## **Environmental Science**

Co-operative Education option is available in the Environmental Science program.

#### **Graduation Requirements**

In addition to the requirements listed below, students must satisfy:

- 1. the University regulations (see the Academic Regulations of the University section of this Calendar),
- 2. the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see Academic Regulations for the Bachelor of Science Degree ).

Students should consult with the Institute when planning their program and selecting courses.

#### **Course Categories**

The Environmental Science program description makes use of the following course categories:

#### **Approved Arts or Social Sciences**

(approved by the Environmental Science Institute)

#### **Approved Environmental Science Specialization**

(Approved by the Environmental Science Institute)

#### **Free Electives**

(see Academic Regulations for the Bachelor of Science Degree)

#### **Approved Science for Environmental Science**

Courses approved by the Institute of Environmental Science include the following that comply with the Academic Regulations for the Bachelor of Science degree.

- · Biochemistry
- Biology
- Chemistry
- · Computer Science
- · Earth Science
- · Environmental Science
- Geography
- · Geomatics
- · Mathematics and Statistics
- · Physics

#### **Prohibited and Restricted Courses**

Technology, Society, Environment Studies (TSES) courses are not accepted as Science Continuation courses in these programs, but may be used as Approved Environmental Science Specialization courses or as free electives.

#### **Program Requirements**

**Environmental Science** B.Sc. Honours (20.0 credits)

A. Credits Included in the Major CGPA (11.0 credits)

1. 5.0 credits from:

ENSC 1500 [0.5] Environmental Science Seminar

| ENSC 2000 [0.5] Environmental Science Field Methods ENSC 2001 [0.5] Earth Resources and Natural Hazards: Environmental Impacts ENSC 2002 [0.5] Methods and Analysis in Environmental Science ENSC 3000 [0.5] Environmental Science and Management: Theory and Practice ENSC 3001 [0.5] Professional Practice in Environmental Science ENSC 3509 [0.5] Group Research in Environmental Science ENSC 3509 [0.5] Project Planning for Environmental Research ENSC 4906 [1.0] Honours Research Project or ENSC 4901 [0.5] Directed Projects and 0.5 credit 4000-level Approved Science for Environmental Science 2. 1.0 credit in: BIOL 2600 [0.5] Introduction to Ecology CHEM 2800 [0.5] Foundations for Environmental Chemistry 3. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties 4. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 3205 [0.5] Physical Hydrogeology 5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding: ENSC 4001 [0.5] Environmental Science Practicum 6. 1.5 credits in Approved Science for Environmental Science Specialization B. Credits Not Included in the Major CGPA (9.0 credits) 8. 1.0 credit in: MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I   |
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| Hazards: Environmental Impacts  ENSC 2002 [0.5] Methods and Analysis in Environmental Science  ENSC 3000 [0.5] Environmental Science and Management: Theory and Practice  ENSC 3001 [0.5] Professional Practice in Environmental Science  ENSC 3509 [0.5] Group Research in Environmental Science  ENSC 3906 [0.5] Project Planning for Environmental Research  ENSC 4906 [1.0] Honours Research Project  or  ENSC 4901 [0.5] Directed Projects  and 0.5 credit 4000-level Approved Science for Environmental Science  2. 1.0 credit in:  BIOL 2600 [0.5] Introduction to Ecology  CHEM 2800 [0.5] Foundations for Environmental Chemistry  3. 0.5 credit from:  GEOG 3103 [0.5] Vatershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  4. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding:  ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science  Procidits in Approved Environmental Science  7. 1.5 credits in Approved Environmental Science  8. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I |
| Environmental Science  ENSC 3000 [0.5] Environmental Science and Management: Theory and Practice  ENSC 3001 [0.5] Professional Practice in Environmental Science  ENSC 3509 [0.5] Group Research in Environmental Science  ENSC 3906 [0.5] Project Planning for Environmental Research  ENSC 4906 [1.0] Honours Research Project  or  ENSC 4901 [0.5] Directed Projects  and 0.5 credit 4000-level Approved Science for Environmental Science  2. 1.0 credit in:  BIOL 2600 [0.5] Introduction to Ecology  CHEM 2800 [0.5] Foundations for Environmental Chemistry  3. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  4. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Science Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding:  ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science  Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I   |
| Management: Theory and Practice  ENSC 3001 [0.5] Professional Practice in Environmental Science  ENSC 3509 [0.5] Group Research in Environmental Science  ENSC 3906 [0.5] Project Planning for Environmental Research  ENSC 4906 [1.0] Honours Research Project  or  ENSC 4901 [0.5] Directed Projects  and 0.5 credit 4000-level Approved Science for Environmental Science  2. 1.0 credit in:  BIOL 2600 [0.5] Introduction to Ecology  CHEM 2800 [0.5] Foundations for Environmental Chemistry  3. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  4. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding:  ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science  Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I   |
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| Research  ENSC 4906 [1.0] Honours Research Project  or  ENSC 4901 [0.5] Directed Projects and 0.5 credit 4000-level Approved Science for Environmental Science  2. 1.0 credit in:  BIOL 2600 [0.5] Introduction to Ecology CHEM 2800 [0.5] Foundations for Environmental Chemistry  3. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  4. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding: ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I   |
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| Chemistry  3. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  4. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth  Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental  Science at the 4000-level excluding:  ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental  Science  7. 1.5 credits in Approved Environmental Science  Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I  |
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| GEOG 3108 [0.5] Soil Properties  4. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding:  ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science  8. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I   |
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| Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding: ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I   |
| ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding:  ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I  |
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| Science at the 4000-level excluding:  ENSC 4001 [0.5] Environmental Science Practicum  6. 1.5 credits in Approved Science for Environmental Science  7. 1.5 credits in Approved Environmental Science Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I   |
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| Science 7. 1.5 credits in Approved Environmental Science 1. Specialization B. Credits Not Included in the Major CGPA (9.0 credits) 8. 1.0 credit in: 1. MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I  |
| Specialization  B. Credits Not Included in the Major CGPA (9.0 credits)  8. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I  STAT 2507 [0.5] Introduction to Statistical Modeling I   |
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| STAT 2507 [0.5] Introduction to Statistical Modeling I  |
|   |
| 9. 3.0 credits in: 3.   |
| BIOL 1103 [0.5] Foundations of Biology I  |
| BIOL 1104 [0.5] Foundations of Biology II   |
| CHEM 1001 [0.5] General Chemistry I   |
| CHEM 1002 [0.5] General Chemistry II  |
| ERTH 1006 [0.5] Exploring Planet Earth  |
| GEOG 2013 [0.5] Weather and Water   |
| 10. 0.5 credit in: 0.   |
| PHIL 2380 [0.5] Introduction to Environmental   |
| Ethics  |
| 11. 0.5 credit in: 0.   |
| CHEM 2302 [0.5] Analytical Chemistry I  12. 0.5 credit from:  |
|   |
| BIOL 2107 [0.5] Fundamentals of Genetics  |

