BS in Geological Sciences

Geologists and geophysicists explore for oil, natural gas and mineral resources. Geoscientists work in the environmental industry to protect wetlands and groundwater. The US government employs geoscientists to determine landslide risk, to analyze satellite imagery, and to working on Mars exploration. College and universities employ geologists and geophysicists as faculty and Many geologists teach in high school or community college.

**Marketable Skills**

1. Communication: The ability to present complex information and ideas to others in settings from one-on-one to large audiences in a way that they can understand and be convinced of your conclusions.

2. Critical thinking: The ability to deal with incomplete and ambiguous data to create plausible scenarios of varying probability.

3. Entrepreneurship: Develop, organize, and manage ideas and opportunities turning them into new products, services, firms, or industries

4. Problem-solving: Find solutions to difficult or complex issues

5. Teamwork: Participate as an effective, efficient member of a group in order to meet a common goal

6. Writing: Communicate using text in a clear and concise manner

Other marketable skills include GIS data analysis; 3-D computer modeling and visualization. Students with a concentration in education will also be able to gain presentation skills in front of groups.

**Fast Track**

The Fast-Track Program (http://catalog.utep.edu/admissions/undergraduate/fast-track/#text) enables outstanding undergraduate UTEP students to receive both undergraduate and graduate credit for up to 15 hours of UTEP course work as determined by participating Master's and Doctoral programs. Not all undergraduate programs have elected to participate in the Fast Track option, so students should see their departmental graduate advisor for information about requirements and guidelines. A list of courses that have been approved for possible use at the graduate level is found here (http://catalog.utep.edu/admissions/undergraduate/fast-track/#fasttrackcoursestext).


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<td>Business Law and Ethics</td>
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<tr>
<td>ECON 5311</td>
<td>Managerial Economics</td>
<td>3</td>
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<tr>
<td>FIN 5311</td>
<td>Financial Management</td>
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<td>Organizational Mgmt Seminar</td>
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<td>MKT 5311</td>
<td>Marketing Management</td>
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<td>QMB 5311</td>
<td>Quantitative Methods-Business</td>
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<tr>
<td>OSCM 5308</td>
<td>Concepts of Production Mgmt</td>
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<td>Direct Study in Geology</td>
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<td>Selected Topics in Geol Scienc</td>
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<td>GEOL 5262</td>
<td>Direct Study in Geology</td>
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<tr>
<td>GEOL 5289</td>
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<td>GEOL 5303</td>
<td>Computer Appl in Earth Sci</td>
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### Degree Plan

**BS in Geological Sciences**

Required Credits: 120

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<td>Petroleum Geology</td>
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<td>Environmental Tracers in Water</td>
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<td>Introduction to GIST</td>
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<td>GEOL 5322</td>
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<td>GEOL 5323</td>
<td>Spat Analysis Earth/Env Sci</td>
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<td>Machine Learning in Geoscience</td>
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<td>GEOL 5343</td>
<td>Isotope Geology</td>
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<td>Sandstone Petrography</td>
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<td>GEOL 5364</td>
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<td>Quantit Techniq Geological Sci</td>
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<td>Geol/Mineral Resources Mexico</td>
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<td>Fundmtls/Fld Meth in Earth Sci</td>
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<td>GEOP 5355</td>
<td>Intro to Remote Sensing</td>
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<td>GEOP 5356</td>
<td>Digital Image Processing</td>
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<td>GEOP 5352</td>
<td>Geophysical Inverse Theory</td>
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<td>GEOP 5353</td>
<td>Reflection Seismic Data Proces</td>
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<td>Topics in Geophysics</td>
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<td>Well Logging</td>
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<td>Plate Tectonics</td>
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<tr>
<td>GEOP 5460</td>
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### Geology Major Requirements

#### Supporting Math/Sci - Geol Sci (All courses require a grade of C or better.)

Required Courses:

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<td>2</td>
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<td>MATH 1411</td>
<td>Calculus I</td>
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<tr>
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#### University Core Curriculum

Complete the University Core Curriculum requirements. (p. 5)  
**42**

#### Geological Sciences Major

Required Courses:

Select one of the following:

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<th>Hours</th>
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Select one of the following:

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#### Required:

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<td>and Geoscience Processes Lab</td>
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<td>Structural Geology</td>
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<td>Sedimentology &amp; Stratigraphy</td>
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<td>&amp; GEOL 3126</td>
<td>and Lab for Sedim &amp; Stratigraphy</td>
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Six upper-division hour in geology or geophysics  
**6**

#### Geological Sciences Major Reqs

Select an additional 23 hours in any subject, 10 of which must be upper-division  
**23**

**Total Hours**  
**120**

---

1. Although the UTEP choice in the University Core Curriculum is larger, these Math and Science choices satisfy the requirements of both the core and the major and are prerequisites for many upper division courses.
2. This course is preferred.
3. The Department may offer additional choices not reflected in this list.
4. A total of thirty-seven hours of upper division coursework is required for all Bachelor of Science degrees.

