

GEOLOGY (GEOLOGICAL SCIENCES) - BACHELOR OF SCIENCE

The concentration in geological sciences is a broad field of study that prepares students for employment by energy and mineral industries, environmental and water resource companies, federal, state and local governments, as well as service companies that utilize earth resources. Qualified students are also prepared for graduate study in the geological sciences.

Students must complete all University degree requirements, which include: **General Education requirements, Viewing a Wider World requirements**, and elective credits to total at least 120 credits with 48 credits in courses numbered 300/3000 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework.

Students must receive a C- or better in courses.

Prefix	Title	Credits
General Education		
<i>Area I: Communications</i>		10
	<i>English Composition - Level 1</i> ¹	
	<i>English Composition - Level 2</i> ¹	
	<i>Oral Communication</i> ¹	
<i>Area II: Mathematics</i>		3-4
<i>Area III/IV: Laboratory Sciences and Social/Behavioral Sciences</i>		11
GEOL 1110G	Physical Geology	
	or HNRS 2116G Earth, Time and Life	
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	
<i>Area IV: Social/Behavioral Sciences Course (3 credits)</i> ¹		
<i>Area V: Humanities</i> ¹		3
<i>Area VI: Creative and Fine Arts</i> ¹		3
<i>General Education Elective</i>		
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors	4
Viewing A Wider World ³		6
Departmental/College Requirements ⁴		
GEOL 1150	Introduction to Rocks and Minerals	3
GEOL 305V	Fossils and the Evolution of Life	3
GEOL 312	Mineralogy and Optics	3
GEOL 360	General Geochemistry	3
GEOL 399	Igneous and Metamorphic Petrology	3
GEOL 420	Stratigraphy and Sedimentology	3
GEOL 449	The Geological Profession	1
GEOL 470	Structural Geology	3
GEOL 490	Field Geology	3
GEOL 491	Tectonic Evolution of North America	3
GEOL 495	Geology Field Camp	4
<i>Departmental Elective Requirements</i> ⁴		
Select 12 credits from the following:		12
C E 357	Soil Mechanics	

GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	
GEOL 353	Geomorphology	
GEOL 424	Soil Chemistry	
GEOL 444	GIS for Geology	
GEOL 452	Geohydrology	
GEOL 465	Isotope Geochemistry	
GEOL 478	Petroleum Systems and Stratigraphy	
GEOL 480	Seminar	
SOIL 2110	Introduction to Soil Science	
Non-Departmental Requirements (in addition to Gen.Ed/VWW) ⁴		
MATH 1511G	Calculus and Analytic Geometry I	4
	or MATH 1430G Applications of Calculus I	
MATH 1521G	Calculus and Analytic Geometry II (Choose one sequence from the following (4 credits):) ²	3-4
	or MATH 1440 Applications of Calculus II	
Choose one sequence from the following (4 credits):		4
PHYS 1230G & PHYS 1230L	Algebra-Based Physics I and Algebra-Based Physics I Lab	
PHYS 1310G & PHYS 1310L	Calculus -Based Physics I and Calculus -Based Physics I Lab	
PHYS 2230G & PHYS 2230L	General Physics for Life Science I and Laboratory to General Physics for Life Science I	
Choose one sequence from the following (4 credits):		4
PHYS 1240G & PHYS 1240L	Algebra-Based Physics II and Algebra-Based Physics II Lab	
PHYS 1320G & PHYS 1320L	Calculus -Based Physics II and Calculus -Based Physics II Lab	
PHYS 2240G & PHYS 2240L	General Physics for Life Science II and Laboratory to General Physics for Life Science II	
Select 3-4 credits from the following:		3-4
CSCI 1240	C++ Programming I	
CSCI 1210	Computer Programming Fundamentals	
CSCI 1220	Computer Programming Fundamentals: Python	
CSCI 1235	R Programming I	
C E 151	Introduction to Civil Engineering	
GEOG 381	Cartography and GIS	
MATH 1350G	Introduction to Statistics	
MATH 2350G	Statistical Methods	
Second Language Requirement: (required- see below)		
Select 8 credits from two semesters of a second language (see the section at the bottom of the page)		8
Electives, to bring to the total credits 120 ⁵		7-11
Total Credits		121-120

¹ See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/>) section of the catalog for a full list of courses

² *For either Mathematics course selection students may need to take any prerequisites needed to enter the class(es) first.

