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McGill University, 845 Sherbrooke Street West  
Montreal, Quebec H3A 2T5  
Canada
1 Agricultural and Environmental Sciences

1.1 Agricultural Economics Major – Natural Resource Economics Option

Core Required and Complementary Courses: 51 credits.
Option Required and Complementary Courses: 32 credits.
Electives: to meet the minimum 90-credit requirement for the degree.

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<td>AEMA 306 Mathematical Methods in Ecology 3</td>
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<tr>
<td></td>
<td>NRSC 333 Physical and Biological Aspects of Pollution 3</td>
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<td></td>
<td>NRSC 437 Assessing Environmental Impact 3</td>
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<td>WILD 205 Principles of Ecology 3</td>
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<td>9</td>
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<td>9 credits chosen from the following list:</td>
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<td></td>
<td>AGEC 344 (3) Entrepreneurial Leadership</td>
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<tr>
<td></td>
<td>AGRI 210 (3) Agro-Ecological History</td>
</tr>
<tr>
<td></td>
<td>ECON 405 (3) Natural Resource Economics</td>
</tr>
<tr>
<td></td>
<td>ENVR 203 (3) Knowledge, Ethics and Environment</td>
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<tr>
<td></td>
<td>NRSC 201 (3) Introductory Meteorology</td>
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<td>NUTR 361 (3) Environmental Toxicology</td>
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<td>WILD 415 (3) Conservation Law</td>
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1.2 Agricultural Sciences Major – Ecological Agriculture Option

Required Courses: 61 credits.
Complementary Courses: 16 - 19 credits.
Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

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<td></td>
<td>AGRI 340 Principles of Ecological Agriculture 3</td>
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<tr>
<td></td>
<td>AGRI 341 Ecological Agriculture Systems 3</td>
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<tr>
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<td>WILD 205 Principles of Ecology 3</td>
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<td>16 to 19</td>
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<tr>
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<tr>
<td></td>
<td>ANSC 323 (4) Mammalian Physiology</td>
</tr>
<tr>
<td></td>
<td>PLNT 353 (4) Plant Structure and Function</td>
</tr>
<tr>
<td></td>
<td>at least one production course in Agricultural Science:</td>
</tr>
<tr>
<td></td>
<td>AGEC 331 (3) Farm Business Management</td>
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<tr>
<td></td>
<td>ANSC 450 (3) Dairy Cattle Production</td>
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<tr>
<td></td>
<td>ANSC 452 (3) Beef Cattle and Sheep Production</td>
</tr>
<tr>
<td></td>
<td>ANSC 454 (3) Swine Production</td>
</tr>
<tr>
<td></td>
<td>ANSC 456 (3) Poultry Production</td>
</tr>
<tr>
<td></td>
<td>PLNT 331 (3) Field Crops</td>
</tr>
<tr>
<td></td>
<td>at least 3 credits must be chosen from three of the four blocks below:</td>
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<tr>
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<td>AGRI 201D1 (3) Agri-Environment Internship</td>
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<tr>
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<td>AGRI 201D2 (3) Agri-Environment Internship</td>
</tr>
<tr>
<td></td>
<td>AGRI 435 (3) Soil and Water Quality Management</td>
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<tr>
<td></td>
<td>SOIL 335 (3) Soil Ecology and Management</td>
</tr>
<tr>
<td></td>
<td>SOIL 490 (3) Plan global de fertilisation intégrée</td>
</tr>
<tr>
<td></td>
<td>SOIL 521 (3) Soil Microbiology and Biochemistry</td>
</tr>
<tr>
<td></td>
<td>MIRC 331 (3) Microbial Ecology</td>
</tr>
<tr>
<td></td>
<td>PLNT 434 (3) Weed Biology and Control</td>
</tr>
<tr>
<td></td>
<td>PLNT 460 (3) Plant Ecology</td>
</tr>
<tr>
<td></td>
<td>AGEC 333 (3) Resource Economics</td>
</tr>
<tr>
<td></td>
<td>ENVR 201 (3) Society and Environment</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

1.3 Agricultural Sciences Internship Major – Ecological Agriculture Option

Required Courses: 73 credits.
Complementary Courses: 13 credits.
Electives: selected in consultation with Academic Adviser, to meet the minimum 102-credit requirement for the degree.

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</tr>
<tr>
<td></td>
<td>AGRI 201D2 Agri-Environment Internship 3</td>
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<td></td>
<td>AGRI 301D1 Agrology Internship 3</td>
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<td>AGRI 301D2 Agrology Internship 3</td>
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<td>13</td>
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<td></td>
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<tr>
<td></td>
<td>ANSC 323 (4) Mammalian Physiology</td>
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<tr>
<td></td>
<td>PLNT 353 (4) Plant Structure and Function</td>
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<td></td>
<td>at least one production course in Agricultural Science:</td>
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<tr>
<td></td>
<td>AGEC 331 (3) Farm Business Management</td>
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<tr>
<td></td>
<td>ANSC 450 (3) Dairy Cattle Production</td>
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<tr>
<td></td>
<td>ANSC 452 (3) Beef Cattle and Sheep Production</td>
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<td>at least 3 credits must be chosen from two of the three blocks below:</td>
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<td>AGRI 201D1 (3) Agri-Environment Internship</td>
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<td>AGEC 333 (3) Resource Economics</td>
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<td></td>
<td>ENVR 201 (3) Society and Environment</td>
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<td>ENVR 400 (3) Environmental Thought</td>
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1.4 Agricultural Sciences Major – Soil Science Option

Required Courses: 52 credits.
Complementary Courses: 25 credits.
Electives: selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

<table>
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<td></td>
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<td>PLNT 353 (4) Plant Structure and Function</td>
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<td></td>
<td>SOIL 326 (3) Soil Genesis and Classification</td>
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<td></td>
<td>AGEC 331 (3) Farm Business Management</td>
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<td>ANSC 450 (3) Dairy Cattle Production</td>
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<td>ANSC 452 (3) Beef Cattle and Sheep Production</td>
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<td>ANSC 454 (3) Swine Production</td>
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<tr>
<td></td>
<td>ANSC 456 (3) Poultry Production</td>
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<tr>
<td></td>
<td>PLNT 434 (3) Weed Biology and Control</td>
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<td></td>
<td>PLNT 460 (3) Plant Ecology</td>
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<td></td>
<td>AGEC 333 (3) Resource Economics</td>
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<tr>
<td></td>
<td>ENVR 201 (3) Society and Environment</td>
</tr>
<tr>
<td></td>
<td>ENVR 400 (3) Environmental Thought</td>
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</table>

AGRI 201D1 (3) Agri-Environment Internship
AGRI 201D2 (3) Agri-Environment Internship
AGRI 435 (3) Soil and Water Quality Management
SOIL 335 (3) Soil Ecology and Management
SOIL 490 (3) Plan global de fertilisation intégrée
SOIL 521 (3) Soil Microbiology and Biochemistry
MIRC 331 (3) Microbial Ecology
PLNT 434 (3) Weed Biology and Control
PLNT 460 (3) Plant Ecology
AGEC 333 (3) Resource Economics
ENVR 201 (3) Society and Environment
ENVR 400 (3) Environmental Thought
### 1.5 Agricultural Sciences Internship Major – Soil Science Option

**Required Courses:** 64 credits.

**Complementary Courses:** 25 credits.

**Electives:** selected in consultation with Academic Adviser, to meet the minimum 102-credit requirement for the degree.

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<td>SOIL 200</td>
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<td>SOIL 410</td>
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<td>SOIL 521</td>
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### 1.6 Animal Biology Major

**Required Courses:** 34 credits

**Complementary Courses:** 24 credits, minimum

**Electives:** selected in consultation with Academic Adviser, to meet the minimum 90-credit requirement for the degree.

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<td>PLNT 201</td>
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<td>WILD 200</td>
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<td>WILD 205</td>
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<tr>
<td>WILD 212</td>
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### 1.7 Applied Zoology Major

**Required Courses:** 27 credits.

**Complementary Courses:** 36 credits.

**Electives:** to meet the minimum requirement of 90 credits; chosen in consultation with the Academic Adviser.

<table>
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<th>Course</th>
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<tr>
<td>WILD 205</td>
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<tr>
<td>WILD 212</td>
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**List A (Animal Diversity)**
- BIOL 3271 (3) Herpetology
- BIOL 3511 (3) The Biology of Invertebrates
- NRSC 315 (3) Microbial World
- WILD 307 (3) Natural History of Vertebrates
- WILD 350 (3) Mammalogy
- WILD 420 (3) Ornithology
- WILD 424 (3) Parasitology

**List B (Entomology)**
- ENTO 330 (3) Insect Biology
- ENTO 336 (3) Economic Entomology
- ENTO 352 (3) Control of Insect Pests
- ENTO 425 (3) Insect Ecology
- ENTO 440 (3) Systematic Entomology
- ENTO 515 (3) Parasitoid Behavioural Ecology
- ENTO 520 (3) Insect Physiology
- ENTO 535 (3) Aquatic Entomology
- ENTO 550 (3) Veterinary and Medical Entomology

**List C (Interactions and Applications)**
- BIOL 331 (3) Ecology/Behaviour Field Course
- BIOL 485 (3) Conservation Biology
- NRSC 315 (3) Science of Inland Waters
- NRSC 497 (2) Research Project 1
- NRSC 498 (3) Research Project 2
- PLNT 358 (3) Flowering Plant Diversity
- SOIL 335 (3) Soil Ecology and Management
- WILD 311 (3) Ethology
- WILD 313 (3) Phylogeny and Zoogeography
- WILD 401 (3) Fisheries and Wildlife Management
- WILD 410 (3) Wildlife Ecology

1 Downtown Campus

The student may replace up to 12 credits of the complementary courses listed above by choosing, with the student adviser’s approval, any course offerings (300 level or higher) in Anatomy and Cell Biology, Biochemistry, Biology, Microbiology and Immunology, Neurology and Neurosurgery, Pharmacology and Therapeutics, Physiology, and Psychology. Any prerequisites for these courses must be taken as electives.
Department of Biology (Downtown Campus) Courses:
BIOL 307 (3) Behavioural Ecology/Sociobiology
BIOL 334 (3) Applied Tropical Ecology
BIOL 335 (3) Marine Mammals
BIOL 336 (3) Marine Aquaculture
BIOL 337 (3) Ecology and Behaviour of Fishes
BIOL 352 (3) Vertebrate Evolution
BIOL 437 (3) Advanced Invertebrate Zoology
BIOL 442 (3) Marine Biology

1.8 Barbados Field Study Semester

The Barbados Field Study Semester (BFSS) provides one term of integrated field study for students with an interest in global issues related to natural resource use as affected by socio-economic, management, urban and physical constraints. Offered at the Bellairs Research Institute in Barbados, this program challenges students to be more effective environmental decision makers, policy makers, urban planners, managers, and auditors. There is a growing need for professionals with such skills at all levels of government, within NGOs, and in the private sector. The overall goal of the BFSS is to equip future leaders to address the complexity of issues associated with the formulation and implementation of organizational strategies compatible with the societal goal of sustainable use and development of our natural resources, with a focus on water.

The BFSS is intended for senior undergraduate students from across the University and students in the School of Urban Planning. Students must apply to participate in the program and selection will be based on the student’s academic standing and demonstrated interests and involvement in international issues related to natural resource use.

The semester is not a degree program, but credits can be counted toward other McGill degrees with the permission of program advisors.

BARBADOS FIELD STUDY SEMESTER – offered Fall Term Required Courses (6 credits)
AGRI 413 (3) Globalization: Issues of Change
URBP 507 (3) Planning and Infrastructure

Complementary Courses (9 credits)
one of the following cross-listed courses:
AGRI 452 (3) Water Resources in Barbados
CIVE 452 (3) Water Resources in Barbados

and one of the following cross-listed project courses:
AGRI 519 (6) Sustainable Development Plans
CIVE 519 (6) Sustainable Development Plans
URBP 519 (6) Sustainable Development Plans

Enrolment is limited to 25 students. In addition to the regular McGill fees, students will be required to pay the additional costs associated with delivering the courses in the field. These costs include airfare, accommodation and most food, as well as other field costs. Although airfares and currency fluctuations will determine the amount of this charge, fees for 2003 are expected to be in the neighbourhood of $7,000 Canadian.

The BFSS is offered in the Fall term only. Interested students must submit a letter of intent, CV and a copy of their transcript to program advisors.

1.9 Botanical Science Major

Required Courses: 42 credits.

Complementary Courses: 18 credits, selected from an approved list in consultation with the Academic Adviser; taken in either the Ecology or the Molecular Option.

Electives: to meet the minimum requirement of 90 credits for the degree.

Note: courses marked with an asterisk (*) are offered on the Downtown Campus.

