

# GEOLOGY AND GEOPHYSICS, B.S.

## REQUIREMENTS

### UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (<http://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext>) section of the *Guide*.

- General Education
- Breadth—Humanities/Literature/Arts: 6 credits
  - Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
  - Breadth—Social Studies: 3 credits
  - Communication Part A & Part B \*
  - Ethnic Studies \*
  - Quantitative Reasoning Part A & Part B \*

\* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

### COLLEGE OF LETTERS & SCIENCE DEGREE REQUIREMENTS: BACHELOR OF SCIENCE (B.S.)

Students pursuing a Bachelor of Science degree in the College of Letters & Science must complete all of the requirements below. The College of Letters & Science allows this major to be paired with either the Bachelor of Arts or the Bachelor of Science degree requirements.

#### BACHELOR OF SCIENCE DEGREE REQUIREMENTS

**Mathematics** Complete two courses of 3+ credits at the Intermediate or Advanced level in MATH, COMP SCI, or STAT subjects. A maximum of one course in each of COMP SCI and STAT subjects counts toward this requirement.

**Foreign Language** Complete the third unit of a foreign language.

**L&S Breadth Complete:**

- 12 credits of Humanities, which must include at least 6 credits of Literature; and
- 12 credits of Social Science; and
- 12 credits of Natural Science, which must include 6 credits of Biological Science and 6 credits of Physical Science.

**Liberal Arts and Science Coursework** Complete at least 108 credits.

**Depth of Intermediate/Advanced Coursework** Complete at least 60 credits at the Intermediate or Advanced level.

**Major** Declare and complete at least one major.

**Total Credits** Complete at least 120 credits.

**UW-Madison Experience** Complete both:

- 30 credits in residence, overall, and
- 30 credits in residence after the 86th credit.

**Quality of Work**

- 2.000 in all coursework at UW–Madison
- 2.000 in Intermediate/Advanced level coursework at UW–Madison

### NON–L&S STUDENTS PURSUING AN L&S MAJOR

Non–L&S students who have permission from their school/college to pursue an additional major within L&S only need to fulfill the major requirements. They do not need to complete the L&S Degree Requirements above.

### REQUIREMENTS FOR THE MAJOR

Prospective majors are strongly encouraged to seek assistance from a faculty advisor in order to choose courses appropriate to their interests and career plans. Advisors can also assist students in choosing a track that is appropriate for their interests and career goals.

#### BACKGROUND REQUIREMENTS

Code	Title	Credits
<b>Calculus (complete one sequence):</b>		<b>9-14</b>
MATH 221 & MATH 222	Calculus and Analytic Geometry 1 and Calculus and Analytic Geometry 2 (recommended)	
MATH 211 & MATH 222	Calculus and Calculus and Analytic Geometry 2	
MATH 171 & MATH 217 & MATH 222	Calculus with Algebra and Trigonometry I and Calculus with Algebra and Trigonometry II and Calculus and Analytic Geometry 2	
<b>Chemistry (complete one sequence)</b>		<b>5-10</b>
CHEM 109	Advanced General Chemistry	
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	
CHEM 115 & CHEM 116	Chemical Principles I and Chemical Principles II	
<b>Physics (complete one sequence):</b>		<b>10-11</b>

PHYSICS 207 & PHYSICS 208	General Physics and General Physics (recommended)
PHYSICS 201 & PHYSICS 202	General Physics and General Physics
PHYSICS 247 & PHYSICS 248	A Modern Introduction to Physics and A Modern Introduction to Physics

*Geophysics and Engineering Geology Track option (complete all):*

E M A 201 & E M A 202	Statics and Dynamics
PHYSICS 208	General Physics
	or PHYSICS 202 General Physics
	or PHYSICS 248 A Modern Introduction to Physics

**Total Credits** **24-35**

## GEOLOGY & GEOPHYSICS CORE COURSE WORK

Code	Title	Credits
<b>Complete all of the following:</b>		
GEOSCI 100	Introductory Geology: How the Earth Works	3
or GEOSCI/ ENVIR ST 106	Environmental Geology	
GEOSCI 202	Introduction to Geologic Structures	4
GEOSCI 204	Geologic Evolution of the Earth	4
GEOSCI/G L E 360	Principles of Mineralogy	3
GEOSCI/G L E 370	Elementary Petrology	3

