

GEOLOGY (EARTH AND ENVIRONMENTAL SCIENCES) - BACHELOR OF SCIENCE

The concentration in geological sciences provides students with scientific insight as a foundation for careers in environmental earth science, environmental policy and resource management. Qualified students are also prepared for graduate study in these areas. This concentration does not prepare students for graduate study in the geological sciences; these students should follow the curriculum in the Geological Sciences Concentration.

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
English Composition - Level 1 ¹		
English Composition - Level 2 ¹		
Oral Communication ¹		
<i>Area II: Mathematics</i> ^{1,2}		3-4
MATH 1220G	College Algebra (or higher)	
<i>Area III/IV: Laboratory Sciences and Social/Behavioral Sciences</i>		11
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	
GEOL 1110G	Physical Geology	
or HNRS 2116G	Earth, Time and Life	
ECON 2120G	Principles of Microeconomics Honors	
<i>Area V: Humanities</i> ¹		3
<i>Area VI: Creative and Fine Arts</i> ¹		3
<i>General Education Elective</i>		
BIOL 2610G & BIOL 2610L	Principles of Biology: Biodiversity, Ecology, and Evolution and Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory	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 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3
GEOL 353	Geomorphology	3
GEOL 360	General Geochemistry	3
GEOL 420	Stratigraphy and Sedimentology	3
GEOL 449	The Geological Profession	1
GEOL 452	Geohydrology	4
GEOL 470	Structural Geology	3

Departmental Elective Requirements (select 9 credits from the following) ⁴		9
GEOL 312	Mineralogy and Optics	
GEOL 399	Igneous and Metamorphic Petrology	
GEOL 465	Isotope Geochemistry	
GEOL 478	Petroleum Systems and Stratigraphy	
GEOL 480	Seminar	
GEOL 490	Field Geology	
GEOL 491	Tectonic Evolution of North America	
GEOL 495	Geology Field Camp	
Non-Departmental Requirements (in addition to Gen.Ed/VWW) ⁴		
Choose one from the following:		3
A ST 311	Statistical Applications	
MATH 1350G	Introduction to Statistics	
MATH 2350G	Statistical Methods	
AEEC 3120V	Natural Resource Economics	3
or AEEC 3130V	Water Resource Economics	
GEOG 381	Cartography and GIS	4
PHYS 1230G	Algebra-Based Physics I	3
or PHYS 2230G	General Physics for Life Science I	
PHYS 1230L	Algebra-Based Physics I Lab	1
or PHYS 2230L	Laboratory to General Physics for Life Science I	
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
Non-Departmental Electives (choose 12-14 credits from the following) ⁴		12-14
SOIL 2110 & 2110L	Introduction to Soil Science and Introduction to Soil Science Laboratory	
SOIL 370	Environmental Soil Science	
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors	
or CHEM 2115	Survey of Organic Chemistry and Laboratory	
POLS 320	Making Public Policy	
GEOG 373	Introduction to Remote Sensing	
GEOG 473	Advanced Remote Sensing	
EPWS 380V	Science & Society	
RGSC 2110	Introduction to Rangeland Management	
RGSC 302V	Forestry and Society	
GEOL courses: 300-400 level GEOL courses other than those used to satisfy the departmental requirements and electives		
Electives, to bring the total credits to 120 ⁵		8-11
Total Credits		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 any 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	3-6

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	French II German II Japanese II Spanish II	4
<i>OR</i>		
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 300/3000 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 ENGL 1110G Composition I and MATH 1220G College Algebra. 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
GEOL 1110G or HNRS 2116G	Physical Geology or Earth, Time and Life	4
MATH 1220G	College Algebra (or higher)	3
Choose one from the following:		3
COMM 1115G	Introduction to Communication	
COMM 1130G	Public Speaking	
ACOM 1130G	Effective Leadership and Communication in Agriculture	
HNRS 2175G	Introduction to Communication Honors	
Area V: Humanities Course ¹		3
Area VI: Creative and Fine Arts Course ¹		3
Credits		16

