

Department of

# Geology

**Dan Moore, Department Chair**

*Robb Clayton, Forest Gahn, Ben Jordan, Bill Little, Mark Lovell,  
Dan Moore, Julie Willis*

*Linda Mitchell, Lab Supervisor (208) 496-1948*

*Jeanine Nielson, Secretary (208) 496-1905*

*<http://www.byui.edu/Geology/>*

**Introduction**

Geology offers students career opportunities both as professional geologists and as teachers in secondary education (Earth Science). Both career paths are currently in high demand. Graduates in Earth Science are employable with their bachelor's degree while the professional geologist's track generally requires a graduate degree. The current financial rewards for geologists are significant and generally require living close to a major city. The education major provides greater flexibility in choosing where to live. In addition to our major programs, we are also home for a minor in geology and education minors in Earth Science and Natural Science. The education Natural Science minor is especially attractive for individuals planning to teach in smaller school districts. Within the State of Idaho, upon successful completion of required exams the candidate is able to teach all science categories.

Career opportunities for geologists include mineral or energy exploration and development, geological engineering, geophysics, environmental geology, water resources, computer applications to geology (including GIS), paleontology, etc. Likely employers include energy companies, consulting firms, local and federal government agencies, and academic institutions. The broad multidiscipline background of a major in geology is great preparation for careers in business, law, or many other fields.

Most geoscience concepts are best understood by leaving the classroom and spending time studying the rocks and geologic features where they exist. Field trips off-campus provide students field experiences, enabling them to experience geologic features first hand. The unique location of BYU-Idaho offers an exceptional opportunity to study geology, visiting some of the most famous geologic localities in the world. Local and regional field trips to Yellowstone and Grand Teton National Parks, Snake River Plain volcanic and hydrologic features, Hebgen Lake and Borah Peak earthquake localities, and the Grand Canyon in Arizona, provide for more effective learning, enhanced student understanding of geologic processes, and a superior preparation for future careers.

Geology

Brigham Young University-Idaho 2009-2010

**BS in Geology (740)**

Take required Foundations courses

*No Double Counting of Major Courses*

<p><i>Take these courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>CHEM 105</td><td style="text-align: right;">4</td></tr> <tr><td>ENG 316</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 111</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 111L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 112</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 112L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 210</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 311</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 340</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 350</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 370</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 410</td><td style="text-align: right;">6</td></tr> <tr><td>PH 121</td><td style="text-align: right;">3</td></tr> <tr><td>PH 150</td><td style="text-align: right;">1</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">41</td></tr> </table>	CHEM 105	4	ENG 316	3	GEOL 111	3	GEOL 111L	1	GEOL 112	3	GEOL 112L	1	GEOL 210	1	GEOL 311	4	GEOL 340	3	GEOL 350	4	GEOL 370	4	GEOL 410	6	PH 121	3	PH 150	1		41	<p><i>Take 1 course:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>GEOL 490R</td><td style="text-align: right;">1-2</td></tr> <tr><td>GEOL 498R</td><td style="text-align: right;">1-3</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">1</td></tr> </table>	GEOL 490R	1-2	GEOL 498R	1-3		1	<p><i>Take 1 Option:</i></p> <p style="text-align: center;"><b>Option A</b></p> <p><i>Take these courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>MATH 109</td><td style="text-align: right;">5</td></tr> <tr><td>FDMAT 112</td><td style="text-align: right;">4</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">9</td></tr> </table> <p style="text-align: center;">OR</p> <p style="text-align: center;"><b>Option B</b></p> <p><i>Take these courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>MATH 113</td><td style="text-align: right;">3</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">3</td></tr> </table>	MATH 109	5	FDMAT 112	4		9	MATH 113	3		3	<p><i>Take 4 courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>GEOL 390R</td><td style="text-align: right;">1-3</td></tr> <tr><td>GEOL 404</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 411</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 412</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 420</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 425</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 435</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 440</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 445</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 480</td><td style="text-align: right;">3</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">10</td></tr> </table>	GEOL 390R	1-3	GEOL 404	3	GEOL 411	3	GEOL 412	3	GEOL 420	3	GEOL 425	3	GEOL 435	3	GEOL 440	3	GEOL 445	3	GEOL 480	3		10	<p><i>Program Notes:</i></p>
CHEM 105	4																																																																							
ENG 316	3																																																																							
GEOL 111	3																																																																							
GEOL 111L	1																																																																							
GEOL 112	3																																																																							
GEOL 112L	1																																																																							
GEOL 210	1																																																																							
GEOL 311	4																																																																							
GEOL 340	3																																																																							
GEOL 350	4																																																																							
GEOL 370	4																																																																							
GEOL 410	6																																																																							
PH 121	3																																																																							
PH 150	1																																																																							
	41																																																																							
GEOL 490R	1-2																																																																							
GEOL 498R	1-3																																																																							
	1																																																																							
MATH 109	5																																																																							
FDMAT 112	4																																																																							
	9																																																																							
MATH 113	3																																																																							
	3																																																																							
GEOL 390R	1-3																																																																							
GEOL 404	3																																																																							
GEOL 411	3																																																																							
GEOL 412	3																																																																							
GEOL 420	3																																																																							
GEOL 425	3																																																																							
GEOL 435	3																																																																							
GEOL 440	3																																																																							
GEOL 445	3																																																																							
GEOL 480	3																																																																							
	10																																																																							