Agricultural and Environmental Sciences
PLNT 451 (3)  Special Topics: Plant Science
SOIL 210 (3)  Principles of Soil Science

### 1.10 Ecological Agriculture, Certificate in

**Required Courses:** 9 credits.
**Complementary Courses:** 21 credits.

#### Required Courses:
- AGRI 210  Agro-Ecological History  3
- AGRI 340  Principles of Ecological Agriculture  3
- AGRI 341  Ecological Agriculture Systems  3

#### Complementary Courses:
- 21 credits chosen from the following, in consultation with the Academic Adviser for Ecological Agriculture
  - SOIL 335 (3)  Soil Ecology and Management
  - SOIL 490 (3)  Plan global de fertilisation intégrée
  - SOIL 521 (3)  Soil Microbiology and Biochemistry
  - AGEC 333 (3)  Resource Economics
  - AGRI 435 (3)  Soil and Water Quality Management
  - AGRI 491D1 (1.5)  Co-op Experience
  - AGRI 491D2 (1.5)  Co-op Experience
  - ENTO 352 (3)  Control of Insect Pests
  - MICR 331 (3)  Microbial Ecology
  - NUTR 512 (3)  Herbs, Foods and Phytochemicals
  - PLNT 300 (3)  Cropping Systems
  - PLNT 361 (3)  Pest Management and the Environment
  - PLNT 434 (3)  Weed Biology and Control
  - PLNT 460 (3)  Plant Ecology
  - RELG 270 (3)  Religious Ethics and the Environment
  - WILD 205 (3)  Principles of Ecology
  - WOOD 410 (3)  The Forest Ecosystem

### 1.11 Ecological Agriculture, Minor in

**Required Courses:** 9 credits.
**Complementary Courses:** 15 credits.

#### Required Courses:
- AGRI 210  Agro-Ecological History  3
- AGRI 340  Principles of Ecological Agriculture  3
- AGRI 341  Ecological Agriculture Systems  3

#### Complementary Courses:
- 15 credits chosen from the following, in consultation with the Academic Adviser for Ecological Agriculture
  - SOIL 335 (3)  Soil Ecology and Management
  - SOIL 490 (3)  Plan global de fertilisation intégrée
  - SOIL 521 (3)  Soil Microbiology and Biochemistry
  - AGEC 333 (3)  Resource Economics
  - AGRI 435 (3)  Soil and Water Quality Management
  - AGRI 491D1 (1.5)  Co-op Experience
  - AGRI 491D2 (1.5)  Co-op Experience
  - ENTO 352 (3)  Control of Insect Pests
  - MICR 331 (3)  Microbial Ecology
  - NUTR 512 (3)  Herbs, Foods and Phytochemicals
  - PLNT 300 (3)  Cropping Systems
  - PLNT 361 (3)  Pest Management and the Environment
  - PLNT 434 (3)  Weed Biology and Control
  - PLNT 460 (3)  Plant Ecology
  - RELG 270 (3)  Religious Ethics and the Environment
  - WILD 205 (3)  Principles of Ecology
  - WOOD 410 (3)  The Forest Ecosystem

### 1.12 Environmental Biology Major

**Required Courses:** 27 credits.
**Complementary Courses:** 30 credits.
**Electives:** To meet the minimum requirements of 90 credits for the degree.

#### Required Courses:
- AEBI 202  Cellular Biology  3
- AEMA 310  Statistical Methods 1  3
- CELL 204  Genetics  4
- FDSC 211  Biochemistry 1  3
- NRSC 491  Scientific Communication 1  1
- NRSC 492  Scientific Communication 2  1
- PLNT 201  Comparative Plant Biology  3
- WILD 200  Comparative Zoology  3
- WILD 205  Principles of Ecology  3
- WILD 375  Issues: Environmental Sciences  3

#### Complementary Courses:
- a minimum of 30 credits selected from the following list in consultation with the Academic Adviser
  - AEMA 306 (3)  Mathematical Methods in Ecology
  - MICR 230 (3)  Microbial World
  - MICR 331 (3)  Microbial Ecology
  - NRSC 201 (3)  Introductory Meteorology
  - NRSC 315 (3)  Science of Inland Waters
  - NRSC 333 (3)  Physical and Biological Aspects of Pollution
  - NRSC 437 (3)  Assessing Environmental Impact
  - NRSC 497 (2)  Project 1
  - NRSC 498 (3)  Project 2
  - NUTR 420 (3)  Toxicology and Health Risks
  - PLNT 358 (3)  Flowering Plant Diversity
  - PLNT 460 (3)  Plant Ecology
  - SOIL 200 (3)  Introduction to Earth Science
  - SOIL 335 (3)  Soil Ecology and Management
  - WILD 307 (3)  Natural History of Vertebrates
  - WILD 311 (3)  Ethology
  - WILD 313 (3)  Phylogeny and Zoogeography
  - WILD 401 (4)  Fisheries and Wildlife Management
  - WILD 410 (3)  Wildlife Ecology
  - WILD 475 (3)  Desert Ecology
  - WOOD 410 (3)  The Forest Ecosystem
  - WOOD 420 (3)  Environmental Issues: Forestry

With the permission of the Academic Adviser and the Committee on Academic Standing, ecological or environmental courses offered on the Downtown Campus may be substituted for those appearing in the above list of Complementary Courses.

### 1.13 Microbiology Major

**Required Courses:** 60 credits.
**Electives:** To meet the minimum requirement of 90 credits for the degree; chosen in consultation with the Academic Adviser.

#### Required Courses:
- AEBI 202  Cellular Biology  3
- AEMA 310  Statistical Methods 1  3
- ANSC 400  Eukaryotic Cells and Viruses  3
- CELL 204  Genetics  4
- FDSC 211  Biochemistry 1  3
- FDSC 212  Biochemistry Laboratory 2
- MICR 200  Laboratory Methods in Microbiology  3
- MICR 230  Microbial World  3
- MICR 331  Microbial Ecology  3
- AEMA 306 (3)  Mathematical Methods in Ecology
- NRSC 201 (3)  Introductory Meteorology
- NRSC 315 (3)  Science of Inland Waters
- NRSC 333 (3)  Physical and Biological Aspects of Pollution
- NRSC 437 (3)  Assessing Environmental Impact
- NRSC 497 (2)  Project 1
- NRSC 498 (3)  Project 2
- NUTR 420 (3)  Toxicology and Health Risks
- PLNT 358 (3)  Flowering Plant Diversity
- PLNT 460 (3)  Plant Ecology
- SOIL 200 (3)  Introduction to Earth Science
- SOIL 335 (3)  Soil Ecology and Management
- WILD 307 (3)  Natural History of Vertebrates
- WILD 311 (3)  Ethology
- WILD 313 (3)  Phylogeny and Zoogeography
- WILD 401 (4)  Fisheries and Wildlife Management
- WILD 410 (3)  Wildlife Ecology
- WILD 475 (3)  Desert Ecology
- WOOD 410 (3)  The Forest Ecosystem
- WOOD 420 (3)  Environmental Issues: Forestry

With the permission of the Academic Adviser and the Committee on Academic Standing, ecological or environmental courses offered on the Downtown Campus may be substituted for those appearing in the above list of Complementary Courses.
1.14 Resource Conservation Major

**Required Courses:** 26 credits

**Complementary Courses:** min. 33 credits.

**Electives:** to meet the minimum 90-credit requirement for the degree.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 200</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 333</td>
<td>Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>FDSC 211</td>
<td>Biochemistry 1</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 315</td>
<td>Science of Inland Waters</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 491</td>
<td>Scientific Communication 1</td>
<td>1</td>
</tr>
<tr>
<td>NRSC 492</td>
<td>Scientific Communication 2</td>
<td>1</td>
</tr>
<tr>
<td>SOIL 200</td>
<td>Introduction to Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>SOIL 210</td>
<td>Principles of Soil Science</td>
<td>3</td>
</tr>
<tr>
<td>WILD 205</td>
<td>Principles of Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Complementary Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 310</td>
<td>Statistical Methods 1</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 203</td>
<td>Principles of Statistics 1</td>
<td>3</td>
</tr>
<tr>
<td>PLNT 201</td>
<td>Comparative Plant Biology</td>
<td>3</td>
</tr>
<tr>
<td>or PLNT 211</td>
<td>Principles of Plant Science</td>
<td>3</td>
</tr>
</tbody>
</table>

At least two of the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABEN 214</td>
<td>Surveying</td>
<td>3</td>
</tr>
<tr>
<td>ABEN 217</td>
<td>Hydrology and Drainage</td>
<td>3</td>
</tr>
<tr>
<td>or GEOG 322</td>
<td>Environmental Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>ABEN 416</td>
<td>Engineering for Land Development</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 201</td>
<td>Introductory Meteorology</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 333</td>
<td>Physical and Biological Aspects of Pollution</td>
<td>3</td>
</tr>
</tbody>
</table>

At least three of the following: 9 or 10

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 306</td>
<td>Mathematical Methods in Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 465</td>
<td>Conservation Biology</td>
<td>3</td>
</tr>
<tr>
<td>MICR 331</td>
<td>Microbial Ecology</td>
<td>3</td>
</tr>
<tr>
<td>PLNT 358</td>
<td>Flowering Plant Diversity</td>
<td>3</td>
</tr>
<tr>
<td>SOIL 335</td>
<td>Soil Ecology and Management</td>
<td>3</td>
</tr>
<tr>
<td>WILD 401</td>
<td>Fisheries and Wildlife Management</td>
<td>4</td>
</tr>
<tr>
<td>WOOD 410</td>
<td>The Forest Ecosystem</td>
<td>3</td>
</tr>
</tbody>
</table>

At least three of the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 435</td>
<td>Soil and Water Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>SOIL 315</td>
<td>Soil Fertility and Fertilizer Use</td>
<td>3</td>
</tr>
<tr>
<td>SOIL 326</td>
<td>Soil Genesis and Classification</td>
<td>3</td>
</tr>
<tr>
<td>SOIL 331</td>
<td>Soil Physics</td>
<td>3</td>
</tr>
<tr>
<td>SOIL 410</td>
<td>Soil Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>SOIL 521</td>
<td>Soil Microbiology and Biochemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

At least one of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 201</td>
<td>Introductory Geo-Information Science</td>
<td>3</td>
</tr>
<tr>
<td>ABEN 330</td>
<td>GIS for Biosystems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>WILD 310</td>
<td>Air Photo and Imagery Interpretation</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^1\) Downtown Campus

**Note:** Other courses on the Downtown Campus may be equivalent to some required courses; consult the Academic Adviser.

Course substitutions must be approved by the Committee on Academic Standing.

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1.15 Wildlife Biology Major

**Required Courses:** 37 credits.

**Complementary Courses:** 27 credits.

**Electives:** to meet the requirement of 90 credits for the degree.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 310</td>
<td>Statistical Methods 1</td>
<td>3</td>
</tr>
<tr>
<td>CELL 204</td>
<td>Genetics</td>
<td>4</td>
</tr>
<tr>
<td>FDSC 211</td>
<td>Biochemistry 1</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 491</td>
<td>Scientific Communication 1</td>
<td>1</td>
</tr>
<tr>
<td>NRSC 492</td>
<td>Scientific Communication 2</td>
<td>1</td>
</tr>
<tr>
<td>PLNT 201</td>
<td>Comparative Plant Biology</td>
<td>3</td>
</tr>
<tr>
<td>PLNT 358</td>
<td>Flowering Plant Diversity</td>
<td>3</td>
</tr>
<tr>
<td>WILD 200</td>
<td>Comparative Zoology</td>
<td>3</td>
</tr>
<tr>
<td>WILD 205</td>
<td>Principles of Ecology</td>
<td>3</td>
</tr>
<tr>
<td>WILD 212</td>
<td>Evolution and Systematics</td>
<td>3</td>
</tr>
<tr>
<td>WILD 307</td>
<td>Natural History of Vertebrates</td>
<td>3</td>
</tr>
<tr>
<td>WILD 401</td>
<td>Fisheries and Wildlife Management</td>
<td>4</td>
</tr>
<tr>
<td>WILD 410</td>
<td>Wildlife Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Complementary Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 306</td>
<td>Mathematical Methods in Ecology</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 333</td>
<td>Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 323</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 465</td>
<td>Conservation Biology</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 315</td>
<td>Science of Inland Waters</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 437</td>
<td>Assessing Environmental Impact</td>
<td>3</td>
</tr>
<tr>
<td>NRSC 497</td>
<td>Research Project 1</td>
<td>2</td>
</tr>
<tr>
<td>NRSC 498</td>
<td>Research Project 2</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 420</td>
<td>Toxicology and Health Risks</td>
<td>3</td>
</tr>
<tr>
<td>PLNT 460</td>
<td>Plant Ecology</td>
<td>3</td>
</tr>
<tr>
<td>WILD 313</td>
<td>Phylogeny and Zoogeography</td>
<td>3</td>
</tr>
<tr>
<td>WILD 352</td>
<td>Fish and Wildlife Propagation</td>
<td>3</td>
</tr>
<tr>
<td>WILD 415</td>
<td>Conservation Law</td>
<td>2</td>
</tr>
<tr>
<td>WILD 421</td>
<td>Wildlife Conservation</td>
<td>3</td>
</tr>
<tr>
<td>WILD 475</td>
<td>Desert Ecology</td>
<td>3</td>
</tr>
<tr>
<td>WOOD 410</td>
<td>The Forest Ecosystem</td>
<td>3</td>
</tr>
<tr>
<td>WOOD 441</td>
<td>Integrated Forest Management</td>
<td>3</td>
</tr>
</tbody>
</table>
2 Arts

2.1 Computer Science

2.1.1 Computer Science, Minor Concentration

This Minor Concentration may be taken in conjunction with any program in the Faculty of Arts with the approval of the Adviser of the student's main program and the School of Computer Science.

Minor Concentration in Computer Science
(Non-expandable) (18 credits)

Required Courses (12 credits)
COMP 202 (3) Introduction to Computing 1
COMP 203 (3) Introduction to Computing 2
COMP 206 (3) Introduction to Software Systems
COMP 302 (3) Programming Languages and Paradigms

Complementary Courses (6 credits)
selected from:
COMP 273 (3) Introduction to Computer Systems
COMP 310 (3) Computer Systems and Organization
COMP 335 (3) Software Engineering Methods
COMP 350 (3) Numerical Computing
or MATH 317 (3) Numerical Analysis
COMP 360 (3) Algorithm Design Techniques
COMP 420 (3) Files and Databases
COMP 421 (3) Database Systems
COMP 424 (3) Topics: Artificial Intelligence 1
COMP 426 (3) Automated Reasoning
COMP 433 (3) Personal Software Engineering
COMP 435 (3) Basics of Computer Networks
COMP 505 (3) Advanced Computer Architecture
COMP 506 (3) Advanced Analysis of Algorithms
COMP 507 (3) Computational Geometry
COMP 520 (4) Compiler Design
COMP 524 (3) Theoretical Foundations of Programming Languages
COMP 534 (3) Team Software Engineering
COMP 535 (3) Computer Networks 1
COMP 537 (3) Cryptography and Data Security
COMP 547 (3) Computer Graphics
COMP 557 (3) Computer Graphics
COMP 560 (3) Graph Algorithms and Applications
COMP 566 (3) Discrete Optimization 1
COMP 573 (3) Microcomputers
COMP 575 (3) Fundamentals of Distributed Algorithms

2.2 Education for Arts Students Minor Concentration

Program Director — Professor Jon Bradley
Department of Integrated Studies in Education
Faculty of Education, 3700 McTavish Street
e-mail: jon.bradley@mcgill.ca
Website: www.mcgill.ca/edu-integrated/

This Minor Concentration allows Arts students to develop and explore an interest in education. It will give students a solid footing in the basics of pedagogy and may provide a starting point towards a B.Ed. degree.