The requirement to obtain the BS in Geological Sciences consists of the general College of Science requirements plus the following specific requirements:
BS in Geological Sciences w/ Concentration in 7-12 Science

A UTEP overall and content area GPA must be at least 2.75 for admission to the Educator Preparation Program.

Required Credits: 120

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<td><strong>Background Check Required</strong></td>
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<tr>
<td></td>
<td>A complete background check is required of all</td>
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<tr>
<td></td>
<td>students who wish to receive teacher certification in the State of Texas. Students will be required to pass a background check before certification will be conferred by the State Board of Educator Certification (SBEC).</td>
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<td>Complete the University Core Curriculum requirements. (p. 5)</td>
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Secondary Education Minor

Required Courses:
EDPC 3300 Intro to Youth Dev & Spec Ed 3
RED 3342 Content Area Literacy 3
SCED 3311 Curriculum Plan-Secondary Schl 3
SCED 3317 Multicultural Ed in Sec School 3
SCED 4368 Teaching Science in Sec School 3
SCED 4691 Student Teaching in Sec School 6

Upper Division Requirement
Select a total of 37 hours of upper division coursework. 3

Total Hours 120

1 Although the UTEP choice in the University Core Curriculum is larger, these Math and Science choices satisfy the requirements of both the core and the major and are prerequisites for many upper division courses.
2 This course is preferred.
3 A total of thirty-seven hours of upper division coursework is required for all Bachelor of Science degrees.

University Core Curriculum

The department may make specific suggestions for courses which are most applicable towards your major.

All courses require a C or better

I. Communication (six hours)

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<td>Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience.</td>
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<td>COMM 1611 Written and Oral Communication</td>
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<td>ENGL 1313 Writing About Literature</td>
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<td>RWS 1302 Rhetoric &amp; Composition 2</td>
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<td>ESOL 1312 Res &amp; Crit Writing Spkr Esl</td>
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II. American History (six hours)

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<td></td>
<td>Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.</td>
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<td>Select one of the following:</td>
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<td>HIST 1302 History of U.S. Since 1865</td>
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III. Language, Philosophy & Culture (three hours)

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<tbody>
<tr>
<td></td>
<td>Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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<tr>
<td></td>
<td>AFST 2300 Intro-African Amer Studies</td>
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<tr>
<td></td>
<td>CHIC 2302 Latina/o Presence in the U.S.</td>
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<tr>
<td></td>
<td>ENGL 2311 English Literature</td>
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<tr>
<td>ENGL 2312</td>
<td>English Literature</td>
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<td>ENGL 2313</td>
<td>Intro to American Fiction</td>
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<tr>
<td>ENGL 2314</td>
<td>Intro to American Drama</td>
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<tr>
<td>ENGL 2318</td>
<td>Intro to American Poetry</td>
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<tr>
<td>FREN 2322</td>
<td>Making of the &quot;Other&quot; Americas</td>
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<tr>
<td>HIST 2301</td>
<td>World History to 1500</td>
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<tr>
<td>HIST 2302</td>
<td>World History Since 1500</td>
<td></td>
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<tr>
<td>PHIL 1301</td>
<td>Introduction to Philosophy</td>
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<tr>
<td>PHIL 2306</td>
<td>Ethics</td>
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<tr>
<td>RS 1301</td>
<td>Introduct to Religious Studies</td>
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<tr>
<td>SPAN 2340</td>
<td>Seeing &amp; Naming: Conversations</td>
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<tr>
<td>WS 2300</td>
<td>Introduction to Womens Studies</td>
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<tr>
<td>WS 2350</td>
<td>Global Feminisms</td>
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Total Hours: 3

### IV. Mathematics (three hours)

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<tr>
<td>MATH 1310</td>
<td>Trigonometry and Conics</td>
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<tr>
<td>MATH 1319</td>
<td>Math in the Modern World</td>
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<tr>
<td>MATH 1320</td>
<td>Math for Social Sciences I</td>
<td></td>
</tr>
<tr>
<td>MATH 1411</td>
<td>Calculus I</td>
<td></td>
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<tr>
<td>MATH 1508</td>
<td>Precalculus $^1,^2$</td>
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<tr>
<td>MATH 2301</td>
<td>Math for Social Sciences II</td>
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<tr>
<td>STAT 1380</td>
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<tr>
<td>STAT 2480</td>
<td>Elementary Statistical Methods</td>
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$^1$ A higher-level course in the calculus sequence can be substituted.  
$^2$ TCCN MATH 1314 will also satisfy this requirement.