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| 13. 0.5 credit from:                 | Metanchadilli                           | 0.5  | BIOL 2201 [0.5]        | Cell Biology and Biochemistry          |   |
| GEOG 3103 [0.5]                      | Watershed Hydrology                     |      | b. 0.5 credit from:    |  |   |
| GEOG 3104 [0.5]                      | Principles of Biogeography              |      | BIOL 2303 [0.5]        | Microbiology                           |   |
| GEOG 3105 [0.5]                      | Climate and Atmospheric Change          |      | BIOL 3004 [0.5]        | Insect Diversity                       |   |
| GEOG 3108 [0.5]                      | Soil Properties                         |      | BIOL 3102 [0.5]        | Mycology                               |   |
| 14. 0.5 credit from:                 |   | 0.5  | BIOL 3205 [0.5]        | Plant Biochemistry and Physiology      |   |
| ERTH 2402 [0.5]                      | Climate Change: An Earth                |      | c. 2.0 credits in a fo | ocus:                                  |   |
|                                      | Sciences Perspective                    |      | Ecology focus:         |  |   |
| ERTH 2403 [0.5]                      | Introduction to Oceanography            |      | i) 0.5 credit in:      |  |   |
| ERTH 3205 [0.5]                      | Physical Hydrogeology                   |      | BIOL 3604 [0.5]        | Analysis of Ecological                 |   |
|                                      | proved Arts and Social Sciences         | 1.5  |                        | Relationships                          |   |
| 16. 1.0 credit in free               | electives.                              | 1.0  | ii) 1.0 credit from:   |  |   |
| Total Credits                        |   | 20.0 | BIOL 3601 [0.5]        | Ecosystems and Environmental Change    |   |
|                                      | cience with Concentration in            |      | BIOL 3602 [0.5]        | Conservation Biology                   |   |
| Biology                              |   |      | BIOL 3605 [0.5]        | Field Course I                         |   |
| B.Sc. Honours (2                     | 20.0 credits)                           |      | BIOL 3606 [0.5]        | Field Course II                        |   |
| A. Credits Included i                | n the Major CGPA (11.5 credits)         |      | iii) 0.5 credit BIOL   | at the 4000-level                      |   |
| 1. 5.0 credits from:                 |   | 5.0  | or                     |  |   |
| ENSC 1500 [0.5]                      | Environmental Science Seminar           |      | Microbiology/genet     | tics focus:                            |   |
| ENSC 2000 [0.5]                      | Environmental Science Field             |      | i) 1.0 credit from:    |  |   |
|                                      | Methods                                 |      | BIOL 3104 [0.5]        | Molecular Genetics                     |   |
| ENSC 2001 [0.5]                      | Earth Resources and Natural             |      | BIOL 4103 [0.5]        | Population Genetics                    |   |
|                                      | Hazards: Environmental Impacts          |      | ii) 0.5 credit from:   | ·                                      |   |
| ENSC 2002 [0.5]                      | Methods and Analysis in                 |      | BIOL 2303 [0.5]        | Microbiology                           |   |
|                                      | Environmental Science                   |      | BIOL 3102 [0.5]        | Mycology                               |   |
| ENSC 3000 [0.5]                      | Environmental Science and               |      | BIOL 3303 [0.5]        | Experimental Microbiology              |   |
| =1100 0001 F0 =1                     | Management: Theory and Practice         |      | iii) 0.5 credit BIOL   | ,                                      |   |
| ENSC 3001 [0.5]                      | Professional Practice in                |      | ,                      | ded in the Major CGPA (8.5 credits)    |   |
| ENCC 3500 [0.5]                      | Environmental Science                   |      | 8. 1.0 credit in:      | ded in the major ool A (0.0 credits)   | 1 |
| ENSC 3509 [0.5]                      | Group Research in Environmental Science |      | MATH 1007 [0.5]        | Elementary Calculus I                  | ' |
| ENSC 3906 [0.5]                      | Project Planning for Environmental      |      | STAT 2507 [0.5]        | Introduction to Statistical Modeling I |   |
| LN3C 3900 [0.3]                      | Research                                |      | 9. 3.0 credits in:     | introduction to Statistical Modeling i | 3 |
| ENSC 4906 [1.0]                      | Honours Research Project                |      |                        | Coundations of Dialogue                | 3 |
| Or                                   | Tionodio resocatori rejest              |      | BIOL 1103 [0.5]        | Foundations of Biology I               |   |
|                                      | nd 0.5 credit 4000-level Approved       |      | BIOL 1104 [0.5]        | Foundations of Biology II              |   |
| Science for Enviror                  |   |      | CHEM 1001 [0.5]        | General Chemistry I                    |   |
| 2. 1.0 credit in:                    |   | 1.0  | CHEM 1002 [0.5]        | General Chemistry II                   |   |
| BIOL 2600 [0.5]                      | Introduction to Ecology                 |      | GEOG 2013 [0.5]        | Weather and Water                      |   |
| CHEM 2800 [0.5]                      | Foundations for Environmental           |      | ERTH 1006 [0.5]        | Exploring Planet Earth                 |   |
| 0 2000 [0.0]                         | Chemistry                               |      | 10. 0.5 credit in:     |  | 0 |
| 3. 0.5 credit from:                  | ·                                       | 0.5  | PHIL 2380 [0.5]        | Introduction to Environmental          |   |
| GEOG 3103 [0.5]                      | Watershed Hydrology                     |      | 44 0 5                 | Ethics                                 | _ |
| GEOG 3104 [0.5]                      | Principles of Biogeography              |      | 11. 0.5 credit in:     | Analytical Chamistry                   | 0 |
| GEOG 3105 [0.5]                      | Climate and Atmospheric Change          |      | CHEM 2302 [0.5]        | Analytical Chemistry I                 | _ |
| GEOG 3108 [0.5]                      | Soil Properties                         |      | 12. 0.5 credit in:     | For demonstral (O)                     | 0 |
| 4. 0.5 credit from:                  |   | 0.5  | BIOL 2107 [0.5]        | Fundamentals of Genetics               |   |
| ERTH 2402 [0.5]                      | Climate Change: An Earth                | 3.0  | 13. 0.5 credit from:   |  | 0 |
| 2 102 [0.0]                          | Sciences Perspective                    |      | GEOG 3103 [0.5]        | Watershed Hydrology                    |   |
| ERTH 2403 [0.5]                      | Introduction to Oceanography            |      | GEOG 3104 [0.5]        | Principles of Biogeography             |   |
| ERTH 3205 [0.5]                      | Physical Hydrogeology                   |      | GEOG 3105 [0.5]        | Climate and Atmospheric Change         |   |
|                                      | oved Science for Environmental          | 0.5  | GEOG 3108 [0.5]        | Soil Properties                        |   |
| Science at the 4000-le               |   | 3.0  | 14. 0.5 credit from:   |  | C |
| ENSC 4001 [0.5]                      | Environmental Science Practicum         |      | ERTH 2402 [0.5]        | Climate Change: An Earth               |   |
| 6. 4.0 credits in:                   |   | 4.0  |                        | Sciences Perspective                   |   |
| o. o. o                              |   | 1.0  | ERTH 2403 [0.5]        | Introduction to Oceanography           |   |
| a 1.5 credit in:                     |   |      |                        |  |   |
| a. 1.5 credit in:<br>BIOL 2001 [0.5] | Animals: Form and Function              |      | ERTH 3205 [0.5]        | Physical Hydrogeology                  |   |