Completion of the Minor Concentration does not qualify a student for certification to teach in the province of Quebec. Students interested in a teaching career should consult the Faculty of Education, “Faculty Programs” on page 139 of the Undergraduate Programs Calendar.

MINOR CONCENTRATION IN EDUCATION FOR ARTS STUDENTS (18 credits)

Required Courses (12 credits)
EDEC 402 (3) Media, Technology and Education
EDEM 405 (3) Policy Issues in Quebec Education
EDPE 300 (3) Educational Psychology
EDPI 309 (3) Exceptional Students

Complementary Courses (6 credits)
3 credits, one of:
EDER 398 (3) Philosophy of Catholic Education
EDER 400 (3) Philosophical Foundations of Education
3 credits, one of:
EDEC 410 (3) Multi-Cultured/Multi-Racial Class
EDEC 441 (3) First Nations and Inuit Education
EDER 464 (3) Intercultural Education

2.3 German Studies

2.3.1 German Studies, Honours

HONOURS PROGRAM IN GERMAN STUDIES (60 credits)

Required Courses (42 credits)
GERM 200 (6) German Language, Intensive Beginners’
GERM 300 (6) German Language Intensive Intermediate
GERM 325 (6) German Language - Intensive Advanced
GERM 352 (3) German Literature - 19th Century 3
GERM 360 (3) German Literature 1890 to 1918
GERM 363 (3) German Postwar Literature
GERM 450 (3) Classical Period in German Literature
GERM 451 (3) German Romanticism
GERM 511 (3) Middle High German Literature
GERM 575 (6) Honours Thesis

With permission of the adviser, students with advanced standing in German language will replace language courses for more advanced courses in language, culture or literature.
2.4 International Development Studies

2.4.1 IDS, Minor Concentration

MINOR CONCENTRATION IN INTERNATIONAL DEVELOPMENT STUDIES (18 credits) (Expandable)

Required Courses (6 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1

Complementary Courses (12 credits)
a minimum of 3 credits selected from the IDS Complementary Course list Group A. Only one course from each discipline can be counted.

the remaining credits to be selected from the IDS Complementary Course list Group B, at least 12 credits must be taken from one of the three categories.

At least 9 of the 18 credits must be at the 300 level or above.

2.4.2 IDS, Major Concentration

MAJOR CONCENTRATION IN INTERNATIONAL DEVELOPMENT STUDIES (36 credits)

Required Courses (12 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1
ECON 314 (3) Economic Development 2
INTD 497 (3) Research Seminar on International Development

Complementary Courses (24 credits)
a minimum of 3 credits selected from the IDS Complementary Course list Group A. Only one course from each discipline can be counted.

the remaining credits to be selected from the IDS Complementary Course list Group B, at least 12 credits must be taken from one of the three categories.

At least 18 of the 36 credits must be at the 300 level or above.

2.4.3 IDS, Honours

HONOURS PROGRAM IN INTERNATIONAL DEVELOPMENT STUDIES (57 credits)

Honours students must maintain a program GPA of 3.00 and an overall CGPA of 3.00.

Required Courses (12 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1
ECON 314 (3) Economic Development 2
INTD 497 (3) Research Seminar on International Development

Complementary Courses (45 credits)

No more than 21 credits can be taken in any one discipline.

Thesis or research project. 3 to 6 credits, one of:
INTD 491 (3) Research Project
INTD 492 (6) Honours Thesis

6 credits selected from the IDS Complementary Course list Group A. Only one course from each discipline can be counted.

24 to 36 credits to be selected from the IDS Complementary Course list Group B; at least 12 credits must be taken from one of the three categories.

Group C – 0 to 9 credits of Introductory and/or Intermediate Language Training.

Students are strongly encouraged to master a language appropriate to an area of the developing world in which they have a particular interest.

Among the languages that are included in this option are Arabic, Chinese, French, Korean, Portuguese, Spanish, and Urdu. Other language options can be approved by the Honours Adviser.

Students who already have appropriate language capability, or who have distinct interests not likely to necessitate such training, may substitute an additional 9 credits from the Group B Complementary Courses.

At least 30 of the 57 credits must be at the 300 level or above; nine credits of these must be at the 400 level or above.

2.4.4 IDS, Joint Honours

JOINT HONOURS PROGRAM – INTERNATIONAL DEVELOPMENT STUDIES COMPONENT (36 credits)

Joint Honours students must maintain a program GPA of 3.00 and an overall CGPA of 3.00.

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Required Courses (12 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1
ECON 314 (3) Economic Development 2
INTD 497 (3) Research Seminar on International Development
Complementary Courses (24 credits)
No more than 15 credits can be taken in any one discipline.

Thesis or research project. 3 to 6 credits
Students may either do a 6-credit thesis in IDS, or divide the thesis between INTD 491 and the other department.

One of:
- INTD 491 (3) Research Project
- INTD 492 (6) Honours Thesis

A minimum of 6 credits selected from the IDS Complementary Course list Group A. Only one course from each discipline can be counted.

12 to 15 credits to be selected from the IDS Complementary Course list Group B; at least 12 credits must be taken from one of the three categories.

At least 24 of the 36 credits must be at the 300 level or above; six of these must be at the 400 level.

2.4.5 IDS, Complementary Course Lists

IDS Complementary Course Lists for Minor Concentration, Major Concentration, Honours, Joint Honours

GROUP A
ANTH 202 (3) Comparative Cultures
ANTH 212 (3) Anthropology of Development
GEOG 210 (3) Global Places and Peoples
GEOG 216 (3) Geography of the World Economy
POLI 227 (3) Developing Areas/Introduction
SOCI 254 (3) Development and Underdevelopment

GROUP B
Development Theory and World View
ANTH 341 (3) Women in Cross-Cultural Perspective
ANTH 342 (3) Gender, Inequality and the State
ANTH 349 (3) Transformation of Third World Societies
ANTH 439 (3) Theories of Development
RELG 252 (3) Hinduism and Buddhism
RELG 253 (3) Religions of East Asia
RELG 371 (3) Ethics of Violence/Non-Violence

Up to 6 credits of Group A courses (not previously counted) may be used in this category.

Regions
ANTH 321 (3) People and Cultures of Africa
ANTH 322 (3) Social Change in Modern Africa
ANTH 326 (3) Peoples of Central and South America
ANTH 328 (3) Peoples and Cultures of South-East Asia
ANTH 329 (3) Modern Chinese Society and Change
ECON 411 (3) Economic Development: A World Area
ENGL 321 (3) Caribbean Fiction
FREN 313 (3) Francophonie 3
HIST 197 (3) FYS: Race in Latin America
HIST 200 (3) Introduction to African History
HIST 201 (3) Modern African History
HIST 208 (3) Introduction to East Asian History
HIST 218 (3) Modern East Asian History
HIST 309 (3) History of Latin America to 1825
HIST 338 (3) China in Revolution 2: 1921-1997
HIST 360 (3) Latin America since 1825
HIST 374 (3) West Africa since 1800
HIST 381 (3) Colonial Africa: Health/Disease
HIST 382 (3) History of South Africa
HIST 419 (3) Central America
ISLA 411 (3) History of the Middle East, 1918-1945
POLI 319 (3) Politics of Latin America
POLI 322 (3) Political Change in South Asia
POLI 323 (3) Developing Areas/China and Japan
POLI 324 (3) Developing Areas/Africa
POLI 340 (3) Developing Areas/Middle East
POLI 341 (3) Foreign Policy: The Middle East
POLI 349 (3) Foreign Policy: Asia
SOCI 366 (3) Social Change in the Caribbean

Development Policies and Practices
AGEC 430* (3) Agriculture, Food and Resource Policy
AGEC 442* (3) Economics of International Agricultural Development
AGRI 411* (3) International Agriculture
ANTH 227 (3) Medical Anthropology
ANTH 324 (3) Economic Anthropology
ANTH 418 (3) Environment and Development
ANTH 445 (3) Property and Land Tenure
ECON 209 (3) Macroeconomic Analysis and Applications
ECON 412 (3) Topics in Economic Development 1
ECON 416 (3) Topics in Economic Development 2
GEOG 404 (3) Environmental Management 2 (Panama Program only)
GEOG 407 (3) Issues in Geography
GEOG 408 (3) Geography of Development
GEOG 410 (3) Geography of Underdevelopment: Current Problems
GEOG 498 (3) Humans in Tropical Environments (Pana Program only)
GEOG 510 (3) Humid Tropical Environments
INTD 490 (3) Development Field Research
MGCR 382 (3) International Business
MIME 524 (3) Mineral Resources Economics
NUTR 501* (3) Nutrition in Developing Countries
ORGB 380 (3) Cross Cultural Management
POLI 300D1 (3) Developing Areas/Revolution
POLI 300D2 (3) Developing Areas/Revolution
POLI 423 (3) Politics of Ethno-Nationalism
POLI 445 (3) IPE: North-South Relations
POLI 450 (3) Peacebuilding
POLI 473 (3) Democracy and the Market
POLI 522 (3) Seminar: Developing Areas
SOCI 222 (3) Urban Sociology
SOCI 234 (3) Population and Society
SOCI 335 (3) Sociology of State Repression
SOCI 418 (3) Human Rights and Humanitarianism
SOCI 520 (3) Migration and Immigrant Groups
SOCI 550 (3) Developing Societies
SOCI 590 (3) Conflict and State Breakdown
SWRK 400 (3) Policy and Practice for Refugees
SWRK 532 (3) International Social Work

* These courses are normally offered only at Macdonald Campus.

2.5 Italian Studies

2.5.1 Course Lists for Departmental programs.

The following Course Lists are referred to in:
Minor Concentration in Italian Studies,
Minor Concentration in Italian Civilization,
Major Concentration in Italian Studies,
Major Concentration in Italian Language and Literature,
Honours in Italian Studies,
Joint Honours in Italian Studies

ITALIAN STUDIES COURSE GROUPS

Group A – Basic Language Courses:
ITAL 205D1 (3) Italian for Beginners
ITAL 205D2 (3) Italian for Beginners
ITAL 206 (6) Beginners' Italian Intensive
ITAL 210D1 (3) Elementary Italian
ITAL 210D2 (3) Elementary Italian

All course numbers are in parentheses.

ITAL 205D1: (3) Italian for Beginners
ITAL 205D2: (3) Italian for Beginners
ITAL 206: (6) Beginners' Italian Intensive
ITAL 210D1: (3) Elementary Italian
ITAL 210D2: (3) Elementary Italian

(All course numbers are in parentheses.)
### ARTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 215D1</td>
<td>Intermediate Italian (may not be taken by students who have taken ITAL 210D1/ITAL 210D2)</td>
</tr>
<tr>
<td>ITAL 215D2</td>
<td>Intermediate Italian (may not be taken by students who have taken ITAL 210D1/ITAL 210D2)</td>
</tr>
<tr>
<td>ITAL 216</td>
<td>Intermediate Italian Intensive</td>
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<tr>
<td>HIST 398</td>
<td>Topics in Italian History</td>
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<td>HIST 380</td>
<td>Western Europe: The Middle Ages</td>
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<td>History of Italian Renaissance</td>
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<tr>
<td>ITAL 215D1</td>
<td>Intermediate Italian</td>
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<td>ITAL 380</td>
<td>Western Europe: The Middle Ages</td>
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<td>ITAL 345</td>
<td>History of Italian Renaissance</td>
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<tr>
<td>ITAL 355</td>
<td>Dante and The Middle Ages</td>
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<tr>
<td>ITAL 361</td>
<td>Medieval Literature</td>
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<td>ITAL 362</td>
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<tr>
<td>ITAL 363</td>
<td>Verga: The Illusion of Reality</td>
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<td>ITAL 365</td>
<td>Modern Italian Literature</td>
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<td>ITAL 366</td>
<td>Modern Italian Literature</td>
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<td>ITAL 368</td>
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<td>ITAL 370</td>
<td>Italian Poetry and Music</td>
</tr>
<tr>
<td>ITAL 376</td>
<td>Medieval Romance in Italy</td>
</tr>
<tr>
<td>ITAL 380</td>
<td>The Art of Essay Writing</td>
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<td>ITAL 385</td>
<td>Women’s Writing since 1860</td>
</tr>
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<td>ITAL 390</td>
<td>Modern Italian Literature</td>
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<tr>
<td>ITAL 410</td>
<td>Modern Italian Literature</td>
</tr>
<tr>
<td>ITAL 411</td>
<td>Pirandello</td>
</tr>
<tr>
<td>ITAL 415</td>
<td>Italian Poetry 20th Century</td>
</tr>
<tr>
<td>ITAL 420</td>
<td>Leopardi and Italian Romanticism</td>
</tr>
<tr>
<td>ITAL 435</td>
<td>Ariosto’s “Orlando Furioso”</td>
</tr>
<tr>
<td>ITAL 436</td>
<td>Tasso’s “Gerusalemme Liberata”</td>
</tr>
<tr>
<td>ITAL 461</td>
<td>Dante: “The Divine Comedy”</td>
</tr>
<tr>
<td>ITAL 530</td>
<td>17th - 18th Century Culture</td>
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<tr>
<td>ITAL 542</td>
<td>History of Italian Language</td>
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<tr>
<td>ITAL 551</td>
<td>Boccaccio and the Italian Novella</td>
</tr>
<tr>
<td>ITAL 562</td>
<td>Petrarch and Petrarchism</td>
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<tr>
<td>ITAL 563</td>
<td>13th-16th Century Literature</td>
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<tr>
<td>ITAL 590</td>
<td>Italian Literary Criticism</td>
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**Group B – Courses taught in Italian:**