Semester 2

Choose one from the following:		4
ENGL 1110G	Composition I	
ENGL 1110H	Composition I Honors	
ENGL 1110M	Composition I	
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	4
Elective		1
BIOL 2610G & BIOL 2610L	Principles of Biology: Biodiversity, Ecology, and Evolution and Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory	4
ECON 2120G	Principles of Microeconomics Honors	3
Credits		16

Second Year

Semester 1		Credits
GEOL 1150	Introduction to Rocks and Minerals	3
GEOL 305V	Fossils and the Evolution of Life	3

PHYS 1230G or PHYS 2230G	Algebra-Based Physics I or General Physics for Life Science I	3
PHYS 1230L or PHYS 2230L	Algebra-Based Physics I Lab or Laboratory to General Physics for Life Science I	1
PHYS 2231	Supplemental Instruction to General Physics for Life Sciences I	1
Second Language, first course in sequence ²		4
Credits		15
Semester 2		
GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3
GEOL 420	Stratigraphy and Sedimentology	3
Second language, second course in sequence ²		4
Non-Departmental Elective Course ³		3
Elective Course ⁴		3
Credits		16
Third Year		
Semester 1		
GEOL 353	Geomorphology	3
GEOL 360	General Geochemistry	3
Geology Departmental Elective Course ⁵		3
English Composition Level 2 ¹		3
Viewing the Wider World ⁶		3
Credits		15
Semester 2		
Geology Departmental Elective Course ⁵		3
GEOG 381	Cartography and GIS	4
AEEC 3120V or AEEC 3130V	Natural Resource Economics or Water Resource Economics	3
Non-Departmental Elective Course ³		3
Elective Course ⁴		3
Credits		16
Fourth Year		
Semester 1		
GEOL 470	Structural Geology	3
GEOL 452	Geohydrology	4
A ST 311 or MATH 1350G or MATH 2350G	Statistical Applications or Introduction to Statistics or Statistical Methods	3
Viewing the Wider World ⁶		3
Non-Departmental Elective Course ³		3
Credits		16
Semester 2		
GEOL 449	The Geological Profession	1
Geology Departmental Elective course ⁵		3
Non-Departmental Elective Course ³		3
Elective Course ⁴		3
Credits		10
Total Credits		120

- SOIL 2110 Introduction to Soil Science/SOIL 2110L Introduction to Soil Science Laboratory
- SOIL 370 Environmental Soil Science
- CHEM 1225G General Chemistry II Lecture and Laboratory for STEM Majors
- CHEM 2115 Survey of Organic Chemistry and Laboratory
- POLS 320 Making Public Policy
- GEOG 373 Introduction to Remote Sensing
- GEOG 473 Advanced Remote Sensing
- EPWS 380V Science & Society
- RGSC 2110 Introduction to Rangeland Management
- RGSC 302V Forestry and Society
- GEOL courses: 300-400 level courses other than those used to satisfy the Departmental Requirements and Departmental Electives

⁴ Elective credit may vary depending on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The elective credit in the requirement list is the amount needed to bring the total to 120 credits and may vary based on the degree. Students may need to complete more or less courses on a case-by-case basis and each student should discuss this with their advisor.

⁵ **Departmental Electives:**

- GEOL 312 Mineralogy and Optics
- GEOL 399 Igneous and Metamorphic Petrology
- GEOL 465 Isotope Geochemistry
- GEOL 478 Petroleum Systems and Stratigraphy
- GEOL 480 Seminar
- GEOL 490 Field Geology
- GEOL 491 Tectonic Evolution of North America
- GEOL 495 Geology Field Camp

⁶ 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.

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 See the Second Language section of the Requirements Tab (p. 1) for this degree for more information.

³ **Non-Departmental Elective Courses:**