| 16. 0.5 credit in free   | electives.  | 0.5  | CHEM 3503 [0.5]  | Inorganic Chemistry I  |    |
|--|---|------|--|--|----|
| Total Credits 2  |   | 20.0 | CHEM 3504 [0.5]  | Inorganic Chemistry II   |    |
| <b>Environmental Science with Concentration in</b>   |   | 1    | ii) 0.5 credit in CHE  | M at the 4000-level  |    |
| Chemistry  |   | -    | 7. 0.5 credit in:  |  | 0  |
| B.Sc. Honours (2   | 20.0 credits)   |      | CHEM 4800 [0.5]  | Atmospheric Chemistry  |    |
| •  | ,   |      |  | ed in the Major CGPA (8.0 credits)   |    |
|  | in the Major CGPA (12.0 credits)  | 5.0  | 8. 1.5 credit in:  |  | 1  |
| 1. 5.0 credits from:   | Facility and the Color of Constitution  | 5.0  | MATH 1007 [0.5]  | Elementary Calculus I  |    |
| ENSC 1500 [0.5]  | Environmental Science Seminar   |      | MATH 1107 [0.5]  | Linear Algebra I   |    |
| ENSC 2000 [0.5]  | Environmental Science Field Methods   |      | STAT 2507 [0.5]  | Introduction to Statistical Modeling I   |    |
| ENSC 2001 [0.5]  | Earth Resources and Natural   |      | 9. 3.0 credits in:   |  | 3  |
| LN00 2001 [0.0]  | Hazards: Environmental Impacts  |      | BIOL 1103 [0.5]  | Foundations of Biology I   |    |
| ENSC 2002 [0.5]  | Methods and Analysis in   |      | BIOL 1104 [0.5]  | Foundations of Biology II  |    |
|  | Environmental Science   |      | CHEM 1001 [0.5]  | General Chemistry I  |    |
| ENSC 3000 [0.5]  | Environmental Science and   |      | CHEM 1002 [0.5]  | General Chemistry II   |    |
|  | Management: Theory and Practice   |      | ERTH 1006 [0.5]  | Exploring Planet Earth   |    |
| ENSC 3001 [0.5]  | Professional Practice in  |      | GEOG 2013 [0.5]  | Weather and Water  |    |
|  | Environmental Science   |      | 10. 0.5 credit in:   |  | 0  |
| ENSC 3509 [0.5]  | Group Research in Environmental Science   |      | PHIL 2380 [0.5]  | Introduction to Environmental Ethics   |    |
| ENSC 3906 [0.5]  | Project Planning for Environmental  |      | 11. 0.5 credit in:   |  | 0  |
| ENIOG 4000 [4 0]   | Research  |      | CHEM 2302 [0.5]  | Analytical Chemistry I   |    |
| ENSC 4906 [1.0]  | Honours Research Project  |      | 12. 0.5 credit from:   |  | 0  |
| Or   | 10.5  |      | BIOL 2107 [0.5]  | Fundamentals of Genetics   |    |
| Science for Enviror  | nd 0.5 credit 4000-level Approved   |      | or BIOL 2201 [0.5]   | Cell Biology and Biochemistry  |    |
| 2. 1.0 credit in:  | illerital Science   | 1.0  | 13. 0.5 credit from:   |  | 0  |
| BIOL 2600 [0.5]  | Introduction to Ecology   | 1.0  | GEOG 3103 [0.5]  | Watershed Hydrology  |    |
|  | Foundations for Environmental   |      | GEOG 3104 [0.5]  | Principles of Biogeography   |    |
| CHEM 2800 [0.5]  | Chemistry   |      | GEOG 3105 [0.5]  | Climate and Atmospheric Change   |    |
| 3. 0.5 credit from:  | Shormony  | 0.5  | GEOG 3108 [0.5]  | Soil Properties  |    |
| GEOG 3103 [0.5]  | Watershed Hydrology   | 0.0  | 14. 1.5 credits in App   | proved Arts and Social Sciences  | 1  |
| GEOG 3104 [0.5]  | Principles of Biogeography  |      | Total Credits  |  | 20 |
| GEOG 3105 [0.5]  | Climate and Atmospheric Change  |      | Environmental S  | cience with Concentration in   |    |
| GEOG 3108 [0.5]  | Soil Properties   |      | Earth Sciences   | cience with concentration in   | •  |
| 4. 0.5 credit from:  | Con i roportico   | 0.5  | B.Sc. Honours (2   | 00 0 credite)  |    |
| ERTH 2402 [0.5]  | Climate Change: An Earth  | 0.0  | •  | •  |    |
| ERTH 2403 [0.5]  | Sciences Perspective Introduction to Oceanography   |      |  | n the Major CGPA (11.5 credits)  | _  |
| 2 2 400 [0.0]  |   |      | 1. 5.0 credits from:   |  | 5  |
| FRTH 3205 IO 51  |   |      | ENSC 1500 [0.5]  | Environmental Science Seminar  | 5  |
| ERTH 3205 [0.5] 5 3 0 credits in:  | Physical Hydrogeology   | 3.0  |  | Environmental Science Field  | 5  |
| 5. 3.0 credits in:   | Physical Hydrogeology   | 3.0  | ENSC 1500 [0.5]<br>ENSC 2000 [0.5]   | Environmental Science Field<br>Methods   | 5  |
| 5. 3.0 credits in:<br>CHEM 2203 [0.5]  | Physical Hydrogeology Organic Chemistry I   | 3.0  | ENSC 1500 [0.5]  | Environmental Science Field<br>Methods<br>Earth Resources and Natural  | 5  |
| 5. 3.0 credits in:<br>CHEM 2203 [0.5]<br>CHEM 2204 [0.5]   | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  | 3.0  | ENSC 1500 [0.5]<br>ENSC 2000 [0.5]<br>ENSC 2001 [0.5]  | Environmental Science Field<br>Methods<br>Earth Resources and Natural<br>Hazards: Environmental Impacts  | 5  |
| 5. 3.0 credits in:<br>CHEM 2203 [0.5]  | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and  | 3.0  | ENSC 1500 [0.5]<br>ENSC 2000 [0.5]<br>ENSC 2001 [0.5]<br>ENSC 2002 [0.5]   | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science   | 5  |
| 5. 3.0 credits in:<br>CHEM 2203 [0.5]<br>CHEM 2204 [0.5]<br>CHEM 2303 [0.5]  | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and Bioinorganic Chemistry  Advanced Analytical Chemistry  | 3.0  | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5]  | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice   | 5  |
