

Department of
Geology

Julie Willis, Department Chair
Robb Clayton, Forest Gahn, Bill Little, Mark Lovell, Dan Moore,
Megan Pickard, Greg Roselle, Julie Willis

Jeanette Belnap, Department Secretary (208) 496-7671
<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 education 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 minors in Geology, and Geographic Information Systems (GIS) 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.

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. Employers include energy companies, consulting firms, local and federal government agencies, and academic institutions. The broad, multidisciplinary nature of a major in geology is great preparation for careers in other areas, like business or law.

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. Our students study at some of the most famous geologic localities in the world. Local and regional field trips to Yellowstone and Grand Teton Nation Parks, Snake River Plain volcanic and hydrologic features, Hebgen Lake and Borah Peak earthquake localities, and the Grand Canyon in Arizona, provide for effective learning, enhanced student understanding of geologic processes, and a superior preparation for future careers.

BS in Geology (740)

Take required Foundations courses (40 credits)

No Double Counting of Major Courses

| Introductory Geology Core <i>Take these courses during your first two semesters:</i> | Choose an emphasis from the following list: | | | Program Notes: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="0"> <tr><td>GEOL 111</td><td align="right">3</td></tr> <tr><td>GEOL 111L</td><td align="right">1</td></tr> <tr><td>GEOL 112</td><td align="right">4</td></tr> <tr><td>GEOL 140</td><td align="right">1</td></tr> <tr><td>GEOL 340</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">12</td></tr> </table> | GEOL 111 | 3 | GEOL 111L | 1 | GEOL 112 | 4 | GEOL 140 | 1 | GEOL 340 | 3 | | <hr/> | | 12 | <p>Geoscience <i>For students who plan to go to graduate school and pursue any geoscience career.</i> Take 10 credits:</p> <table border="0"> <tr><td>GEOL 335</td><td align="right">4</td></tr> <tr><td>GEOL 404</td><td align="right">3</td></tr> <tr><td>GEOL 411</td><td align="right">3</td></tr> <tr><td>GEOL 412</td><td align="right">3</td></tr> <tr><td>GEOL 420</td><td align="right">3</td></tr> <tr><td>GEOL 425</td><td align="right">3</td></tr> <tr><td>GEOL 435</td><td align="right">3</td></tr> <tr><td>GEOL 440R</td><td align="right">3</td></tr> <tr><td>GEOL 445</td><td align="right">3</td></tr> <tr><td>GEOL 480</td><td align="right">3</td></tr> <tr><td>MATH 330</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone courses:</td><td></td></tr> <tr><td>GEOL 409 and 410</td><td align="right">6</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | GEOL 335 | 4 | 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 | MATH 330 | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | | <hr/> | Take the following capstone courses: | | GEOL 409 and 410 | 6 | | <hr/> | | 16 | <p>Environmental <i>For students who plan a career in the environmental field.</i> Take 13 credits:</p> <table border="0"> <tr><td>BIO 250</td><td align="right">4</td></tr> <tr><td>BIO 423</td><td align="right">3</td></tr> <tr><td>GEOL 335</td><td align="right">4</td></tr> <tr><td>GEOL 404</td><td align="right">3</td></tr> <tr><td>GEOL 420</td><td align="right">3</td></tr> <tr><td>GEOL 435</td><td align="right">3</td></tr> <tr><td>GEOL 440R</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td>MATH 330</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone course:</td><td></td></tr> <tr><td>GEOL 409</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | BIO 250 | 4 | BIO 423 | 3 | GEOL 335 | 4 | GEOL 404 | 3 | GEOL 420 | 3 | GEOL 435 | 3 | GEOL 440R | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | MATH 330 | 3 | | <hr/> | Take the following capstone course: | | GEOL 409 | 3 | | <hr/> | | 16 | <p>Mining <i>For students who plan to work in the mining industry.</i> Take 10 credits:</p> <table border="0"> <tr><td>GEOL 404</td><td align="right">3</td></tr> <tr><td>GEOL 420</td><td align="right">3</td></tr> <tr><td>GEOL 435</td><td align="right">3</td></tr> <tr><td>GEOL 440R</td><td align="right">3</td></tr> <tr><td>ME 142</td><td align="right">3</td></tr> <tr><td>ME 201</td><td align="right">2</td></tr> <tr><td>B 380</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone courses:</td><td></td></tr> <tr><td>GEOL 409 and 410</td><td align="right">6</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | GEOL 404 | 3 | GEOL 420 | 3 | GEOL 435 | 3 | GEOL 440R | 3 | ME 142 | 3 | ME 201 | 2 | B 380 | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | | <hr/> | Take the following capstone courses: | | GEOL 409 and 410 | 6 | | <hr/> | | 16 | <p><i>Be sure to meet with your academic advisor early in your education. Ensure that your grad plan includes 30 total credits of 300- and 400-level courses.</i></p> <p><i>**FDMAT 112 needs to be taken to satisfy a major requirement as well as partially satisfy the Foundations Quantitative Reasoning requirement. Full completion of Foundations will also require FDMAT 108T.</i></p> <p><i>*CHEM 105 is a prerequisite to GEOL 351. PH 121 and PH 150 are strongly recommended as a pre- or co-requisite to GEOL 391.</i></p> <p><i>You should take your math, chemistry, and physics courses early. Those courses will help with your geology classes.</i></p> <p><i>Students who become Geology Majors must change to a Fall/Winter Track during or after their Freshman year.</i></p> | | | |