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<tbody>
<tr>
<td>ITAL 307</td>
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<td>ITAL 308</td>
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<td>ITAL 311</td>
<td>Twentieth Century Texts</td>
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<td>ITAL 320</td>
<td>Manzoni: Novel and Nationhood</td>
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<td>ITAL 325</td>
<td>Masterpieces of Italian Literature 1</td>
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<td>ITAL 326</td>
<td>Masterpieces of Italian Literature 2</td>
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<tr>
<td>ITAL 330</td>
<td>Commedia dell’Arte</td>
</tr>
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<td>ITAL 331</td>
<td>Drama from Goldoni to Pirandello</td>
</tr>
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<td>ITAL 341</td>
<td>The Art of Essay Writing</td>
</tr>
<tr>
<td>ITAL 356</td>
<td>Medieval Discourses on Love</td>
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<tr>
<td>ITAL 360</td>
<td>Contemporary Italian Prose</td>
</tr>
<tr>
<td>ITAL 368</td>
<td>Literature of the Renaissance</td>
</tr>
<tr>
<td>ITAL 370</td>
<td>Italian Poetry and Music</td>
</tr>
<tr>
<td>ITAL 376</td>
<td>Medieval Romance in Italy</td>
</tr>
<tr>
<td>ITAL 380</td>
<td>Verga: The Illusion of Reality</td>
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<td>ITAL 410</td>
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<td>13th-16th Century Literature</td>
</tr>
<tr>
<td>ITAL 590</td>
<td>Italian Literary Criticism</td>
</tr>
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**Group C – Courses taught in English:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>HIST 401</td>
<td>Topics: Medieval Culture and Society</td>
</tr>
<tr>
<td>MUHL 387</td>
<td>Opera from Mozart to Puccini</td>
</tr>
<tr>
<td>POLI 414</td>
<td>Society and Politics in Italy</td>
</tr>
<tr>
<td>SOCI 485</td>
<td>Society, Economy and Polity in Italy</td>
</tr>
</tbody>
</table>

### 2.6 Linguistics

#### 2.6.1 Applied Linguistics, Minor Concentration

**MINOR CONCENTRATION IN APPLIED LINGUISTICS**

(Expandable) (18 credits)

**Required Course** (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>LING 201</td>
<td>Introduction to Linguistics</td>
</tr>
</tbody>
</table>

**Complementary Courses** (15 credits)

6 credits to be selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>LING 230</td>
<td>Phonetics</td>
</tr>
<tr>
<td>LING 301</td>
<td>Structure of English</td>
</tr>
<tr>
<td>LING 331</td>
<td>Phonology 1</td>
</tr>
<tr>
<td>LING 370</td>
<td>Introduction to Semantics</td>
</tr>
<tr>
<td>LING 371</td>
<td>Syntax 1</td>
</tr>
<tr>
<td>LING 440</td>
<td>Morphology</td>
</tr>
</tbody>
</table>

9 credits, 3 credits of which must be at the 400/500 level, to be selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>LING 200</td>
<td>Introduction to the Study of Language</td>
</tr>
<tr>
<td>LING 320</td>
<td>Sociolinguistics 1</td>
</tr>
<tr>
<td>LING 350</td>
<td>Linguistic Aspects of Bilingualism</td>
</tr>
<tr>
<td>LING 355</td>
<td>Language Acquisition 1</td>
</tr>
<tr>
<td>LING 390</td>
<td>Neuroscience of Language</td>
</tr>
<tr>
<td>LING 419</td>
<td>Linguistic Theory 1</td>
</tr>
<tr>
<td>LING 425</td>
<td>Historical Linguistics</td>
</tr>
<tr>
<td>LING 450</td>
<td>Linguistic Theory and Processing</td>
</tr>
<tr>
<td>LING 451</td>
<td>Acquisition of Phonology</td>
</tr>
<tr>
<td>LING 455</td>
<td>Second Language Syntax</td>
</tr>
<tr>
<td>LING 520</td>
<td>Sociolinguistics 2</td>
</tr>
<tr>
<td>LING 521</td>
<td>Dialectology</td>
</tr>
<tr>
<td>LING 555</td>
<td>Language Acquisition 2</td>
</tr>
<tr>
<td>LING 590</td>
<td>Introduction to Neurolinguistics</td>
</tr>
</tbody>
</table>

#### 2.6.2 Linguistics, Major Concentration

**MAJOR CONCENTRATION IN LINGUISTICS** (36 credits)

**Required Courses** (21 credits)

<table>
<thead>
<tr>
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<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 201</td>
<td>Introduction to Linguistics</td>
</tr>
<tr>
<td>LING 230</td>
<td>Phonetics</td>
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<tr>
<td>LING 331</td>
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<tr>
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<td>Introduction to Semantics</td>
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<tr>
<td>LING 371</td>
<td>Syntax 1</td>
</tr>
<tr>
<td>LING 440</td>
<td>Morphology</td>
</tr>
<tr>
<td>PHIL 210</td>
<td>Introduction to Deductive Logic 1</td>
</tr>
</tbody>
</table>

**Complementary Courses** (15 credits)

9 credits in Linguistics at the 400/500 level, to be selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 200</td>
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<tr>
<td>LING 320</td>
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<tr>
<td>LING 555</td>
<td>Language Acquisition 2</td>
</tr>
<tr>
<td>LING 590</td>
<td>Introduction to Neurolinguistics</td>
</tr>
</tbody>
</table>

#### 2.6.3 Linguistics, Honours

**HONOURS PROGRAM IN LINGUISTICS** (60 credits)

**Required Courses** (27 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>LING 201</td>
<td>Introduction to Linguistics</td>
</tr>
<tr>
<td>LING 230</td>
<td>Phonetics</td>
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<tr>
<td>LING 331</td>
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<tr>
<td>LING 371</td>
<td>Syntax 1</td>
</tr>
<tr>
<td>LING 440</td>
<td>Morphology</td>
</tr>
<tr>
<td>PHIL 210</td>
<td>Introduction to Deductive Logic 1</td>
</tr>
</tbody>
</table>

6 credits in Linguistics at the 400/500 level, to be selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 200</td>
<td>Introduction to the Study of Language</td>
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<td>Sociolinguistics 1</td>
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<td>Language Acquisition 2</td>
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<tr>
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### Sociology

<table>
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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SOCI 485</td>
<td>Society, Economy and Polity in Italy</td>
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### Anthropology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ANTH 337</td>
<td>Mediterranean Society and Culture</td>
</tr>
<tr>
<td>ARTH 223</td>
<td>Early Renaissance Art in Italy</td>
</tr>
<tr>
<td>ARTH 324</td>
<td>High Renaissance Art in Italy</td>
</tr>
<tr>
<td>ARTH 325</td>
<td>Venetian High Renaissance Painting</td>
</tr>
<tr>
<td>ARTH 332</td>
<td>Italian Renaissance Architecture</td>
</tr>
<tr>
<td>CLAS 208</td>
<td>Roman Literature and Society</td>
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<td>CLAS 307</td>
<td>Roman Comedy</td>
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<td>CLAS 404</td>
<td>Classical Tradition</td>
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<tr>
<td>ENGL 447</td>
<td>Crosscurrents/English Literature and European Literature 1</td>
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### History

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>HIST 345</td>
<td>History of Italian Renaissance</td>
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<tr>
<td>HIST 380</td>
<td>Western Europe: The Middle Ages</td>
</tr>
<tr>
<td>HIST 398</td>
<td>Topics in Italian History</td>
</tr>
</tbody>
</table>
**Complementary Courses (33 credits)**

21 credits in Linguistics:
- 15 credits at the 400/500 level, 3 of which must be selected from:
  - LING 425 (3) Historical Linguistics
  - LING 450 (3) Linguistic Theory and Processing
  - LING 451 (3) Acquisition of Phonology
  - LING 455 (3) Second Language Syntax
  - LING 520 (3) Sociolinguistics 2
  - LING 521 (3) Dialectology
  - LING 525 (3) Topics in Historical Linguistics
  - LING 555 (3) Language Acquisition 2
  - LING 590 (3) Introduction to Neurolinguistics
  - 6 credits others, usually at the 200/300 level.

12 credits in related fields to be selected from the following list:

- **Computer Science**
  - COMP 202 (3) Introduction to Computing 1
  - COMP 203 (3) Introduction to Computing 2

- **French Language and Literature**
  - FREN 231 (3) Linguistique française
  - FREN 336 (3) La langue française
  - FREN 434 (3) Sociolinguistique du français

- **Language**
  - Any course in language (other than the student’s native language)
  - literature courses are not acceptable.

- **Mathematics**
  - MATH 240 (3) Discrete Structures 1
  - MATH 328 (3) Computability and Mathematical Linguistics

- **Philosophy**
  - Any course in logic or philosophy of science.
  - PHIL 304 (3) Chomsky
  - PHIL 306 (3) Philosophy of Mind
  - PHIL 415 (3) Philosophy of Language
  - PHIL 515 (3) Seminar: Philosophy of Language

- **Psychology**
  - PSYC 311 (3) Human Cognition and the Brain
  - PSYC 316 (3) Psychology of Deafness
  - PSYC 340 (3) Psychology of Language
  - PSYC 341 (3) The Psychology of Bilingualism
  - PSYC 343 (3) Language Learning in Children
  - PSYC 350 (3) Applied Topics in Deafness
  - PSYC 532 (3) Cognitive Science

- **Psychology (Cont.)**
  - PSYC 561 (3) Methods: Developmental Psycholinguistics

- **Statistics**
  - Any course in statistics (from any department).

**2.6.4 Linguistics, Joint Honours**

**JOINT HONOURS PROGRAM – LINGUISTICS COMPONENT**
(36 credits)

**Required Courses** (24 credits)
- LING 201 (3) Introduction to Linguistics
- LING 230 (3) Phonetics
- LING 331 (3) Phonology 1
- LING 370 (3) Introduction to Semantics
- LING 371 (3) Syntax 1
- LING 440 (3) Morphology
- LING 481D1 (1.5) Joint Honours Thesis
- LING 481D2 (1.5) Joint Honours Thesis
- PHIL 210 (3) Introduction to Deductive Logic 1

**Complementary Courses** (12 credits)
- 9 credits in Linguistics courses at the 400/500 level.
- 3 credits in Linguistics courses (normally at the 200/300 level).

**2.6.5 Theoretical Linguistics, Minor Concentration**

**MINOR CONCENTRATION IN THEORETICAL LINGUISTICS**
(Expandable) (18 credits)

**Required Courses** (9 credits)
- LING 201 (3) Introduction to Linguistics
- LING 230 (3) Phonetics
- LING 371 (3) Syntax 1

**Complementary Courses** (9 credits)
- 3 credits to be selected from:
  - LING 331 (3) Phonology 1
  - LING 370 (3) Introduction to Semantics
  - LING 440 (3) Morphology

6 credits in other Linguistics courses, 3 credits of which must be above the 200-level (3 credits may be PHIL 210).

**2.7 Religious Studies**

**2.7.1 Religious Studies, Honours**

**HONOURS PROGRAM IN RELIGIOUS STUDIES** (60 credits)

**Required Courses** (9 credits)
- RELG 204 (3) Judaism, Christianity and Islam
- RELG 456 (3) Theories of Religion
- RELG 555 (3) Honours Seminar

**Complementary Courses** (51 credits)
- 3 credits, one of:
  - RELG 252 (3) Hinduism and Buddhism
  - RELG 253 (3) Religions of East Asia

6 credits of scriptural languages (Biblical Greek, Biblical Hebrew, Sanskrit, or Tibetan), related to the specialization Option and chosen in consultation with the adviser.

9 credits, religion and culture, chosen from:
- RELG 256 (3) Women in Judaism and Islam
- RELG 270 (3) Religious Ethics and the Environment
- RELG 271 (3) Sexual Ethics
- RELG 338 (3) Women and the Christian Tradition
- RELG 339 (3) Hindu and Buddhist Images of Feminine.
- RELG 340 (3) Religion and the Sciences
- RELG 341 (3) Introduction: Philosophy of Religion
- RELG 345 (3) Religion and the Arts
- RELG 361 (3) Religious Behaviour
- RELG 370 (3) Human Condition
- RELG 371 (3) Ethics of Violence/Non-Violence
- RELG 375 (3) Religion and Society
- RELG 376 (3) Religious Ethics
- RELG 377 (3) Religious Controversies

3 credits, one of:
- RELG 101 (3) Jewish Bible Interpretation
- RELG 201 (3) Religious/Ancient Near East
- RELG 202 (3) Religion of Ancient Israel
- RELG 203 (3) Bible and Western Culture
- RELG 204 (3) Judaism, Christianity and Islam
- RELG 210 (3) Jesus of Nazareth
- RELG 300 (3) Post-Biblical Jewish Tradition
- RELG 301 (3) Jewish Thought 200 B.C.E. - 200 C.E.
- RELG 306 (3) Rabbinic Judaism
- RELG 308 (3) Ancient Bible Translations
- RELG 311 (3) New Testament Studies 1
- RELG 312 (3) New Testament Studies 2
- RELG 322 (3) The Church in History 1
- RELG 323 (3) The Church in History 2

12 credits chosen from a list of approved courses in other departments in consultation with the adviser. At least 6 credits must be from the specialization option which was not selected.

21 credits chosen from either specialization, Option 1 or Option 2, at least 3 of these credits must be a 500-level research seminar.

**Option 1: Western Religions**
- JWST 510 (3) Jewish Bible Interpretation 1
- RELG 201 (3) Religious/Ancient Near East
- RELG 202 (3) Religion of Ancient Israel
- RELG 203 (3) Bible and Western Culture
- RELG 204 (3) Judaism, Christianity and Islam
- RELG 210 (3) Jesus of Nazareth
- RELG 300 (3) Post-Biblical Jewish Tradition
- RELG 301 (3) Jewish Thought 200 B.C.E. - 200 C.E.
- RELG 306 (3) Rabbinic Judaism
- RELG 308 (3) Ancient Bible Translations
- RELG 311 (3) New Testament Studies 1
- RELG 312 (3) New Testament Studies 2
- RELG 322 (3) The Church in History 1
- RELG 323 (3) The Church in History 2
Complementary Courses

Tibetan are only accessible to one who has a firm grasp of the language. Classical Tibetan is one of the main scriptural languages of Buddhism. Many texts originally composed in Sanskrit are only extant in their Tibetan translations, and a vast body of philosophical, devotional, poetic and academic works composed in Classical Tibetan are only accessible to one who has a firm grasp of the language.