**Total Major Credits=55**

**This major also requires a minor or 2 clusters**

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- NO

Spring-Fall---- YES

**BS in Earth Science Education (840)**

Take required Foundations courses

*No Double Counting of Major Courses*

<p>Education Core</p> <p><i>Take these courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>ED 200</td><td style="text-align: right;">2</td></tr> <tr><td>ED 304</td><td style="text-align: right;">3</td></tr> <tr><td>ED 361</td><td style="text-align: right;">3</td></tr> <tr><td>ED 461</td><td style="text-align: right;">3</td></tr> <tr><td>ED 492</td><td style="text-align: right;">10</td></tr> <tr><td>SPED 360</td><td style="text-align: right;">2</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">23</td></tr> </table>	ED 200	2	ED 304	3	ED 361	3	ED 461	3	ED 492	10	SPED 360	2		23	<p><i>Take these courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>CHEM 105</td><td style="text-align: right;">4</td></tr> <tr><td>ENG 316</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 111</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 111L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 112</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 112L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 240</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 240L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 250</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 380</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 404</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 405</td><td style="text-align: right;">3</td></tr> <tr><td>PH 127</td><td style="text-align: right;">4</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">37</td></tr> </table>	CHEM 105	4	ENG 316	3	GEOL 111	3	GEOL 111L	1	GEOL 112	3	GEOL 112L	1	GEOL 240	3	GEOL 240L	1	GEOL 250	4	GEOL 380	4	GEOL 404	3	GEOL 405	3	PH 127	4		37	<p><i>Program Notes:</i></p>
ED 200	2																																											
ED 304	3																																											
ED 361	3																																											
ED 461	3																																											
ED 492	10																																											
SPED 360	2																																											
	23																																											
CHEM 105	4																																											
ENG 316	3																																											
GEOL 111	3																																											
GEOL 111L	1																																											
GEOL 112	3																																											
GEOL 112L	1																																											
GEOL 240	3																																											
GEOL 240L	1																																											
GEOL 250	4																																											
GEOL 380	4																																											
GEOL 404	3																																											
GEOL 405	3																																											
PH 127	4																																											
	37																																											

