

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

## ECHM-P-BSH

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

**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.

Code	Title	Units
<b>1. Core</b>		
– CORE SCIENCE –		
<b>A. Complete 3.00 units from the following:</b>		<b>3.00</b>
BIOL 103	Fundamentals of Biology: Organisms to Ecosystems	
BIOL 111	Ecology and the Environment	
<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 111	Linear Algebra	
MATH 120	Differential and Integral Calculus	
MATH 121	Differential and Integral Calculus	
MATH 123	Differential and Integral Calculus I	
& MATH 124 and Differential and Integral Calculus II		
– CORE ENVIRONMENTAL CHEMISTRY –		
<b>F. Complete 6.00 units from the following:</b>		<b>6.00</b>
PHYS 104	Fundamental Physics	
PHYS 106	General Physics	
PHYS 115	Introduction to Physics I	
& PHYS 116 and Introduction to Physics II		
<b>G. Complete the following:</b>		
CHEM 211	Main Group Chemistry	3.00
CHEM 212	Principles of Chemical Reactivity	3.00
CHEM 213	Introduction to Chemical Analysis	3.00
CHEM 221	Material, Solutions, and Interfaces	3.00
CHEM 222	Methods of Structure Determination	3.00
CHEM 223	Organic Reactions	3.00
<b>H. Complete the following:</b>		

CHEM 311	Mechanistic Organic Chemistry	3.00
CHEM 312	Transition Metal Chemistry	3.00
CHEM 323	Biological Chemistry	3.00
CHEM 326	Environmental and Green Chemistry	3.00

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

CHEM 321	Instrumental Chemical Analysis	
ENSC 471	Environmental Analysis Methods	

### J. Complete the following:

CHEM 397	Experimental Chemistry	6.00
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### K. Complete the following:

CHEM 497	Research Project	6.00
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– CORE SOCIAL SCIENCES AND HUMANITIES –

### L. Complete the following:

ENSC 103	Environment and Sustainability	3.00
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### M. Complete the following:

ENSC 230	Principles of Sustainability	3.00
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ENSC 330	Applications of Sustainability	3.00
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### N. Complete 6.00 units from the following: 6.00

ENSC 430	Honours Projects in Environmental Sustainability	
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ENSC 501	Independent Environmental Study	
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### 2. Option

#### A. Complete 3.00 units from the following course list: 3.00

ENSC_Specialization_Options_A	
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#### B. Complete 3.00 units from the following: 3.00

GEOL at any level	
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#### C. Complete 3.00 units from the following: 3.00

BIOL 200	Diversity of Life	
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BIOL 212	Scientific Methods in Biology	
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ENSC_Specialization_Options_B	
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#### D. Complete 3.00 units from the following course list: 3.00

ENSC_Interdisciplinary_Humanities	
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### Electives

Elective Courses	18.00
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<b>Total Units</b>	<b>120.00</b>
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## 3. Substitutions

A. ENSC 502 may be substituted for requirement **1.N.** 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 BMED, COMM, GLPH, HSCI, LAW, NURS, and courses in the Faculty of Engineering and Applied Science.

## Environmental Chemistry 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.

### ENSC\_Interdisciplinary\_Humanities

Code	Title	Units
<b>Environmental Science/Studies Interdisciplinary Humanities Options</b>		
CLST 214	Ancient Science	3.00
DEVS 220	Introduction to Indigenous Studies	3.00
DEVS 221	Indigenous Studies II - Resistance and Resurgence	3.00
PHIL 203	Science and Society	3.00
PHIL 293	Humans and the Natural World	3.00
PHIL 310	Development Ethics	3.00
PHIL 493	Ethics and the Environment	3.00
RELS 235	Religion and Environment	3.00

### ENSC\_Specialization\_Options\_A

Code	Title	Units
<b>Options in the Environmental Science Specialization Plans, List A</b>		
BIOL 102	Fundamentals of Biology: Molecular and Cell Biology	3.00
BIOL 103	Fundamentals of Biology: Organisms to Ecosystems	3.00
BIOL 335	Limnology and Aquatic Ecology	3.00
ENSC 301	Environmental Assessment	3.00
ENSC 320	Wildlife Issues in a Changing World	3.00
GPHY 318	Advanced Biogeography	3.00

### 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 Issues	3.00
ENSC 425	Ecotoxicology	3.00
ENSC 471	Environmental Analysis Methods	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 306	Natural Environmental Change	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