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 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.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area I: Communications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Composition - Level 1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>English Composition - Level 2</td>
<td></td>
<td>1</td>
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<tr>
<td>Oral Communication</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Area II: Mathematics</strong></td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>MATH 1220G</td>
<td>College Algebra ( or higher)</td>
<td></td>
</tr>
<tr>
<td><strong>Area III/IV: Laboratory Sciences and Social/Behavioral Sciences</strong></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>CHEM 1215G</td>
<td>General Chemistry I Lecture and Laboratory for STEM Majors</td>
<td></td>
</tr>
<tr>
<td>GEOL 1110G</td>
<td>Physical Geology</td>
<td></td>
</tr>
<tr>
<td>or HNRS 2116G</td>
<td>Earth, Time and Life</td>
<td></td>
</tr>
<tr>
<td>ECON 2120G</td>
<td>Microeconomics Principles</td>
<td></td>
</tr>
<tr>
<td><strong>Area V: Humanities</strong></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Area VI: Creative and Fine Arts</strong></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>General Education Elective</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 2610G</td>
<td>Principles of Biology: Biodiversity, Ecology, and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BIOL 2610L</td>
<td>and Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory</td>
<td></td>
</tr>
<tr>
<td><strong>Viewing A Wider World</strong></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>Departmental/College Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOL 1150</td>
<td>Introduction to Rocks and Minerals</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 305V</td>
<td>Fossils and the Evolution of Life</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 335V</td>
<td>Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 353</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 360</td>
<td>General Geochemistry</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 420</td>
<td>Stratigraphy and Sedimentology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 449</td>
<td>The Geological Profession</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 452</td>
<td>Geohydrology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 470</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
</tbody>
</table>

Geology (Earth and Environmental Sciences) - Bachelor of Science

| Departmental Elective Requirements (select 9 credits from the following) | 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:

- A ST 311 | Statistical Applications | |
- MATH 1350G | Introduction to Statistics | |
- MATH 2350G | Statistical Methods | |
- AECC 337V | Natural Resource Economics | 3 |
- or AECC 384V | Water Resource Economics | |
- GEOG 381 | Cartography and Geographic Information Systems | 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)

Non-Departmental Electives (choose 12-14 credits from the following) 4

- SOIL 2110 | Introduction to Soil Science | |
- & 2110L | 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 | Domestic 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 | |
- RGSC 475 | Climate Studies, Water , 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

Total Credits | 120

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1. See the General Education 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 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.
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:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 1110</td>
<td>Mandarin Chinese I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHIN 1120</td>
<td>Mandarin Chinese II</td>
<td></td>
</tr>
<tr>
<td>FREN 1110</td>
<td>French I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; FREN 1120</td>
<td>French II</td>
<td></td>
</tr>
<tr>
<td>GRMN 1110</td>
<td>German I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; GRMN 1120</td>
<td>German II</td>
<td></td>
</tr>
<tr>
<td>JAPN 1110</td>
<td>Japanese I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; JAPN 1120</td>
<td>Japanese II</td>
<td></td>
</tr>
<tr>
<td>SPAN 1110</td>
<td>Spanish I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; SPAN 1120</td>
<td>Spanish II</td>
<td></td>
</tr>
<tr>
<td>PORT 1110</td>
<td>Portuguese I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; PORT 1120</td>
<td>Portuguese II</td>
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</tbody>
</table>

**For Heritage Speakers:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SPAN 1210</td>
<td>Elementary Spanish for Heritage Learners I</td>
<td>3-6</td>
</tr>
<tr>
<td>&amp; SPAN 1220</td>
<td>Spanish for Heritage Learners II</td>
<td></td>
</tr>
</tbody>
</table>

**Option 2:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIGN 1110</td>
<td>American Sign Language I</td>
<td>3</td>
</tr>
<tr>
<td>SIGN 1120</td>
<td>American Sign Language II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Option 3:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 1120</td>
<td>Mandarin Chinese II</td>
<td>4</td>
</tr>
<tr>
<td>or FREN 1120</td>
<td>French II</td>
<td></td>
</tr>
<tr>
<td>or GRMN 1120</td>
<td>German II</td>
<td></td>
</tr>
<tr>
<td>or JAPN 1120</td>
<td>Japanese II</td>
<td></td>
</tr>
<tr>
<td>or SPAN 1120</td>
<td>Spanish II</td>
<td></td>
</tr>
</tbody>
</table>

**OR**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORT 1120</td>
<td>Portuguese II</td>
<td>3</td>
</tr>
</tbody>
</table>

