HONOURS BSC IN ENVIRONMENTAL SCIENCE

Environmental Science is the interdisciplinary study of the environment, its functioning and its relationship to human activities.

Society has a growing need for specialists able to recognize, understand, solve and prevent environmental problems.

The Environmental Science program at the University of Ottawa focuses on the integration of traditional science disciplines (e.g. biology, earth sciences, chemistry, physics) to study the natural environment and the impact of human activities. The program consists of a core of basic science courses complemented by courses in various disciplines that address the scientific and societal aspects of environmental problems. In addition, the program offers three areas of specialization: conservation and biodiversity; global change; and environmental geochemistry and ecotoxicology. The final year entails an independent research project or equivalent units in advanced courses in the specialization.

This program is offered in English and in French.

Program Requirements

Co-operative education is available with this program.

The extended French stream is available with this program.

Requirements for this program have been modified. Please consult the 2015-2016 calendars (http://www.uottawa.ca/academic/info/regist/1516/calendars) for the previous requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIO 1130</td>
<td>Introduction to Organismal Biology</td>
<td>3</td>
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<tr>
<td>BIO 1140</td>
<td>Introduction to Cell Biology</td>
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<tr>
<td>CHM 1311</td>
<td>Principles of Chemistry</td>
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<tr>
<td>CHM 1321</td>
<td>Organic Chemistry I</td>
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<tr>
<td>EVS 1101</td>
<td>Introduction to Environmental Science</td>
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<tr>
<td>GEG 1302</td>
<td>Places and Spaces of Human Activity</td>
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<td>GEO 1111</td>
<td>Introduction to Earth Systems</td>
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<td>GEO 1115</td>
<td>Introduction to Earth Materials</td>
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<tr>
<td>MAT 1330</td>
<td>Calculus for the Life Sciences I</td>
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<tr>
<td>MAT 1332</td>
<td>Calculus for the Life Sciences II</td>
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<td>PHY 1321</td>
<td>Principles of Physics I</td>
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<td>BIO 2129</td>
<td>Ecology</td>
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<td>CHM 2353</td>
<td>Descriptive Inorganic Chemistry</td>
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<td>GEG 2320</td>
<td>Introduction to Geomatics</td>
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<td>MAT 2379</td>
<td>Introduction to Biostatistics</td>
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<tr>
<td>BIO 3117</td>
<td>Ecosystem Ecology</td>
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<tr>
<td>EVS 3101</td>
<td>Environmental Issues</td>
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<tr>
<td>EVS 3102</td>
<td>The Practice of Environmental Science</td>
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<tr>
<td>EVS 3120</td>
<td>Environmental Microbiology</td>
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<tr>
<td>GEO 3342</td>
<td>Introduction to Hydrogeology</td>
<td>3</td>
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<tr>
<td>GEO 3352</td>
<td>Geological Data Analysis</td>
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<tr>
<td>BIO 4158</td>
<td>Applied Biostatistics</td>
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<tr>
<td>EVS 4009</td>
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3 course units from the 2000, 3000 or 4000 level from the list of optional courses offered by the Faculty of Science, the Faculty of Engineering, the Department of Geography (GEG) or from one of the options in the Honours BSc in Environmental Science program

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EVS 4010</td>
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<tr>
<td>EVS 4904</td>
<td>Seminar</td>
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12 elective course units offered by the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>6 course units offered by the Faculty of Science or the Faculty of Engineering</td>
<td>6</td>
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24 course units from the Conservation and Biodiversity Option, the Global Change Option, or the Environmental Geochemistry and Ecotoxicology Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>GEO 2113</td>
<td>Paleontology</td>
<td>3</td>
</tr>
<tr>
<td>GEO 2334</td>
<td>Quaternary Geology and Climate Change</td>
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9 optional course units at the 3000 or 4000 level from the list of optional courses offered by the Faculty of Science, the Faculty of Engineering, the Department of Geography (GEG) or from one of the options in the Honours BSc in Environmental Science program

<table>
<thead>
<tr>
<th>Course</th>
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<th>Units</th>
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<tbody>
<tr>
<td>BIO 2135</td>
<td>Animal Form and Function</td>
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<tr>
<td>BIO 2137</td>
<td>Introduction to Plant Science: Biodiversity to Biotechnology</td>
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<tr>
<td>BIO 3115</td>
<td>Conservation Biology</td>
<td>3</td>
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<tr>
<td>ENV 3321</td>
<td>Human and Policy Dimensions of Environmental Change</td>
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3 course units from: Geography (GEG) or from one of the options in the Honours BSc in Environmental Science program