2.7.2 Scriptural Languages, Minor Concentration (Stream II, Indo-Tibetan Languages)

MINOR CONCENTRATION IN SCRIPTURAL LANGUAGES

(18 credits) (Non-expandable)

Students will choose from one of two streams:

Stream I: Biblical Languages

Stream II: Sanskrit

Minor Concentration in Scriptural Languages

Stream II: Indo-Tibetan Languages

Sanskrit is the language of classical Indian civilization and is recommended for students interested in gaining access to religious texts, philosophical works, academic treatises on all subjects and poetry written in classical and medieval India. Classical Tibetan is one of the main scriptural languages of Buddhism. Many texts originally composed in Sanskrit are only extant in their Tibetan translations, and a vast body of philosophical, devotional, poetic and academic works composed in Classical Tibetan are only accessible to one who has a firm grasp of the language.

Complementary Courses (18 credits)
chosen from among the following:

Sanskrit

RELG 257D1 (3) Introductory Sanskrit
RELG 257D2 (3) Introductory Sanskrit
RELG 357D1 (3) Sanskrit 2
RELG 357D2 (3) Sanskrit 2
RELG 457D1 (3) Advanced Sanskrit
RELG 457D2 (3) Advanced Sanskrit

Tibetan:

RELG 264 (3) Introductory Tibetan 1
RELG 265 (3) Introductory Tibetan 2
RELG 364 (3) Intermediate Tibetan 1
RELG 365 (3) Intermediate Tibetan 2

RELG 364 (3) Advanced Tibetan 1
RELG 465 (3) Advanced Tibetan 2

2.7.3 Scriptures and Interpretations, Major Concentration

MAJOR CONCENTRATION IN SCRIPTURES AND INTERPRETATIONS (36 credits)

Required Courses (6 credits)

RELG 307 (3) Scriptural Interpretation
RELG 456 (3) Theories of Religion

Complementary Courses (30 credits)

30 credits, a minimum of 18 credits from one area of specialization and a minimum of 6 credits from a second area. No more than 12 credits of complementary courses may be taken at the 200-level.

(a) Jewish Scriptures and the History of Their Interpretation

JWST 310 (3) Believers, Heretics and Critics
JWST 324 (3) Biblical Interpretation - Antiquity
JWST 327 (3) A Book of the Bible
JWST 329 (3) A Book of the Bible
JWST 330 (3) A Book of the Bible

JWST 331 (3) Bible Interpretation/Medieval Ashkenaz
JWST 332 (3) Bibel Interpretation/Sefardic Tradition
JWST 510 (3) Jewish Biblical Interpretation 1
JWST 511 (3) Jewish Biblical Interpretation 2
RELG 202 (3) Religion of Ancient Israel
RELG 203 (3) Bible and Western Culture
RELG 300 (3) Post-Biblical Jewish Tradition
RELG 302 (3) Old Testament Studies 1
RELG 303 (3) Literature of Ancient Israel 2
RELG 306 (3) Rabbinic Judaism
RELG 308 (3) Ancient Bible Translations
RELG 390D1 (3) Elementary Biblical Hebrew
RELG 390D2 (3) Elementary Biblical Hebrew
RELG 407 (3) The Writings
RELG 408 (3) The Prophets
RELG 491 (3) Hebrew Texts
RELG 492 (3) Hebrew Texts

(b) Christian Scriptures and the History of Their Interpretation

RELG 203 (3) Bible and Western Culture
RELG 210 (3) Jesus of Nazareth
RELG 280 (6) Elementary New Testament Greek
RELG 302 (3) Old Testament Studies 1
RELG 303 (3) Literature of Ancient Israel 2
RELG 308 (3) Ancient Bible Translations
RELG 311 (3) New Testament Studies 1
RELG 312 (3) New Testament Studies 2
RELG 381 (3) Advanced New Testament Greek
RELG 411 (3) New Testament Exegesis
RELG 482 (3) Exegesis of Greek New Testament

(c) Hindu and Buddhist Scriptures and the Histories of Their Interpretations

RELG 252 (3) Hinduism and Buddhism
RELG 253 (3) Religions of East Asia
RELG 254 (3) Introduction to Sikhism
RELG 257D1 (3) Introductory Sanskrit
RELG 257D2 (3) Introductory Sanskrit
RELG 264 (3) Introductory Tibetan 1
RELG 265 (3) Introductory Tibetan 2
RELG 337 (3) Themes in Buddhist Studies
RELG 342 (3) Theravada Buddhist Literature
RELG 344 (3) Mahayana Buddhism
RELG 348 (3) Classical Hinduism
RELG 350 (3) Bhakti Hinduism
RELG 352 (3) Japanese Religions
RELG 354 (3) Chinese Religions

RELG 352 (3) Japanese Religions
RELG 350 (3) Bhakti Hinduism
RELG 348 (3) Classical Hinduism
RELG 344 (3) Mahayana Buddhism
RELG 346 (3) Theories of Religion
RELG 381 (3) Advanced New Testament Greek
RELG 411 (3) New Testament Exegesis
RELG 482 (3) Exegesis of Greek New Testament

Option 2: Asian Religions:

RELG 337 (3) Themes in Buddhist Studies
RELG 339 (3) Hindu and Buddhist Images of Feminine
RELG 342 (3) Theravada Buddhist Literature
RELG 344 (3) Mahayana Buddhism
RELG 348 (3) Classical Hinduism
RELG 352 (3) Japanese Religions
RELG 354 (3) Chinese Religions
RELG 442 (3) Pure Land Buddhism
RELG 451 (3) Zen: Maxims and Methods
RELG 452 (3) East Asian Buddhism
RELG 454 (3) Modern Hindu Thought
RELG 546 (3) Indian Philosophy
RELG 548 (3) Indian Buddhist Philosophy
RELG 549 (3) East Asian Buddhist Philosophy
RELG 552 (3) Advaita Vedanta
RELG 553 (3) Religions of South India 1
RELG 554 (3) Religions of South India 2
RELG 556 (3) Issues in Buddhist Studies
EAST 354 (3) Taoist and Buddhist Apocalypses
2.7.4 World Religions, Minor Concentration

MINOR CONCENTRATION IN WORLD RELIGIONS (18 credits)
(Expandable to Major Concentration in World Religions)

Complementary Courses (18 credits*)
12 credits in Religious Traditions, chosen from the following:

Judaism and Christianity:
RELG 201 (3) Religions/Ancient Near East
RELG 202 (3) Religion of Ancient Israel
RELG 203 (3) Bible and Western Culture
RELG 204 (3) Judaism, Christianity and Islam
RELG 210 (3) Jesus of Nazareth
RELG 302 (3) Old Testament Studies 1
RELG 303 (3) Literature of Ancient Israel 2
RELG 305 (3) Rabbinic Judaism
RELG 311 (3) New Testament Studies 1
RELG 312 (3) New Testament Studies 2
RELG 320 (3) History of Christian Thought 1
RELG 322 (3) The Church in History 1
RELG 323 (3) The Church in History 2
RELG 324 (3) Armenian Apostolic Tradition
RELG 325 (3) Varieties Religious Experience in Christianity
RELG 326 (3) Ancient Christian Church AD54 - AD604
RELG 327 (3) History of Christian Thought 2
RELG 330 (3) Reformed Theology
RELG 336 (3) Contemporary Theological Issues
RELG 338 (3) Women and the Christian Tradition
RELG 399 (3) Christian Spirituality
RELG 420 (3) Canadian Church History
RELG 423 (3) Reformation Thought
RELG 470 (3) Theological Ethics

Hinduism and Buddhism:
RELG 252 (3) Hinduism and Buddhism
RELG 253 (3) Religions of East Asia
RELG 337 (3) Themes in Buddhist Studies
RELG 339 (3) Hindu and Buddhist Images of Feminine
RELG 342 (3) Theravada Buddhist Literature
RELG 344 (3) Mahāyāna Buddhism
RELG 348 (3) Classical Hinduism
RELG 350 (3) Bhave Hinduism
RELG 352 (3) Japanese Religions
RELG 354 (3) Chinese Religions
RELG 442 (3) Pure Land Buddhism
RELG 451 (3) Zen: Maxims and Methods
RELG 452 (3) East Asian Buddhism
RELG 454 (3) Modern Hindu Thought
RELG 546 (3) Indian Philosophy
RELG 548 (3) Indian Buddhist Metaphysics
RELG 549 (3) East Asian Buddhist Philosophy
RELG 552 (3) Advaita Vedanta

6 credits in Comparative Studies, chosen from the following:
RELG 207 (3) The Study of World Religions 1
RELG 256 (3) Women in Judaism and Islam
RELG 270 (3) Religious Ethics and the Environment
RELG 271 (3) Sexual Ethics
RELG 307 (3) Scriptural Interpretation
RELG 315 (3) Special Topics in Religion
RELG 316 (3) New Religious Movements
RELG 341 (3) Introduction: Philosophy of Religion
RELG 345 (3) Religion and the Arts
RELG 361 (3) Religious Behaviour
RELG 370 (3) Human Condition
RELG 371 (3) Ethics of Violence/Non-Violence
RELG 376 (3) Religious Ethics
RELG 555 (3) Honours Seminar
RELG 571 (3) Religion and Medicine
* No more than 12 credits of the Minor may be taken at the 200 level.

2.7.5 World Religions, Major Concentration

MAJOR CONCENTRATION IN WORLD RELIGIONS (36 credits)

Required Course (3 credits)
RELG 456 (3) Theories of Religion

Complementary Courses (33 credits)
33 credits, no more than 12 of which be taken at the 200-level.

24 credits in World Religions chosen from the following, according to the student's area of interest:

Judaism and Christianity
RELG 201 (3) Religions/Ancient Near East
RELG 202 (3) Religion of Ancient Israel
RELG 203 (3) Bible and Western Culture
RELG 204 (3) Judaism, Christianity and Islam
RELG 210 (3) Jesus of Nazareth
RELG 302 (3) Old Testament Studies 1
RELG 303 (3) Literature of Ancient Israel 2
RELG 307 (3) Rabbinic Judaism
RELG 311 (3) New Testament Studies 1
RELG 312 (3) New Testament Studies 2
RELG 320 (3) History of Christian Thought 1
RELG 322 (3) The Church in History 1
RELG 323 (3) The Church in History 2
RELG 324 (3) Armenian Apostolic Tradition
RELG 325 (3) Varieties Religious Experience in Christianity
RELG 326 (3) Ancient Christian Church AD54 - AD604
RELG 327 (3) History of Christian Thought 2
RELG 330 (3) Reformed Theology
RELG 336 (3) Contemporary Theological Issues
RELG 338 (3) Women and the Christian Tradition
RELG 399 (3) Christian Spirituality
RELG 420 (3) Canadian Church History
RELG 423 (3) Reformation Thought
RELG 470 (3) Theological Ethics

Hinduism and Buddhism
RELG 252 (3) Hinduism and Buddhism
RELG 253 (3) Religions of East Asia
RELG 337 (3) Themes in Buddhist Studies
RELG 339 (3) Hindu and Buddhist Images of Feminine
RELG 342 (3) Theravada Buddhist Literature
RELG 344 (3) Mahāyāna Buddhism
RELG 348 (3) Classical Hinduism
RELG 350 (3) Bhave Hinduism
RELG 352 (3) Japanese Religions
RELG 354 (3) Chinese Religions
RELG 451 (3) Zen: Maxims and Methods
RELG 452 (3) East Asian Buddhism
RELG 454 (3) Modern Hindu Thought
RELG 546 (3) Indian Philosophy
RELG 548 (3) Indian Buddhist Metaphysics
RELG 549 (3) East Asian Buddhist Philosophy
RELG 552 (3) Advaita Vedanta

RELG 553 (3) Religions of South India 1
RELG 554 (3) Religions of South India 2
RELG 556 (3) Issues in Buddhist Studies
RELG 557 (3) Asian Ethical Systems
3 Education

3.1 Bachelor of Education Kindergarten and Elementary Program

The four-year program begins with the foundation courses in the first term and has a higher concentration of academic courses in the first two years. The professional courses and practicum have a heavier weight in the final two years. The practicum consists of school-based experiences and a series of professional seminars that provide an opportunity for students to reflect on that experience in a systematic way and with the guidance of a tutor.

ACADEMIC COMPONENT 42

This component provides background in the subject areas of the elementary school curriculum. During their four years of study, students will take:

Required Courses 12
EDEC 203 Communication in Education 3
EDEE 230 Elementary School Mathematics 3
EDEE 270 Elementary School Science 3
EDEE 290 Geography, History and Citizenship Education 3

Complementary Courses 30
a) one of:
   EDER 209 Search for Authenticity 3
   EDER 309 The Religious Quest 3
   EDER 394 Philosophy of God 3
   EDER 395 Moral Values and Human Action 3
   EDER 473 Living with Insight 3
   EDER 494 Ethics in Practice 3
b) 18 credits from one of these areas: 18
   English, Mathematics, Natural Sciences, Social Sciences, The Arts, Physical Education, Moral and Religious Education, French

9 credits, 3 credits from each of any three areas not chosen in b) above. 9

PROFESSIONAL COMPONENT 72

This component includes the practicum, theoretical aspects of pedagogy, the pedagogical support for the practicum and foundation courses, divided as follows:

PRACTICUM 24

Required Courses
Field Experiences
EDFE 200 First Year Field Experience 2
EDFE 253 Second Field Experience (K/Elem) 4
EDFE 303 Third Field Experience (K/Elem) 7
EDFE 406 Fourth Field Experience (K/Elem) 7

PROFESSIONAL SEMINARS
EDEC 201 First Year Professional Seminar 1
EDEC 405 Fourth Year Professional Seminar (K/Elem) 3

FOUNDATIONS 15

Required Courses
EDEM 405 Policy Issues in Quebec Education 3
EDPI 309 Exceptional Students 3
EDPI 341 Instruction in Inclusive Schools 3
EDPE 300 Educational Psychology 3

Complementary Courses
one of:
EDER 398 Philosophy of Catholic Education 3
EDER 400 Philosophical Foundations of Education 2

PEDAGOGY 22

Required Courses
EDEE 223 Language Arts Part 1 3
EDEE 250 The Kindergarten Classroom 2
EDEE 275 Science Teaching 2
EDEE 282 Teaching Social Sciences 2
EDEE 332 Teaching Mathematics 1 3
EDEE 350 Integrating the Curriculum 2

Complementary Courses
one of:
EDER 360 MRE in the K/Elem. Curriculum 2
EDER 375 Catholic Religious Education (K/Elem) 6

6 additional credits of methodology courses chosen from Plastic Arts, Drama, Music, Physical Education, L2 teaching, at least one course must be from Plastic Arts, Drama, Music 6

PEDAGOGICAL SUPPORT 11

Required Courses
EDEE 352 Classroom Practices 2
EDEE 355 Classroom-based Evaluation 3

Complementary Courses
EDEC 402 Media, Technology and Education 3

or, for students with a background in computers or other media applications in education, one of the following 3-credit courses may substitute for the above:
EDPT 341 Instructional Programming 1
EDPT 420 Media Literacy for Education 2

1 credit in Practical Education from the following list:
EDER 464 Intercultural Education 3
EDEE 441 First Nations and Inuit Education 3
EDEC 410 Multi-cultured/Multi-racial Class 3

ELECTIVE COURSES 6

TOTAL CREDITS 120

3.1.1 Jewish Studies Option

This option, Jewish Studies, is offered within the Bachelor of Education in Kindergarten and Elementary Education.