**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 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.

**Course**

<table>
<thead>
<tr>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1110G or HNRS 2116G</td>
<td>Physical Geology or Earth, Time and Life</td>
</tr>
<tr>
<td>MATH 1220G</td>
<td>College Algebra (or higher)</td>
</tr>
</tbody>
</table>

Choose one from the following: 3

<table>
<thead>
<tr>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 1115G</td>
<td>Introduction to Communication</td>
</tr>
<tr>
<td>COMM 1130G</td>
<td>Public Speaking</td>
</tr>
<tr>
<td>AXED 2120G</td>
<td>Effective Leadership and Communication in Agriculture</td>
</tr>
<tr>
<td>HNRS 2175G</td>
<td>Introduction to Communications Honors</td>
</tr>
</tbody>
</table>

**Area V: Humanities Course** 3

**Area VI: Creative and Fine Arts Course** 3

Total Credits: 16

**Semester 2**

Choose one from the following: 4

<table>
<thead>
<tr>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1110G</td>
<td>Composition I</td>
</tr>
<tr>
<td>ENGL 1110H</td>
<td>Composition I Honors</td>
</tr>
<tr>
<td>ENGL 1110M</td>
<td>Composition I Multilingual</td>
</tr>
<tr>
<td>CHEM 1215G</td>
<td>General Chemistry I Lecture and Laboratory for STEM Majors</td>
</tr>
<tr>
<td>CHEM 1121</td>
<td>General Supplemental Instruction I (or elective)</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BIOL 2610G &amp; BIOL 2610L</td>
<td>Principles of Biology: Biodiversity, Ecology, and Evolution and Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory</td>
</tr>
<tr>
<td>ECON 2120G</td>
<td>Microeconomics Principles</td>
</tr>
<tr>
<td>GEOL 1150</td>
<td>Introduction to Rocks and Minerals</td>
</tr>
<tr>
<td>GEOL 305V</td>
<td>Fossils and the Evolution of Life</td>
</tr>
<tr>
<td>PHYS 1230G or PHYS 2230G</td>
<td>Algebra-Based Physics I or General Physics for Life Science I</td>
</tr>
<tr>
<td>PHYS 1230L or PHYS 2230L</td>
<td>Algebra-Based Physics I Lab or Laboratory to General Physics for Life Science I</td>
</tr>
<tr>
<td>PHYS 2231</td>
<td>Supplemental Instruction to General Physics for Life Sciences I</td>
</tr>
<tr>
<td>Second Language, first course in sequence</td>
<td></td>
</tr>
<tr>
<td>GEOL 335V</td>
<td>Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present</td>
</tr>
<tr>
<td>GEOL 420</td>
<td>Stratigraphy and Sedimentology</td>
</tr>
<tr>
<td>Second language, second course in sequence</td>
<td></td>
</tr>
<tr>
<td>Non-Departmental Elective Course</td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
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<tr>
<td>GEOL 353</td>
<td>Geomorphology</td>
</tr>
<tr>
<td>GEOL 360</td>
<td>General Geochemistry</td>
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<tr>
<td>Geology Departmental Elective Course</td>
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<tr>
<td>English Composition Level</td>
<td>1</td>
</tr>
<tr>
<td>Viewing the Wider World</td>
<td></td>
</tr>
<tr>
<td>GEOG 381</td>
<td>Cartography and Geographic Information Systems</td>
</tr>
<tr>
<td>AEEC 337V or AEEC 384V</td>
<td>Natural Resource Economics or Water Resource Economics</td>
</tr>
<tr>
<td>Non-Departmental Elective Course</td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
<td></td>
</tr>
<tr>
<td>GEOL 470</td>
<td>Structural Geology</td>
</tr>
<tr>
<td>GEOL 452</td>
<td>Geohydrology</td>
</tr>
<tr>
<td>A ST 311 or MATH 1350G or MATH 2350G</td>
<td>Statistical Applications or Introduction to Statistics or Statistical Methods</td>
</tr>
<tr>
<td>Viewing the Wider World</td>
<td></td>
</tr>
<tr>
<td>Non-Departmental Elective Course</td>
<td></td>
</tr>
<tr>
<td>Geology Departmental Elective course</td>
<td></td>
</tr>
</tbody>
</table>

**Non-Departmental Elective Course:**
- 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 Domestic 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
- RGSC 475 Climate Studies, Water, and Society
- GEOL courses: 300-400 level courses other than those used to satisfy the Departmental Requirements and Departmental Electives

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.

**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

See the Viewing a Wider World section of the catalog for a full list of courses.