| GEOL 111 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 111L | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 112 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 140 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 340 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| GEOL 335 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| GEOL 480 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone courses: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 and 410 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| BIO 250 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BIO 423 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 335 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| GEOL 435 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 440R | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 498R | 1-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 330 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone course: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| GEOL 404 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| GEOL 435 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 440R | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ME 142 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ME 201 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B 380 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 498R | 1-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone courses: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 and 410 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Geology Core Module <i>Take these courses:</i></p> <table border="0"> <tr><td>GEOL 301</td><td align="right">1</td></tr> <tr><td>GEOL 316</td><td align="right">3</td></tr> <tr><td>GEOL 351</td><td align="right">3</td></tr> <tr><td>GEOL 352</td><td align="right">3</td></tr> <tr><td>GEOL 370</td><td align="right">4</td></tr> <tr><td>GEOL 391</td><td align="right">2</td></tr> <tr><td>GEOL 392</td><td align="right">2</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">18</td></tr> </table> | GEOL 301 | 1 | GEOL 316 | 3 | GEOL 351 | 3 | GEOL 352 | 3 | GEOL 370 | 4 | GEOL 391 | 2 | GEOL 392 | 2 | | <hr/> | | 18 | <p>Engineering <i>For students who plan to work as a geotech in the geological engineering industry.</i> Take 10 credits:</p> <table border="0"> <tr><td>CONST 350</td><td align="right">3</td></tr> <tr><td>GEOL 445</td><td align="right">3</td></tr> <tr><td>ME 142</td><td align="right">3</td></tr> <tr><td>ME 201</td><td align="right">2</td></tr> <tr><td>ME 202</td><td align="right">3</td></tr> <tr><td>MATH 316</td><td align="right">4</td></tr> <tr><td>MATH 330</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone courses:</td><td></td></tr> <tr><td>GEOL 409 and 410</td><td align="right">6</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | CONST 350 | 3 | GEOL 445 | 3 | ME 142 | 3 | ME 201 | 2 | ME 202 | 3 | MATH 316 | 4 | MATH 330 | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | | <hr/> | Take the following capstone courses: | | GEOL 409 and 410 | 6 | | <hr/> | | 16 | <p>Hydrology <i>For students who plan to pursue a career in hydrology.</i> Take 13 credits:</p> <table border="0"> <tr><td>CS 124</td><td align="right">3</td></tr> <tr><td>GEOL 420</td><td align="right">3</td></tr> <tr><td>GEOL 435</td><td align="right">3</td></tr> <tr><td>GEOL 440R</td><td align="right">3</td></tr> <tr><td>MATH 316</td><td align="right">4</td></tr> <tr><td>MATH 330</td><td align="right">3</td></tr> <tr><td>ME 142</td><td align="right">3</td></tr> <tr><td>ME 360</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone course:</td><td></td></tr> <tr><td>GEOL 409</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | CS 124 | 3 | GEOL 420 | 3 | GEOL 435 | 3 | GEOL 440R | 3 | MATH 316 | 4 | MATH 330 | 3 | ME 142 | 3 | ME 360 | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | | <hr/> | Take the following capstone course: | | GEOL 409 | 3 | | <hr/> | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 301 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 316 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 351 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 352 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 370 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 391 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 392 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| CONST 350 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 445 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ME 142 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ME 201 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| MATH 316 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 330 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 498R | 1-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone courses: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 and 410 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| CS 124 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 420 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 435 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 440R | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 316 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 330 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ME 142 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ME 360 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 498R | 1-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone course: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Physical Science & Math Requirements <i>Take these courses during your sophomore or junior year:</i></p> <table border="0"> <tr><td>CHEM 105*</td><td align="right">4</td></tr> <tr><td>CHEM 106</td><td align="right">4</td></tr> <tr><td>FDMAT 112**</td><td align="right">4</td></tr> <tr><td>MATH 215</td><td align="right">4</td></tr> <tr><td>PH 121*</td><td align="right">3</td></tr> <tr><td>PH 123</td><td align="right">3</td></tr> <tr><td>PH 150*</td><td align="right">1</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">23</td></tr> </table> | CHEM 105* | 4 | CHEM 106 | 4 | FDMAT 112** | 4 | MATH 215 | 4 | PH 121* | 3 | PH 123 | 3 | PH 150* | 1 | | <hr/> | | 23 | <p>GIS <i>For students who plan to work as a GIS specialist in a geo-industry.