**Total Major Credits=37**

**Education Core Credits =23**

**Education Majors Require an Education Minor for Graduation**

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- NO

Spring-Fall---- YES

## Geology Minor (154)

### Minor Requirements

<p><i>Take these courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>GEOL 111</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 111L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 112</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 112L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 380</td><td style="text-align: right;">4</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">12</td></tr> </table> <p><i>Take 1 course:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>GEOL 250</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 350</td><td style="text-align: right;">4</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">4</td></tr> </table>	GEOL 111	3	GEOL 111L	1	GEOL 112	3	GEOL 112L	1	GEOL 380	4		12	GEOL 250	4	GEOL 350	4		4	<p><i>Take 3 courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>GEOL 311</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 340</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 370</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 380</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 390R</td><td style="text-align: right;">1-3</td></tr> <tr><td>GEOL 404</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 411</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 412</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 420</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 425</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 435</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 440R</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 445</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 480</td><td style="text-align: right;">3</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">7</td></tr> </table>	GEOL 311	4	GEOL 340	3	GEOL 370	4	GEOL 380	4	GEOL 390R	1-3	GEOL 404	3	GEOL 411	3	GEOL 412	3	GEOL 420	3	GEOL 425	3	GEOL 435	3	GEOL 440R	3	GEOL 445	3	GEOL 480	3		7	<p><i>Program Notes:</i></p>
GEOL 111	3																																																	
GEOL 111L	1																																																	
GEOL 112	3																																																	
GEOL 112L	1																																																	
GEOL 380	4																																																	
	12																																																	
GEOL 250	4																																																	
GEOL 350	4																																																	
	4																																																	
GEOL 311	4																																																	
GEOL 340	3																																																	
GEOL 370	4																																																	
GEOL 380	4																																																	
GEOL 390R	1-3																																																	
GEOL 404	3																																																	
GEOL 411	3																																																	
GEOL 412	3																																																	
GEOL 420	3																																																	
GEOL 425	3																																																	
GEOL 435	3																																																	
GEOL 440R	3																																																	
GEOL 445	3																																																	
GEOL 480	3																																																	
	7																																																	

**Total Minor Credits=23**

This minor is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- NO Spring-Fall---- YES

## Minor in Natural Science Education (130)

### Minor Requirements

<p><i>Take these courses:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>BIO 204</td><td style="text-align: right;">4</td></tr> <tr><td>BIO 208</td><td style="text-align: right;">4</td></tr> <tr><td>CHEM 105</td><td style="text-align: right;">4</td></tr> <tr><td>CHEM 106</td><td style="text-align: right;">4</td></tr> <tr><td>GEOL 111</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 111L</td><td style="text-align: right;">1</td></tr> <tr><td>GEOL 112</td><td style="text-align: right;">3</td></tr> <tr><td>GEOL 112L</td><td style="text-align: right;">1</td></tr> <tr><td>PH 105</td><td style="text-align: right;">4</td></tr> <tr><td>PH 106</td><td style="text-align: right;">4</td></tr> <tr><td style="border-top: 1px solid black;"></td><td style="text-align: right; border-top: 1px solid black;">32</td></tr> </table>	BIO 204	4	BIO 208	4	CHEM 105	4	CHEM 106	4	GEOL 111	3	GEOL 111L	1	GEOL 112	3	GEOL 112L	1	PH 105	4	PH 106	4		32	<p><i>Program Notes:</i></p> <p><i>Students wishing to minor in Natural Science must major in Ag Ed, Biology Ed, Chemistry Ed, Earth Science Ed or Physics Ed. In nearly all cases the actual number of additional credits needed for this minor is 20.</i></p>
BIO 204	4																						
BIO 208	4																						
CHEM 105	4																						
CHEM 106	4																						
GEOL 111	3																						
GEOL 111L	1																						
GEOL 112	3																						
GEOL 112L	1																						
PH 105	4																						
PH 106	4																						
	32																						

**Total Minor Credits=32**

This minor is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

**Minor in Earth Science Education (181)**

**Minor Requirements**

*Take these courses:*

GEOL 111	3
GEOL 111L	1
GEOL 112	3
GEOL 112L	1
GEOL 240	3
GEOL 240L	1
GEOL 250	4
PH 127	4
	<hr/>
	20

*Program Notes:*

**Total Minor Credits=20**

This minor is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- NO

Spring-Fall---- YES

**Geology Pre-approved Clusters**

**Geology**

*Take 1 course:*

GEOL 101	Introduction to Physical Geology	3
GEOL 104	Natural Disasters and Resources	3
GEOL 111	Physical Geology	3

*Take these courses:*

GEOL 111L	Physical Geology Lab	1
GEOL 112	Historical Geology	3
GEOL 112L	Historical Geology Lab	1

*Take 1 class from group A or at least 4 credits from Group B:*

**Group A**

GEOL 250	Rocks and Minerals	4
GEOL 350	Mineralogy and Petrology	4

**Group B**

GEOL 240	Oceanography & Meteorology	3
GEOL 240L	Oceanography & Meteorology Lab	1
GEOL 311	Structural Geology	4
GEOL 340	Introduction to GIS/GPS	3
GEOL 370	Stratigraphy & Sedimentation	4
GEOL 380	Regional Geology	4
GEOL 404	Environmental Geology	3
GEOL 411	Geomorphology	3
GEOL 420	Geochemistry	3
GEOL 425	Petroleum Geology	3
GEOL 435	Hydrology	3
GEOL 440	Applied GIS	3
GEOL 445	Geophysics	3
GEOL 480	Palaeontology	3
	<b>Total Credits</b>	<b>12</b>