Total Hours: 3

### V. Life & Physical Sciences (six hours)

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<td>ASTR 1107</td>
<td>Astronomy Lab I</td>
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<td>ASTR 1307</td>
<td>Elem Astronomy-Solar System</td>
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<tr>
<td>ASTR 1308</td>
<td>Elem Astr Stars &amp; Galaxies</td>
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<tr>
<td>BIOL 1103</td>
<td>Introductory Biology Lab</td>
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<td>BIOL 1104</td>
<td>Human Biology Laboratory</td>
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<tr>
<td>BIOL 1107</td>
<td>Topics in Study of Life I</td>
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<tr>
<td>BIOL 1108</td>
<td>Organismal Biology Laboratory</td>
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<tr>
<td>BIOL 1203</td>
<td>Introductory Biology</td>
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<tr>
<td>BIOL 1304</td>
<td>Human Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 1305</td>
<td>General Biology</td>
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<td>BIOL 1306</td>
<td>Organismal Biology</td>
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<tr>
<td>BIOL 2111</td>
<td>Human Anat/Physio Lab I</td>
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<tr>
<td>BIOL 2113</td>
<td>Human Anat/Physio Lab II</td>
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<tr>
<td>BIOL 2111</td>
<td>Human Anat/Physiology I</td>
<td></td>
</tr>
<tr>
<td>BIOL 2313</td>
<td>Human Anat/Physiology II</td>
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</tbody>
</table>

Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on experiences.

Select one of the following:
### VI. Political Science (six hours)

<table>
<thead>
<tr>
<th>Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>POLS 2310</td>
<td>Introduction to Politics</td>
<td>3</td>
</tr>
<tr>
<td>POLS 2311</td>
<td>American Gover &amp; Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 6

Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations.

Required Courses:

- POLS 2310: Introduction to Politics
- POLS 2311: American Gover & Politics

### VII. Social and Behavioral Sciences (three hours)

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<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ANTH 1301</td>
<td>Intro-Phys Anth/Archeolog</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 1302</td>
<td>Intro-Cultural Anthropology</td>
<td>3</td>
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</tbody>
</table>

Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture.

Select one of the following:
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ANTH 1310</td>
<td>Cultural Geography</td>
</tr>
<tr>
<td>ANTH 2320</td>
<td>Intro to Linguistics</td>
</tr>
<tr>
<td>CE 2326</td>
<td>Econ for Engrs &amp; Scientists</td>
</tr>
<tr>
<td>CHIC 2311</td>
<td>Intro to Chicano Studies</td>
</tr>
<tr>
<td>ASIA 2300</td>
<td>Asian American Studies</td>
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<tr>
<td>COMM 2350</td>
<td>Interpersonal Communication</td>
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<tr>
<td>COMM 2372</td>
<td>Mass Media and Society</td>
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<tr>
<td>ECON 2303</td>
<td>Principles of Macroeconomics</td>
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<tr>
<td>ECON 2304</td>
<td>Principles of Microeconomics</td>
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<td>EDPC 1301</td>
<td>Introduction to Ed Psychology</td>
</tr>
<tr>
<td>EDU 1342</td>
<td>Action Research in Classrooms</td>
</tr>
<tr>
<td>ENGL 2320</td>
<td>Introduction to Linguistics</td>
</tr>
<tr>
<td>GEOG 1310</td>
<td>Cultural Geography</td>
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<tr>
<td>LEAD 2300</td>
<td>Leadership in Action</td>
</tr>
<tr>
<td>LING 2320</td>
<td>Introduction to Linguistics</td>
</tr>
<tr>
<td>LING 2340</td>
<td>Lang. Inside &amp; Out: Sel Topics</td>
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<tr>
<td>PSYC 1301</td>
<td>Introduction to Psychology</td>
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<tr>
<td>SOCI 1301</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>SOCI 1310</td>
<td>Cultural Geography</td>
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**Total Hours**: 3

