To be appended to Program Change Proposals for:

**BSc; Environment; Water Environments and Ecosystems - Biological**  
(bsp_environment_water_bio_revision_2008.doc)

**BSc (AgEnvSc); Environment; Water Environments and Ecosystems - Biological**  
(bsc_agenvsc_environment_watr_bio_revision_2008.doc)

Course list
Deleted courses shown as *strikeout*, added courses shown as *underlined italics*. Courses at Macdonald Campus are shown with (M). Numbers in *superscript* refer to comments in the rationale.

<table>
<thead>
<tr>
<th>Current Program (57 credits)</th>
<th>Proposed Program (60 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core: Required Courses</strong></td>
<td>18 credits</td>
</tr>
<tr>
<td>ENVR 200 (3) The Global Environment</td>
<td>ENVR 200 (3) The Global Environment</td>
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<tr>
<td>ENVR 201 (3) Society and Environment</td>
<td>ENVR 201 (3) Society and Environment</td>
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<tr>
<td>ENVR 202 (3) The Evolving Earth</td>
<td>ENVR 202 (3) The Evolving Earth</td>
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<tr>
<td>ENVR 203 (3) Knowledge, Ethics and Environment</td>
<td>ENVR 203 (3) Knowledge, Ethics and Environment</td>
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<tr>
<td>ENVR 301 (3) Environmental Research Design</td>
<td>ENVR 301 (3) Environmental Research Design</td>
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<tr>
<td>ENVR 400 (3) Environmental Thought</td>
<td>ENVR 400 (3) Environmental Thought</td>
</tr>
<tr>
<td><strong>Core: Complementary Course – Senior Research Project</strong></td>
<td>3 credits*</td>
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<tr>
<td>AGRI 519 (6) Sustainable Development Plans (in Barbados)</td>
<td>AGRI 519 (6) Sustainable Development Plans (in Barbados)</td>
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<tr>
<td>ENVR 401 (3) Environmental Research</td>
<td>ENVR 401 (3) Environmental Research</td>
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<tr>
<td>ENVR 451 (6) Research in Panama (in Panama)</td>
<td>ENVR 451 (6) Research in Panama (in Panama)</td>
</tr>
<tr>
<td>* Only 3 credits will be applied to the program; extra credits will count as electives.</td>
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</tr>
<tr>
<td><strong>Domain: Required Course</strong></td>
<td>3 credits</td>
</tr>
<tr>
<td>ATOC 215 (3) Oceans, Weather and Climate</td>
<td>ATOC 215 (3) Oceans, Weather and Climate</td>
</tr>
<tr>
<td><strong>Domain: Complementary Courses</strong></td>
<td>33 credits</td>
</tr>
<tr>
<td>6 credits chosen from:</td>
<td></td>
</tr>
<tr>
<td>BREE 217 (3) Hydrology and Water Resources (M) or GEOG 322 (3) Environmental Hydrology</td>
<td></td>
</tr>
<tr>
<td>WILD 205 (3) Principles of Ecology (M) or BIOL 308 (3) Ecological Dynamics</td>
<td></td>
</tr>
<tr>
<td>3 credits of math and statistics from:</td>
<td></td>
</tr>
<tr>
<td>AEMA 202 (3) Intermediate Calculus (M)</td>
<td></td>
</tr>
<tr>
<td>AEMA 310 (3) Statistical Methods 1 (or equivalent) (M)</td>
<td></td>
</tr>
<tr>
<td>MATH 203 (3) Principles of Statistics 1</td>
<td></td>
</tr>
<tr>
<td>MATH 222 (3) Calculus 3</td>
<td></td>
</tr>
<tr>
<td>3 credits chosen from:</td>
<td></td>
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<tr>
<td>BIOL 331 (3) Ecology/Behaviour Field Course (at Mont St. Hilaire)</td>
<td></td>
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<tr>
<td>GEOG 495 (3) Field Studies - Physical Geography (at Mont St. Hilaire)</td>
<td></td>
</tr>
<tr>
<td>GEOG 497 (3) Ecology of Coastal Waters (at Bay of Fundy)</td>
<td></td>
</tr>
<tr>
<td>or an equivalent aquatic field course</td>
<td></td>
</tr>
</tbody>
</table>

