterpriseSystems/student-system-modernization/degree-audit-faqs.aspx>).

The following is a sample suggested course sequence for this program; course offerings and availability are not guaranteed. Students should consult their academic advisor with any questions.

B.S. in Geoscience - Geology Concentration

Course	Title	Credits
Year One		
Fall		
ESS 101	Introduction to Geology	3

ESS 102 or SCB 210	Humans and the Environment or The Origin of Life and the Universe	3
WRT 120	Effective Writing I	3
FYE 100X	First Year Experience	4
Behavioral & Social Science Gen Ed		3
Credits		16
Spring		
ESS 201 or ESS 204	Field Geology or Historical Geology	3
MAT 121	Introduction to Statistics I	3
WRT 2XX	200-level WRT Course	3
Humanities Gen Ed		3
Gen Ed Elective		3
Credits		15
Year Two		
Fall		
ESS 204 or ESS 201	Historical Geology or Field Geology	3
CHE 103 & CRL 103	General Chemistry I and General Chemistry I Lab	4
Humanities Gen Ed		3
Diverse Communities Gen Ed		3
Elective (BIO 110 RECOMMENDED)		3
Credits		16
Spring		
ESS 301	Environmental Geochemistry	3
ESS 302	Mineralogy	3
MAT 143 or MAT 161	Brief Calculus or Calculus I	3-4
Behavioral & Social Science Gen Ed		3
Elective (CHE/CRL 104 RECOMMENDED)		4
Credits		16-17
Year Three		
Fall		
ESS 343	Geomorphology	3
ESS 347	Earth & Space Science Seminar	1
PHY 130	General Physics I	4
Speaking Emphasis Gen Ed		3
Arts Gen Ed		3
Credits		14
Spring		
ESS 331	Introduction to Paleontology	3
ESS 405	Igneous and Metamorphic Petrology	3
ESS 420	Structural Geology	3
ESS 439	Hydrogeology	3
Ethics Gen Ed		3
Credits		15
Year Four		
Fall		
ESS 447	Earth and Space Science Seminar	1
ESS 450	Sedimentation & Stratigraphy	3
ESS XXX	Upper-Level ESS Elective	3
ESS XXX	Upper-Level ESS Elective	3

Speaking Emphasis Gen Ed		3
Credits		13
Spring		
GEO 324	Intro to Geographic Information Systems	3
ESS XXX	Capstone Course	3
ESS XXX	Upper-Level ESS Elective	3
Speaking Emphasis Gen Ed		3
Elective (PHY 140 RECOMMENDED)		4
Credits		16
Total Credits		121-122

Accelerated B.S. in Geoscience - Geology Concentration to the M.S. in Geoscience

Course	Title	Credits
Year One		
Fall		
ESS 101	Introduction to Geology	3
ESS 102 or SCB 210	Humans and the Environment or The Origin of Life and the Universe	3
WRT 120	Effective Writing I	3
FYE 100X	First Year Experience	4
Behavioral & Social Science Gen Ed		3
Credits		16
Spring		
ESS 201 or ESS 204	Field Geology or Historical Geology	3
MAT 121	Introduction to Statistics I	3
WRT 2XX	200-level WRT Course	3
Humanities Gen Ed		3
Gen Ed Elective		3
Credits		15
Year Two		
Fall		
ESS 204 or ESS 201	Historical Geology or Field Geology	3
CHE 103 & CRL 103	General Chemistry I and General Chemistry I Lab	4
Humanities Gen Ed		3
Diverse Communities Gen Ed		3
Elective (BIO 110 RECOMMENDED)		3
Credits		16
Spring		
ESS 301	Environmental Geochemistry	3
ESS 302	Mineralogy	3
MAT 143 or MAT 161	Brief Calculus or Calculus I	3-4
Behavioral & Social Science Gen Ed		3
Elective (CHE/CRL 104 RECOMMENDED)		4
Credits		16-17
Year Three		
Fall		
ESS 343	Geomorphology	3
ESS 347	Earth & Space Science Seminar	1
PHY 130	General Physics I	4

Speaking Emphasis Gen Ed		3
Arts Gen Ed		3
Credits		14
Spring		
ESS 331	Introduction to Paleontology	3
ESS 405	Igneous and Metamorphic Petrology	3
ESS 420	Structural Geology	3
ESS 439	Hydrogeology	3
Ethics Gen Ed		3
Credits		15
Year Four		
Fall		
ESS 447	Earth and Space Science Seminar	1
ESS 450	Sedimentation & Stratigraphy	3
ESS XXX	Upper-Level ESS Elective	3
ESS XXX	Graduate Substitution	3
Speaking Emphasis Gen Ed		3
Credits		13
Spring		
GEO 324	Intro to Geographic Information Systems	3
ESS XXX	Capstone Course	3
ESS XXX	Graduate Substitution	3
ESS XXX	Graduate Substitution	3
Speaking Emphasis Gen Ed		3
Credits		12
Summer		
ESS 523	Field Geology of Southeastern Pennsylvania	3
ESS 596	Earth Systems Science	3
Credits		6
Year Five		
Fall		
ESS 521	Geometrics	3
ESS 547	Earth and Space Science Seminar	1
ESS 549 or ESS 570	Advanced Hydrogeology or Principles of Meteorology	3
ESS 5XX	Elective	3
Credits		10
Spring		
ESS 536 or ESS 530	Environmental Geology or Principles of Oceanography	3
ESS 602	Directed Research	3
ESS 5XX	Elective	3
ESS 5XX	Elective	3
Credits		12
Total Credits		145-146