</i> Take 10 credits:</p> <table border="0"> <tr><td>CS 124 or CIT 160</td><td align="right">3</td></tr> <tr><td>CIT 225</td><td align="right">3</td></tr> <tr><td>GEOG 240</td><td align="right">3</td></tr> <tr><td>GEOL 440R</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td>MATH 330</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Complete 1 course:</td><td></td></tr> <tr><td>GEOL 404</td><td align="right">3</td></tr> <tr><td>GEOL 435</td><td align="right">3</td></tr> <tr><td>GEOL 425</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone course:</td><td></td></tr> <tr><td>GEOL 409</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | CS 124 or CIT 160 | 3 | CIT 225 | 3 | GEOG 240 | 3 | GEOL 440R | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | MATH 330 | 3 | | <hr/> | Complete 1 course: | | GEOL 404 | 3 | GEOL 435 | 3 | GEOL 425 | 3 | | <hr/> | Take the following capstone course: | | GEOL 409 | 3 | | <hr/> | | 16 | <p>Geoscience Computing <i>For students who plan to work as a geo-computer technician in the geo-industry.</i> Take 13 credits:</p> <table border="0"> <tr><td>CS 124</td><td align="right">3</td></tr> <tr><td>CS 165</td><td align="right">3</td></tr> <tr><td>CIT 225</td><td align="right">3</td></tr> <tr><td>MATH 316 or</td><td align="right">4</td></tr> <tr><td>MATH 330</td><td align="right">3</td></tr> <tr><td>GEOL 425</td><td align="right">3</td></tr> <tr><td>GEOL 440R</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone course:</td><td></td></tr> <tr><td>GEOL 409</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | CS 124 | 3 | CS 165 | 3 | CIT 225 | 3 | MATH 316 or | 4 | MATH 330 | 3 | GEOL 425 | 3 | GEOL 440R | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | | <hr/> | Take the following capstone course: | | GEOL 409 | 3 | | <hr/> | | 16 | <p>Petroleum <i>For students who plan to go to graduate school and pursue a career in petroleum.</i> Take 10 credits:</p> <table border="0"> <tr><td>ECON 150</td><td align="right">3</td></tr> <tr><td>GEOL 335</td><td align="right">4</td></tr> <tr><td>GEOL 425</td><td align="right">3</td></tr> <tr><td>GEOL 435</td><td align="right">3</td></tr> <tr><td>GEOL 445</td><td align="right">3</td></tr> <tr><td>B 380</td><td align="right">3</td></tr> <tr><td>GEOL 412</td><td align="right">3</td></tr> <tr><td>GEOL 480</td><td align="right">3</td></tr> <tr><td>GEOL 490R or</td><td align="right">1-2</td></tr> <tr><td>GEOL 498R</td><td align="right">1-3</td></tr> <tr><td>MATH 330</td><td align="right">3</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td>Take the following capstone courses:</td><td></td></tr> <tr><td>GEOL 409 and 410</td><td align="right">6</td></tr> <tr><td></td><td align="right"><hr/></td></tr> <tr><td></td><td align="right">16</td></tr> </table> | ECON 150 | 3 | GEOL 335 | 4 | GEOL 425 | 3 | GEOL 435 | 3 | GEOL 445 | 3 | B 380 | 3 | GEOL 412 | 3 | GEOL 480 | 3 | GEOL 490R or | 1-2 | GEOL 498R | 1-3 | MATH 330 | 3 | | <hr/> | Take the following capstone courses: | | GEOL 409 and 410 | 6 | | <hr/> | | 16 |
| CHEM 105* | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CHEM 106 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FDMAT 112** | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 215 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PH 121* | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PH 123 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PH 150* | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| CS 124 or CIT 160 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CIT 225 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOG 240 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 440R | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 498R | 1-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 330 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Complete 1 course: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 404 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 435 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 425 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone course: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| CS 124 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CS 165 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CIT 225 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 316 or | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 330 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 425 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 440R | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 498R | 1-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone course: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ECON 150 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 335 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 425 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 435 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 445 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B 380 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 412 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 480 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 490R or | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 498R | 1-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATH 330 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Take the following capstone courses: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEOL 409 and 410 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Total Major Credits=69

