Visit the Department web page and click on “Undergrad Programs” for complete advising information plus the latest version of the Geology Major requirements.

**CORE COURSES** (check each as completed) (30 credits)

- Choose one of the following introductory geology classes:
  - GEOL 0800 Geology (3) OR GEOL 0820 Natural Disasters (3) OR GEOL 0860 Environmental Geology (3)

- Take each of the following:
  - GEOL 0055 Geology Laboratory (2) [Fall, Spring, Jones] This is a prerequisite for all core courses!
  - GEOL 0060 History of the Earth (4) [Spring, Jones] Excellent follow-up to 0800/0820/0860 and 0055.
  - GEOL 1001 Mineralogy (4) [Fall, Stewart] This is a prerequisite for GEOL 1003 and co-req. for 1020!
  - GEOL 1003 Igneous and Metamorphic Petrology (4) [Spring, TBA]
  - GEOL 1015 Colloquium [Fall, Spring, Staff, taken pass/fail] (1)
  - GEOL 1020 Sedimentology and Stratigraphy (4) [Fall, Jones]
  - GEOL 1100 Structural Geology (4) [Spring, McQuarrie]
  - GEOL 1960 Field Camp (4-8) [Summer. In the fall, seek out programs run by other universities (see this list of field camps) and transfer in the credits. The Yellowstone Field Camp does not fulfill this requirement.] Note: GEOL 0060 and GEOL 1020 together fulfill one writing (W) requirement.

**CO-REQUIREMENTS** (Take as early as possible, calc before physics; check each as completed): (28 credits)

- MATH 0220 Analytical Geometry and Calculus 1 (4)
- MATH 0230 Analytical Geometry and Calculus 2 (4) Note: This one is hard. Be prepared!
- MATH 0240 Analytical Geometry and Calculus 3 (4) OR MATH 0250 Matrix Theory and Differential Eqns (4)
- CHEM 0110 General Chemistry 1 (4)
- CHEM 0120 General Chemistry 2 (4)
- PHYS 0174 Basic Physics for Science & Engineering 1 (4)
- PHYS 0175 Basic Physics for Science & Engineering 2 (4)

**ELECTIVES** (At least 9 credits of upper level or graduate GEOL courses): (9 credits)

- GEOL 1051 Groundwater Geology (4) [Spring, Bain]
- GEOL 1052 Paleoclimatology (3) [Alternate years, Spring, Abbott]
- GEOL 1055 Environmental Science, Ethics, and Public Policy (3) [Spring, McCord/Jones]
- GEOL 1056 Environmental Science, Ethics, and Public Policy (3) [Spring, McCord/Jones]
- GEOL 1060 Geomorphology (4) [Alternate years, Spring, Abbott]
- GEOL 1200 UHC Paleontology (3) [Spring, Lyon]
- GEOL 1201 Marine Paleocology (invertebrate paleontology) (3) [Offered occasionally, Spring, Lyon]
- GEOL 1240 Evolution of the Dinosaurs (3) [Offered occasionally, Spring, Lyon]
- GEOL 1309 Physicochemical and Geological Limnology (3) [Alternate years, Spring, Staff]
- GEOL 1313 W - Scientific Communication for Environmental Professionals (3) [Fall, Spring, Collins]
- GEOL 1331 Health and Safety (HAZWOPER) (3) [Fall, Kubeldis]
- GEOL 1410 Exploration Geophysics (3) [Spring, Harbert] Excellent choice.
- GEOL 1445 GIS, GPS, and Computer Methods (3) [Fall, Harbert]
- GEOL 1446 Advanced Geographic Information Systems (3) [Spring, Harbert]
- GEOL 1460 Remote Sensing of the Earth (3) [Fall, Ramsey]
- GEOL 1515 Environmental Geochemistry (3) [Fall, Capo]
- GEOL 1701 Geology of the Planets (3) [Alternate years, Fall, TBA]
- GEOL 1900 Internship (3-4) [Jones]
- GEOL 1901 Independent Study (1-12) [Arrange with a GPS faculty member]
- GEOL 1903 Undergraduate Research (1-4) [Arrange with a GPS faculty member]
- GEOL 1xxx Other upper level classes (GEOL 1000 or higher) may be approved by your advisor.
- GEOL 2xxx Graduate classes are numbered 2000 and up. You must get instructor permission for graduate classes, but undergraduates often take such classes as GEOL 2054: Soils, GEOL 2110: Plate Tectonics, and GEOL 2750: Volcanology.