| 5. 3.0 credits in:<br>CHEM 2203 [0.5]<br>CHEM 2204 [0.5]<br>CHEM 2303 [0.5]<br>CHEM 2501 [0.5]   | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and Bioinorganic Chemistry  Advanced Analytical Chemistry  Laboratory  The Chemistry of Environmental  | 3.0  | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5] ENSC 3001 [0.5]  | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in Environmental Science  | 5  |
| 5. 3.0 credits in:  CHEM 2203 [0.5]  CHEM 2204 [0.5]  CHEM 2303 [0.5]  CHEM 2501 [0.5]  CHEM 3305 [0.5]  CHEM 3800 [0.5]   | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and Bioinorganic Chemistry  Advanced Analytical Chemistry  Laboratory  | 3.0  | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5]  | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in  | 5  |
| 5. 3.0 credits in: CHEM 2203 [0.5] CHEM 2204 [0.5] CHEM 2303 [0.5] CHEM 2501 [0.5] CHEM 3305 [0.5] CHEM 3800 [0.5] CHEM 3800 [0.5]   | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and Bioinorganic Chemistry  Advanced Analytical Chemistry  Laboratory  The Chemistry of Environmental  |      | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5] ENSC 3001 [0.5] ENSC 3509 [0.5]                                    | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in Environmental Science Group Research in Environmental Science  | 5  |
| 5. 3.0 credits in: CHEM 2203 [0.5] CHEM 2204 [0.5] CHEM 2303 [0.5] CHEM 2501 [0.5] CHEM 3305 [0.5] CHEM 3800 [0.5] CHEM 3800 [0.5] 6. 1.5 credits in: Organic focus:   | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and Bioinorganic Chemistry  Advanced Analytical Chemistry  Laboratory  The Chemistry of Environmental  Pollutants                              |      | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5] ENSC 3001 [0.5]  | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in Environmental Science Group Research in Environmental  | 5  |
| 5. 3.0 credits in: CHEM 2203 [0.5] CHEM 2204 [0.5] CHEM 2303 [0.5] CHEM 2501 [0.5] CHEM 3305 [0.5] CHEM 3800 [0.5] CHEM 3800 [0.5] 6. 1.5 credits in: Organic focus: CHEM 3201 [0.5]                                   | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and Bioinorganic Chemistry  Advanced Analytical Chemistry  Laboratory  The Chemistry of Environmental Pollutants  Advanced Organic Chemistry I |      | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5] ENSC 3001 [0.5] ENSC 3509 [0.5]                                    | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in Environmental Science Group Research in Environmental Science Project Planning for Environmental                                   | 5  |
| 5. 3.0 credits in: CHEM 2203 [0.5] CHEM 2204 [0.5] CHEM 2303 [0.5] CHEM 2501 [0.5] CHEM 3305 [0.5] CHEM 3800 [0.5] CHEM 3800 [0.5] 6. 1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5]                   | Physical Hydrogeology  Organic Chemistry I Organic Chemistry II Analytical Chemistry II Introduction to Inorganic and Bioinorganic Chemistry Advanced Analytical Chemistry Laboratory The Chemistry of Environmental Pollutants  Advanced Organic Chemistry II      |      | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5] ENSC 3001 [0.5] ENSC 3509 [0.5] ENSC 3906 [0.5]                    | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in Environmental Science Group Research in Environmental Science Project Planning for Environmental Research                          | 5  |
| 5. 3.0 credits in: CHEM 2203 [0.5] CHEM 2204 [0.5] CHEM 2303 [0.5] CHEM 2501 [0.5] CHEM 3305 [0.5] CHEM 3800 [0.5]  CHEM 3800 [0.5]  6. 1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] | Physical Hydrogeology  Organic Chemistry I  Organic Chemistry II  Analytical Chemistry II  Introduction to Inorganic and Bioinorganic Chemistry  Advanced Analytical Chemistry  Laboratory  The Chemistry of Environmental Pollutants  Advanced Organic Chemistry I |      | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5] ENSC 3001 [0.5] ENSC 3509 [0.5] ENSC 3906 [0.5] ENSC 4906 [1.0] Or | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in Environmental Science Group Research in Environmental Science Project Planning for Environmental Research                          | 5  |
| 5. 3.0 credits in: CHEM 2203 [0.5] CHEM 2204 [0.5] CHEM 2303 [0.5] CHEM 2501 [0.5] CHEM 3305 [0.5] CHEM 3800 [0.5]  6. 1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5]                                  | Physical Hydrogeology  Organic Chemistry I Organic Chemistry II Analytical Chemistry II Introduction to Inorganic and Bioinorganic Chemistry Advanced Analytical Chemistry Laboratory The Chemistry of Environmental Pollutants  Advanced Organic Chemistry II      |      | ENSC 1500 [0.5] ENSC 2000 [0.5] ENSC 2001 [0.5] ENSC 2002 [0.5] ENSC 3000 [0.5] ENSC 3001 [0.5] ENSC 3509 [0.5] ENSC 3906 [0.5] ENSC 4906 [1.0] Or | Environmental Science Field Methods Earth Resources and Natural Hazards: Environmental Impacts Methods and Analysis in Environmental Science Environmental Science and Management: Theory and Practice Professional Practice in Environmental Science Group Research in Environmental Science Project Planning for Environmental Research Honours Research Project | 5  |