Students who wish to follow this option should contact:
Professor Eric Caplan
Department of Integrated Studies in Education
Faculty of Education
Telephone: (514) 398-6544
e-mail: eric.caplan@mcgill.ca
ACADEMIC COMPONENT 42
This component provides background in the subject areas of the elementary school curriculum. During their four years of study, students will take:

Required Courses 12
EDEC 203 Communication in Education 3
EDEC 230 Elementary School Mathematics 3
EDEC 270 Elementary School Science 3
JWST 211 Jewish Studies 1: Biblical Period 3

Complementary Courses 30
12 credits in Jewish Studies chosen from:
JWST 345 Introduction to Rabbinic Judaism
or RELG 306 Rabbinic Judaism
JWST 314 Denominations in North American Judaism
or SOCI 327 Jews in North America
JWST 206 Introduction to Yiddish Literature
or JWST 325 Israeli Literature in Translation
JWST 365 Modern Jewish Ideologies
or JWST 366 History of Zionism
POLI 347 Arab-Israel Conflict, Crisis, Peace
or POLI 437 Politics in Israel
HIST 207 Jewish History: 400 BCE to 1000
or JWST 216 Jewish Studies 2: 400 BCE-1000
HIST 219 Jewish History: 1000-2000
or JWST 217 Jewish Studies 3: 1000 to 2000
JWST 367 Studies in Hebrew Language and Literature
JWST 368 Studies in Hebrew Language and Literature
JWST 369 Studies in Hebrew Language and Literature
JWST 370 Studies in Hebrew Language and Literature
6 credits in Jewish Studies chosen from:
JWST 327 A Book of the Bible
JWST 328 A Book of the Bible
JWST 329 A Book of the Bible
JWST 330 A Book of the Bible
JWST 331 Bible Interpretation/Medieval Ashkenaz
or JWST 332 Bible Interpretation/Sefardic Tradition
or JWST 333 Bible Interpretation/Sefardic Tradition
12 credits, 3 credits from each of any four other subject areas: English, Mathematics, Natural Sciences, Social Sciences, The Arts, Physical Education, Moral and Religious Education, French.

PROFESSIONAL COMPONENT 81
This component includes the practicum, theoretical aspects of pedagogy, the pedagogical support for the practicum and foundation courses, divided as follows:

PRACTICUM 24
Required Courses
EDFE 200 First Year Field Experience 2
EDFE 253 Second Field Experience (K/Elem) 4
EDFE 303 Third Field Experience (K/Elem) 7
EDFE 406 Fourth Field Experience (K/Elem) 7

PROFESSIONAL SEMINARS
EDEC 201 First Year Professional Seminar 1
EDEC 405 Fourth Year Professional Seminar 3 (K/Elem)

FOUNDATIONS 15
Required Courses
EDEM 405 Policy Issues in Quebec Education 3
EDPI 309 Exceptional Students 3
EDPI 341 Instruction in Inclusive Schools 3
EDPE 300 Educational Psychology 3

PEDAGOGY 31
Required Courses
EDEE 223 Language Arts Part 1 3
EDEE 250 The Kindergarten Classroom 2
EDEE 275 Science Teaching 2
EDEE 282 Teaching Social Sciences 2
EDEE 332 Teaching Mathematics 1 3
EDDE 350 Integrating the Curriculum 2
EDER 252 Understanding and Teaching Jewish Life 3
EDER 401 Teaching Biblical Literature - Jewish School 1
EDER 407 Teaching the Jewish Liturgy 3
EDER 421 Teaching the Holocaust 3

Complementary Courses 5
one of:
EDER 375 Catholic Religious Education (K/Elem)
EDER 360 MRE in the K/Elem. Curriculum
one of:
EDEA 332 Art Curriculum and Instruction - Elementary
EDEA 342 Curriculum and Instruction in Drama Education
EDEA 345 Music Curriculum and Instruction for Generalists

PEDAGOGICAL SUPPORT 11
Required Courses
EDEE 352 Classroom Practices 2
EDEE 355 Classroom-based Evaluation 3

Complementary Courses
EDEE 402 Media, Technology and Education 3
or, for students with a background in computers or other media applications in education, one of the following 3-credit courses may substitute for the above:
EDPT 341 Instructional Programming 1
EDPT 420 Media Literacy for Education 3
one 3-credit course in Multicultural Education from the following list:
EDER 464 Intercultural Education
EDEE 441 First Nations and Inuit Education
EDEE 410 Multi-cultured/Multi-racial Class

ELECTIVE COURSES 3
TOTAL CREDITS 126

4 Engineering

4.1 Electrical and Computer Engineering

4.1.1 B.Eng. Degree in Computer Engineering

REQUIREDS COURSES 126
COURSE CREDIT
Non-Departmental Courses
MATH 260 Intermediate Calculus 3
MATH 261 Differential Equations 3
or MATH 325 Ordinary Differential Equations (3)
MATH 265 Advanced Calculus 3
or MATH 249 Advanced Calculus 1 (3)
MATH 270 Applied Linear Algebra 3
or MATH 247 Linear Algebra (3)
MATH 363 Discrete Mathematics 3
MATH 381 Complex Variables and Transforms 3
CIVE 281 Analytical Mechanics 3
or PHYS 251 Classical Mechanics 1 (3)
MIME 221 Engineering Professional Practice 2
MIME 310 Engineering Economy 3
COMP 202 Introduction to Computing 1 3
COMP 250 Introduction to Computer Science 3
4.1.2 Bachelor of Software Engineering (B.S.E.)

CURRICULUM FOR THE BACHELOR OF SOFTWARE ENGINEERING (B.S.E.)

REQUIRED COURSES

<table>
<thead>
<tr>
<th>COURSE</th>
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</thead>
<tbody>
<tr>
<td>COMP 202</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 206</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 251</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 302</td>
<td>Programming Languages and Paradigms</td>
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<tr>
<td>COMP 330</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 360</td>
<td>Algorithm Design Techniques</td>
</tr>
<tr>
<td>COMP 361</td>
<td>Systems Development Project</td>
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<tr>
<td>COMP 420</td>
<td>Files and Databases</td>
</tr>
<tr>
<td>ECSE 221</td>
<td>Introduction to Computer Engineering</td>
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<tr>
<td>ECSE 321</td>
<td>Introduction to Software Engineering</td>
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<tr>
<td>ECSE 427</td>
<td>Operating Systems</td>
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<td>ECSE 429</td>
<td>Software Validation</td>
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<td>ECSE 493</td>
<td>Software Engineering Practice</td>
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<tr>
<td>ECSE 495</td>
<td>Software Engineering Design Project</td>
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<tr>
<td>MATH 260</td>
<td>Intermediate Calculus</td>
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<tr>
<td>MATH 261</td>
<td>Differential Equations</td>
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<tr>
<td>MATH 265</td>
<td>Advanced Calculus</td>
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<tr>
<td>MATH 270</td>
<td>Applied Linear Algebra</td>
</tr>
<tr>
<td>MATH 363</td>
<td>Discrete Mathematics</td>
</tr>
<tr>
<td>MATH 381</td>
<td>Complex Variables and Transforms</td>
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</table>

Engineering Breadth Required Courses

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<tr>
<th>COURSE</th>
<th>CREDIT</th>
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<tbody>
<tr>
<td>ECSE 200</td>
<td>Fundamentals of Electrical Engineering</td>
</tr>
<tr>
<td>ECSE 210</td>
<td>Circuit Analysis</td>
</tr>
<tr>
<td>ECSE 291</td>
<td>Electrical Measurements Laboratory</td>
</tr>
<tr>
<td>ECSE 303</td>
<td>Signals and Systems 1</td>
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<td>ECSE 305</td>
<td>Probability and Random Sig. 1</td>
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<td>ECSE 322</td>
<td>Computer Engineering</td>
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<td>ECSE 323</td>
<td>Digital System Design</td>
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<tr>
<td>ECSE 330</td>
<td>Introduction to Electronics</td>
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<td>ECSE 332</td>
<td>Computer Engineering</td>
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<tr>
<td>ECSE 334</td>
<td>Introduction to Microsystems</td>
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<tr>
<td>ECSE 353</td>
<td>Electromagnetic Fields and Waves</td>
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<tr>
<td>ECSE 355</td>
<td>Electromagnetic Fields and Waves</td>
</tr>
<tr>
<td>ECSE 412</td>
<td>Discrete Time Signal Processing</td>
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<tr>
<td>ECSE 413</td>
<td>Introduction to Electronics</td>
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<tr>
<td>MATH 250</td>
<td>Introduction to Probability</td>
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<tr>
<td>MATH 260</td>
<td>Introduction to Calculus</td>
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<tr>
<td>MIME 221</td>
<td>Engineering Professional Practice</td>
</tr>
</tbody>
</table>

Technical Complementaries 11 - 12

Students must take 11-12 credits of technical complementaries from the following list, of which at least 6 credits must be taken from list A and the remainder from list B.

Group A Technical Complementaries

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDIT</th>
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<tbody>
<tr>
<td>COMP 350</td>
<td>Numerical Computing</td>
</tr>
<tr>
<td>COMP 409</td>
<td>Concurrent Programming</td>
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<tr>
<td>COMP 424</td>
<td>Topics: Artificial Intelligence 1</td>
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<tr>
<td>COMP 433</td>
<td>Personal Software Engineering</td>
</tr>
<tr>
<td>COMP 524</td>
<td>Theoretical Foundations of Programming Languages</td>
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</table>

Group B Technical Complementaries

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDIT</th>
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<tbody>
<tr>
<td>ECSE 304</td>
<td>Signals and Systems 2</td>
</tr>
<tr>
<td>ECSE 323</td>
<td>Digital Systems Design</td>
</tr>
<tr>
<td>ECSE 404</td>
<td>Control Systems</td>
</tr>
<tr>
<td>ECSE 411</td>
<td>Communications Systems 1</td>
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<tr>
<td>ECSE 412</td>
<td>Discrete Time Signal Processing</td>
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<tr>
<td>ECSE 413</td>
<td>Communications Systems 2</td>
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<tr>
<td>ECSE 414</td>
<td>Introduction to Telecommunication Networks</td>
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<td>or COMP 535</td>
<td>Computer Networks 1</td>
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<tr>
<td>ECSE 421</td>
<td>Embedded Systems</td>
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<tr>
<td>ECSE 422</td>
<td>Fault Tolerant Computing</td>
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<td>ECSE 420</td>
<td>Parallel Computing</td>
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<tr>
<td>ECSE 424</td>
<td>Human-Computer Interaction</td>
</tr>
<tr>
<td>ECSE 425</td>
<td>Computer Organization and Architecture</td>
</tr>
<tr>
<td>ECSE 426</td>
<td>Microprocessor Systems</td>
</tr>
</tbody>
</table>

TOTAL CREDITS 108
4.2 Mechanical Engineering

4.2.1 B.Eng. Degree in Mechanical Engineering (Regular)

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDIT</th>
</tr>
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<tbody>
<tr>
<td>Non-Departmental Subjects</td>
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</tr>
<tr>
<td>CIVE 207</td>
<td>Solid Mechanics</td>
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<tr>
<td>COMP 208</td>
<td>Computers in Engineering</td>
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<tr>
<td>ECSE 481</td>
<td>Electric Machinery</td>
</tr>
<tr>
<td>EDEC 206</td>
<td>Communication in Engineering</td>
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<tr>
<td>MATH 260</td>
<td>Intermediate Calculus</td>
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<tr>
<td>MATH 261</td>
<td>Differential Equations</td>
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<tr>
<td>MATH 265</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MATH 266</td>
<td>Linear Algebra and Boundary Value Problems</td>
</tr>
<tr>
<td>MIME 221</td>
<td>Engineering Professional Practice</td>
</tr>
<tr>
<td>MIME 260</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>MIME 310</td>
<td>Engineering Economy</td>
</tr>
</tbody>
</table>

| Departmental Courses | |
| MECH 201 | Introduction to Mechanical Engineering | 2 |
| MECH 210 | Mechanics 1 | 2 |
| MECH 220 | Mechanics 2 | 4 |
| MECH 240 | Thermodynamics 1 | 3 |
| MECH 260 | Machine Tool Laboratory | 2 |
| MECH 262 | Statistics and Measurement Laboratory | 3 |
| MECH 291 | Graphics | 3 |
| MECH 292 | Design 1 | 3 |
| MECH 309 | Numerical Methods in Mechanical Engineering | 3 |
| MECH 314 | Dynamics of Mechanisms | 3 |
| MECH 315 | Mechanics 3 | 4 |
| MECH 321 | Mechanics of Deformable Solids | 3 |
| MECH 331 | Fluid Mechanics 1 | 3 |
| MECH 341 | Thermodynamics 2 | 3 |
| MECH 346 | Heat Transfer | 3 |
| MECH 362 | Mechanical Laboratory 1 | 2 |
| MECH 383 | Applied Electronics and Instrumentation | 3 |
| MECH 393 | Design 2 | 3 |
| MECH 412 | Dynamics of Systems | 3 |
| MECH 430 | Fluid Mechanics 2 | 3 |
| MECH 463D1 | Mechanical Engineering Project | 3 |
| MECH 463D2 | Mechanical Engineering Project | 3 |

