

GEOLOGY COMPREHENSIVE MAJOR: PETROLEUM GEOLOGY EMPHASIS

Program Requirements

A minimum of 67 credits is required:

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 343	Introduction to Geophysics	3
GEOL 345	Structural Geology (with laboratory)	4
GEOL 346	Subsurface Geology (with laboratory)	4
GEOL 450	Field Geology	4
GEOL 455	Petroleum Geology (with laboratory)	4
One of the following:		3-4
GEOL 320	Geomorphology (with laboratory)	
GEOL 430	Hydrogeology (with laboratory)	
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
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		67-68

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) ¹	4
		Credits
		13
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) ¹	4
		Credits
		15
Year Two		
Fall		
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
Gen Ed	General Education Courses	6
		Credits
		16
Spring		
ENG 103	Writing and Rhetoric II (GT-CO2)	3
GEOL 315	Earth Materials (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	6
		Credits
		17
Year Three		
Fall		
GEOL 343	Introduction to Geophysics	3
GEOL 345	Structural Geology (with laboratory)	4
Gen Ed	General Education Courses	6
Elective	Elective	3
		Credits
		16
Spring		
GEOL 320 or GEOL 430	Geomorphology (with laboratory) or Hydrogeology (with laboratory)	4
GEOL 346	Subsurface Geology (with laboratory)	4

2 Geology Comprehensive Major: Petroleum Geology Emphasis

Elective	Elective	6
	Credits	14
Summer		
GEOL 450	Field Geology	4
	Credits	4
Year Four		
Fall		
GEOL 455	Petroleum Geology (with laboratory)	4
Elective	Electives	9
	Credits	13
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