Additional Elective Credits Required for Graduation=11

Students who become geology majors must change to a Spring-Fall track during or after their freshman year.

Freshman Year: Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES
 Sophomore Year: Fall-Winter---- YES Winter-Spring---- NO Spring-Fall---- NO

Geology

Brigham Young University-Idaho 2014-2015

BS in Earth Science Education (840)

Take required Foundations courses (40 credits)

No Double Counting of Major Courses

| | | | |
|---|--|--|---|
| Education Core <i>Take these courses:</i> ED 200 2 ED 304 3 ED 461 3 ED 492 10 SPED 360 <u> 2</u> 20 | Earth Science Education Core <i>Take these courses in your first 2 semesters:</i> GEOL 111 3 GEOL 111L 1 GEOL 112 <u> 4</u> 8 <i>Take these courses during your sophomore or junior year:</i> GEOL 335 4 GEOL 351 <u> 3</u> 7 | <i>Take these courses during your sophomore or junior year:</i> BIO 305 2 ENG 316 3 CHEM 105 or CHEM 101 & 101L 4 GEOL 380 2 GEOL 404 3 GEOL 405 3 PH 127 3 PH 277 <u> 2</u> 22 | Program Notes: Students in this Education Major are required to have an Education Minor, such as Natural Science Education, Biology Education, Chemistry Education, Physics Education, or Mathematics Education. Most Geology and Physics classes are only offered once each year. Create a graduation plan early and follow it. |
|---|--|--|---|

Total Major Credits=37

Education Core Credits =20

Education Majors Require an Education Minor for Graduation

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

Minor in Natural Science Education (130)

Minor Requirements

| | |
|--|---|
| Required Courses <i>Take these courses:</i> BIO 204 4 BIO 208 4 CHEM 105 4 CHEM 106 4 GEOL 111 3 GEOL 111L 1 GEOL 112 4 PH 105 4 PH 106 <u> 4</u> 32 | Program Notes: Students wishing to minor in Natural Science must major in Ag Ed, Biology Ed, Chemistry Ed, Earth Science Ed or Physics Ed. Double counting is allowed, which makes it possible to complete this minor in the 20 credit limit. |
|--|---|

Total Minor Credits=32

This minor is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

Geology Minor (154)

Minor Requirements

No Double Counting of Major, Minor or Cluster Courses

| | | |
|--|---|--|
| Geology Core <i>Take these courses:</i> GEOL 111 3 GEOL 111L 1 GEOL 112 4 GEOL 140 1 GEOL 340 3 <hr style="width: 50%; margin-left: 0;"/> 12 | Geology Electives <i>Take 8 credits:</i> GEOL 335 4 GEOL 340 3 GEOL 351 3 GEOL 352 3 GEOL 370 4 GEOL 380 2 GEOL 391 2 GEOL 392 2 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 <hr style="width: 50%; margin-left: 0;"/> 8 | Program Notes: Please stop by the Geology Department office for help planning your courses. Geol 111 & Geol 112 (and labs) are offered every semester. Other geology courses are only offered once each year, with very few in winter semester. |
|--|---|--|

Total Minor Credits=20

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

No Double Counting of Major, Minor or Cluster Courses

| | |
|---|--|
| Required Courses <i>Take these courses:</i> GEOL 111 3 GEOL 111L 1 GEOL 112 4 GEOL 335 4 GEOL 351 3 GEOL 380 2 PH 127 3 <hr style="width: 50%; margin-left: 0;"/> 20 | Program Notes: Students in this Education Minor are required to take a Science or Math Education Major for graduation. The options are: Biology Education (800), Chemistry Education (810), Mathematics Education (850), or Physics Education (870). Most Geology and Physics courses are only offered once each year. Create a graduation plan early and follow it. |
|---|--|

Total Minor Credits=20

This minor is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

Geographical Information Systems (GIS) Technology Minor (222)

Minor Requirements

No Double Counting of Minor Courses

| | | | |
|---|--|---|---|
| Core Courses <i>Take these courses:</i> CIT 111 3 MATH 221A, 221B or 221C 3 GEOL 140 1 GEOG 230 or GEOL 340 3 _____ 10 GIS Courses <i>Take 1 course:</i> AGTEC 286 3 GEOG 340 3 GEOL 340 3 _____ 3 | GIS Project <i>Take 1 course*:</i> AGTEC 486 3 GEOL 440R 3 _____ 3 | Supplemental Courses <i>Take 2 courses:</i> AGRON 425 3 CIT 160 3 CIT 260 3 COMM 130 3 GEOG 240 3 _____ 6 | Program Notes: *A directed studies or other project oriented course in a students chosen discipline may be substituted for this requirement with the Geology Chairs permission. |
|---|--|---|---|

Total Major Credits=22

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

Earth Studies Concentration (D 100)