**Total Credits:** 108/109

**COMPLEMENTARY COURSES:** 15

2 courses (6 credits) at the 300 level or higher to be selected from Mechanical Engineering. For students who entered in September 2000 or later, one of these two courses must be chosen from the following list:

| COURSE | |
| MECH 343 | Energy Conversion |
| MECH 413 | Control Systems |
| MECH 432 | Aircraft Structures |
| MECH 471 | Industrial Engineering |
| MECH 472 | Case Studies in Project Mgmt |
| MECH 495 | Design 3 |
| MECH 496 | Design 4 |
| MECH 497 | Value Engineering |
| MECH 524 | Computer Integrated Manufacturing |
| MECH 526 | Manufacturing and the Environment |
| MECH 528 | Product Design |
| MECH 532 | Aircraft Performance, Stability and Control |
| MECH 541 | Kinematic Synthesis |
| MECH 543 | Design with Composite Materials |
| MECH 554 | Microprocessors for Mechanical Systems |
| MECH 557 | Mechatronic Design |
| MECH 565 | Fluid Flow and Heat Transfer Equipment |
| MECH 572 | Introduction to Robotics |
| MECH 573 | Mechanics of Robotic Systems |
| MECH 577 | Optimum Design |

Total Credits: 113

4.2.2 B.Eng. Degree in Mechanical Engineering (Honours)

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDIT</th>
</tr>
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<tbody>
<tr>
<td>Non-Departmental Subjects</td>
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<tr>
<td>CIVE 207</td>
<td>Solid Mechanics</td>
</tr>
<tr>
<td>EDEC 206</td>
<td>Communication in Engineering</td>
</tr>
<tr>
<td>COMP 208</td>
<td>Computers in Engineering</td>
</tr>
<tr>
<td>MATH 260</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 261</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>MATH 265</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MATH 266</td>
<td>Linear Algebra and Boundary Value Problems</td>
</tr>
<tr>
<td>MIME 221</td>
<td>Engineering Professional Practice</td>
</tr>
<tr>
<td>MIME 310</td>
<td>Engineering Economy</td>
</tr>
</tbody>
</table>

| Departmental Courses | |
| MECH 201 | Introduction to Mechanical Engineering | 2 |
| MECH 210 | Mechanics 1 | 2 |
| MECH 220 | Mechanics 2 | 4 |
| MECH 240 | Thermodynamics 1 | 3 |
| MECH 260 | Machine Tool Laboratory | 2 |
| MECH 262 | Statistics and Measurement Laboratory | 3 |
| MECH 291 | Graphics | 3 |
| MECH 292 | Design 1 | 3 |
| MECH 309 | Numerical Methods in Mechanical Engineering | 3 |
| MECH 314 | Dynamics of Mechanisms | 3 |
| MECH 315 | Mechanics 3 | 4 |
| MECH 321 | Mechanics of Deformable Solids | 3 |
| MECH 331 | Fluid Mechanics 1 | 3 |
| MECH 341 | Thermodynamics 2 | 3 |
| MECH 346 | Heat Transfer | 3 |
| MECH 362 | Mechanical Laboratory 1 | 2 |
| MECH 383 | Applied Electronics and Instrumentation | 3 |
| MECH 393 | Design 2 | 3 |
| MECH 412 | Dynamics of Systems | 3 |
| MECH 430 | Fluid Mechanics 2 | 3 |
| MECH 463D1 | Mechanical Engineering Project | 3 |
| MECH 463D2 | Mechanical Engineering Project | 3 |

Total Credits: 113

1 course (3 credits) at the 300-level or higher from the Faculty of Engineering or an approved course in the Faculty of Science, including Mathematics.
MECH 362 Mechanical Laboratory 1 2
MECH 383 Applied Electronics and Instrumentation 3
MECH 403D1 Thesis (Honours) 3
MECH 403D2 Thesis (Honours) 3
MECH 404 Honours Thesis 2 3
MECH 419 Advanced Mechanics of Systems 3
MECH 430 Fluid Mechanics 2 3
MECH 452 Mathematical Methods in Engineering 1 3
MECH 494 Honours Design Project 3 63

COMPLEMENTARY COURSES 21
2 of the following three courses (6 credits):
MECH 545 Advanced Stress Analysis
MECH 562 Advanced Fluid Mechanics
MECH 578 Advanced Thermodynamics

2 courses (6 credits) at the 300 level or higher to be selected from Mechanical Engineering. For students who entered in September 2000 or later, one of these two courses must be chosen from the following list:
MECH 343 Energy Conversion
MECH 413 Control Systems
MECH 452 Aircraft Structures
MECH 471 Industrial Engineering
MECH 472 Case Studies in Project Mgmt
MECH 495 Design 3
MECH 496 Design 4
MECH 497 Value Engineering
MECH 524 Computer Integrated Manufacturing
MECH 526 Manufacturing and the Environment
MECH 528 Product Design
MECH 532 Aircraft Performance, Stability and Control
MECH 541 Kinematic Synthesis
MECH 543 Design with Composite Materials
MECH 554 Microprocessors for Mechanical Systems
MECH 557 Mechatronic Design
MECH 561 Fluid Power and Control
MECH 565 Fluid Flow and Heat Transfer Equipment
MECH 572 Introduction to Robotics
MECH 573 Mechanics of Robotic Systems
MECH 577 Optimum Design

1 course (3 credits) at the 300 level or higher from the Faculty of Engineering or an approved course in the Faculty of Science, including Mathematics.

Two courses (6 credits), selected from an approved list: one course on the impact of technology on society and one in the humanities and social sciences, administrative studies and law. See section 3.4 “Complementary Studies”, under the Faculty of Engineering in the Undergraduate Programs Calendar, for further information.

TOTAL CREDITS 112

4.2.3 Aeronautical Engineering Concentration (for B.Eng. in Mechanical Engineering, Regular and Honours)

Required Courses (6 credits):
MECH 332 (3) Aircraft Performance, Stability and Control
MECH 533 (3) Subsonic Aerodynamics

Complementary Courses (9 credits) at least one of the following two courses:
MECH 432 (3) Aircraft Structures
MECH 434 (3) Turbomachinery

the remaining two courses may be chosen from the above or from the following courses:
MECH 531 (3) Aerelasticity
MECH 537 (3) High-Speed Aerodynamics
MECH 538 (3) Unsteady Aerodynamics
MECH 539 (3) Computational Aerodynamics
MECH 565 (3) Fluid Flow and Heat Transfer Equipment

All courses must be passed at a level C or better.

Students should also discuss the matter with their advisor and complete a special form indicating their intention to take this Concentration.

4.3 Mining, Metals and Materials Engineering

4.3.1 B.Eng. Degree in Materials Engineering – Co-op Program

Change of program name from B.Eng. Degree in Materials Engineering – Co-op Program; program requirements remain the same.

4.4 Environmental Engineering Minor

The Environmental Engineering Minor is offered for students of Engineering and the Department of Bioresource Engineering (formerly Agricultural and Biosystems Engineering) wishing to pursue studies in this area.

The Minor program consists of 21 credits in courses. Up to a maximum of 12 credits of coursework in the student’s B.Eng. program may double-count with the Minor.

In the case of Agricultural and Biosystems, Chemical, and Civil Engineering students, courses taken towards the Humanities and Impact course requirements for the Major cannot double-count as Minor program courses.

To complete the Minor in Environmental Engineering, students must obtain a grade of C or better in all approved courses in the Minor; and satisfy the requirements of the Minor and of their principal departmental program.

The Environmental Engineering Minor Program is administered by the Department of Civil Engineering and Applied Mechanics. Further information may be obtained from Professor S. Ghoshal, Room 475C, Macdonald Engineering Building.

Note: Not all courses listed are offered every year. Students should consult with the department concerned about the courses which are offered in a given year.

Complementary Courses (21 credits)
Introductory course (3 credits minimum) – one of:
CHEE 230 (3) Environmental Aspects of Technology
CIVE 225 (4) Environmental Engineering
plus a minimum of 18 credits, either:
15 credits* (minimum) Engineering courses and
3 credits (minimum) Non-Engineering courses, from the course lists below:

* A minimum of 6 credits must be from outside the student’s principal departmental program. A maximum of 6 credits of research project courses may be counted towards this category provided the project has sufficient environmental engineering content (project proposal requires approval of project supervisor and Coordinator of the Minor).

OR

15 credits specified for the Barbados Field Study Semester, see page 4 (under the Faculty of Agricultural and Environmental Sciences), and

3 credits chosen from the Engineering Course list below, excluding CHEE 496.

Engineering Course List (Environmental Engineering Minor)

Agricultural Engineering (Macdonald Campus)
ABEN 217 (3) Hydrology and Drainage
(not open to students who have passed CIVE 323)
ABEN 322 (3) Food Production/Processing Waste Management
ABEN 330 (3) GIS for Biosystems Engineering
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABEN 416</td>
<td>Engineering for Land Development</td>
</tr>
<tr>
<td>ABEN 518</td>
<td>Pollution Control for Agriculture</td>
</tr>
<tr>
<td>CHEE 351</td>
<td>Separation Processes</td>
</tr>
<tr>
<td>CHEE 370</td>
<td>Elements of Biotechnology</td>
</tr>
<tr>
<td>CHEE 430</td>
<td>Technology Impact Assessment</td>
</tr>
<tr>
<td></td>
<td>(not open to students who have passed WILD 437)</td>
</tr>
<tr>
<td>CHEE 452</td>
<td>Particulate Systems (offered in alternate years)</td>
</tr>
<tr>
<td>CHEE 471</td>
<td>Industrial Water Pollution Control</td>
</tr>
<tr>
<td></td>
<td>(not open to students who have passed CIVE 430)</td>
</tr>
<tr>
<td>CHEE 472</td>
<td>Industrial Air Pollution Control</td>
</tr>
<tr>
<td>CHEE 496</td>
<td>Environmental Research Project</td>
</tr>
<tr>
<td>CHEE 591</td>
<td>Environmental Bioremediation</td>
</tr>
<tr>
<td>CIVE 225</td>
<td>Environmental Engineering</td>
</tr>
<tr>
<td></td>
<td>(not part of the Minor for Civil Engineering Students)</td>
</tr>
<tr>
<td>CIVE 323</td>
<td>Hydrology and Water Resources</td>
</tr>
<tr>
<td></td>
<td>(not open to students who have passed ABEN 217)</td>
</tr>
<tr>
<td>CIVE 421</td>
<td>Municipal Systems</td>
</tr>
<tr>
<td>CIVE 430</td>
<td>Water Treatment and Pollution Control</td>
</tr>
<tr>
<td></td>
<td>(not open to students who have passed CHEE 471)</td>
</tr>
<tr>
<td>CIVE 451</td>
<td>Geoenvironmental Engineering</td>
</tr>
<tr>
<td>CIVE 526</td>
<td>Solid Waste Management</td>
</tr>
<tr>
<td>CIVE 550</td>
<td>Water Resources Management</td>
</tr>
<tr>
<td>CIVE 553</td>
<td>Stream Pollution and Control</td>
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<tr>
<td>CIVE 555</td>
<td>Environmental Data Analysis</td>
</tr>
<tr>
<td>CIVE 572</td>
<td>Advanced Hydraulics</td>
</tr>
<tr>
<td>CIVE 574</td>
<td>Fluid Mechanics of Water Pollution</td>
</tr>
<tr>
<td>CIVE 577</td>
<td>River Engineering</td>
</tr>
<tr>
<td>CIVE 585</td>
<td>Groundwater Hydrology</td>
</tr>
<tr>
<td>MECH 343</td>
<td>Energy Conversion</td>
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<tr>
<td>MECH 434</td>
<td>Turbomachinery</td>
</tr>
<tr>
<td>MECH 447</td>
<td>Combustion</td>
</tr>
<tr>
<td>MECH 525</td>
<td>Intro. to Nuclear Engineering</td>
</tr>
<tr>
<td>MECH 526</td>
<td>Manufacturing and the Environment</td>
</tr>
<tr>
<td>MECH 534</td>
<td>Air Pollution Engineering</td>
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<td>MIME 412</td>
<td>Corrosion and Degradation</td>
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<td>MIME 451</td>
<td>Environmental Controls: Met'I Plants</td>
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<tr>
<td>MIME 555</td>
<td>Thermal Remediation of Wastes</td>
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<tr>
<td>MPMC 327</td>
<td>Hydrogéologie appliquée</td>
</tr>
<tr>
<td>MPMC 328</td>
<td>Environnement et gestion des rejets miniers</td>
</tr>
<tr>
<td>MPMC 422</td>
<td>Ventilation minière et hygiène du travail</td>
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<tr>
<td>WILD 415</td>
<td>Conservation Law</td>
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<tr>
<td>WILD 437</td>
<td>Assessing Environmental Impact (not open to students who have passed CHEE 430)</td>
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<tr>
<td>WOOD 420</td>
<td>Environmental Issues: Forestry</td>
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<tr>
<td>ZOOL 315</td>
<td>Science of Inland Waters</td>
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<tr>
<td>ANTH 206</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>ATOC 210</td>
<td>Introduction to Atmospheric Science (not open to students who have passed GEOG 321)</td>
</tr>
<tr>
<td>ATOC 220</td>
<td>Introduction to Ocean Sciences</td>
</tr>
<tr>
<td>CHEM 307</td>
<td>Analytical Chemistry of Pollutants</td>
</tr>
<tr>
<td>EPSC 243</td>
<td>Environmental Geology (not open to students who have passed or who will take EPSC 221)</td>
</tr>
<tr>
<td>EPSC 549</td>
<td>Groundwater Hydrology</td>
</tr>
<tr>
<td>ECON 225</td>
<td>Economics of the Environment</td>
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<tr>
<td>ECON 326</td>
<td>Ecological Economics</td>
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<tr>
<td>ECON 347</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>Geographical Perspectives: World</td>
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<tr>
<td>GEOG 201</td>
<td>Introductory Geo-Information Science</td>
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<tr>
<td>GEOG 203</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>Global Change: Past, Present and Future</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>GEOG 308</td>
<td>Principles of Remote Sensing</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>Climatic Environments (not open to students who have passed ATOC 210)</td>
</tr>
<tr>
<td>GEOG 404</td>
<td>Environmental Management 2</td>
</tr>
<tr>
<td>CMPL 580</td>
<td>Environment and the Law</td>
</tr>
<tr>
<td>MIMM 211</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>RELG 270</td>
<td>Religious Ethics and the Environment</td>
</tr>
<tr>
<td>SOCI 328</td>
<td>Environmental Sociology</td>
</tr>
<tr>
<td>URBP 506</td>
<td>Environmental Policy and Planning</td>
</tr>
</tbody>
</table>

