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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 221 &amp; MATH 222</td>
<td>Calculus and Analytic Geometry 1 and Calculus and Analytic Geometry 2 (recommended)</td>
<td>9-14</td>
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<tr>
<td>MATH 211 &amp; MATH 222</td>
<td>Calculus and Analytic Geometry 2</td>
<td></td>
</tr>
<tr>
<td>MATH 171 &amp; MATH 217 &amp; MATH 222</td>
<td>Calculus with Algebra and Trigonometry I and Calculus with Algebra and Trigonometry II and Calculus and Analytic Geometry 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 109</td>
<td>Advanced General Chemistry</td>
<td>5-10</td>
</tr>
<tr>
<td>CHEM 103 &amp; CHEM 104</td>
<td>General Chemistry I and General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 115 &amp; CHEM 116</td>
<td>Chemical Principles I and Chemical Principles II</td>
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Physics (complete one sequence): 10-11
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYSICS 207 &amp; PHYSICS 208</td>
<td>General Physics and General Physics (recommended)</td>
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<tr>
<td>PHYSICS 201 &amp; PHYSICS 202</td>
<td>General Physics and General Physics</td>
<td></td>
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<tr>
<td>PHYSICS 247 &amp; PHYSICS 248</td>
<td>A Modern Introduction to Physics and A Modern Introduction to Physics</td>
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Geophysics and Engineering Geology Track option (complete all):

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>E M A 201 &amp; E M A 202</td>
<td>Statics and Dynamics</td>
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</tr>
<tr>
<td>PHYSICS 208</td>
<td>General Physics</td>
<td></td>
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<tr>
<td>or PHYSICS 202 General Physics</td>
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<tr>
<td>or PHYSICS 248 A Modern Introduction to Physics</td>
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**Total Credits**: 24-35

### GEOLOGY & GEOPHYSICS CORE COURSE WORK

**Code** | **Title** | **Credits**
---|---|---
GEOSCI 100 | Introductory Geology: How the Earth Works | 3
or GEOSCI/ENVIR ST 106 | Environmental Geology | 3
GEOSCI 202 | Introduction to Geologic Structures | 4
GEOSCI 204 | Geologic Evolution of the Earth | 4
GEOSCI/G LE 360 | Principles of Mineralogy | 3
GEOSCI/G LE 370 | Elementary Petrology | 3

**Total Credits**: 17

### GEOLOGY & GEOPHYSICS TRACKS

Complete one of the following:

**Geology Track**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</table>
| GEOSCI/G LE 350 | Introduction to Geophysics: The Dynamic Earth | 3
| GEOSCI 375 | Principles of Geochemistry | 3
| GEOSCI 430 | Sedimentology and Stratigraphy | 3
| GEOSCI/G LE 455 | Structural Geology | 4
4 credits of GEOSCI 300-699 | 4

**Total Credits**: 17

**Electives**: 3-5

**Total Credits**: 17-19

1 Except GEOSCI 331.

**Geophysics and Engineering Geology Track**

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

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

**Total Credits**: 21-23

### Environmental Geoscience Track

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

**Total Credits**: 17-19

1 Except GEOSCI 331.

### General Geology Track

**Code** | **Title** | **Credits**
---|---|---
Any GEOSCI 300-699 | 1

**Total Credits**: 17

1 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
- 15 credits in GEOSCI, taken on campus
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.