**Geographical Information Systems**

*Option 1 (Recommended for geologists)*

*Take 1 course:*

GEOL 340	Introduction to GIS/GPS	3
----------	-------------------------	---

OR

*Option 2 (Recommended for geographers)*

*Take these courses:*

GEOG 230	Introduction to GIS	3
GEOG 340	Advanced GIS and Spatial Analysis	3

AND

*Take courses below for a total of 12 credits:*

CS 124*	Introduction to Software Development	3
CIT 203*	Introduction to Programming	3
FDMAT 221**	Business Statistics	3
FDMAT 222**	Bio Statistics	3
GEOG 240	Maps and Remote Sensing	3
GEOL 440	Applications of GIS in Geology	3
	<b>Total Credits</b>	<b>12</b>

\*Students cannot take both CS 124 and CIT 203

\*\*Students cannot take both FDMAT 221 and FDMAT 222

**Course Descriptions**

**Credits\***

**GEOL 101 Introduction to Geology (3.0:3:0)**  
 Prerequisite: Concurrent enrollment in or previous completion of Geol 101 or 104.  
 General non-technical course for the non-science student who desires a broad introduction to Geology. Students should also take Geol 102 Lab. Students who take Geology 101 may not also receive credit for Geology 111. This class is also taught as part of the off-campus Discovery and Natural Science Field Expedition programs. Contact the directors of these programs for fees and other information.  
 General experience with (1) mineral and rock identification and interpretation and (2) the use and geologic interpretation of topographic maps.  
 (Fall, Winter, Spring)

**GEOL 102 Introduction to Geology Lab (1.0:0:1)**  
 Fee: \$5.00  
 Prerequisite: Concurrent enrollment in or previous completion of Geol 101 or 104.  
 General experience with (1) mineral and rock identification and interpretation and (2) the use and geologic interpretation of topographic maps.  
 (Fall, Winter, Spring)

**GEOL 104 Natural Disasters and Resources (3.0:3:0)**  
 Fee: \$15.00  
 For the non-science majors emphasizing physical geology related to geologic hazards, mineral and energy resources, and the environmental consequences of urban and rural development. Associated lab for this class is Geol 102. Students who take Geol 104 may not receive credit for Geol 111.  
 (Fall, Winter, Spring)

**GEOL 111 Physical Geology (3.0:3:0)**  
 For majors in Geology, Engineering, Forestry, Construction and other programs. Includes a study of our earth and the processes that formed its features. Students who take Geology 111 must register for Geology 111L. Students who take Geology 111 may not receive credit for Geology 101 or Geology 104.  
 (Fall, Winter, Spring)

**GEOL 111L Physical Geology Lab (1.0:0:2)**  
 Fee: \$50.00  
 Prerequisite: Concurrent enrollment in Geol 111 or instructor's consent.  
 Mineral and rock identification and interpretation as well as map and photo interpretation. Students who take Geology 111 lab may not receive credit for Geology 102.  
 (Fall, Winter, Spring)

**GEOL 112 Historical Geology (3.0:3:0)**  
 Prerequisite: Geol 111 and 111L.  
 A study of the geological history of the earth and the evolution of its life forms. For geology and related majors. Students who take Geol 112 may not receive credit for Geol 103. Students taking Geol 112 are required to take Geol 112L.  
 (Fall, Winter)

**GEOL 112L Historical Geology Lab (1.0:0:3)**  
 Fee: \$100.00  
 Prerequisite: Geol 111 and 111L  
 Three hour lab per week. Examination of the principles of historical geology, along with the study of fossils, special attention given to identification, type of preservation and environments of fossils. Geologic map studies are included.  
 (Fall, Winter)

**GEOL 210 Introduction to Field Geology (1.0:0:4)**  
 Fee: \$150.00  
 Prerequisite: Geol 111 Lab, Geol 112 or instructor's consent. Must be taken concurrently with Geol 311 and Geol 370.  
 One-week field course covering basic methods of observing, collecting, and recording field data. Students register for this course as part of the fall semester. Field work for the course takes place the week prior to the start of the fall semester.  
 (Fall)

