GEOLOGY COMPREHENSIVE MAJOR: GEOLOGY EMPHASIS

Program Requirements

The Standard Geology Emphasis requires a minimum of 62 credits:

Code	Title	Credits
GEOL 101	Physical Geology (GT-SC2)	3
or GEOL 103	Earth and Energy Systems	
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 450	Field Geology	4
Two credits from the following:		2
GEOL 300	Geology Field Trip	
GEOL 401	Career Pathways in Geology	
GEOL 452	Advanced Field Geology	
GEOL 495	Geology Seminar	
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
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
One of the following:		3-4
CS 190	Computer Science I	
GEOG 340	Intro Geographic Info Systems	
MATH 213	Probability and Statistics (GT-MA1)	
MATH 252	Calculus III	
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)	
Total Credits		**62-63**

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 141	Precalculus (GT-MA1) (or higher, depending on MATH placement) [1]	4
Gen Ed	General Education Courses	3
	Credits	**16**
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 151	Calculus I (GT-MA1) (or higher, depending on MATH placement) [1]	4
	Credits	**15**
Year Two		
Fall		
CS 190 or GEOG 340 or MATH 213 or MATH 252	Computer Science I or Intro Geographic Info Systems or Probability and Statistics (GT-MA1) or Calculus III	3
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
PHYS 185	Laboratory Physics I (GT-SC1)	1
PHYS 170 or PHYS 190	Principles of Physics I (GT-SC2) or General Physics I (GT-SC2)	3
Elective	Elective	3
	Credits	**16**
Spring		
ENG 103	Writing and Rhetoric II (GT-CO2)	3
GEOL 345	Structural Geology (with laboratory)	4
PHYS 186	Laboratory Physics II (GT-SC1)	1
PHYS 171 or PHYS 191	Principles of Physics II (GT-SC2) or General Physics II (GT-SC2)	3
Gen Ed	General Education Courses	3
	Credits	**14**

Year Three		
Fall		
GEOL 305	Mineralogy (with laboratory)	4
GEOL 495	Geology Seminar	1
Elective	Elective	3
Gen Ed	General Education Courses	6
	Credits	**14**
Spring		
GEOL 315	Earth Materials (with laboratory)	4
GEOL 495 or GEOL 401 or GEOL 300	Geology Seminar or Career Pathways in Geology or Geology Field Trip	1
Gen Ed	General Education Courses	6
	Credits	**11**
Summer		
GEOL 450	Field Geology	4
GEOL 452	Advanced Field Geology	2
	Credits	**6**
Year Four		
Fall		
GEOL 320	Geomorphology (with laboratory)	4
Elective	Electives	12
	Credits	**16**
Spring		
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
Elective	Electives	9
	Credits	**12**
	Total Credits	**120**

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