| CHEM 2800 [0.5] Foundations for Environmental Chemistry  3. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  4. 3.0 credits in:  ERTH 2102 [0.5] Mineralogy to Petrology ERTH 2104 [0.5] Igneous Systems, Geochemistry and Processes ERTH 2105 [0.5] Geodynamics ERTH 2314 [0.5] Geology and Map Interpretation ERTH 2305 [0.5] Geology and Map Interpretation ERTH 3205 [0.5] Paleontology ERTH 3205 [0.5] Paleontology ERTH 3206 [0.5] Geochemistry and Geochronology ERTH 3206 [0.5] Geochemistry and Geochronology ERTH 3206 [0.5] Oceanography: Its Modern and Geologic Records ERTH 3207 [0.5] Metamorphic Petrology and Processes ERTH 3405 [0.5] Geophysical Methods ERTH 3806 [0.5] Structural Geology  6. 1.0 credit in ERTH at the 4000-level 1.0  B. Credits not included in the Major CGPA (8.5 credits)  7. 1.0 credit in:  MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I  8. 3.0 credits in: BIOL 1103 [0.5] Foundations of Biology I BIOL 1104 [0.5] General Chemistry I CHEM 1001 [0.5] General Chemistry I ERTH 1006 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Watershed Hydrology GEOG 3108 [0.5] Uvatershed Hydrology GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Field Geology I  14. 1.5 credit in: ERTH 2402 [0.5] Field Geology I  14. 1.5 credit in: CHEM 2502 [0.5] Field Geology I  Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Field Geology I  14. 1.5 credit in: CHEM 2502 [0.5] Field Geology I  Climate Change: An Earth Sciences Perspective ERTH 2402 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  15. 0.5 credit in: C.5  |                | DIOI 2600 [0 E]  | Introduction to Ecology  |                   |
|--|----------------|--|--|-------------------|
| Chemistry  |                | BIOL 2600 [0.5]  | Introduction to Ecology  |                   |
| GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  4. 3.0 credits in: ERTH 2102 [0.5] Mineralogy to Petrology ERTH 2104 [0.5] Igneous Systems, Geochemistry and Processes ERTH 2314 [0.5] Geodynamics ERTH 2314 [0.5] Sedimentation and Stratigraphy ERTH 2305 [0.5] Physical Hydrogeology  5. 1.0 credit from: ERTH 3205 [0.5] Paleontology ERTH 3003 [0.5] Geochemistry and Geochronology ERTH 3204 [0.5] Mineral Deposits ERTH 3206 [0.5] Oceanography: Its Modern and Geologic Records ERTH 3207 [0.5] Metamorphic Petrology and Processes ERTH 3405 [0.5] Geophysical Methods ERTH 3806 [0.5] Structural Geology  6. 1.0 credit in ERTH at the 4000-level  7. 1.0 credit in: MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I S. 3.0 credits in: BIOL 1103 [0.5] Foundations of Biology I CHEM 1001 [0.5] General Chemistry I ERTH 1008 [0.5] General Chemistry I ERTH 1008 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I 11. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2402 [0.5] Field Geology I 1.1 1.5 credits in Approved Arts or Social Sciences  1.5  |                | CHEM 2800 [0.5]  |  |                   |
| GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  4. 3.0 credits in: ERTH 2102 [0.5] Mineralogy to Petrology ERTH 2104 [0.5] Igneous Systems, Geochemistry and Processes ERTH 2105 [0.5] Geodynamics ERTH 2406 [0.5] Geology and Map Interpretation ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit from: ERTH 3212 [0.5] Paleontology ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit from: ERTH 3206 [0.5] Oceanography: Its Modern and Geologic Records ERTH 3207 [0.5] Metamorphic Petrology and Processes ERTH 3405 [0.5] Geophysical Methods ERTH 3806 [0.5] Structural Geology  6. 1.0 credit in ERTH at the 4000-level 1.0  B. Credits not included in the Major CGPA (8.5 credits)  7. 1.0 credit in: 1.0 MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I  8. 3.0 credits in: 3.0 BIOL 1103 [0.5] Foundations of Biology II BIOL 1104 [0.5] Foundations of Biology II CHEM 1001 [0.5] General Chemistry I CHEM 1001 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I 11. 0.5 credit in: CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3108 [0.5] Principles of Biogeography GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2402 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | 3.             | 0.5 credit from:   |  | 0.5               |
| GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  4. 3.0 credits in:  ERTH 2102 [0.5] Mineralogy to Petrology ERTH 2104 [0.5] Igneous Systems, Geochemistry and Processes ERTH 2105 [0.5] Geodynamics ERTH 2314 [0.5] Sedimentation and Stratigraphy ERTH 2406 [0.5] Geology and Map Interpretation ERTH 3205 [0.5] Physical Hydrogeology  5. 1.0 credit from: ERTH 3003 [0.5] Geochemistry and Geochronology ERTH 3003 [0.5] Geochemistry and Geochronology ERTH 3204 [0.5] Mineral Deposits ERTH 3206 [0.5] Oceanography: Its Modern and Geologic Records ERTH 3207 [0.5] Metamorphic Petrology and Processes ERTH 3405 [0.5] Geophysical Methods ERTH 3806 [0.5] Structural Geology  6. 1.0 credit in ERTH at the 4000-level 1.0  B. Credits not included in the Major CGPA (8.5 credits)  7. 1.0 credit in: MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I  8. 3.0 credits in: BIOL 1103 [0.5] Foundations of Biology I CHEM 1001 [0.5] General Chemistry I CHEM 1001 [0.5] General Chemistry I ERTH 1006 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I  11. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences  1.5  |                | GEOG 3103 [0.5]  | Watershed Hydrology  |                   |
| ### State  |                | GEOG 3104 [0.5]  | Principles of Biogeography   |                   |
| 4. 3.0 credits in:       8.0         ERTH 2102 [0.5]       Mineralogy to Petrology         ERTH 2104 [0.5]       Igneous Systems, Geochemistry and Processes         ERTH 2105 [0.5]       Geodynamics         ERTH 2314 [0.5]       Sedimentation and Stratigraphy         ERTH 2306 [0.5]       Geology and Map Interpretation         ERTH 3205 [0.5]       Physical Hydrogeology         5. 1.0 credit from:       1.0         ERTH 3205 [0.5]       Paleontology         ERTH 3204 [0.5]       Mineral Deposits         ERTH 3206 [0.5]       Oceanography: Its Modern and Geologic Records         ERTH 3207 [0.5]       Metamorphic Petrology and Processes         ERTH 3405 [0.5]       Geophysical Methods         ERTH 3806 [0.5]       Structural Geology         6. 1.0 credit in ERTH at the 4000-level       1.0         B. Credits not included in the Major CGPA (8.5 credits)         7. 1.0 credit in:       1.0         MATH 1007 [0.5]       Elementary Calculus I         STAT 2507 [0.5]       Foundations of Biology I         BIOL 1103 [0.5]       Foundations of Biology II         CHEM 1001 [0.5]       General Chemistry I         CHEM 1002 [0.5]       General Chemistry I         CHEM 1003 [0.5]       Weather and Water   |                | GEOG 3105 [0.5]  | Climate and Atmospheric Change   |                   |
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| 7. 1.0 credit in:       1.0         MATH 1007 [0.5]       Elementary Calculus I         STAT 2507 [0.5]       Introduction to Statistical Modeling I         8. 3.0 credits in:       3.0         BIOL 1103 [0.5]       Foundations of Biology II         CHEM 1001 [0.5]       Foundations of Biology II         CHEM 1001 [0.5]       General Chemistry I         CHEM 1002 [0.5]       General Chemistry II         ERTH 1006 [0.5]       Exploring Planet Earth         GEOG 2013 [0.5]       Weather and Water         9. 0.5 credit in:       0.5         CHEM 2302 [0.5]       Introduction to Environmental Ethics         10. 0.5 credit in:       0.5         CHEM 2302 [0.5]       Analytical Chemistry I         11. 0.5 credit in:       0.5         PHYS 1007 [0.5]       Elementary University Physics I         12. 0.5 credit from:       0.5         GEOG 3103 [0.5]       Watershed Hydrology         GEOG 3104 [0.5]       Principles of Biogeography         GEOG 3108 [0.5]       Climate and Atmospheric Change         GEOG 3108 [0.5]       Soil Properties         13. 0.5 credit from:       0.5         ERTH 2402 [0.5]       Climate Change: An Earth Sciences Perspective         ERTH 2403 [0.5]       Introductio  | 6.             | 1.0 credit in ERTH   | at the 4000-level  | 1.0               |
| MATH 1007 [0.5] Elementary Calculus I STAT 2507 [0.5] Introduction to Statistical Modeling I  8. 3.0 credits in: BIOL 1103 [0.5] Foundations of Biology I BIOL 1104 [0.5] Foundations of Biology II CHEM 1001 [0.5] General Chemistry I CHEM 1002 [0.5] General Chemistry II ERTH 1006 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | В.             | Credits not includ   | led in the Major CGPA (8.5 credits)  |                   |
| STAT 2507 [0.5] Introduction to Statistical Modeling I  8. 3.0 credits in:  BIOL 1103 [0.5] Foundations of Biology I  BIOL 1104 [0.5] Foundations of Biology II  CHEM 1001 [0.5] General Chemistry I  CHEM 1002 [0.5] General Chemistry II  ERTH 1006 [0.5] Exploring Planet Earth  GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in:  PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in:  CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in:  PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5   | 7.             | 1.0 credit in:   |  | 1.0               |