**Total Credits** **17**

## GEOLOGY & GEOPHYSICS TRACKS

Complete one of the following:

### Geology Track

Code	Title	Credits
GEOSCI/G L E 350	Introduction to Geophysics: The Dynamic Earth	3
GEOSCI 375	Principles of Geochemistry	3
GEOSCI 430	Sedimentology and Stratigraphy	3
GEOSCI/G L E 455	Structural Geology	4
4 credits of GEOSCI 300-699 <sup>1</sup>		4

**Total Credits** **17**

<sup>1</sup> Except GEOSCI 331.

### Geophysics and Engineering Geology Track

Code	Title	Credits
GEOSCI/G L E 431	Sedimentary & Stratigraphy Lab	1
GEOSCI/G L E 455	Structural Geology	4
GEOSCI/G L E 474	Rock Mechanics	3
or GEOSCI/ G L E 350	Introduction to Geophysics: The Dynamic Earth	
GEOSCI/G L E 594	Introduction to Applied Geophysics	3
GEOSCI/G L E 595	Field Methods in Applied and Engineering Geophysics	1
GEOSCI/G L E 627	Hydrogeology	3-4

or GEOSCI/ G L E 350	Introduction to Geophysics: The Dynamic Earth	
E M A 303	Mechanics of Materials	3
or M E 306	Mechanics of Materials	
or PHYSICS 311	Mechanics	
or PHYSICS 322	Electromagnetic Fields	
MATH 234	Calculus—Functions of Several Variables	3-4
or MATH 319	Techniques in Ordinary Differential Equations	
or MATH 320	Linear Algebra and Differential Equations	
or MATH 340	Elementary Matrix and Linear Algebra	

**Total Credits** **21-23**

### Environmental Geoscience Track

Code	Title	Credits
GEOSCI/GEOG 320	Geomorphology	3-4
or GEOSCI/ GEOG 420	Glacial and Pleistocene Geology	
or GEOSCI 430	Sedimentology and Stratigraphy	
or GEOSCI/ G L E 627	Hydrogeology	
GEOSCI 375	Principles of Geochemistry	3
or GEOSCI 610	Geochronology, Timescales, and Rates of Geologic Processes	
or GEOSCI/ G L E 629	Contaminant Hydrogeology	
GEOSCI 304	Geobiology	3
or GEOSCI/ ZOOLOGY 541	Paleobiology	
or GEOSCI/ ZOOLOGY 542	Invertebrate Paleontology	
GEOSCI/ ENVIR ST 411	Energy Resources	3-4
or GEOSCI/ G L E 455	Structural Geology	
or GEOSCI 515	Principles of Economic Geology	
or GEOSCI/ G L E 594	Introduction to Applied Geophysics	
Electives		3-5

**Total Credits** **17-19**

<sup>1</sup> Except GEOSCI 331.

### General Geology Track

Code	Title	Credits
Any GEOSCI 300-699 <sup>1</sup>		17

<sup>1</sup> Except GEOSCI 331.

## RESIDENCE AND QUALITY OF WORK

- 2.000 GPA in all GEOSCI and major courses
- 2.000 on 15 upper-level major credits, taken in residence <sup>1</sup>
- 15 credits in GEOSCI, taken on campus

<sup>1</sup> GEOSCI 300-699, excluding GEOSCI 331, are considered Upper Level in the Major

## HONORS IN THE MAJOR

Students may declare Honors in the Geology and Geophysics Major in consultation with the departmental undergraduate advisor.

### HONORS IN THE MAJOR IN GEOLOGY AND GEOPHYSICS: REQUIREMENTS

To earn Honors in the Geology and Geophysics Major, students must satisfy both the requirements for the major (above) and the following additional requirements:

- Earn a 3.300 University GPA
- Earn a 3.400 GPA in all GEOSCI and major courses
- Complete GEOSCI 681 and GEOSCI 682, for a total of 6 credits, with a grade of B or better.

## UNIVERSITY DEGREE REQUIREMENTS

**Total Degree** To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.

**Residency** Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.

**Quality of Work** Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.