ENVIRONMENTAL BIOLOGY – SPECIALIZATION (SCIENCE) – BACHELOR OF SCIENCE (HONOURS)

Subject: Administered by the School of Environmental Studies in partnership with the Department of Biology.

Plan: Consists of 102.00 units as described below.

Program: The Plan, with sufficient electives to total 120.00 units, will lead to a Bachelor of Science (Honours) Degree.

<table>
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<tr>
<td>1. Core</td>
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<td>- CORE SCIENCE –</td>
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<tr>
<td></td>
<td>BIOL 102 Fundamentals of Biology: Molecular and Cell Biology</td>
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<td>BIOL 103 Fundamentals of Biology: Organisms to Ecosystems</td>
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<tr>
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<tr>
<td></td>
<td>GPHY 101 Human Geography</td>
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<td>GPHY 102 Physical Geography and Natural Resources</td>
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<td>D. Complete 3.00 units from the following:</td>
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<tr>
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<td>GEOL 104 The Dynamic Earth</td>
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<td>GEOL 107 History of Life</td>
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<td>E. Complete 6.00 units from the following:</td>
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<tr>
<td></td>
<td>MATH 111 Linear Algebra</td>
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<td>MATH 120 Differential and Integral Calculus</td>
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<td>MATH 121 Differential and Integral Calculus</td>
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<td>MATH 123 Differential and Integral Calculus I &amp; MATH 124 and Differential and Integral Calculus II</td>
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<td>- CORE ENVIRONMENTAL BIOLOGY –</td>
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<td>F. Complete 15.00 units from the following:</td>
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<tr>
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<td>BIOL 200 Diversity of Life</td>
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<tr>
<td></td>
<td>BIOL 205 Mendelian and Molecular Genetics</td>
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<td>BIOL 206 Evolutionary Genetics</td>
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<td>BIOL 212 Scientific Methods in Biology</td>
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<td>BIOL 243 Introduction to Statistics</td>
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<td>STAT 269 Statistics and Probability II</td>
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<td>G. Complete 3.00 units from the following:</td>
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<tr>
<td></td>
<td>BCHM 310 General Biochemistry</td>
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<td>BIOL 334 Comparative Biochemistry</td>
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<td>BIOL 339 Animal Physiology</td>
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<td>BIOL 341 Plant Physiology</td>
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<td>H. Complete 3.00 units from the following:</td>
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<td>BIOL 300 Ecology</td>
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<td>I. Complete 3.00 units from the following:</td>
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<tr>
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<td>BCHM 218 Molecular Biology</td>
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<td></td>
<td>BIOL 330 Cell Biology</td>
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<td>- CORE SOCIAL SCIENCES AND HUMANITIES –</td>
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<td>J. Complete the following:</td>
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<tr>
<td></td>
<td>ENSC 103 Environment and Sustainability</td>
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<td>K. Complete the following:</td>
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<td>ENSC 230 Principles of Sustainability</td>
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<td>ENSC 330 Applications of Sustainability</td>
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<td>2. Option</td>
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<td>A. Complete 3.00 units from the following:</td>
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<td>GEOL at any level</td>
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<td>B. Complete 3.00 units from the following course list:</td>
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<td>C. Complete 3.00 units from the following course list:</td>
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<td>D. Complete 3.00 units from the following:</td>
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<tr>
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<td>CHEM at the 200-level or above</td>
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<td>E. Complete 30.00 units from the following thesis and</td>
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<td>non-thesis options:</td>
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<td>i. Environmental Biology Research Thesis Option:</td>
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<td>a. Complete 12.00 units from the following:</td>
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<tr>
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<td>BIOL 537 Research in Biology</td>
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<td>ENSC 502 Research Project Sustainability</td>
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<td>b. Complete 6.00 units from the following:</td>
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<td></td>
<td>BIOL at the 300-level or above</td>
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<td>c. Complete 12.00 units from the following:</td>
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<td>BIOL at the 300-level or above</td>
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<td>ii. Environmental Biology Non-thesis Option:</td>
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<td>a. Complete 6.00 units from the following:</td>
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<tr>
<td></td>
<td>ENSC 430 Honours Projects in Environmental Sustainability</td>
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<td>b. Complete 12.00 units from the following:</td>
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<td>ENSC 501 Independent Environmental Study</td>
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<td>c. Complete 12.00 units from the following:</td>
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<td>BIOL at the 300-level or above</td>
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</table>
|          | queensu.ca/academic-calendar
Electives

Elective Courses 18.00

Total Units 120.00

3. Substitutions

A. ENSC 502 may be substituted for requirement 2.F.ii.a. and a further 6.00 units in electives and/or Plan requirements as approved by the Chair of Undergraduate Studies.