Concentration Requirements

| | | | |
|--|---|--|---|
| Geology Core <i>Take these courses:</i> GEOL 111 3 GEOL 111L 1 GEOL 112 4 GEOL 140 1 GEOL 301 1 GEOL 340 3 _____ 13 Professional Writing <i>Take 1 course:</i> ENG 316 3 GEOL 316 3 _____ 3 | Supplemental Courses <i>Take 5 courses*:</i> CHEM 101 and 101 L or CHEM 105 4 GEOL 335 4 GEOL 351 3 GEOL 352 3 GEOL 370 4 GEOL 391 2 GEOL 392 2 GEOL 404 3 GEOL 409 3 GEOL 410 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 MATH 221B or MATH 330 3 PH 105 or 121 4 or 3 _____ 13 | Internship <i>Take 1 course:**</i> B 398 2 ECON 398 3 GEOL 498R 1-3 IDS 398R 1-3 _____ 1 Interdisciplinary Course <i>Take this course*:</i> IDS 499 2 _____ 2 | Program Notes: Note: Most Geology and Physics classes are only offered once each year. Create a graduation plan early and follow it. No double counting of concentration courses. *Which courses you take depends on area of emphasis (e.g. Environmental, Construction, Petroleum, Mining, Broad Science). **Choose an internship related to your chosen field. |
|--|---|--|---|

Total Concentration Credits=32

This concentration is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

Geology Pre-approved Clusters

| Geology | | 6700 |
|----------------------------|---------------------------------------|-------------|
| <i>Take these courses:</i> | | |
| GEOL 111 | Physical Geology | 3 |
| GEOL 111L | Physical Geology Lab | 1 |
| GEOL 112 | Historical Geology | 4 |
| <i>Take 4 credits:</i> | | |
| GEOL 140 | Introduction to GPS | 1 |
| GEOL 335 | Oceanography and Meteorology | 4 |
| GEOL 340 | Introduction to GIS for Geoscientists | 3 |
| GEOL 351 | Earth Materials | 3 |
| GEOL 352 | Petrology | 3 |
| GEOL 370 | Stratigraphy & Sedimentation | 4 |
| GEOL 380 | Regional Geology | 2 |
| GEOL 391 | Structural Geology I | 2 |
| GEOL 392 | Structural Geology II | 2 |
| GEOL 404 | Environmental Geology | 3 |
| GEOL 411 | Geomorphology | 3 |
| GEOL 420 | Geochemistry | 3 |
| GEOL 425 | Petroleum Geology | 3 |
| GEOL 435 | Hydrology | 3 |
| GEOL 440R | Applied GIS | 3 |
| GEOL 445 | Geophysics | 3 |
| GEOL 480 | Paleontology | 3 |
| Total Credits | | 12 |

Note: Most Geology and Physics classes are only offered once each year. Create a graduation plan early and follow it.

| Mathematics for Geology Students | | 6703 |
|---|--|-------------|
| <i>Take 12 credits:</i> | | |
| MATH 214 | Multivariate/Vector Calculus | 3 |
| MATH 215 | Multivariable Calculus | 4 |
| MATH 271 | Elementary Differential Equations | 2 |
| MATH 281 | Introduction to Applied Mathematics | 3 |
| MATH 316 | Differential Equations with Linear Algebra | 4 |
| MATH 330 | Engineering Statistics | 3 |
| MATH 341 | Linear Algebra | 3 |
| MATH 411 | Numerical Analysis | 3 |
| MATH 412 | Numerical Analysis II | 3 |
| MATH 472 | Introduction to Partial Differential Equations | 3 |
| Total Credits | | 12 |

| Physics for Geology Students | | 6704 |
|-------------------------------------|-------------------------------|-------------|
| <i>Take 12 credits:</i> | | |
| PH 123 | Principles of Physics II | 3 |
| PH 220 | Principles of Physics III | 3 |
| PH 223 | Engineering Physics | 4 |
| PH 250 | Intermediate Physics Lab | 1 |
| PH 279 | Modern Physics | 1 |
| PH 291 | Wave Physics | 2 |
| PH 323 | Solid State Physics | 3 |
| PH 332 | Classical Mechanics | 4 |
| PH 333 | Electricity & Magnetism | 4 |
| PH 336 | Advanced Physics Lab | 2 |
| PH 385 | Numerical Modeling in Physics | 2 |
| Total Credits | | 12 |

| Inorganic Chemistry for Geology Students | | 6705 |
|---|-----------------------|-------------|
| <i>Take 12 credits:</i> | | |
| CHEM 106 | General Chemistry | 4 |
| CHEM 220 | Quantitative Analysis | 5 |
| CHEM 461 | Physical Chemistry I | 3 |
| CHEM 462 | Physical Chemistry II | 3 |
| CHEM 470 | Inorganic Chemistry | 3 |
| CHEM 471 | Advanced Laboratory | 2 |
| Total Credits | | 12 |

| Organic Biochemistry for Geology Students | | 6706 |
|--|-----------------------|-------------|
| <i>Take 12 credits:</i> | | |
| CHEM 106 | General Chemistry | 4 |
| CHEM 220 | Quantitative Analysis | 5 |
| CHEM 351 | Organic Chemistry I | 4 |
| CHEM 352 | Organic Chemistry II | 4 |
| CHEM 481 | Biochemistry | 3 |
| Total Credits | | 12 |