### VIII. Creative Arts (three hours)

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<tbody>
<tr>
<td>ART 1300</td>
<td>Art Appreciation</td>
</tr>
<tr>
<td>ARTH 1305</td>
<td>History of Art I</td>
</tr>
<tr>
<td>ARTH 1306</td>
<td>History of Art II</td>
</tr>
<tr>
<td>CHIC 1311</td>
<td>Chicana/o Fine Arts Appreciat</td>
</tr>
<tr>
<td>DANC 1304</td>
<td>Introduction to Dance</td>
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<tr>
<td>FILM 1390</td>
<td>Intro-Art of Motion Pict.</td>
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<tr>
<td>MUSL 1324</td>
<td>Music Appreciation</td>
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<tr>
<td>MUSL 1327</td>
<td>Jazz to Rock</td>
</tr>
<tr>
<td>MUSL 2321</td>
<td>Music, Culture, and Society</td>
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<td>THEA 1313</td>
<td>Introduction to Theatre</td>
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**Total Hours**: 3

### IX. Component Area Option (six hours)

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>BUSN 1301</td>
<td>Intro to Global Business</td>
</tr>
<tr>
<td>COMM 1301</td>
<td>Public Speaking</td>
</tr>
<tr>
<td>COMM 1302</td>
<td>Business/Profession Comm</td>
</tr>
<tr>
<td>CS 1310</td>
<td>Intro-Computational Thinking</td>
</tr>
<tr>
<td>CS 1320</td>
<td>Computer Programming Sci/Engr</td>
</tr>
<tr>
<td>EL 1301</td>
<td>Eng Innovation and Leadership</td>
</tr>
<tr>
<td>ENGR 1302</td>
<td>Engineering Design Experience</td>
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<tr>
<td>ENGR 1303</td>
<td>Applied Engineering Analysis</td>
</tr>
<tr>
<td>LEAD 1300</td>
<td>Introduction to Leadership</td>
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</tbody>
</table>

a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas.
b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that: (i) Meet(s) the definition specified for one or more of the foundational component areas; and (ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.
### 4-Year Sample Degree Plan
**BS Geological Sciences (Starting with Calculus)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<td><strong>BS GEOLOGICAL SCIENCES</strong></td>
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<tr>
<td><strong>FRESHMAN</strong></td>
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</tr>
<tr>
<td>Fall</td>
<td></td>
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</tr>
<tr>
<td>RWS 1301</td>
<td>Rhetoric &amp; Composition I</td>
<td>3</td>
</tr>
<tr>
<td>SCI 1301</td>
<td>Inquiry in Math &amp; Science</td>
<td>3</td>
</tr>
<tr>
<td>HIST 1301</td>
<td>History of U.S. to 1865</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1411</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 1313 &amp; GEOL 1103</td>
<td>Intro to Physical Geology and Lab for GEOL 1313</td>
<td>4</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
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<tr>
<td>HIST 1302</td>
<td>History of U.S. Since 1865</td>
<td>3</td>
</tr>
<tr>
<td>COMM 1301</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>MATH 1312</td>
<td>Calculus II</td>
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<tr>
<td>GEOL 1314 &amp; GEOL 1104</td>
<td>Intro to Historical Geol and Lab for GEOL 1314</td>
<td>4</td>
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<tr>
<td>CHEM 1305 &amp; CHEM 1105</td>
<td>General Chemistry and Laboratory for CHEM 1305</td>
<td>4</td>
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<tr>
<td><strong>SOPHOMORE</strong></td>
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<tr>
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<tr>
<td>RWS 1302</td>
<td>Rhetoric &amp; Composition 2</td>
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<td>General Chemistry and Laboratory for CHEM 1306</td>
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<tr>
<td>GEOL 3312 &amp; GEOL 3112</td>
<td>Geoscience Processes and Geoscience Processes Lab</td>
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<tr>
<td>GEOL 2309 &amp; GEOL 2109</td>
<td>Mineralogy &amp; Petrology and Mineralogy &amp; Petrology Lab</td>
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<tr>
<td>Spring</td>
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<tr>
<td>POLS 2310</td>
<td>Introduction to Politics</td>
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<td>Language, Philosophy, and Culture</td>
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<tr>
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<td>Igneous/Metamorphic Petrology and Igneous/Metamorphic Petr. Lab</td>
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<td>POLS 2311</td>
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<tr>
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<td>Upper-Division Course</td>
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<tr>
<td>Code</td>
<td>Title</td>
<td>Hours</td>
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<td>Sedimentology &amp; Stratigraphy</td>
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<td>and Lab for Sedim &amp; Stratigraphy</td>
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**SENIOR**

**Fall**

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<td>GEOL 4375</td>
<td>Field Geology I</td>
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<td>Upper-Division Elective</td>
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<tr>
<td>Upper-Division GEOL or GEOP Course</td>
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**Spring**

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<tr>
<td>GEOL 4376</td>
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<td>Upper-Division Elective</td>
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<tr>
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**Total Hours**