B. BCHM 310 (or the combination of BCHM 315 and BCHM 316) may be substituted for 3.00 units from (BIOL 334 or BIOL 339 or BIOL 341) with the remaining 6.00 units applied toward Option Course requirements in the degree program.

4. Notes

A. A maximum of 6.00 units from courses offered by other Faculties and Schools may be counted toward the program and/or Plan requirements. This includes courses in BMED, COMM, GLPH, HSCI, LAW, NURS, and courses in the Faculty of Engineering and Applied Science.

Environmental Biology Course Lists

The following lists contain courses offered through other Departments. In accordance with Academic Regulation 2.6 (Access to Classes), students do not have enrolment priority in all of these courses. Access to these courses may only be made available during the Open Enrolment period, and then only if space permits.

BIOL_Subs_B

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>APSC 400</td>
<td>Technology, Engineering &amp; Management (TEAM)</td>
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<tr>
<td>CHEE 400</td>
<td>Technology, Engineering &amp; Management (TEAM)</td>
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<td>CHEM at the 200-level and above</td>
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<tr>
<td>ENSC 301</td>
<td>Environmental Assessment</td>
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<tr>
<td>ENSC 307</td>
<td>Marine Environmental Issues</td>
<td>3.00</td>
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<td>ENSC 320</td>
<td>Wildlife Issues in a Changing World</td>
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<tr>
<td>ENSC 390</td>
<td>Sustainability</td>
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<tr>
<td>ENSC 425</td>
<td>Ecotoxicology</td>
<td>3.00</td>
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<td>Environmental Analysis Methods</td>
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<td>EPID 301</td>
<td>Principles of Epidemiology</td>
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<td>GEOL 337</td>
<td>Paleontology</td>
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<td>GEOL 466</td>
<td>Isotopes and the Environment</td>
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<td>GPHY 304</td>
<td>Northern and Arctic Environments</td>
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<tr>
<td>GPHY 306</td>
<td>Natural Environmental Change</td>
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GPHY 310 | Landscape Ecology                            | 3.00  |
GPHY 314 | Climate Change                               | 3.00  |
GPHY 318 | Advanced Biogeography                        | 3.00  |
GPHY 339 | Medical Geography                            | 3.00  |
PHAR 340 | Principles of General Pharmacology I         | 3.00  |
PHIL 301 | Bioethics                                    | 3.00  |
PSYC 236 | Introduction to Clinical Psychology          | 3.00  |
PSYC 271 | Brain and Behaviour I                        | 3.00  |
PSYC 370 | Brain and Behaviour II                       | 3.00  |
PSYC 470 | Advanced Topics in Behavioural Neuroscience  | 3.00  |
STAT 353 | Probability II                               | 3.00  |

ENSC_Specialization_Options_B

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<th>Code</th>
<th>Title</th>
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<tr>
<td>BIOL 335</td>
<td>Limnology and Aquatic Ecology</td>
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<td>ENSC 307</td>
<td>Marine Environmental Issues</td>
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<td>ENSC 201</td>
<td>Environmental Toxicology and Chemical Risks</td>
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<td>ENSC 301</td>
<td>Environmental Assessment</td>
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<td>ENSC 320</td>
<td>Wildlife Issues in a Changing World</td>
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<td>ENSC 407</td>
<td>Global Water Issues</td>
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<td>ENSC 425</td>
<td>Ecotoxicology</td>
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<td>ENSC 471</td>
<td>Environmental Analysis Methods</td>
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<td>ENSC 480</td>
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<td>GEOL 106</td>
<td>Environmental Geology and Natural Hazards</td>
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<td>GEOL 107</td>
<td>History of Life</td>
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<td>GPHY 207</td>
<td>Principles Of Biogeography</td>
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<td>GPHY 209</td>
<td>Weather and Climate</td>
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<td>GPHY 304</td>
<td>Northern and Arctic Environments</td>
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<td>GPHY 306</td>
<td>Natural Environmental Change</td>
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<tr>
<td>GPHY 312</td>
<td>Watershed Hydrology</td>
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<td>GPHY 314</td>
<td>Climate Change</td>
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<tr>
<td>GPHY 317</td>
<td>Soil, Environment, and Society</td>
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<td>GPHY 318</td>
<td>Advanced Biogeography</td>
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<td>GPHY 319</td>
<td>Contemporary Energy Resources</td>
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ENSC_Interdisciplinary_Humanities

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<td>DEVS 220</td>
<td>Introduction to Indigenous Studies</td>
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Environmental Biology – Specialization (Science) – Bachelor of Science (Honours)

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<td>Science and Society</td>
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<td>PHIL 293</td>
<td>Humans and the Natural World</td>
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<td>Development Ethics</td>
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<td>PHIL 493</td>
<td>Ethics and the Environment</td>
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<td>RELS 235</td>
<td>Religion and Environment</td>
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