|  |  |
| **Domain: Required Courses** | 6 credits |
| 1 ATOC 214 (3) Introduction: Physics of the Atmosphere | ATOC 215 (3) Oceans, Weather and Climate |
| **Domain: Complementary Courses** | 33 credits |
| 6 credits chosen from: |  |
| BREE 217 (3) Hydrology and Water Resources (M) or GEOG 322 (3) Environmental Hydrology |  |
| 4 ENVB 305 (3) Population and Community Ecology (M) or BIOL 308 (3) Ecological Dynamics |  |
| 3 credits of math and statistics from: |  |
| AEMA 202 (3) Intermediate Calculus (M) |  |
| AEMA 310 (3) Statistical Methods 1 (or equivalent) (M) |  |
| MATH 203 (3) Principles of Statistics 1 |  |
| MATH 222 (3) Calculus 3 |  |
| 3 credits chosen from: |  |
| BIOL 331 (3) Ecology/Behaviour Field Course (at Mont St. Hilaire) |  |
| GEOG 495 (3) Field Studies - Physical Geography (at Mont St. Hilaire) |  |
| 2 GEOG 497 (3) Ecology of Coastal Waters (at Bay of Fundy) |  |
| 3 AGRI 452 (3) Water Resources in Barbados (in |  |
### 3 credits chosen from:

- AGEC 333 (3) Resource Economics *(M)*
- AGRI 413 (3) Globalization Issues of Change
- ANTH 339 (3) Ecological Anthropology
- ANTH 418 (3) Environment and Development
- ECON 225 (3) Economics of the Environment
- ECON 326 (3) Ecological Economics
- ENVR 465 (3) Environment and Social Change (at Bay of Fundy)
- GEOG 498 (3) Humans in Tropical Environments (in Panama)
- GEBIO 531 (3) Marine Biology
- GEBIO 553 (3) Neotropical Environments (in Panama)
- POLI 345 (3) International Organizations
- POLI 466 (3) Public Policy Analysis
- SOCI 565 (3) Social Change in Panama (in Panama)

### 18 credits, minimum, from lists A and B below.

#### List A, 9 to 12 credits chosen from:

- AGRI 435 (3) Soil and Water Quality Management *(M)*
- BIOL 432 (3) Limnology
- BIOL 441 (3) Biological Oceanography
- BIOL 442 (3) Marine Biology
- BIOL 465 (3) Conservation Biology
- BIOL 553 (3) Neotropical Environments (in Panama)
- BIOL 570 (3) Advanced Seminar in Evolution
- ENTO 535 (3) Aquatic Entomology *(M)*
- ENVR 540 (3) Ecology of Species Invasions or BIOL 540 (3) Ecology of Species Invasions
- GEBIO 305 (3) Soils and Environment or SOIL 210 (3) Principles of Soil Science *(M)*
- GEBIO 350 (3) Ecological Biogeography
- MICR 331 (3) Microbial Ecology *(M)*
- NRSC 315 (3) Science of Inland Waters *(M)*
- NRSC 333 (3) Physical and Biological Aspects of Pollution *(M)*
- PARA 410 (3) Environment and Infection *(M)*
- WILD 401 (4) Fisheries and Wildlife Management *(M)*

#### List B, 6 to 10 credits chosen from:

- ATOC 308 (3) Principles of Remote Sensing or GEOG 308 (3) Principles of Remote Sensing
- ATOC 219 (3) Introduction to Atmospheric Chemistry or CHEM 219 (3) Introduction to Atmospheric Chemistry
- ATOC 419 (3) Advances in Chemistry of Atmosphere or CHEM 419 (3) Advances in Chemistry of Atmosphere
- CHEM 257D1 (2) Introductory Analytical Chemistry
- CHEM 257D2 (2) Introductory Analytical Chemistry
- EPSC 220 (3) Principles of Geochemistry
- GEBIO 201 (3) Introductory Geo-Information Science
- GEBIO 372 (3) Running Water Environments
- GEBIO 522 (3) Advanced Environmental Hydrology

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### Barbados

- 3 credits chosen from:
  - AGEC 333 (3) Resource Economics *(M)*
  - AGRI 413 (3) Globalization Issues of Change
  - ANTH 339 (3) Ecological Anthropology
  - ANTH 418 (3) Environment and Development
  - ECON 225 (3) Economics of the Environment
  - ECON 326 (3) Ecological Economics
  - ENVR 465 (3) Environment and Social Change (at Bay of Fundy)