| 8. 3.0 credits in:  BIOL 1103 [0.5] Foundations of Biology I  BIOL 1104 [0.5] Foundations of Biology II  CHEM 1001 [0.5] General Chemistry I  CHEM 1002 [0.5] General Chemistry II  ERTH 1006 [0.5] Exploring Planet Earth  GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in:  PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in:  CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in:  PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth  Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | MATH 1007 [0.5]  | Elementary Calculus I  |                   |
| BIOL 1103 [0.5] Foundations of Biology I BIOL 1104 [0.5] Foundations of Biology II CHEM 1001 [0.5] General Chemistry I CHEM 1002 [0.5] General Chemistry II ERTH 1006 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: CHEM 2302 [0.5] Analytical Chemistry I 11. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I 12. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I 14. 1.5 credits in Approved Arts or Social Sciences   |                | STAT 2507 [0.5]  | Introduction to Statistical Modeling I   |                   |
| BIOL 1104 [0.5] Foundations of Biology II CHEM 1001 [0.5] General Chemistry I CHEM 1002 [0.5] General Chemistry II ERTH 1006 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: O.5 credit in: O.5 credit in: PHYS 1007 [0.5] Elementary University Physics I  11. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences  | 8.             | 3.0 credits in:  |  | 3.0               |
| CHEM 1001 [0.5] General Chemistry I  CHEM 1002 [0.5] General Chemistry II  ERTH 1006 [0.5] Exploring Planet Earth  GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: 0.5  PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: 0.5  CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in: 0.5  PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from: 0.5  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: 0.5  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | BIOL 1103 [0.5]  | Foundations of Biology I   |                   |
| CHEM 1002 [0.5] General Chemistry II  ERTH 1006 [0.5] Exploring Planet Earth  GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in:  PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in:  CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in:  PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth  Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | BIOL 1104 [0.5]  | Foundations of Biology II  |                   |
| ERTH 1006 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | CHEM 1001 [0.5]  | General Chemistry I  |                   |
| ERTH 1006 [0.5] Exploring Planet Earth GEOG 2013 [0.5] Weather and Water  9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | CHEM 1002 [0.5]  | General Chemistry II   |                   |
| 9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | ERTH 1006 [0.5]  | -  |                   |
| 9. 0.5 credit in: PHIL 2380 [0.5] Introduction to Environmental Ethics  10. 0.5 credit in: CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in: PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from: GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | GEOG 2013 [0.5]  | Weather and Water  |                   |
| Ethics   10. 0.5 credit in:  | ۵              |  |  |                   |
| CHEM 2302 [0.5] Analytical Chemistry I  11. 0.5 credit in: 0.5 PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from: 0.5 GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: 0.5 ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5   | υ.             | 0.5 Credit III.  |  | 0.5               |
| 11. 0.5 credit in:  PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth  Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | 9.             |  |  | 0.5               |
| 11. 0.5 credit in:  PHYS 1007 [0.5] Elementary University Physics I  12. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology  GEOG 3104 [0.5] Principles of Biogeography  GEOG 3105 [0.5] Climate and Atmospheric Change  GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth  Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography  ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | PHIL 2380 [0.5]  |  |                   |
| 12. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  |                | PHIL 2380 [0.5]  0. 0.5 credit in:   | Ethics   |                   |
| 12. 0.5 credit from:  GEOG 3103 [0.5] Watershed Hydrology GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | 10             | PHIL 2380 [0.5] <b>0. 0.5 credit in:</b> CHEM 2302 [0.5]   | Ethics   | 0.5               |
| GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | 10             | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in:  | Ethics  Analytical Chemistry I   | 0.5               |
| GEOG 3104 [0.5] Principles of Biogeography GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | 10             | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  | Ethics  Analytical Chemistry I   | 0.5               |
| GEOG 3105 [0.5] Climate and Atmospheric Change GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from: 0.5  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5   | 10             | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  2. 0.5 credit from:   | Ethics  Analytical Chemistry I  Elementary University Physics I  | 0.5               |
| GEOG 3108 [0.5] Soil Properties  13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | 10             | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  2. 0.5 credit from: GEOG 3103 [0.5]   | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology   | 0.5               |
| 13. 0.5 credit from:  ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5   | 10             | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  2. 0.5 credit from: GEOG 3103 [0.5] GEOG 3104 [0.5]   | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology  Principles of Biogeography   | 0.5               |
| ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective  ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5   | 10             | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  2. 0.5 credit from: GEOG 3103 [0.5] GEOG 3104 [0.5] GEOG 3105 [0.5]   | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology  Principles of Biogeography  Climate and Atmospheric Change   | 0.5               |
| ERTH 2403 [0.5] Introduction to Oceanography ERTH 2802 [0.5] Field Geology I  14. 1.5 credits in Approved Arts or Social Sciences 1.5  | 10<br>11<br>12 | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  2. 0.5 credit from: GEOG 3103 [0.5] GEOG 3104 [0.5] GEOG 3105 [0.5] GEOG 3108 [0.5]   | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology  Principles of Biogeography  Climate and Atmospheric Change   | 0.5<br>0.5<br>0.5 |
| ERTH 2802 [0.5] Field Geology I <b>14. 1.5 credits in</b> Approved Arts or Social Sciences 1.5   | 10<br>11<br>12 | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  2. 0.5 credit from: GEOG 3103 [0.5] GEOG 3104 [0.5] GEOG 3105 [0.5] GEOG 3108 [0.5] 3. 0.5 credit from:   | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology Principles of Biogeography Climate and Atmospheric Change Soil Properties  Climate Change: An Earth   | 0.5<br>0.5<br>0.5 |
| <b>14. 1.5 credits in</b> Approved Arts or Social Sciences 1.5   | 10<br>11<br>12 | PHIL 2380 [0.5]  0. 0.5 credit in: CHEM 2302 [0.5]  1. 0.5 credit in: PHYS 1007 [0.5]  2. 0.5 credit from: GEOG 3103 [0.5] GEOG 3104 [0.5] GEOG 3105 [0.5] GEOG 3108 [0.5] GEOG 3108 [0.5]  3. 0.5 credit from: ERTH 2402 [0.5]                                    | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology Principles of Biogeography Climate and Atmospheric Change Soil Properties  Climate Change: An Earth Sciences Perspective  | 0.5<br>0.5<br>0.5 |
|  | 10<br>11<br>12 | PHIL 2380 [0.5]  D. 0.5 credit in: CHEM 2302 [0.5]  D. 0.5 credit in: PHYS 1007 [0.5]  D. 0.5 credit from: GEOG 3103 [0.5] GEOG 3104 [0.5] GEOG 3105 [0.5] GEOG 3108 [0.5]  BEOG 3108 [0.5]  BETH 2402 [0.5]  ERTH 2403 [0.5]                                      | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology Principles of Biogeography Climate and Atmospheric Change Soil Properties  Climate Change: An Earth Sciences Perspective Introduction to Oceanography                 | 0.5<br>0.5<br>0.5 |
|  | 10<br>11<br>12 | PHIL 2380 [0.5]  D. 0.5 credit in: CHEM 2302 [0.5]  D. 0.5 credit in: PHYS 1007 [0.5]  D. 0.5 credit from: GEOG 3103 [0.5] GEOG 3104 [0.5] GEOG 3105 [0.5] GEOG 3108 [0.5]  GEOG 3108 [0.5]  B. 0.5 credit from: ERTH 2402 [0.5]  ERTH 2402 [0.5]  ERTH 2403 [0.5] | Ethics  Analytical Chemistry I  Elementary University Physics I  Watershed Hydrology Principles of Biogeography Climate and Atmospheric Change Soil Properties  Climate Change: An Earth Sciences Perspective Introduction to Oceanography Field Geology I | 0.5<br>0.5<br>0.5 |