| Engineering for Geology Students | | 6707 |
|---|---------------------------------|-------------|
| <i>Take 12 credits:</i> | | |
| ME 142 | Engineering Computation I | 3 |
| ME 172 | Engineering Graphics | 3 |
| ME 201 | Engineering Mechanics: Statics | 2 |
| ME 202 | Strength of Materials | 3 |
| ME 204 | Engineering Mechanics: Dynamics | 3 |
| ME 231 | Manufacturing Processes I | 3 |
| Total Credits | | 12 |

| Computer for Geology Students | | 6708 |
|--------------------------------------|--------------------------------------|-------------|
| <i>Take 12 credits:</i> | | |
| CIT 160 | CIT Fundamentals | 3 |
| CIT 225 | Database Design & Development | 3 |
| CIT 240 | Networking | 3 |
| CIT 241 | Network Design | 3 |
| CIT 260 | Object Oriented Programming I | 3 |
| CIT 360 | Object Oriented Programming II | 3 |
| CS 124 | Introduction to Software Development | 3 |
| CS 165 | Object Oriented Software Development | 3 |
| CS 213 | Web Engineering I | 3 |
| CS 235 | Data Structures | 3 |
| CS 246 | Software Design & Development | 3 |
| CS 371 | Human-Computer Interaction | 3 |
| CS 460 | Computer Communication & Networks | 3 |
| ECEN 150 | Electric Circuit Analysis | 3 |
| ECEN 160 | Fundamentals of Digital Systems | 3 |
| Total Credits | | 12 |

| Geographical Information Systems for Geology Majors | | 6711 |
|--|--------------------------------------|-------------|
| <i>Take this course:</i> | | |
| GEOL 440R | Applications of GIS in Geology | 3 |
| <i>Take 3 courses:</i> | | |
| CIT 111 | Introduction to Databases | 3 |
| CIT 160 | CIT Fundamentals | 3 |
| CS 124 | Introduction to Software Development | 3 |
| GEOG 240 | Maps and Remote Sensing | 3 |
| MATH 221B | Biostatistics | 3 |
| or | | |
| MATH 330 | Engineering Statistics | 3 |
| Total Credits | | 12 |

| Physical Science and Mathematics | | 6800 |
|---|------|-------------|
| <i>Take 12 credits from at least 2 of the following areas:</i> | | |
| Chemistry | | |
| Take any Chemistry class numbered 105 or higher | 0-10 | |
| (Chem 150 and Chem 153 cannot be taken with Chem 351 and/or Chem 352) | | |
| Physics | | |
| Take any Physics class numbered 105 or higher | 0-10 | |
| Geology | | |
| Take any Geology class numbered 111 and 111L or higher | 0-10 | |
| Mathematics | | |
| Take any Mathematics class numbered 111 or higher | 0-10 | |
| Total Credits | | 12 |

| GIS | | 6801 |
|--------------------------|---|-------------|
| <i>Take this course:</i> | | |
| GEOL 140 | Introduction to GPS | 3 |
| <i>Take 1 course:</i> | | |
| AGTEC 286 | Introduction to GIS | 3 |
| GEOG 230 | Introduction to GIS | 3 |
| <i>Take 1 course:</i> | | |
| MATH 221A | Business Statistics | 3 |
| MATH 221B | Biostatistics | 3 |
| MATH 221C | Social Science Statistics | 3 |
| <i>Take 1 course:</i> | | |
| AGTEC 486 | Advanced GIS in Agriculture and Natural Resources | 3 |
| GEOG 340 | Advanced GIS and Spatial Analysis | 3 |
| GEOL 340 | Introduction to GIS for Geoscientists | 3 |
| <i>Take 1 course:</i> | | |
| CIT 111 | Introduction to Databases | 3 |
| CIT 160 | Introduction to Programming | 3 |
| COMM 130 | Visual Media | 3 |
| Total Credits | | 15 |

Course Descriptions

Credits*

GEOL 111 Physical Geology

(3:3:0)

Concurrent Requisite: GEOL 111L

Physical Geology is a great introductory course for anyone curious about active geologic processes and resources. Its focus is recognizing and understanding how observed features on the earth came to exist and what will likely occur in the future. Students taking Geology 111 must also register for Geology 111L.
(Winter, Spring, Fall)

GEOL 111L Physical Geology Lab

(1:0:3)

Course Fees: \$100.00

Concurrent Requisite: GEOL 111

Geology 111 Lab complements the Geology 111 lecture by providing students with hands-on opportunities to learn and identify basic minerals and rocks. It also provides exposure to identifying and interpreting landforms and features from topographic maps, remote sensing images, and geologic maps. One of the main highlights is a field trip to the Grand Canyon, Arizona.
(Winter, Spring, Fall)

GEOL 112 Historical Geology

(4:3:3)

Course fee: \$100

Prerequisites: GEOL 111 and GEOL 111L

This integrated lecture and lab course addresses the geological history of the earth and the evolution of its life forms. Drawing from many fields of science, emphasis is placed on an understanding of the origin and dynamic equilibrium of Earth's lithosphere, atmosphere, hydrosphere, and biosphere.
(Winter and Fall)