**Note:** While they are not geology electives, you are encouraged to take one of Don Hopey’s excellent classes to get your second W. GEOL 1336, 1338, 1340, and 1342 are the W versions of Hopey’s classes.
Words of wisdom: **Take your co-requisites as early as possible.** First, it really stinks if you can’t graduate when you’ve had all the classes, except you can’t pass Calc. 2. Also, mineralogy is easier with a solid chemistry background and Physics 2. Structure is easier if you’ve had at least Physics 1. Warning: **GEOL 1100 Structural Geology** has a killer lab. You won’t want to schedule a lot of labs the same semester as GEOL 1100.

1. Luxury Schedule: You picked the geology major early.

<table>
<thead>
<tr>
<th>Fall, Sophomore Year</th>
<th>Spring, Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 0800, 0820, or 0860 (an introductory class)</td>
<td>Geol 0060: History of the Earth (w/ lab)</td>
</tr>
<tr>
<td>Geol 0055: Geology Laboratory</td>
<td>Geology elective or Geol 0055 if necessary</td>
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<table>
<thead>
<tr>
<th>Fall, Junior Year</th>
<th>Spring, Junior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 1001: Mineralogy (w/ lab)</td>
<td>Geol 1003: Igneous and Metamorphic Petrology (w/ lab)</td>
</tr>
<tr>
<td>Geol 1020: Sedimentology and Stratigraphy (w/ lab)</td>
<td>Geology elective</td>
</tr>
</tbody>
</table>

2. Desperate Schedule o’ Pain: You picked geology at the last minute and want to graduate pronto.

<table>
<thead>
<tr>
<th>Fall, Junior Year</th>
<th>Spring, Junior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 0800, 0820, or 0860 (an introductory class)</td>
<td>Geol 0060: History of the Earth (w/ lab)</td>
</tr>
<tr>
<td>Geol 0055: Geology Laboratory</td>
<td>Geology elective or Geol 0055 if necessary</td>
</tr>
<tr>
<td>Geol 1001: Mineralogy (w/ lab) or Geology elective</td>
<td>Geol 1003 if you took GEOL 1001 in the fall.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall, Senior Year</th>
<th>Spring, Senior Year</th>
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</thead>
<tbody>
<tr>
<td>Geol 1020: Sedimentology and Stratigraphy (w/ lab)</td>
<td>Geol 1003: Igneous and Metamorphic Petrology (w/ lab)</td>
</tr>
<tr>
<td>Geology elective or Mineralogy (w/ lab)</td>
<td>Geol 1100: Structural Geology (w/ Big Lab)</td>
</tr>
</tbody>
</table>

Register for a **summer field camp**!

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**Recommended courses beyond the Department of Geology and Planetary Sciences:**

The following courses are of particular interest to those wishing to become professional geologists. These do not count as electives. Engineering advisors have indicated geology majors should have the appropriate background for these courses. If they are wrong, please let me know! I need feedback to advise effectively.

**Petroleum Engineering courses:** Understanding the engineering of petroleum extraction should help you to be better at petroleum exploration and faster at climbing the career ladder.

- PETE 1160: Intro to Petroleum Reservoir Engin. (3)
- PETE 1201: Recovery of Oil by Waterflooding (3)
- PETE 1204: Enhanced Oil Recovery Processes (3)
- PETE 1205: Petroleum Production Engineering (3)

Click [here](#) for the PETE course descriptions. **Pay attention to pre-req’s.** Ask the instructor if you have questions.

**Mining Engineering Certificate:** Geology majors only need three additional classes to get this certificate. You should consider mining engineering classes if you are interested in working for the mining industry or in working for environmental companies who may remediate the environmental problems associated with active or old mines.

- ENGR 1631: Introduction to Mining Engineering (3)
- ENGR 1632: Sustainable Development in Mining (3)
- ENGR 1633: Mineral Industry Risk Management (3)
- ENGR 1634: Environmental Controls in Mining (3)
- ENGR 1635: Mine Ventilation Engineering (3)
- ENGR 1636: Mining Health and Safety (3)
- ENGR 1637: Strata Control Engineering (3)
- ENGR 1638: Mining Health and Safety (3)
- ENGR 1639: Mine Evaluation and Management (3)

Click [here](#) for the course descriptions for the mining engineering classes and [here](#) for the mining certificate requirements. As of August 2012, you need three of the above plus two of GEOL 1003, 1020, 1100, and/or 1445.

