

ENVIRONMENTAL LIFE SCIENCES – SPECIALIZATION (SCIENCE) – BACHELOR OF SCIENCE (HONOURS)

ELSC-P-BSH

Subject: Administered by the School of Environmental Studies in partnership with the Department of Biomedical and Molecular Sciences.

Plan: Consists of 105.00 units as described below.

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

| Code | Title | Units |
|--|---|-------|
| 1. Core | | |
| – CORE SCIENCE – | | |
| A. Complete the following: | | |
| BIOL 102 | Fundamentals of Biology: Molecular and Cell Biology | 3.00 |
| BIOL 103 | Fundamentals of Biology: Organisms to Ecosystems | 3.00 |
| B. Complete the following: | | |
| CHEM 112 | General Chemistry | 6.00 |
| C. Complete the following: | | |
| GPHY 101 | Human Geography | 3.00 |
| GPHY 102 | Physical Geography and Natural Resources | 3.00 |
| D. Complete 3.00 units from the following: 3.00 | | |
| GEOL 104 | The Dynamic Earth | |
| GEOL 107 | History of Life | |
| E. Complete 3.00 units from the following: 3.00 | | |
| MATH at the 100-level | | |
| STAT at the 200- or 300-level | | |
| F. Complete 3.00 units from the following: 3.00 | | |
| STAT at the 200- or 300-level | | |
| – CORE ENVIRONMENTAL LIFE SCIENCE – | | |
| G. Complete 6.00 units from the following: 6.00 | | |
| PHYS 104 | Fundamental Physics | |
| or | | |
| PHYS 106 | General Physics | |
| or | | |
| PHYS 115 | Introduction to Physics I | |
| & PHYS 116 | and Introduction to Physics II | |
| or | | |
| PHYS 118 | Basic Physics | |
| H. Complete the following: | | |
| PHGY 215 | Principles of Mammalian Physiology I | 3.00 |
| PHGY 216 | Principles of Mammalian Physiology II | 3.00 |

I. Complete 3.00 units from the following: 3.00

MICR 221 Fundamental Microbiology

MICR 271 Introduction to Microbiology

J. Complete the following:

CHEM 281 General Organic Chemistry I (with Virtual Laboratory) 3.00

CHEM 282 General Organic Chemistry II 3.00

K. Complete the following:

BCHM 218 Molecular Biology 3.00

L. Complete the following:

BCHM 315 Proteins and Enzymes 3.00

BCHM 316 Metabolism 3.00

M. Complete the following:

PHAR 416 Xenobiotic Disposition and Toxicity 3.00

– CORE SOCIAL SCIENCES AND HUMANITIES –

N. Complete the following

ENSC 103 Environment and Sustainability 3.00

O. Complete the following:

ENSC 230 Principles of Sustainability 3.00

ENSC 330 Applications of Sustainability 3.00

P. Complete 6.00 units from the following: 6.00

ENSC 430 Honours Projects in Environmental Sustainability

ENSC 501 Independent Environmental Study

2. Option

A. Complete 3.00 units from the following: 3.00

GEOL at any level

B. Complete 3.00 units from the following: 3.00

BIOL 200 Diversity of Life

BIOL 212 Scientific Methods in Biology

ENSC_Specialization_Options_B

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

ENSC_Interdisciplinary_Humanities

D. Complete 21.00 units from the following course list: 21.00

ELSC_Options

Electives

Elective Courses 15.00

Total Units 120.00



3. Substitutions

A. ENSC 502 may be substituted for requirement **1.P.** and a further 6.00 units in electives and/or Plan requirements as approved by the Chair of Undergraduate Studies.

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 COMM, LAW, NURS, and courses offered by Smith Engineering.

Environmental Life Sciences 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.

ELSC_Options

| Code | Title | Units |
|--|--|-------|
| Options in the Environmental Life Sciences Plan | | |
| ANAT 215 | Principles of Human Morphology I | 3.00 |
| ANAT 216 | Principles of Human Morphology II | 3.00 |
| BCHM 482 | Proteomics and Metabolomics | 3.00 |
| BIOL 205 | Mendelian and Molecular Genetics | 3.00 |
| BCHM 370 | Genetics and Genomics | 3.00 |
| CANC 380 | Evolutionary Biology of Cancer | 3.00 |
| CHEE 342 | Environmental Biotechnology ¹ | 3.50 |
| CHEE 484 | Bioremediation ¹ | 3.50 |
| EPID 301 | Principles of Epidemiology | 3.00 |
| ENSC 501 | Independent Environmental Study | 6.00 |
| HLTH 237 | An Introduction to Drugs, Drug Use and Drug Dependence | 3.00 |
| MICR 320 | Microbes in Health and Disease | 3.00 |
| MICR 360 | Immunology | 3.00 |
| MICR 433 | Microbial Diversity | 3.00 |
| MICR 435 | Advanced Prokaryotic Structure and Function | 3.00 |
| MICR 436 | Microbial Genetics | 3.00 |
| MICR 450 | Principles of Molecular Virology | 3.00 |
| MICR 451 | Viral Pathogenesis | 3.00 |
| MICR 452 | Viral Infection and Immunity | 3.00 |
| PHAR 230 | Pharmacology for the Health Sciences | 3.00 |
| PHAR 340 | Principles of General Pharmacology I | 3.00 |
| PHAR 450 | Principles of General Pharmacology II | 3.00 |

| | | |
|----------|--|-------|
| REPD 416 | Biology of Reproduction | 3.00 |
| ANAT 499 | Research Project in Anatomy and Cell Biology | 12.00 |
| CANC 499 | Research Project in Cancer Biology and Genetics | 12.00 |
| EPID 499 | Research Project in Epidemiology | 12.00 |
| MICR 499 | Research Project in Microbiology and Immunology | 12.00 |
| NSCI 499 | Research Project in Neuroscience | 12.00 |
| PATH 499 | Research Project in Pathology | 12.00 |
| PHAR 499 | Research Project in Pharmacology and Toxicology | 12.00 |
| PHGY 499 | Research Project in Physiology | 12.00 |
| REPD 499 | Research Project in Reproduction and Development | 12.00 |

¹ 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_Interdisciplinary_Humanities

| Code | Title | Units |
|---|---|-------|
| 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 |

ENSC_Specialization_Options_B

| Code | Title | Units |
|--|-------------------------------|-------|
| Options in the Environmental Science Specialization Plans, List 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 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 |