**GEOL 3011** Natural History of National Parks
**GEOL 3031**
**GEOL 3050** Geological Oceanography
**GEOL 3080** Geomorphology
**GEOL 3339** Dinosaurs: Paleocology, Evolution and Extinction
**GEOL 4010** Hydrogeology
**GEOL 4020** Environmental Geochemistry
**GEOL 4030** Lithospheric Geodynamics
**GEOL 4050** GIS for Natural Sciences
**GEOL 4060** Fundamentals of Petroleum Exploration and Production

**GEOL 4070** Sequence Stratigraphy
**GEOL 4080** Physical Volcanology
**GEOL 4110** Clay Mineralogy
**GEOL 4150** Applied GIS
**GEOL 4170** Well Log Analysis
**GEOL 4770** Special Topics in Geology
**GEOL 4771** Special Topics in Geology 2

**Cognates**

**CHEM 1000** Foundations of Chemistry or 1010 or EQUIVALENT

**MATH 2010** Calculus for the Biological and Chemical Sciences I

or **MATH 2310** Single Variable Calculus I for Engineers

or **MATH 2510** Single Variable Calculus I

**PHYS 2110** College Physics I

or **PHYS 2210** Physics for Scientists and Engineers I

**Major Subtotal** 66

**Additional Units Needed Towards Graduation** 10

**Total Units** 120

1. The minimum acceptable GPA for these 66 units is 2.0
2. GEOL 4090 Field Course in Geology is generally taken during the Summer following the senior year.
3. GEOL 3310 Integrated Science: Earth Science, GEOL 3318 California Geology and Society, and GEOL 3328 Water and the West are General Education courses intended for non-majors and do not count toward degree requirements; at least 3 units must be GEOL 4000 or above. Graduate level classes may be substituted with advisor approval.
4. Or equivalent
5. Area B1 satisfied in major and cognates, B4 satisfied in cognates, and Capstone satisfied in major
6. The SELF requirement is met by completing a LD C or D course with a SELF component.
7. Some General Education requirements are included in major.

The following additional courses are strongly recommended for students planning graduate studies:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHEM 1100</td>
<td>Foundations of Analytical Chemistry</td>
<td>2</td>
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<tr>
<td>&amp; CHEM 1600</td>
<td>and Foundations of Physical Chemistry</td>
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<tr>
<td>MATH 2020</td>
<td>Calculus for Biological &amp; Chemical Sciences II</td>
<td>4</td>
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<tr>
<td>or MATH 2320</td>
<td>Single Variable Calculus II for Engineers</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>or MATH 2520</td>
<td>Single Variable Calculus II</td>
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<tr>
<td>PHYS 2120</td>
<td>College Physics II</td>
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<tr>
<td>or PHYS 2220</td>
<td>Physics for Scientists and Engineers II</td>
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</table>

**Total Units:** 10

**Note:** One semester unit normally represents 50 minutes of lecture or 150 minutes of laboratory study. For every unit, students are expected to devote 2-3 hours of outside study per week.