GEOL 140 Introduction to Global Positioning Sys

(1:1:0)

Introduction to Global Positioning Systems (GPS) and how GPS data acquisition fits within the larger Geographic Information Systems (GIS).
(Winter, Spring, Fall)

GEOL 290R Directed Study

(1-3:0:0)

Repeatable Course: may earn maximum of 3 credits

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.
(Winter, Spring, Fall)

GEOL 301 Geology Career Preparation

(1:0:3)

Prerequisite: GEOL 112

Co-requisite: GEOL 351

This course helps you develop a career path and cultivate essential career-related knowledge and skills. The course involves in-class discussions activities, out-of-class skill-development activities, and university-provided training resources.
(Fall)

GEOL 316 Geowriting

(3:3:0)

Prerequisite: GEOL 352

This course is designed to build student competency in scientific writing.
(Variable Fall/Winter schedule, check with department.)

GEOL 335 Oceanography and Meteorology

(4:3:3)

Course Fees: \$50.00

Prerequisites: GEOL 112 and FDMAT 108

This integrated lecture and lab course addresses the fundamentals of oceanography and meteorology. Tailored primarily to earth science education and geology students, this course builds on knowledge from previous courses (Geol 111 and 112) to deepen students' understanding of the oceanographic and atmospheric sciences.
(Variable Fall/Winter schedule, check with department.)

GEOL 340 Introduction to GIS for Geoscientists

(3:2:3)

Course Fees: \$20.00

Prerequisites: GEOL 111 and GEOL 111L; and MATH 109, FDMAT110, or FDMAT112

A project-based, introductory course providing an applied approach to learning and using a Geographic Information System (GIS) to display and analyze geological data. Students will study and apply principles of GIS and use ArcGIS software to analyze vector and raster data and use spatial, geostatistical, hydrologic, and 3D tools.
(Winter and Fall)

GEOL 351 Earth Materials

(3:2:4)

Course Fees: \$20.00

Prerequisites: GEOL 111 and GEOL 111L

Co-Requisites: GEOL 112; and CHEM 101 or CHEM 105

Concurrent Requisite: GEOL 301

This course is centered on a single question: What information is recorded in minerals, igneous rocks, and metamorphic rocks?
(Fall)

GEOL 352 Petrology

(3:1:5)

Course Fees: \$30.00

Prerequisites: CHEM 105 and GEOL 351

This course is centered on this question: How do igneous and metamorphic rocks form, and what do these rocks teach us about how Earth works?
(Winter)

GEOL 370 Stratigraphy and Sedimentation

(4:3:3)

Course Fees: \$100.00

Prerequisites: GEOL 111, GEOL 111L, and GEOL 112

Geology 370 is a combination lecture and laboratory course that covers the origin, classification, distribution, and correlation of sedimentary rock bodies and their use in interpreting geological history. This course will provide a broad overview of the processes involved in the production of sedimentary rock bodies and the formation of stratigraphic successions, the classification of sedimentary rocks and rock bodies, the recognition of ancient depositional environments, and the methods and uses of stratigraphic (basin) analyses.
(Variable Fall/Winter schedule, check with department.)

GEOL 380 Regional Geology

(2:0:6)

Course Fees: \$250.00

Prerequisites: GEOL 351

Co-Requisite: GEOL 335, PH 127

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

(1-3:0:0)

Prerequisite: GEOL 352

Repeatable Course: may earn maximum of 3 credits

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.
(Winter, Spring, Fall)

GEOL 391 Structural Geology 1

(2:1:2)

Course Fees: \$120.00

Prerequisites: GEOL 112 and GEOL 352

Co-requisite: PH 121

Concurrent requisite: GEOL 392

This course covers macroscopic deformation of earth's crust by faulting, folding, and related deformation.
(Fall)

GEOL 392 Structural Geology 2

(2:1:2)

Prerequisites: GEOL 112 and GEOL 352

Co-Requisite: PH 121

Concurrent requisite: GEOL 391

This is the second half of Structural Geology. In this course you will study strain and stress within the earth, evaluate brittle and ductile deformation and the rheologic and tectonic conditions that lead to them. You also will be introduced to structural geologic techniques including computer-based methods and analog modeling and use them to analyze past and present tectonic settings and their inherent structures and hazards.
(Fall)

GEOL 404 Environmental Geology (3:2:3)
 Course Fees: \$75.00
 Prerequisites: GEOL 111 and GEOL 111L; and FDMAT 110, MATH 109, or FDMAT 112
 A project-based look at the environmental issues impacting societies today. Projects dealing with common geologic hazards associated with floods, landslides, and earthquakes will be completed using visualization software. The course will also discuss the issues of an increasing demand for natural resources on an ever-growing population. Related impacts of waste management are also addressed.
 (Variable Fall/Winter schedule, check with department.)