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>GEO 2304</td>
<td>Climatology</td>
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<tr>
<td>GEO 2334</td>
<td>Quaternary Geology and Climate Change</td>
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12 optional course units from: Geography (GEG) or from one of the options in the Honours BSc in Environmental Science program

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<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>BIO 4150</td>
<td>Spatial Ecology</td>
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<tr>
<td>ENV 3321</td>
<td>Human and Policy Dimensions of Environmental Change</td>
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9 Units

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<td>GEG 2304</td>
<td>Climatology</td>
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<tr>
<td>GEG 2334</td>
<td>Quaternary Geology and Climate Change</td>
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12 Units

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<td>GEG 3302</td>
<td>Natural Resource and Environmental Management</td>
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6 Units

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<tr>
<td>GEG 3302</td>
<td>Natural Resource and Environmental Management</td>
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6 Units

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<tbody>
<tr>
<td>GEG 3312</td>
<td>Advanced GIS</td>
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<tr>
<td>GEG 4100</td>
<td>Glaciology</td>
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3 Units

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<tr>
<td>GEG 4100</td>
<td>Glaciology</td>
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<tr>
<td>GEG 4101</td>
<td>Permafrost Environments</td>
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3 Units

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<th>Title</th>
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<tbody>
<tr>
<td>GEG 4112</td>
<td>Quaternary Paleoenvironments</td>
<td>3</td>
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<tr>
<td>GEG 4118</td>
<td>Environmental Impact Assessment</td>
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3 Units

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<tr>
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<th>Units</th>
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<tbody>
<tr>
<td>GEG 4129</td>
<td>Global Climate Change</td>
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<tr>
<td>GEO 4332</td>
<td>Permafrost Geomorphology</td>
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3 Units

Total: 120 Units
Environmental Geochemistry and Ecotoxicology Option

BIO 2110  Environmental Physiology  3 Units
BIO 4146  Ecotoxicology  3 Units
BIO 4156  Freshwater Ecology  3 Units
CHM 2313  Environmental Chemistry  3 Units
CHM 2354  Analytical Chemistry  3 Units
GEO 2163  Introduction to Mineralogy  3 Units

List of Optional Courses

Optional courses offered by the Faculty of Science, the Faculty of Engineering or the Department of Geography

BCH 2333  Introduction to Biochemistry  3 Units
BIO 3103  Field Biology  3 Units
BIO 3124  General Microbiology  3 Units
BIO 3126  General Microbiology Laboratory  3 Units
BIO 3154  Population and Community Ecology  3 Units
BIO 3158  Vertebrate Zoology  3 Units
BIO 3176  Animal Behaviour  3 Units
BIO 3333  Entomology  3 Units
BIO 3334  Invertebrate Zoology  3 Units
BIO 3924  Biology of Algae and Fungi  3 Units
BIO 4101  Pesticides and the Environment  3 Units
BIO 4162  Tropical Ecology  3 Units
BPS 3102  Principles of Toxicology and Pharmacology  3 Units
CHG 4381  Biochemical Engineering  3 Units
CHM 2120  Organic Chemistry II  3 Units
CHM 2123  Laboratory of Organic Chemistry II  3 Units
CHM 3120  Intermediate Organic Chemistry  3 Units
CHM 3126  Laboratory of Organic Chemistry  3 Units
CHM 4155  Polymer and Applied Chemistry  3 Units
CHM 4354  Principles of Instrumental Analysis  3 Units
CVG 2132  Fundamentals of Environmental Engineering  3 Units
DVM 2105  Introduction to International Development: Historical Perspectives  3 Units
DVM 3125  Environmental Policies, Natural Resources Management and Sustainable Development  3 Units
DVM 3135  Food Security and International Development  3 Units
GEG 3312  Advanced GIS  3 Units
GEG 4104  Methodological and Theoretical Approaches in Geography and Environmental Studies  3 Units
GEG 4118  Environmental Impact Assessment  3 Units
GEG 4120  GIS and Numerical Spatial Analysis  3 Units
GEG 4121  Applications of GIS in Natural and Social Sciences  3 Units
GEO 2166  Oceanography  3 Units
GEO 3382  Geochemistry  3 Units
GEO 4341  Advanced Physical Hydrogeology  3 Units
GEO 4342  Natural and Contaminant Groundwater Geochemistry  3 Units
GEO 4354  Quantitative Analysis in Geology  3 Units
GEO 4382  Advanced Geochemistry  3 Units
MAT 3377  Sampling and Surveys  3 Units