| GEOM 2007 [0.5]                                  | Geographic Information Systems                             |      |
|--|--|------|
| Total Credits                                    |  | 20.0 |
| <b>Environmental S</b>                           | cience   |      |
| B.Sc. Major (20.0                                | credits)   |      |
| A. Credits Included i                            | n the Major CGPA (11.0 credits)                            |      |
| 1. 4.0 credits in:                               | ,  | 4.0  |
| ENSC 1500 [0.5]                                  | Environmental Science Seminar                              |      |
| ENSC 2000 [0.5]                                  | Environmental Science Field                                |      |
|  | Methods  |      |
| ENSC 2001 [0.5]                                  | Earth Resources and Natural Hazards: Environmental Impacts |      |
| ENSC 2002 [0.5]                                  | Methods and Analysis in<br>Environmental Science           |      |
| ENSC 3000 [0.5]                                  | Environmental Science and Management: Theory and Practice  |      |
| ENSC 3001 [0.5]                                  | Professional Practice in Environmental Science             |      |
| ENSC 3509 [0.5]                                  | Group Research in Environmental Science                    |      |
| ENSC 4700 [0.5]                                  | Topics in Environmental Science                            |      |
| 2. 1.0 credit in:                                |  | 1.0  |
| BIOL 2600 [0.5]                                  | Introduction to Ecology                                    |      |
| CHEM 2800 [0.5]                                  | Foundations for Environmental Chemistry                    |      |
| 3. 0.5 credit from:                              |  | 0.5  |
| GEOG 3103 [0.5]                                  | Watershed Hydrology  |      |
| GEOG 3104 [0.5]                                  | Principles of Biogeography                                 |      |
| GEOG 3105 [0.5]                                  | Climate and Atmospheric Change                             |      |
| GEOG 3108 [0.5]                                  | Soil Properties  |      |
| 4. 0.5 credit from:                              |  | 0.5  |
| ERTH 2402 [0.5]                                  | Climate Change: An Earth<br>Sciences Perspective           |      |
| ERTH 2403 [0.5]                                  | Introduction to Oceanography                               |      |
| ERTH 3205 [0.5]                                  | Physical Hydrogeology                                      |      |
| 5. 1.0 credit in Appro<br>Science at the 4000-le | · · · · · · · · · · · · · · · · · · ·                      | 1.0  |
| ENSC 4001 [0.5]                                  | Environmental Science Practicum                            |      |
| Science  | roved Science for Environmental                            | 1.5  |
| Specialization                                   | oved Environmental Science                                 | 1.5  |
|  | led in the Major CGPA (10.0                                |      |
| credits) 8. 1.0 credit in:                       |  | 1.0  |
| MATH 1007 [0.5]                                  | Elementary Calculus I                                      | 1.0  |
| STAT 2507 [0.5]                                  | Introduction to Statistical Modeling I                     |      |
| 9. 3.0 credits in:                               | The Sauction to Statistical Modelling I                    | 3.0  |
| BIOL 1003 [0.5]                                  | Introductory Biology I                                     | 0.0  |
| BIOL 1003 [0.5]                                  | Introductory Biology II                                    |      |
| CHEM 1001 [0.5]                                  | General Chemistry I  |      |
| CHEM 1002 [0.5]                                  | General Chemistry II                                       |      |
| ERTH 1006 [0.5]                                  | Exploring Planet Earth                                     |      |
| GEOG 2013 [0.5]                                  | Weather and Water  |      |
| 10. 0.5 credit in:                               |  | 0.5  |
| PHIL 2380 [0.5]                                  | Introduction to Environmental Ethics                       |      |
| 11. 0.5 credit in:                               |  | 0.5  |
| CHEM 2302 [0.5]                                  | Analytical Chemistry I                                     |      |