- 2 credits chosen from:
  - GEOG 404 (3) Environmental Management 2 (in Panama)
  - GEOG 498 (3) Humans in Tropical Environments (in Panama)
  - POLI 345 (3) International Organizations
  - POLI 466 (3) Public Policy Analysis
  - SOCI 565 (3) Social Change in Panama (in Panama)

- 2 credits chosen from:
  - URBP 520 (3) Globalization: Planning and Change (in Barbados)

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### List A, 9 to 12 credits chosen from:

- AGRI 435 (3) Soil and Water Quality Management *(M)*
- BIOL 432 (3) Limnology
- BIOL 441 (3) Biological Oceanography
- BIOL 442 (3) Marine Biology
- BIOL 465 (3) Conservation Biology
- BIOL 553 (3) Neotropical Environments (in Panama)
- BIOL 570 (3) Advanced Seminar in Evolution
- ENTO 535 (3) Aquatic Entomology *(M)*
- ENVR 540 (3) Ecology of Species Invasions or BIOL 540 (3) Ecology of Species Invasions
- GEBIO 305 (3) Soils and Environment or SOIL 210 (3) Principles of Soil Science *(M)*
- GEBIO 350 (3) Ecological Biogeography
- MICR 331 (3) Microbial Ecology *(M)*
- NRSC 315 (3) Science of Inland Waters *(M)*
- NRSC 333 (3) Physical and Biological Aspects of Pollution *(M)*
- PARA 410 (3) Environment and Infection *(M)*
- WILD 401 (4) Fisheries and Wildlife Management *(M)*

### List B, 6 to 10 credits chosen from:

- ATOC 308 (3) Principles of Remote Sensing or GEOG 308 (3) Principles of Remote Sensing
- ATOC 219 (3) Introduction to Atmospheric Chemistry or CHEM 219 (3) Introduction to Atmospheric Chemistry
- ATOC 419 (3) Advances in Chemistry of Atmosphere or CHEM 419 (3) Advances in Chemistry of Atmosphere
- CHEM 257D1 (2) Introductory Analytical Chemistry
- CHEM 257D2 (2) Introductory Analytical Chemistry
- EPSC 220 (3) Principles of Geochemistry
- GEBIO 201 (3) Introductory Geo-Information Science
- GEBIO 372 (3) Running Water Environments

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*Barbados* or an equivalent aquatic field course
Rationale:

1. ATOC 214 is regarded as a presumptive prerequisite for ATOC 215. Not having it places students at a disadvantage. The credit count for the program is increased by 3, to 60 credits total.

2. Retired courses. URBP 520 replaces AGRI 413 in the Barbados Field Semester.

3. As part of the Barbados Field Semester, AGRI 452 has a large field component, and should be in the field course section.

4. Course names and numbers changed associated with Faculty of Agricultural and Environmental Sciences program changes:
   - SOIL 210 (3) Principles of Soil Science – now: ENVB 210 (3) Biophysical Environment
   - NRSC 315 (3) Science of Inland Waters – now: ENVB 315 (3) Science of Inland Waters
   - NRSC 333 (3) Physical and Biological Aspects of Pollution – now: NRSC 333 (3) Bioremediation

Consultation:

From: Frederic Fabry [mailto:frederic.fabry@mcgill.ca]
Sent: Friday, February 22, 2008 12:32 PM
To: Peter Barry, Mr.
Subject: Re: Proposed changes to Water Domains in MSE

Hello Pete,

Historically, ATOC 214 was a pre-requisite to 215. And it still makes a lot of sense to take both together. We would _love_ to put back 214 as a prerequisite to 215. So I like your proposed change, as it would give us the freedom to do so. At this time, we have been living in a way that 215 does not require 214 as a prerequisite, but students having taken 214 get more out of 215 (and suffer a bit from the repetitions I have to go through for students not taking 214).

Hence, if you move the way you do, please confirm it to us, and we'll gladly reinstate 214 as a prereq for 215.

Cheers,
Frederic
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Frederic Fabry
Dept. Atmospheric & Oceanic Sciences and McGill School of Environment