³ See the Viewing a Wider World (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses

⁴ May not be taken S/U and a grade of C- or better must be earned.

⁵ Elective credit may vary based on Math course selection, second language requirements, prerequisites, dual credit, AP credit, double

majors, and/or minor coursework. The amount indicated in the requirements list is the amount needed to bring the total to 120 credits and may appear in variable form based on the degree. However students may end up needing to complete more or less on a case-by-case basis and students should discuss elective requirements with their advisor.

Students must work closely with their advisors in order to plan programs that allow them to meet all requirements and earn sufficient upper-division credit.

Second Language Requirement

For the Bachelor of Science in the Geology there is a one year second language requirement, the options to complete this requirement are listed below. The number of credits that a student needs to take may vary depending on what level they come in with. Please speak with an advisor for more information as to which courses you will need to take to fulfill the second language requirement for this degree.

Option 1:

Prefix	Title	Credits
Complete one of the following sequences:		
FREN 1110 & FREN 1120	French I and French II	8
GRMN 1110 & GRMN 1120	German I and German II	8
JAPN 1110 & JAPN 1120	Japanese I and Japanese II	8
SPAN 1110 & SPAN 1120	Spanish I and Spanish II	8
PORT 1110 & PORT 1120	Portuguese I and Portuguese II	6
<i>For Heritage Speakers:</i>		
SPAN 1210 & SPAN 1220 or SPAN 2210	Elementary Spanish for Heritage Learners I and Spanish for Heritage Learners II Spanish for Heritage Learners III	6

Option 2:

Prefix	Title	Credits
Complete the following sequence for American Sign Language (with a C- or better):		
SIGN 1110	American Sign Language I	3
SIGN 1120	American Sign Language II	3

Option 3:

Prefix	Title	Credits
Challenge the 1120 level for the following courses:		
FREN 1120 or GRMN 1120 or JAPN 1120 or SPAN 1120 OR	French II German II Japanese II Spanish II	4
Challenge the 1120/1220/2210 level for the following courses:		
PORT 1120 or SPAN 1220 or SPAN 2210	Portuguese II Spanish for Heritage Learners II Spanish for Heritage Learners III	3

Option 4:

Pass a three-credit, upper-division course (numbered 300 or above) taught in a second language by the department of Languages and Linguistics.

Option 5:

Obtain college certification of completion of three years of a second language at the high school level with a grade of C- or higher in the second-year level.

Option 6:

By obtaining certification of a working knowledge of a Native American language from the American Indian program director.

Option 7:

By obtaining, from the head of the Department of Languages and Linguistics, certification of a working knowledge of a second language if such language is not taught at NMSU.

Option 8:

In the case of a foreign student who is required to take the TOEFL exam admission, the dean will automatically waive the second language requirement.

A Suggested Plan of Study for Students

This roadmap assumes student placement in MATH 1250G Trigonometry & Pre-Calculus and ENGL 1110G Composition I. The contents and order of this roadmap may vary depending on initial student placement in mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring semester and may be subject to modification or change.

First Year

Semester 1	Credits
Area I: Communications - Level 1 Course	4
ENGL 1110G Composition I (Recommended) ¹	
Area II: Mathematics Course ¹	3-4
MATH 1250G Trigonometry & Pre-Calculus (Recommended) ²	
GEOL 1110G Physical Geology or HNRS 2116G or Earth, Time and Life	4
Area IV: Social and Behavioral Science Course ¹	3
Credits	14-15

Semester 2

CHEM 1215G General Chemistry I Lecture and Laboratory for STEM Majors ²	4
MATH 1430G Applications of Calculus I ² or MATH 1511G or Calculus and Analytic Geometry I	3-4
Area I: Communications - Oral Communication Course	3
COMM 1115G Introduction to Communication (Recommended)	
Area VI: Creative and Fine Arts Course ¹	3
Elective Course ³	1
Credits	14-15