**Civil Engineering courses:** These courses are of particular interest to those wishing to become hydrogeologists and environmental geologists. Engineers often run environmental companies, so being able to talk their language will help you do your job and achieve greater success.

- CEE 1200: Construction Management (3)
- CEE 1209: Life Cycle Assmnt Meth & Tools (3)
- CEE 1210: Engineering and Sustainable Devel. (3)
- CEE 1212: Environmental Management (3)
- CEE 1220: Energy Technol. & the Environment (3)
- CEE 1503: Introduction to Environmental Engring (3)
- CEE 1514: Environmental Impact Assessment (3)

Click [here](#) for the CEE course descriptions. **Pay attention to pre-req’s.** Ask the instructor if you have questions.
**Departmental Honors Requirements:** Complete the requirements for one of the following three options:

**Course Option:** Complete the minimum degree requirements, earn an overall QPA of 3.25 or more, and:

1. Satisfactorily complete a total of at least nine additional credits from other formal GEOL courses (excluding the 0800 series) or from any of the following: BIOSC 0370; CHEM 0250, 0260, 0310, 0320, 1410, 1540; MATH 0250; PHYS 0160, 0577, 1150;
2. Include within the requirements listed above a minimum of three credits in either geochemistry (GEOL 1051, 1515, 2500, or 2520) or geophysics (GEOL 1410 or 1460).

**Research Option:** Complete the minimum degree requirements, earn an overall QPA of 3.25 or more, and complete a minimum of three credits of Undergraduate Research (GEOL 1903) under the supervision of a faculty member from the Department of Geology and Planetary Science. This research must culminate in a written thesis that documents original research conducted by the student. Acceptance of the thesis will be contingent upon approval of the faculty supervisor and two additional faculty members. The results of the student's research are to be presented orally in a departmental seminar.

**Internship Option:** Complete the minimum degree requirements, earn an overall QPA of 3.25 or more, and work as an intern for a professional consulting geologist or firm in the field of geology while under the supervision of a faculty member from the Department of Geology and Planetary Science. A minimum of three credits of Internship (GEOL 1900) will culminate in written and oral reports documenting the project conducted by the student. Acceptance will be contingent upon approval of the faculty supervisor and two additional faculty members.

Let your advisor know if you are seeking Departmental Honors!

**Suggested Elective Concentrations (grouped by interest):**

**Paleontology**
- In addition to our 1200-level offerings, take some biology! The following should help you understand the factors that control changes in organisms over time, but do get advice from actual paleontologists!
- BIOSC 0150+0050: Biology 1 plus lab.
- BIOSC 0160: Biology 2 plus lab.
- BIOSC 0350: Genetics
- BIOSC 0370: Ecology plus lab
- BIOSC 1200: Vertebrate morphology plus lab
- BIOSC 1370: Population biology

**Petroleum Exploration:**
- Oil companies generally want smart people well-grounded in the basics of geology. This includes all the core courses, not just obvious ones like sedimentology, stratigraphy, and structural geology. In addition, strongly consider these:
- GEOL 1410: Exploration Geophysics
- GEOL 1445: GIS, GPS, and Comp. Meth.
- GEOL 1460: Remote Sensing of the Earth
- GEOL 2110: Plate Tectonics (instructor permission needed)
- You should also check out our graduate offerings and the petroleum engineering classes.

**Environmental Geology**
- These classes are essential to environmental geologists:
- GEOL 1051: Groundwater Geology
- GEOL 1331: Health and Safety (HAZWOPER)
- GEOL 1410: Exploration Geophysics
- GEOL 1445: GIS, GPS, and Comp. Meth.
- GEOL 1460: Remote Sensing of the Earth
- GEOL 1515: Environmental Geochemistry
- GEOL 2054: Soils (instructor permission needed)
- Plus, look out for graduate classes offered by Drs Bain, Capo, Elliot, and Stewart.

**Planetary Science:**
- In addition to these, look for offerings at the graduate level and in the Department of Physics & Astronomy.
- GEOL 1060: Geomorphology
- GEOL 1460: Remote Sensing of the Earth
- GEOL 1701: Geology of the Planets
- GEOL 2750: Volcanology (instructor permission needed)
- Talk to Dr. Mike Ramsey for more advice.