GEOPHYSICS - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF SCIENCE IN GEOPHYSICS

The combined program in Geophysics is a 5-year path leading to a Bachelor of Science (BS) and a thesis option Master of Science (MS) in Geophysics. This program is designed to quickly prepare exceptional students who would like to either enter into the job market with an advanced degree or apply to PhD programs. Because the MS degree requires a thesis, it is highly recommended that interested students become involved in research project early in the undergraduate career. Areas of opportunity for research at both the undergraduate and MS levels include earthquake mechanisms and seismic wave propagation, theoretical and experimental studies of deformation of rocks and soft sediment, petrophysics and reservoir physics, marine studies of the structure of the oceanic crust and continental margins, near surface applied geophysics and archaeological geophysics.

Application and Eligibility

- Students may apply for entrance to the graduate program when they reach 90 hours applied to their degree program, normally in the spring of their junior year.
- Applicants to this program are not required to submit GRE, but they must submit two letters of advocacy from faculty members, one of whom is willing to serve as the MS thesis advisor.
- Students admitted into the combined program must finish all of the credit hours to obtain both the Bachelor's and Master's degrees. These students will be conferred with two degrees once they complete all requirements.
- Students not accepted into the combined program will complete the hour Bachelor's degree under the standard 4 year curriculum. These students may still apply to the traditional graduate program.

Program Requirements

<table>
<thead>
<tr>
<th>First Year</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>CHEM 107</td>
<td>General Chemistry for Engineering Students 3</td>
</tr>
<tr>
<td>CHEM 117</td>
<td>General Chemistry for Engineering Students Laboratory 1</td>
</tr>
<tr>
<td>ENGL 104</td>
<td>Composition and Rhetoric 3</td>
</tr>
<tr>
<td>GEOL 150</td>
<td>Introduction to the Solid Earth 4</td>
</tr>
<tr>
<td>GEOL 180</td>
<td>Introduction to Geology and Geophysics 1</td>
</tr>
<tr>
<td>MATH 151</td>
<td>Engineering Mathematics I 4</td>
</tr>
<tr>
<td></td>
<td>Semester Credit Hours 16</td>
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<tr>
<td>Spring</td>
<td></td>
</tr>
<tr>
<td>GEOL 152</td>
<td>History of the Earth 4</td>
</tr>
<tr>
<td>MATH 152</td>
<td>Engineering Mathematics II 4</td>
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<table>
<thead>
<tr>
<th>Second Year</th>
<th>Semester Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>GEOL 203</td>
<td>Mineralogy 4</td>
</tr>
<tr>
<td>GEOL 210</td>
<td>Geological Communication 3</td>
</tr>
<tr>
<td>MATH 251</td>
<td>Engineering Mathematics III 3</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Newtonian Mechanics for Engineering and Science 3</td>
</tr>
<tr>
<td>PHYS 226</td>
<td>Physics of Motion Laboratory for the Sciences 1</td>
</tr>
<tr>
<td></td>
<td>American history (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a>) 3</td>
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<table>
<thead>
<tr>
<th>Summer</th>
<th>Semester Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>American history 3</td>
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</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Semester Credit Hours</th>
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<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>GEOL 306</td>
<td>Sedimentology and Stratigraphy 4</td>
</tr>
<tr>
<td>GEOP 341</td>
<td>Fundamentals of Geophysics 3</td>
</tr>
<tr>
<td>MATH 311</td>
<td>Topics in Applied Mathematics I 3</td>
</tr>
<tr>
<td>PHYS 221</td>
<td>Optics and Thermal Physics 3</td>
</tr>
<tr>
<td>Government/Political science (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science</a>) 3</td>
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<table>
<thead>
<tr>
<th>Spring</th>
<th>Semester Credit Hours</th>
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<tbody>
<tr>
<td>GEOL 312</td>
<td>Structural Geology and Tectonics 4</td>
</tr>
<tr>
<td>GEOP 313</td>
<td>Geophysical Field Methods 4</td>
</tr>
<tr>
<td>GEOP 361</td>
<td>Geophysical Signal Processing 3</td>
</tr>
<tr>
<td>Language, philosophy and culture (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture</a>) 3</td>
<td></td>
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<tr>
<td>Social and behavioral science (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-science">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-science</a>) 3</td>
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<p>| Semester Credit Hours | 17 |</p>
<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>Summer</strong></td>
<td>Technical elective&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td>GEOL 450: Geology Senior Project</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GEOP 421: Seismology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOP 413: Near-surface Geophysics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Creative arts (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts</a>)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
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<tr>
<td></td>
<td>Geophysics elective&lt;sup&gt;3&lt;/sup&gt;</td>
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</tr>
<tr>
<td></td>
<td>Technical elective</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Semester Credit Hours</strong></td>
<td>18</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Graduate electives&lt;sup&gt;4&lt;/sup&gt;</td>
<td>12</td>
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<tr>
<td></td>
<td><strong>Semester Credit Hours</strong></td>
<td>12</td>
</tr>
<tr>
<td><strong>Fifth Year</strong></td>
<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td>Graduate electives&lt;sup&gt;4&lt;/sup&gt;</td>
<td>9</td>
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<tr>
<td></td>
<td><strong>Semester Credit Hours</strong></td>
<td>9</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Graduate electives&lt;sup&gt;4&lt;/sup&gt;</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td><strong>Semester Credit Hours</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Total Semester Credit Hours</strong></td>
<td>150</td>
</tr>
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</table>

1. The Graduation requirements include a requirement for three hours of International and Cultural Diversity courses and three hours of Cultural Discourse courses. A course satisfying a Core category, a college/departmental requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

2. Any science, math or engineering course that augments the degree with the approval of the advisor. At least four credits should be GEOL 491 Research.

3. Any Geophysics course.

4. The MS degree is either Non-Thesis Option (36 total hours, with 6 hours double-counting with the undergraduate Technical Electives) or Thesis Option (32 hours, with 2 hours double-counting with Technical Electives). Graduate courses may be in Geology, Geophysics or a supporting math or science area, chosen with approval of the student’s advisory committee. Students in the Thesis Option may include up to 8 hours of Research courses.

The program includes a total of 152 or 156 hours which up to 2 or 6 hours may be applied toward both the Bachelor of Science in Geophysics and the Master of Science in Geophysics.