Second Year

Semester 1	Credits
GEOL 1150 Introduction to Rocks and Minerals	3
GEOL 305V Fossils and the Evolution of Life	3
CHEM 1225G General Chemistry II Lecture and Laboratory for STEM Majors ²	4

MATH 1440 or MATH 1521G	Applications of Calculus II ² or Calculus and Analytic Geometry II	3-4
Area I: Communications - Level 2 Course		3
ENGL 2210G	Professional and Technical Communication (Recommended) ¹	
Credits		16-17
Semester 2		
GEOL 312	Mineralogy and Optics (Spring Only) ²	3
GEOL 420	Stratigraphy and Sedimentology	3
Choose one from the following:		3-4
GEOG 381	Cartography and GIS (Recommended to meet the 3-4 credit non-departmental requirement)	
CSCI 1210	Computer Programming Fundamentals	
CSCI 1210	Computer Programming Fundamentals	
CSCI 1220	Computer Programming Fundamentals: Python	
CSCI 1235	R Programming I	
C E 151	Introduction to Civil Engineering	
MATH 1350G	Introduction to Statistics	
MATH 2350G	Statistical Methods	
Area V: Humanities Course ¹		3
Elective Course ³		2
Credits		14-15
Third Year		
Semester 1		
GEOL 470	Structural Geology ²	3
GEOL 360	General Geochemistry	3
Choose one sequence from the following:		4
PHYS 1230G & PHYS 1230L	Algebra-Based Physics I and Algebra-Based Physics I Lab ²	
PHYS 1310G & PHYS 1310L	Calculus -Based Physics I and Calculus -Based Physics I Lab ²	
Geology Upper-Division Elective Course (refer to degree requirements list)		3
Elective course		2
Credits		15
Semester 2		
GEOL 399	Igneous and Metamorphic Petrology	3
Choose one sequence from the following:		4
PHYS 1240G & PHYS 1240L	Algebra-Based Physics II and Algebra-Based Physics II Lab ²	
PHYS 1320G & PHYS 1320L	Calculus -Based Physics II and Calculus -Based Physics II Lab ²	
Geology Upper-Division Elective Course (refer to degree requirements list)		3
VWW: Viewing a Wider World Course ⁴		3
Elective course		2
Credits		15
Fourth Year		
Summer		
GEOL 495	Geology Field Camp ⁵	4
Credits		4
Semester 1		
VWW: Viewing a Wider World Course ⁴		3
Geology Upper-Division Elective Course (refer to degree requirements list)		3
Geology Upper-Division Elective Course (refer to degree requirements list)		3
Elective Course		2

First Course in Second Language Series		4
Credits		15
Semester 2		
GEOL 490	Field Geology ^{1,5}	3
GEOL 491	Tectonic Evolution of North America ¹	3
GEOL 449	The Geological Profession ¹	1
Second Course in Second Language Series		4
Elective course ³		2
Credits		13
Total Credits		120-124

- ¹ See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/>) section of the catalog for a full list of courses.
- ² These courses may have prerequisites and/or co-requisites, and it is the students responsibility for checking and fulfilling all those requirements.
- ³ Students whose Financial Aid requires enrollment in at least 15 credits each semester, may need to take additional elective credit than what is listed. Students should discuss their electives with their advisor.
*Elective credit may vary based on Math course selection, second language requirements, prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The amount indicated in the requirements list is the amount needed to bring the total to 120 credits and may appear in variable form based on the degree. However students may end up needing to complete more or less on a case-by-case basis.
- ⁴ See the Viewing a Wider World (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses.
- ⁵ GEOL 495 Geology Field Camp, is only taught in the summer of odd-numbered years. Students should take GEOL 490 Field Geology, during the spring semester before taking GEOL 495.
GEOL 495 Geology Field Camp should be taken the summer after the third or fourth year. In cases where it is impossible to fit this class into a schedule, students may take a field camp at another university and transfer the credits. It is the student's responsibility to have the department head verify that the field camp is acceptable before taking the course.