

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

## EBIO-P-BSH

**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.

**Note:** Requirements for this program have been modified. Please consult the 2023-2024 (<https://queensu-ca-public.courseleaf.com/archive/2023-2024/>) *Calendar* for the previous requirements.

Code	Title	Units
<b>1. Core</b>		
– CORE SCIENCE –		
<b>A. Complete the following:</b>		
BIOL 102	Fundamentals of Biology: Molecular and Cell Biology	3.00
BIOL 103	Fundamentals of Biology: Organisms to Ecosystems	3.00
<b>B. Complete the following:</b>		
CHEM 112	General Chemistry	6.00
<b>C. Complete the following:</b>		
GPHY 101	Human Geography	3.00
GPHY 102	Physical Geography and Natural Resources	3.00
<b>D. Complete 3.00 units from the following:</b> <b>3.00</b>		
GEOL 104	The Dynamic Earth	
GEOL 107	History of Life	
<b>E. Complete 6.00 units from the following:</b> <b>6.00</b>		
MATH 120	Differential and Integral Calculus	
or		
MATH 121	Differential and Integral Calculus	
or		
MATH 123	Differential and Integral Calculus I & MATH 124 and Differential and Integral Calculus II	
– CORE ENVIRONMENTAL BIOLOGY –		
<b>F. Complete 15.00 units from the following:</b> <b>15.00</b>		
BIOL 200	Diversity of Life	
BIOL 205	Mendelian and Molecular Genetics	
BIOL 206	Evolutionary Genetics	
BIOL 212	Scientific Methods in Biology	
BIOL 243	Introduction to Statistics	
STAT 269	Statistics and Probability II	

## **G. Complete 3.00 units from the following:** **3.00**

BCHM 310 General Biochemistry

BIOL 334 Comparative Biochemistry

BIOL 339 Animal Physiology

BIOL 341 Plant Physiology

## **H. Complete 3.00 units from the following:** **3.00**

BIOL 300 Ecology

## **I. Complete 3.00 units from the following:** **3.00**

BCHM 218 Molecular Biology

BIOL 330 Cell Biology

## – CORE SOCIAL SCIENCES AND HUMANITIES –

## **J. Complete the following:** **3.00**

ENSC 103 Environment and Sustainability

## **K. Complete the following:**

ENSC 230 Principles of Sustainability 3.00

ENSC 330 Applications of Sustainability 3.00

## **2. Option**

## **A. Complete 3.00 units from the following:** **3.00**

GEOL at any level

## **B. Complete 3.00 units from the following course list:** **3.00**

ENSC\_Specialization\_Options\_B

## **C. Complete 3.00 units from the following course list:** **3.00**

ENSC\_Interdisciplinary\_Humanities

## **D. Complete 3.00 units from the following:** **3.00**

CHEM at the 200-level or above

## **E. Complete 30.00 units from the following thesis and non-thesis options:** **30.00**

### **i. Environmental Biology Research Thesis Option:**

#### **a. Complete 12.00 units from the following:**

BIOL 537 Research in Biology

ENSC 502 Research Project Sustainability

#### **b. Complete 6.00 units from the following:**

BIOL at the 300-level or above

BIOL\_Sub\_B

ENSC\_Specialization\_Options\_B

#### **c. Complete 12.00 units from the following:**

BIOL at the 300-level or above

### **ii. Environmental Biology Non-thesis Option:**

#### **a. Complete 6.00 units from the following:**

ENSC 430 Honours Projects in Environmental Sustainability

ENSC 501 Independent Environmental Study



**b. Complete 12.00 units from the following:**

BIOL at the 300-level or above

ENSC\_Specialization\_Options\_B

**c. Complete 12.00 units from the following:**

BIOL at the 300-level or above

**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 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 offered by Smith Engineering.

### 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\_Sub\_B

Code	Title	Units
<b>Biology Substitutions List B</b>		
APSC 400	Technology, Engineering & Management (TEAM) <sup>1</sup>	7.00
CHEE 400	Technology, Engineering & Management (TEAM) <sup>1</sup>	7.00
CHEM at the 200-level and above		
ENSC 301	Environmental Assessment	3.00
ENSC 307	Marine Environmental Issues	3.00
ENSC 320	Wildlife Issues in a Changing World	3.00
ENSC 390	Sustainability	3.00
ENSC 425	Ecotoxicology	3.00
EPID 301	Principles of Epidemiology	3.00

GEOL 337	Paleontology	3.00
GEOL 466	Isotopes and the Environment	3.00
GPHY 304	Northern and Arctic Environments	3.00
GPHY 310	Landscape Ecology	3.00
GPHY 314	Climate Change	3.00
GPHY 318	Advanced Biogeography	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

<sup>1</sup> Note that the unit weighting system in Smith Engineering differs from that in the Faculty of Arts and Science. Therefore, upon acceptance of any course from Smith Engineering, the unit weighting towards Arts and Science degree requirements shall be at the discretion of the Associate Dean (Academic). Usually, a one-term course shall count as 3.00 units and a two-term course as 6.00 units.

#### ENSC\_Specialization\_Options\_B

Code	Title	Units
<b>Options in the Environmental Science Specialization Plans, List B</b>		
BIOL 335	Limnology and Aquatic Ecology	3.00
ENSC 307	Marine Environmental Issues	3.00
ENSC 201	Environmental Toxicology and Chemical Risks	3.00
ENSC 301	Environmental Assessment	3.00
ENSC 320	Wildlife Issues in a Changing World	3.00
ENSC 407	Global Water Resources: Challenges and Opportunities	3.00
ENSC 425	Ecotoxicology	3.00
ENSC 480	Special Topics in Environmental Science	3.00
GEOL 106	Environmental Geology and Natural Hazards	3.00
GEOL 107	History of Life	3.00
GEOL 200	Oceanography	3.00
GPHY 207	Principles of Biogeography	3.00
GPHY 209	Weather and Climate	3.00
GPHY 304	Northern and Arctic Environments	3.00
GPHY 312	Watershed Hydrology	3.00
GPHY 314	Climate Change	3.00
GPHY 317	Soil, Environment, and Society	3.00



GPHY 318	Advanced Biogeography	3.00
GPHY 319	Contemporary Energy Resources	3.00

## ENSC\_Interdisciplinary\_Humanities

Code	Title	Units
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### Environmental Science/Studies Interdisciplinary

#### Humanities Options

CLST 214	Ancient Science	3.00
DEVS 220	Introduction to Indigenous Studies	3.00
DEVS 221	Indigenous Studies II - Resistance and Resurgence	3.00
ENGL 113	Reading for the Planet	3.00
ENGL 218	Introduction to Indigenous Literatures in Canada	3.00
ENGL 276	Literature and the Environment	3.00
PHIL 203	Science and Society	3.00
PHIL 293	Humans and the Natural World	3.00
PHIL 493	Ethics and the Environment	3.00
RELS 235	Religion and Environment	3.00