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**BS Geological Sciences (Starting with Pre-Calculus)**

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**FRESHMAN**

**Fall**

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<tbody>
<tr>
<td>RWS 1301</td>
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</tr>
<tr>
<td>SCI 1301</td>
<td>Inquiry in Math &amp; Science</td>
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<td>and Lab for GEOL 1313</td>
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**Spring**

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<tr>
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<td>COMM 1301</td>
<td>Public Speaking</td>
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<td>Calculus I</td>
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<td>Intro to Historical Geol</td>
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<td>and Lab for GEOL 1314</td>
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<td>and Laboratory for CHEM 1305</td>
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**SOPHOMORE**

**Fall**

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<td>History of U.S. to 1865</td>
<td>3</td>
</tr>
<tr>
<td>Creative Arts</td>
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<tr>
<td>MATH 1312</td>
<td>Calculus II</td>
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<td>GEOL 3312</td>
<td>Geoscience Processes</td>
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<td>and Geoscience Processes Lab</td>
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<td>GEOL 2309</td>
<td>Mineralogy &amp; Petrology</td>
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<tr>
<td>&amp; GEOL 2109</td>
<td>and Mineralogy &amp; Petrology Lab</td>
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**Spring**

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<td>Language, Philosophy, and Culture</td>
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**JUNIOR**
### BS in Geological Sciences

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<tr>
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<tr>
<td>POLS 2310</td>
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<td>PHYS 2320</td>
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<td>GEOL 3326</td>
<td>Sedimentology &amp; Stratigraphy</td>
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<td>GEOL 3323</td>
<td>Structural Geology</td>
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<td>and Structural Geology Lab</td>
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<tr>
<td>POLS 2311</td>
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<td>PHYS 2321</td>
<td>Introductory Electromagnetism</td>
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### SENIOR

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<td>GEOL 4376</td>
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**Total Hours**: 126

**BS Geological Sciences- Secondary Education-Science 7-12 Certification (Starting with Pre-Calculus)**

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**FRESHMAN**

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<td>Inquiry in Math &amp; Science</td>
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**SOPHOMORE**

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**BS Geological Sciences - Secondary Education-Science 7-12 Certification (Starting with Calculus)**

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### Spring
- **RWS 1302**: Rhetoric & Composition 2
- **HIST 1301**: History of U.S. to 1865
- **COMM 1301**: Public Speaking
- **GEOL 1212 & GEOL 1112**: Principles of Earth Science and Laboratory for Geology 1212
- **Elective**: 3

### SOPHOMORE
#### Fall
- **HIST 1302**: History of U.S. Since 1865
- **PHIL 2306**: Ethics
- **CHEM 1305 & CHEM 1105**: General Chemistry and Laboratory for CHEM 1305
- **MATH 1312**: Calculus II
- **PHYS 2320 & PHYS 2120**: Introductory Mechanics and Laboratory for PHYS 2320

#### Spring
- **CHEM 1306 & CHEM 1106**: General Chemistry and Laboratory for CHEM 1306
- **PHYS 2321 & PHYS 2121**: Introductory Electromagnetism and Laboratory for PHYS 2321
- **GEOL 2309 & GEOL 2109**: Mineralogy & Petrology and Mineralogy & Petrology Lab
- **Elective**: 2

### JUNIOR
#### Fall
- **POLS 2310**: Introduction to Politics
- **PSYC 1301**: Introduction to Psychology
- **PHYS 2230**: Thermal and Fluid Physics
- **GEOL 3312 & GEOL 3112**: Geoscience Processes and Geoscience Processes Lab
- **GEOL 3323 & GEOL 3123**: Structural Geology and Structural Geology Lab
- **RED 3342**: Content Area Literacy

#### Spring
- **POLS 2311**: American Gover & Politics
- **EDPC 3300**: Intro to Youth Dev & Spec Ed
- **GEOL 3215 & GEOL 3115**: Igneous/Metamorphic Petrology and Igneous/Metamorphic Petr. Lab
- **SCED 3317**: Multicultural Ed in Sec School
- **GEOL 4375**: Field Geology I

### SENIOR
#### Fall
- **ART 1300**: Art Appreciation
- **GEOL 3326 & GEOL 3126**: Sedimentology & Stratigraphy and Lab for Sedim & Stratigraphy
- **SCED 3311**: Curriculum Plan-Secondary Schl
- **SCED 4368**: Teaching Science in Sec School
- **GEOL 4376**: Field Geology II

#### Spring
- **SCED 4691**: Student Teaching in Sec School

### Total Hours
118