

GEOLOGY COMPREHENSIVE MAJOR: ENVIRONMENTAL GEOLOGY EMPHASIS

Program Requirements

The Environmental Geology Emphasis requires a minimum of 69 credits:

Code	Title	Credits
GEOL 101 or GEOL 103	Physical Geology (GT-SC2) Earth and Energy Systems	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
GEOL 315	Earth Materials (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 345	Structural Geology (with laboratory)	4
GEOL 430	Hydrogeology (with laboratory)	3
GEOL 450	Field Geology	4
Select two of the following:		6
GEOL 335	Introduction to Engineering Geology	
GEOL 343	Introduction to Geophysics	
GEOL 362	Environmental Geochemistry	
Select one of the following:		3
GEOL 411	Research in Volcanology and Petrology (with laboratory)	
GEOL 420	Research in Geomorphology (with laboratory)	
GEOL 435	Research in Structure and Tectonics (with laboratory)	
GEOL 465	Research in Basin Analysis (with laboratory)	
Required Supporting Courses		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
GEOG 340	Intro Geographic Info Systems	3
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
Select one of the following pairs of courses:		8
PHYS 170 & PHYS 185	Principles of Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)	
AND		
PHYS 171 & PHYS 186	Principles of Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)	
OR		
PHYS 190 & PHYS 185	General Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)	
AND		

PHYS 191 & PHYS 186	General Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)
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Total Credits 69

Capstone Course Requirement

GEOL 450 Field Geology

Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (<https://catalog.western.edu/undergraduate/graduation-requirements/>).

Course	Title	Credits
Year One		
Fall		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1) (or higher, depending on MATH placement) ¹	3
Gen Ed	General Education Courses	3
		Credits
		15
Spring		
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ENG 102	Writing and Rhetoric I (GT-CO1)	3
GEOL 201	Historical Geology (with laboratory)	4
MATH 141	Precalculus (GT-MA1) (or higher, depending on MATH placement) ¹	4
		Credits
		15
Year Two		
Fall		
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
PHYS 170 or PHYS 190	Principles of Physics I (GT-SC2) or General Physics I (GT-SC2)	3
PHYS 185	Laboratory Physics I (GT-SC1)	1
MATH 151	Calculus I (GT-MA1)	4
		Credits
		14
Spring		
ENG 103	Writing and Rhetoric II (GT-CO2)	3
GEOL 315	Earth Materials (with laboratory)	4
PHYS 171 or PHYS 191	Principles of Physics II (GT-SC2) or General Physics II (GT-SC2)	3
PHYS 186	Laboratory Physics II (GT-SC1)	1
MATH 251	Calculus II	4
		Credits
		15
Year Three		
Fall		
GEOL 320	Geomorphology (with laboratory)	4
GEOL 345	Structural Geology (with laboratory)	4
Elective	Elective	3

2 Geology Comprehensive Major: Environmental Geology Emphasis

Gen Ed	General Education Courses	6
Credits		17
Spring		
GEOG 340	Intro Geographic Info Systems	3
GEOL 362	Environmental Geochemistry	3
GEOL 495 or GEOL 401	Geology Seminar or Career Pathways in Geology	1
Gen Ed	General Education Courses	3
Elective	Elective	3
Credits		13
Summer		
GEOL 450	Field Geology	4
Credits		4
Year Four		
Fall		
GEOL 335 or GEOL 343	Introduction to Engineering Geology or Introduction to Geophysics	3
GEOL 411 or GEOL 420 or GEOL 435 or GEOL 465	Research in Volcanology and Petrology (with laboratory) or Research in Geomorphology (with laboratory) or Research in Structure and Tectonics (with laboratory) or Research in Basin Analysis (with laboratory)	3
Gen Ed	General Education Courses	3
Elective	Elective	6
Credits		15
Spring		
GEOL 430	Hydrogeology (with laboratory)	3
Elective	Electives	10
Credits		13
Total Credits		121

¹ Geology requires completion of mathematics through Calculus II. Additional mathematics courses may be required and would fill Elective courses as needed.