**GEOL 240 Oceanography and Meteorology (3.0:3:0)**  
 Prerequisite: Geol 111 or Instructor consent. Must be taken concurrently with Geol 240L.  
 An introductory study of oceanography and weather including major features of oceans (topography, chemistry, geologic history, waves, tides, currents, environmental diversity, etc.), weather, climate, methods of weather forecasting and the environmental impact of man.  
 (Fall)

**GEOL 240L Ocean and Meteorology Lab (1.0:0:2)**  
 Prerequisite: Geol 111 or Instructor's consent. Must be taken concurrently with Geol 240.  
 Two hour lab per week. Laboratory is designed to give the student experience in observing and analyzing basic oceanographic and weather-related phenomena.  
 (Fall)

**GEOL 250 Rocks and Minerals (4.0:3:3)**  
 Fee: \$40.00  
 Prerequisite: Geol 101 & 102, or Geol 104 & 102 or Geol 110 & 110L, or Geol 111 & 111L or Instructor's consent.  
 Hand specimen study of common rocks and minerals, including their identification, classification, and interpretation. Recommended for Earth Science Secondary Education majors, and Geology Minors as well as, any other students interested in rocks and minerals. Not for Geology Majors.  
 (Fall)

**GEOL 290R Directed Study (1.0-3.0:0:0)**  
 Prerequisite: Consent of Instructor.  
 Faculty-student consultation will determine a special area of study and/or research problems that will give students greater preparation for advanced work in geology and related fields. Term of enrollment, credit, and other details will be arranged with instructor. Contact the instructor prior to registering for credit.  
 (Fall, Winter, Spring)

**GEOL 311 Structural Geology (4.0:3:3)**  
 Prerequisite: Geol 111 L & Geol 112. Must be taken concurrently with Geol 210 and Geol 370.  
 Fundamentals of rock deformation and rock structures. Introduction to tectonics. Field Trips.  
 (Fall)

**GEOL 340 Introduction to GIS/GPS (3.0:2:3)**  
 Fee: \$20.00  
 Prerequisite: Geol 111 & Geol 111L  
 A project-based, introductory course providing an applied approach to learning and using a Geographic Information System (GIS) to display and analyze geological data. Also introduces using the Global Positioning System (GPS) to collect geospatial data.  
 (Fall, Winter)

**GEOL 350 Mineralogy & Petrology (4.0:3:3)**  
 Fee: \$40.00  
 Prerequisite: Geol 111, Chem 105, or instructor's consent.  
 The constitution, origin, and identification of minerals. The genesis, interpretation, and identification of igneous and metamorphic rocks.  
 (Fall)

**GEOL 370 Stratigraphy & Sedimentation (4.0:3:3)**  
 Fee: \$50.00  
 Prerequisite: Geol 111 or Geol 101, Geol 112. Must be taken concurrently with Geol 210 and Geol 311 and Geol 250 or 350.  
 Covers the origin, classification, distribution and correlation of sedimentary rock bodies and their use in interpreting geological history.  
 (Fall)

**GEOL 380 Regional Geology (4.0:0:12)**  
 Fee: \$250.00  
 Prerequisite: Geol 250 or Geol 350, or instructor's consent.  
 Travel to different geologic regions to learn the local stratigraphy and geologic history. Written reports will summarize observation from each area visited. A final oral presentation, summarizing all observations will take place on campus.  
 (Spring)

**GEOL 390R Directed Study (1.0-3.0:0:0)**  
 Directed studies in Geology is designed to allow a student to obtain greater depth of understanding in subject matter not readily available through normal course work. Contact the instructor prior to registering for credit.  
 (Fall, Winter, Spring)

## Geology

Brigham Young University-Idaho 2009-2010

### **GEOL 404 Environmental Geology**

**(3.0:2:3)**

Fee: \$50.00

Prerequisite: Geol 112 or Instructors consent

A project-based look at the environmental issues impacting societies today. Projects dealing with common geologic hazards associated with floods, landslides, volcanoes, and earthquakes will be completed using visualization software. The course will also discuss the issues of an increasing demand for natural resources on an evergrowing population. Related impacts of waste management are also addressed.