GEOL 405 Teaching Methods - Earth Science (3:2:3)
 Course Fees: \$10.00
 Prerequisites: BIO 305 and ED 304
 Concurrent Requisite: GEOL 380
 General science teaching methods needed for certification in Earth Science secondary education are taught. The course focuses on classroom and laboratory techniques. 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.
 (Spring)

GEOL 409 Geoscience Field Methods (3:0:12)
 Course Fees: \$400.00
 Prerequisites: GEOL 316, GEOL 352, GEOL 370, and GEOL 392
 A capstone field experience covering identification, collection, and analysis of geologic field data, and an introduction to field geologic mapping and interpretation.
 (Spring)

GEOL 410 Advanced Field Methods (3:0:12)
 Course Fee: \$400.00
 Co-Requisite: GEOL 409
 A 4-week field course focused on developing field skills in sedimentology, stratigraphy, and structural geology through geological mapping.
 (Spring)

GEOL 411 Geomorphology (3:2:3)
 Course Fee: \$50.00
 Prerequisites: GEOL 111 and GEOL 111L; and FDMAT 110, MATH 109, or FDMAT 112
 Co-Requisite: GEOL 370
 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)

GEOL 412 Geology of North America (3:2:3)
 Course Fees: \$100.00
 Prerequisites: GEOL 316, GEOL 352, GEOL 370, and GEOL 392
 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)

GEOL 420 Geochemistry (3:2:3)
 Course Fees: \$25.00
 Prerequisites: GEOL 352 and CHEM 106
 Applying elementary chemical principles to understand geologic systems.
 (Variable Fall/Winter schedule, check with department.)

GEOL 425 Petroleum Geology (3:2:3)
 Course Fees: \$50.00
 Co-Requisite: GEOL 370
 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.
 (Variable Fall/Winter schedule, check with department.)

GEOL 435 Groundwater Hydrology (3:2:3)
 Course Fees: \$30.00
 Prerequisites: GEOL 111 and GEOL 111L; and FDMAT 110, MATH 109, or FDMAT 112
 In depth study of hydraulic issues focusing on groundwater: movement of water in an aquifer, impacts of pumping and management of water as a natural resource are some of the main topics.
 (Variable Fall/Winter schedule, check with department.)

GEOL 440R Applied GIS (3:1:5)
 Repeatable Course: may earn maximum of 9 credits
 Course Fees: \$20.00
 Prerequisite: GEOL 340
 Applied GIS (Geologic Information Systems) allows students to expand their GIS skills as related to geologic topics and problems with real-world data sets. Students are encouraged to bring GIS related research projects with them to the course.
 (Variable Fall/Winter schedule, check with department.)

GEOL 445 Applied Geophysics (3:2:3)
 Course Fees: \$20.00
 Co-requisites: GEOL 370 and PH 123
 Learning and applying various geophysical methods to explore and characterize materials in the subsurface. Field trip included.
 (Fall)

GEOL 480 Paleontology (3:2:3)
 Course Fees: \$100.00
 Prerequisites: GEOL 112 or BIO 180
 This integrated lecture and lab course explores the fundamental principles paleontology, the study of ancient life. Emphasizing the formulation of scientific hypotheses that can be tested with data from the fossil record, this course is designed to help students learn numerous methods of data analysis, in addition to the most salient aspects of paleontology. Each student will apply these methods and new insights to an original research project.
 (Fall)

GEOL 490R Research Methods (1-2:0:4)
 Repeatable Course: may earn maximum of 6 credits
 Prerequisite: GEOL 352
 Student problem and project solving (research) involves students applying learned skills to solve real-world problem as they work through a project in a guided/mentored environment. Appropriate projects and problems for this course are those with sufficient intellectual content to be stimulating and challenging to the student. The projects give students experience with scientific research, including scientific problem solving, writing, and presentation. Projects should involve ~70 to 200 or so hours and should be designed to solve an original research problem and should include all aspects of problem solving from project planning, through data collection and analysis, to communication of the results. Projects are developed by the student and the thesis advisor and must be approved by department faculty. In cases where the project crosses semester boundaries, the student registers and receives a grade in the semester that the project is completed.
 (Winter, Spring, Fall)

GEOL 498R Geology Internship (1-3:0:0)
 Prerequisite: GEOL 352
 Repeatable Course: may earn maximum of 9 credits
 Students seeking to complete a Geology Internship seek out and identify internship opportunities. These experiences should provide students the opportunity to apply knowledge that they have learned and / or provide exposure to possible career paths. After identifying an internship possibility, meet with the internship coordinator to make sure that it meets the standards established by the department prior to signing up for the internship through the university Career Navigator website. Students who are unable to identify an internship opportunity are encouraged to get involved in a mentored research project (Geol 490) with one of the faculty members.
 (Winter, Spring, Fall)