| 12. 0.5 credit from:  |                                | 0.5 |  |
|---|--------------------------------|-----|--|
| BIOL 2107 [0.5]   |                                |     |  |
| or BIOL 2201 [0.5] Cell Biology and Biochemistry              |                                |     |  |
| 13. 0.5 credit from:  |                                | 0.5 |  |
| GEOG 3103 [0.5]   | Watershed Hydrology            |     |  |
| GEOG 3104 [0.5]   | Principles of Biogeography     |     |  |
| GEOG 3105 [0.5]   | Climate and Atmospheric Change |     |  |
| GEOG 3108 [0.5]   | Soil Properties                |     |  |
| 14. 0.5 credit from:  |                                |     |  |
| ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective |                                |     |  |
| ERTH 2403 [0.5]   | Introduction to Oceanography   |     |  |
| ERTH 3205 [0.5]   | Physical Hydrogeology          |     |  |
| 15. 1.5 credits in Approved Arts and Social Sciences          |                                |     |  |
| 16. 2.0 credits in free electives.                            |                                |     |  |
| Total Credits   |                                |     |  |

# Institute of Environmental Science Faculty of Science

#### ENSC 1500 [0.5 credit] Environmental Science Seminar

The purpose and nature of the program; society's view on the natural and human-modified environment; major environmental issues and their scientific aspects; preparation and presentation of paper and seminars. Prerequisite(s): enrolment in the Environmental Science program.

Lectures, seminars and workshops four hours a week.

### ENSC 2000 [0.5 credit]

#### **Environmental Science Field Methods**

A field-based course introducing students to practical methods in environmental science. Topics will include earth sciences, geography, biology, and chemistry related aspects of environmental sciences and will focus on quantitative techniques to assess environmental impacts and management.

Prerequisite(s): ERTH 1006 and BIOL 1004 or BIOL 1104, CHEM 1001 and CHEM 1002 and permission of the Institute.

#### **ENSC 2001 [0.5 credit]**

# Earth Resources and Natural Hazards: Environmental Impacts

Environmental impact of mineral, energy and water resource exploitation and impact of hazardous Earth processes such as volcanic eruptions, earthquakes and others: their prediction and mitigation.

Lectures three hours per week.

#### ENSC 2002 [0.5 credit]

#### Methods and Analysis in Environmental Science

Study and application of qualitative and quantitative techniques in environmental science, including data collection and assembly, database manipulation, data analysis, and strategy development. Example case studies focus on multidisciplinary environmental problems involving techniques, such as, life cycle analysis, environmental impact analysis and carbon footprint analysis.

Prerequisite(s): completion of ENSC 2000 and permission of the institute.

Lectures and seminars three hours a week.

#### ENSC 3000 [0.5 credit]

# **Environmental Science and Management: Theory and Practice**

Theoretical and practical perspectives related to environmental science and management; Emphasis on real-world problems associated with human activities and development of solutions in natural and built environments; Hands-on experience with environmental monitoring and restoration. A supplementary fee will apply. Prerequisite(s): third-year standing in Environmental Science or permission of the Institute.

Field trips, lectures and workshops, 7 hours per week (delivered on a single day).

#### ENSC 3001 [0.5 credit]

#### **Professional Practice in Environmental Science**

Development of understanding and skills related to the professional practice of environmental science; project planning and management; preparation of proposals; issues of health and safety, professional ethics, liability, and codes of certification; interactions between environmental scientist, other professionals and stakeholders.

Prerequisite(s): third-year standing in Environmental Science or permission of the Institute.

Lectures, seminars and workshops three hours a week.

#### ENSC 3509 [0.5 credit] Group Research Project

Major project relating to an issue involving environmental science; effective methods of team research and presentation of group work.

Prerequisite(s): third-year standing in the Environmental Science program or permission of the Institute. Lectures, seminars and workshops three hours a week.

#### ENSC 3700 [0.5 credit]

#### **Topics in Environmental Science**

Specific topics of current interest. Topics may vary from year to year.

Prerequisite(s): Third year standing in the Environmental Science program or permission of the Institute.

#### ENSC 3906 [0.5 credit]

#### **Research Techniques and Project Planning**

Discussions and workshops on the fundamentals of scientific investigation, including use of literature, theory and data, preparation and evaluation of a scientific research proposal.

Prerequisite(s): ENSC 3509 and good standing in third year Environmental Science with a minimum CGPA of 6.0 or permission of the Program Director.

Discussion groups and workshops three hours a week.

### ENSC 3999 [0.0 credit]

### **Co-operative Work Term**

Practical experience for students enrolled in the Cooperative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded Sat or Uns.

Prerequisite(s): registration in the Environmental Science Co-operative Option and permission of the Institute. Fourmonth work term.

#### ENSC 4001 [0.5 credit]

#### **Environmental Science Practicum**

Experience working in the environmental science sector, applying academic training to practical environmental issues. Graded Sat/Uns.

Prerequisite(s): fourth-year standing in the Environmental Science program. practicum

#### ENSC 4700 [0.5 credit]

#### **Topics in Environmental Science**

Prerequisite(s): third-year standing in the Environmental Science program or permission of the Institute. Lectures and discussion three hours a week.

### ENSC 4901 [0.5 credit]

#### **Directed Projects**

Independent or group study, for fourth-year students to explore a particular project, in consultation with a Faculty supervisor. May include directed reading, written assignments, tutorials, laboratory or field work. Prerequisite(s): permission of the Institute. Students normally may not offer more than 1.0 credit of Directed Special Studies in their program.

#### ENSC 4906 [1.0 credit] **Honours Research Project**

An independent investigation into an aspect of environmental science supervised by a member of the faculty. Approval of the topic and the research schedule must be obtained from the project supervisor and the course coordinator before the last date for registration. Prerequisite(s): fourth-year standing in the Honours Environmental Science program, a major CGPA 8.0 and permission of the Institute. independent study