HONOURS BSC IN GEOLOGY-PHYSICS

Geology is a modern, dynamic and diverse science that involves investigating the composition and evolution of Earth and other planetary bodies.

Geologists and Earth scientists study the Earth, including its chemical, physical and biological evolution. Our programs teach students how to analyze Earth materials, probe the Earth from surface to core and model the processes that produced and shape its oceans and continents. The Ottawa region is a natural laboratory where students investigate resources (water, metals, minerals, petroleum), hazards (earthquakes, eruptions, landslides) and a variety of geological environments.

The Department of Earth and Environmental Sciences offers programs in geology and, along with the Department of Physics, a program in geology-physics. These programs balance field-based learning with theoretical and analytical investigations directly relevant to the needs of society. The final year involves an independent research project or equivalent units (credits) in advanced courses in the discipline.

The honours requirements meet the professional accreditation requirements of the Association of Professional Geoscientists of Ontario and l'Ordre des géologues du Québec.

This program is offered in English and in French.

Program Requirements

Co-operative education is available with this program.

The French immersion stream is available with this program.

Requirements for this program have been modified. Please consult the 2018-2019 calendars (https://catalogue.uottawa.ca/en/archives/) for the previous requirements.

### Compulsory courses at the 1000 level

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 1130</td>
<td>Introduction to Organismal Biology</td>
<td>3 Units</td>
</tr>
<tr>
<td>CHM 1311</td>
<td>Principles of Chemistry</td>
<td>3 Units</td>
</tr>
<tr>
<td>EVS 1101</td>
<td>Introduction to Environmental Science</td>
<td>3 Units</td>
</tr>
<tr>
<td>GEO 1111</td>
<td>Introduction to Earth Systems</td>
<td>3 Units</td>
</tr>
<tr>
<td>GEO 1115</td>
<td>Introduction to Earth Materials</td>
<td>3 Units</td>
</tr>
<tr>
<td>ITI 1120</td>
<td>Introduction to Computing I</td>
<td>3 Units</td>
</tr>
<tr>
<td>MAT 1320</td>
<td>Calculus I</td>
<td>3 Units</td>
</tr>
<tr>
<td>MAT 1322</td>
<td>Calculus II</td>
<td>3 Units</td>
</tr>
<tr>
<td>MAT 1341</td>
<td>Introduction to Linear Algebra</td>
<td>3 Units</td>
</tr>
<tr>
<td>PHY 1121</td>
<td>Fundamentals of Physics I</td>
<td>3 Units</td>
</tr>
<tr>
<td>PHY 1122</td>
<td>Fundamentals of Physics II</td>
<td>3 Units</td>
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### Compulsory courses at the 2000 level

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>GEO 2020</td>
<td>Field Studies I</td>
<td>3 Units</td>
</tr>
<tr>
<td>GEO 2163</td>
<td>Introduction to Mineralogy</td>
<td>3 Units</td>
</tr>
<tr>
<td>GEO 2165</td>
<td>Stratigraphy and Sedimentation</td>
<td>3 Units</td>
</tr>
<tr>
<td>GEO 2321</td>
<td>Structural Geology and Tectonics</td>
<td>3 Units</td>
</tr>
<tr>
<td>MAT 2322</td>
<td>Calculus III for Engineers</td>
<td>3 Units</td>
</tr>
<tr>
<td>MAT 2384</td>
<td>Ordinary Differential Equations and Numerical Methods</td>
<td>3 Units</td>
</tr>
<tr>
<td>PHY 2311</td>
<td>Waves and Optics</td>
<td>3 Units</td>
</tr>
<tr>
<td>PHY 2361</td>
<td>Modern Physics</td>
<td>3 Units</td>
</tr>
<tr>
<td>GEO 3191</td>
<td>Applied Geophysics</td>
<td>3 Units</td>
</tr>
<tr>
<td>GEO 3382</td>
<td>Geochemistry</td>
<td>3 Units</td>
</tr>
<tr>
<td>PHY 3380</td>
<td>Physics of the Earth</td>
<td>3 Units</td>
</tr>
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</table>

One option from the following:

**Option 1: Honours Project**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 4010</td>
<td>Honours Project</td>
<td>6 Units</td>
</tr>
</tbody>
</table>

**Option 2: Honours Project Substitution**

3 optional course units in Geology (GEO) or Physics (PHY) at the 4000 level

6 optional course units from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 2330</td>
<td>Physical Chemistry: Introduction to the Molecular Properties of Matter</td>
<td>3 Units</td>
</tr>
<tr>
<td>CHM 2353</td>
<td>Descriptive Inorganic Chemistry</td>
<td>3 Units</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2104</td>
<td>Introduction to Circuit Theory and Electronics</td>
<td>6 Units</td>
</tr>
<tr>
<td>PHY 2323</td>
<td>Electricity and Magnetism</td>
<td>3 Units</td>
</tr>
<tr>
<td>PHY 2333</td>
<td>Mechanics</td>
<td>3 Units</td>
</tr>
</tbody>
</table>

6 optional course units in geology (GEO) at the 3000 or 4000 level

6 optional course units in physics (PHY) at the 3000 or 4000 level

12 elective course units from the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management

15 elective course units

Total: 120 Units

Note(s)

1. A language course at the 1000 or 2000 level is strongly recommended.

Students who take the Geology-Physics Program and wish to become registered members of the Association of Professional Geoscientists of Ontario must take 21 units in Earth Sciences from among the optional courses in order to satisfy the requirements of the professional association.