

# Geology

Understanding the Earth's dynamics, composition, and environment is accomplished through an interdisciplinary curricula including geology, geography, physics, chemistry, mathematics, and soil science.

Opportunities for careers in the geosciences have never been better. Areas of environmental science, petroleum, mining, water and land resources, volcanology, paleontology, and glacial geology offer rewarding careers with a completed bachelor's degree. Many students continue study at the graduate level.

## Geology Major

Curricula requirements include a departmental core of 45 credits, including year-long sequences in calculus, chemistry, and physics, as well as computer science.

A typical first year for all geology majors includes physical geology, the Earth through time, and year-long sequences in English, mathematics, and chemistry.

## Geology Minor

A minor in Geology consists of at least 18 credits of geology courses selected in consultation with a Department of Geosciences adviser. Selected geography and soil science courses may be substituted for geology courses.

## Environmental Geology Minor

As environmental stewardship becomes an increasingly important aspect of all career paths, the Environmental Geology minor complements and enhances a wide range of majors. Students interested in the Earth and the environment are invited to consider this rewarding and challenging minor. Geology majors may not minor in Environmental Geology.

## Major Requirements

### Major: Geology

**Degree Type: B.A. or B.S.**

**Required Degree Credits to Graduate: 122**

### General Education Requirements

#### First Year Experience (F):

UNIV 189	Skills For Academic Success (Students transferring in 24 or more credits do not need to take UNIV 189.)	1
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#### Communication (C):

ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
ENGL 324	Writing in the Sciences	3
COMM 110	Fundamentals of Public Speaking	3

#### Quantitative Reasoning (R):

MATH 146	Applied Calculus I	4
or MATH 165	Calculus I	

#### Science & Technology (S):

The 10 credits required in the Science and Technology category will be fulfilled with requirements of the major. 10

<b>Humanities &amp; Fine Arts (A): Select from current general education list</b>	6	
<b>Social &amp; Behavioral Sciences (B): Select from current general education list</b>	6	
<b>Wellness (W): Select from current general education list</b>	2	
<b>Cultural Diversity (D): Select from current general education list</b>		
<b>Global Perspectives (G):</b>		
GEOL 105	Physical Geology	3
<b>Total Credits</b>		<b>41</b>

## College Requirements

**Bachelor of Science (BS) Degree** – An additional 6 credits in Humanities or Social Sciences\*

**Bachelor of Arts (BA) Degree** – An additional 12 credits Humanities and Social Sciences\* and proficiency at the second year level in a modern foreign language.

\* Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student's major.

## Major Requirements

<b>General Education Requirements</b>	40
<b>Science and Mathematics College Requirements</b>	6-12

### Geology Core Requirements

Students must have at least a 2.0 cumulative GPA in the geology core requirements.

GEOL 455	Introduction to Geographic Information Systems	4
GEOL 105 & 105L	Physical Geology and Physical Geology Lab	4
GEOL 106 & 106L	The Earth Through Time and The Earth Through Time Lab	4
Select one of the following:		2
GEOL 301	Lake Superior Field Course	
GEOL 302	Black Hills Field Course	
GEOL 496	Field Experience	
GEOL 350 & GEOL 303	Invertebrate Paleontology and Paleontology Field Course	4
GEOL 410	Sedimentology/Stratigraphy	4
GEOL 412	Geomorphology	3
GEOL 420 & GEOL 421	Mineralogy and Mineralogy Laboratory	4
GEOL 422	Petrology	3
GEOL 423	Petrography	1
GEOL 450	Field Geology	3
GEOL 457	Structural Geology	4
GEOL 491	Seminar (Junior Year)	1
GEOL 491	Seminar (Senior Year)	1
SOIL 444	Soil Genesis and Survey	3

### Related Required Courses

Chemistry: Select one of the following sequences:	8
Sequence A:	
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory
Sequence B:	
CHEM 150 & CHEM 160	Principles of Chemistry I and Principles of Chemistry Laboratory I
CHEM 151 & CHEM 161	Principles of Chemistry II and Principles of Chemistry Laboratory II
Mathematics: Select one of the following sequences:	8
Sequence A:	
MATH 146	Applied Calculus I
MATH 147	Applied Calculus II
Sequence B:	
MATH 165	Calculus I
MATH 166	Calculus II
Physics: Select one of the following sequences:	8-10
Sequence A:	
PHYS 211 & 211L	College Physics I and College Physics I Laboratory
PHYS 212 & 212L	College Physics II and College Physics II Laboratory
Sequence B:	
PHYS 251 & 251L	University Physics I and University Physics I Laboratory
PHYS 252 & 252L	University Physics II and University Physics II Laboratory
Skills: Select one of the following:	3-4
CSCI 122	Visual BASIC
CSCI 160	Computer Science I
CSCI 227	Computing Fundamentals I
<b>Degree Requirements: Potential of 13 credits to reach 122</b>	<b>13</b>
Total Credits	122-131

## Program notes

- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.
- Majors planning on graduate studies should be aware that a summer field camp course may be required for graduate admission. This course is recommended to be taken during the summer following the junior or senior year. Information on field camp courses and a small departmental scholarship to support these studies may be obtained from an adviser.

Geology ([http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/science-mathematics/geosciences/geology/geology\\_minor](http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/science-mathematics/geosciences/geology/geology_minor))

Environmental Geology (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/science-mathematics/geosciences/environmental-geology/#minortext>)