(W '10, S '11, W '12, S '13, W '14)

### **GEOL 405 Methods of Teaching Earth Science**

**(3.0:2:3)**

Fee: \$10.00

Prerequisite: Ed 270 and SecEd 280, along with 80% of science courses required for the Earth Science Education major must be completed prior to enrolling in this course. In addition this course should not be taken until the semester immediately preceding student teaching.

Earth Science and general science teaching methods needed for certification in Earth Science secondary education are taught. The course focuses on classroom and laboratory techniques utilized in the earth sciences. Practical experience in teaching laboratories, lectures and demonstrations will be emphasized. Students will build a science unit which demonstrates their understanding and application of inquiry and the use of multiple teaching and assessment strategies.

(Fall, Winter)

### **GEOL 410 Advanced Field Methods**

**(6.0:0:24)**

Fee: \$750.00

Prerequisite: Geol 311, Geol 350, Geol 370.

Field experience covering mapping skills, sample data collection, synthesis of field work and literature, and report writing.

(Spring)

### **GEOL 411 Geomorphology**

**(3.0:2:3)**

Fee: \$60.00

Prerequisite: Geol 250 or 350 required. Geol 311 & 370 recommended.

Analysis of the origin of earth's major landforms emphasizing the interrelationship between plate tectonics and hydrology in producing the features we see on the earth's surface.

(Winter '09, Winter '11, Winter '13)

### **GEOL 412 Geology of North America**

**(3.0:2:3)**

Fee: \$100.00

Prerequisite: Geol 250 or Geol 350 required. Geol 311 & 370 recommended.

The study of the geologic history of North America. In addition to the topic studied, students will develop skills in searching and comprehending the geologic literature, presenting geographic concepts, and scientific writing.

(Fall '10, Fall '12)

### **GEOL 420 Geochemistry**

**(3.0:2:3)**

Fee: \$25.00

Prerequisite: Geol 350, Chem 105, (Chem 106 recommended) or instructor's consent.

Applying elementary chemical principles to understand geologic systems.

(S '09, W '10, S '11, W '12, S '13, W '14)

### **GEOL 425 Petroleum Geology**

**(3.0:2:3)**

Fee: \$50.00

Prerequisite: Geol 370 or instructors consent. Field trip attendance required.

Petroleum Geology reviews the generation and distribution of oil and gas deposits and the tools and techniques geoscientists use to explore for, and produce, these accumulations.

(S '09, W '10, S '11, W '12, S '13, W '14)

### **GEOL 435 Hydrology**

**(3.0:2:3)**

Fee: \$30.00

Prerequisite: Geol 101 & Geol 102 or Geol 111 & Geol 111L, Math 110.

In depth study of hydrologic issues focusing on groundwater. Movement of water in the aquifer, impacts of pumping and management of water as a natural resource are some of the main topics.

(S '10, Win '11, S '12, Win '13, S '14)

### **GEOL 440R Applied GIS**

**(3.0:1:5)**

Fee: \$20.00

Prerequisite: Geol 340

Applied GIS (Geologic Information Systems) allows students to apply GIS skills to geologic topics and problems with real-world data sets.

(Fall)

### **GEOL 445 Applied Geophysics**

**(3.0:2:3)**

Fee: \$20.00

Prerequisite: Completion or concurrent registration in Phys 123, Completion of Geol 311 & Geol 370 or Instructor's approval

Learning and applying various geophysical methods to explore and characterize materials in the subsurface. Field trips included.

(S '10, Win '11, S '12, Win '13, S '14)

### **GEOL 480 Paleontology**

**(3.0:2:3)**

Fee: \$100.00

Prerequisite: Geol 112 and Geol 370 or instructor permission.

Introduction to the fundamental principles of paleontology, the study of fossils and their significance.

(Spring, 2010, 2012, 2014)

### **GEOL 490R Research Methods**

**(1-2:0:4)**

Experience performing original research under the direction of a faculty mentor.

(Fall, Winter, Spring)

### **GEOL 498R Geology Internship**

**(1.0-3.0:0:0)**

Prerequisite: To have completed at least through junior level geology courses.

An on-the-job experience related to the area of geological sciences.

(Fall, Winter, Spring)