**Non-Engineering Course List**

**Environmental Engineering Minor**

**Agricultural Sciences (Macdonald Campus)**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>AEBI 200</td>
<td>Biology of Organisms</td>
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<tr>
<td>AEBI 201</td>
<td>Biology of Organisms 2</td>
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<tr>
<td>AEBI 205</td>
<td>Principles of Ecology</td>
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<tr>
<td>AEPH 510</td>
<td>Agricultural Micrometeorology</td>
</tr>
<tr>
<td>ENTO 380</td>
<td>Food Systems and the Environment</td>
</tr>
<tr>
<td>MICR 230</td>
<td>Microbial World (not open to students who have passed CHEE 370)</td>
</tr>
<tr>
<td>MICR 331</td>
<td>Microbial Ecology (not open to students who have passed CHEE 370)</td>
</tr>
<tr>
<td>MICR 341</td>
<td>Mechanisms of Pathogenicity</td>
</tr>
<tr>
<td>SOIL 311</td>
<td>Soil Physics</td>
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<tr>
<td>WILD 333</td>
<td>Physical and Biological Aspects of Pollution</td>
</tr>
<tr>
<td>WILD 375</td>
<td>Issues: Environmental Sciences</td>
</tr>
</tbody>
</table>

McGill University, Calendar Supplement – Undergraduate Programs 2003-2004
5 Management

5.1 Strategic Management Concentration

There are two options offered in the Strategic Management Concentration: Global Strategy and Social Context.

The Global Strategy option is intended for students who want to learn strategic management and analysis in the context of globalization. Globalization is no longer the concern of a few large enterprises and financial institutions; it has consequences that affect all kinds of business and the environment in which they operate – economic, social, political and ecological. Global Strategy allows students to assess the various opportunities and threats inherent in globalization, and requires them to explore the consequences and implications of business decisions for society and the environment. It also enables them to think through the requirements of doing business in different economic and political systems. Finally, it offers them the opportunity to understand and analyze industry structures and the kinds of business opportunities they either create or destroy.

The Social Context option is intended for students who want to learn strategic management and analysis with special attention to the not-for-profit, or civil sector, or who want to focus on broader or more complex social issues within the for-profit sector. The civil sector – made up of voluntary and non-governmental organizations and foundations – is the sector that has been the fastest growing employer for the past decade. Students who focus on this stream will be challenged to place a high priority on environmental issues, as well as issues of sustainability, corporate social responsibility, and social impact. They will also investigate the social tools and mechanisms necessary to employ cross-sectoral collaboration to achieve desired social outcomes.

GLOBAL STRATEGY OPTION

Complementary Courses (15 credits)

at least three courses from:

- MGPO 383 (3) International Business Policy
- MGPO 445 (3) Industry Analysis & Competitive Strategy
- MGPO 460 (3) Managing Innovation
- MGPO 469 (3) Managing Globalization
- MGPO 470 (3) Strategy and Organization

the remaining credits to be chosen from:

- BUSA 391 (3) International Business Law
- ECON 219 (3) Current Economic Problems: Topics
- ECON 305 (3) Industrial Organization
- MGPO 440 (3) Strategies for Sustainability
- MGPO 450 (3) Ethics in Management
- MGPO 468 (3) Managing Organizational Politics
- MGPO 562 (3) Seminar in Organizational Strategy
- MGPO 567 (3) Business in Society

SOCIAL CONTEXT OPTION

Required Courses (9 credits)

- MGPO 440 (3) Strategies for Sustainability
- MGPO 450 (3) Ethics in Management
- MGPO 468 (3) Managing Organizational Politics

Complementary Courses (6 credits)

two courses chosen from:

- BUSA 391 (3) International Business Law
- MGPO 383 (3) International Business Policy
- MGPO 443 (3) Topics in Policy
- MGPO 445 (3) Industry Analysis & Competitive Strategy
- MGPO 460 (3) Managing Innovation
- MGPO 469 (3) Managing Globalization
- MGPO 470 (3) Strategy and Organization
- MGPO 562 (3) Seminar in Organizational Strategy
- MGPO 567 (3) Business in Society

5.2 Psychology for Management Students, Major

Required Courses (12 credits)

- PSYC 213 (3) Cognition
- PSYC 215 (3) Social Psychology
- PSYC 301 (3) Learning
- PSYC 333 (3) Personality and Social Psychology

Complementary Courses (18 credits)

12 credits chosen from:

- PSYC 211 (3) Introductory Behavioural Neuroscience
- PSYC 212 (3) Perception
- PSYC 310 (3) Human Intelligence
- PSYC 331 (3) Inter-Group Relations
- PSYC 332 (3) Introduction to Personality
- PSYC 335 (3) Formal Models: Psychological Processes
- PSYC 336 (3) Measurement of Psychological Processes
- PSYC 340 (3) Psychology of Language
- PSYC 341 (3) The Psychology of Bilingualism
- PSYC 351 (3) Research Methods in Social Psychology
- PSYC 352 (3) Laboratory in Cognitive Psychology
- PSYC 403 (3) Modern Psychology in Historical Perspective
- PSYC 406 (3) Psychological Tests and Measurement
- PSYC 408 (3) Principles of Cognitive Behaviour Therapy
- PSYC 429 (3) Health Psychology
- PSYC 451 (3) Human Factors Research and Techniques
- PSYC 471 (3) Human Motivation
- PSYC 473 (3) Social Cognition and the Self
- PSYC 474 (3) Interpersonal Relationships
- PSYC 510 (3) Statistical Analysis of Tests
- PSYC 534 (3) Community Psychology
- PSYC 535 (3) Advanced Topics in Social Psychology

Organizational Psychology Option

two of:

- ORGB 321 (3) Leadership
- ORGB 380 (3) Cross Cultural Management
- ORGB 420 (3) Managing Organizational Teams
- ORGB 421 (3) Managing Organizational Change
- ORGB 434 (3) Advanced Topics in Organizational Behaviour
- ORGB 435 (3) Women as Global Leaders and Managers
- INDR 294 (3) Introduction to Labour-Management Relations

Consumer Psychology Option

two of:

- MRKT 451 (3) Marketing Research
- MRKT 452 (3) Consumer Behaviour
- MRKT 557 (3) Marketing Research 2

6 Science

6.1 Chemistry

6.1.1 Major and Honours Programs, Required Course List

- CHEM 212 (4) Introductory Organic Chemistry 1
- CHEM 213 (3) Introductory Physical Chemistry
- CHEM 222 (4) Introductory Organic Chemistry 2
- CHEM 273 (1) Chemical Kinetics
- CHEM 277D1 (1.5) Analytical Chemistry
- CHEM 277D2 (1.5) Analytical Chemistry
- CHEM 281 (3) Inorganic Chemistry 1
- CHEM 302 (3) Introductory Organic Chemistry 3
- CHEM 345 (3) Molecular Properties and Structure 1
- CHEM 355 (3) Molecular Properties and Structure 2
- CHEM 363 (2) Physical Chemistry Laboratory 1
- CHEM 365 (2) Statistical Thermodynamics
6.1.2 Bio-Organic Option, Chemistry Major

**MAJOR WITH BIO-ORGANIC OPTION** (66 credits)

**Required Courses** (63 credits)
54 credits, all courses specified above for the Chemistry Major, except PHYS 242

plus the following 9 credits:

BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
CHEM 502 (3) Advanced Bio-Organic Chemistry

**Complementary Course** (3 credits)

one of:

BIOL 202 (3) Basic Genetics
BIOL 301 (3) Cell and Molecular Laboratory
MIMM 211 (3) Introductory Microbiology
PHGY 201 (3) Human Physiology: Control Systems
PHGY 202 (3) Human Physiology: Body Functions
PHGY 209 (3) Mammalian Physiology 1
PHGY 210 (3) Mammalian Physiology 2

Attainment of the Major degree requires a CGPA of 2.00.

6.1.3 Bio-Organic Option, Chemistry Honours

**HONOURS WITH BIO-ORGANIC OPTION** (78 credits)

**Required Courses** (60 credits)
54 credits, all courses specified above for Chemistry Honours, except PHYS 242

plus the following 6 credits:

BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism

**Complementary Courses** (18 credits)
6 credits of research*

CHEM 470 (6) Research Project
or CHEM 480 (3) Research Project
and CHEM 490 (3) Research Project

6 credits, two of:

BIOL 202 (3) Basic Genetics
BIOL 301 (3) Cell and Molecular Laboratory
CHEM 502 (3) CHEM 490
MIMM 211 (3) Introductory Microbiology
MIMM 314 (3) Immunology
MIMM 323 (3) Microbial Physiology
PHGY 202 (3) Human Physiology: Body Functions
PHGY 209 (3) Mammalian Physiology 1
PHGY 210 (3) Mammalian Physiology 2

and 6 credits of additional Chemistry courses at the 400 level or higher.

* Students may take up to 12 Research Project credits but only 6 of these may be used to fulfill the program requirement.

Attainment of the Honours degree requires a CGPA of at least 3.00.

6.1.4 Environmental Chemistry Option, Chemistry Major

**MAJOR IN CHEMISTRY: ENVIRONMENTAL CHEMISTRY OPTION** (65 credits)

**Required Courses** (62 credits)
56 credits, all courses specified above for the Chemistry Major, plus the following 6 credits:

CHEM 219 (3) Introduction to Atmospheric Chemistry
CHEM 307 (3) Analytical Chemistry of Pollutants

**Complementary Course** (3 credits)

one of:

CHEM 419 (3) Advances in Chemistry of Atmosphere
CHEM 462 (3) Green Chemistry
CHEM 567 (3) Chemometrics: Data Analysis
CHEM 575 (3) Chemical Kinetics

Attainment of the Major degree requires a CGPA of 2.00.

6.1.5 Environmental Chemistry Option, Chemistry Honours

**HONOURS IN CHEMISTRY: ENVIRONMENTAL CHEMISTRY OPTION** (77 credits)

**Required Courses** (62 credits)
56 credits, all courses specified above for Honours Chemistry, plus the following 6 credits:

CHEM 219 (3) Introduction to Atmospheric Chemistry
CHEM 307 (3) Analytical Chemistry of Pollutants

**Complementary Courses** (15 credits)
6 credits of research*

CHEM 470 (6) Research Project
or CHEM 480 (3) Research Project
and CHEM 490 (3) Research Project

3 credits, one of:

CHEM 419 (3) Advances in Chemistry of Atmosphere
CHEM 462 (3) Green Chemistry
CHEM 567 (3) Chemometrics: Data Analysis
CHEM 575 (3) Chemical Kinetics

6 credits, two of

AOTC 220 (3) Introduction to Oceanic Sciences
CHEM 352 (3) Structural Organic Chemistry
CHEM 597 (3) Analytical Spectroscopy
EPSC 542 (3) Chemical Oceanography

* Students may take up to 12 Research Project credits but only 6 of these may be used to fulfill the program requirement.

Attainment of the Honours degree requires a CGPA of at least 3.00.

6.1.6 Materials Option, Chemistry Major

**MAJOR WITH MATERIALS OPTION** (65 credits)

**Required Courses** (62 credits)
56 credits, all courses specified above for the Chemistry Major, plus the following 6 credits:

CHEM 344 (3) Advanced Materials
CHEM 455 (3) Introductory Polymer Chemistry

**Complementary Course** (3 credits)

one of:

CHEM 531 (3) Chemistry of Inorganic Materials
CHEM 534 (3) Nanoscience and Nanotechnology
CHEM 543 (3) Chemistry of Pulp and Paper
CHEM 571 (3) Polymer Synthesis
CHEM 585 (3) Colloid Chemistry

Attainment of the Major degree requires a CGPA of 2.00.
6.1.7 Materials Option, Chemistry Honours

HONOURS WITH MATERIALS OPTION (77 credits)

Required Courses (62 credits)
56 credits, all courses specified above for Honours Chemistry plus the following 6 credits:
CHEM 344 (3) Advanced Materials
CHEM 455 (3) Introductory Polymer Chemistry

Complementary Courses (15 credits)
6 credits of research*:
CHEM 470 (6) Research Project
or CHEM 480 (3) Research Project
and CHEM 490 (3) Research Project

56 credits, all courses specified above for Honours Chemistry plus the following 6 credits:
CHEM 344 (3) Advanced Materials
CHEM 455 (3) Introductory Polymer Chemistry

6 credits of research*:
CHEM 470 (6) Research Project
or CHEM 480 (3) Research Project
and CHEM 490 (3) Research Project

6 credits, two of:
CHEM 531 (3) Chemistry of Inorganic Materials
CHEM 534 (3) Nanoscience and Nanotechnology
CHEM 543 (3) Chemistry of Pulp and Paper
CHEM 571 (3) Polymer Synthesis
CHEM 585 (3) Colloid Chemistry

3 credits, one of:
CHEE 481 (3) Polymer Engineering
MIME 260 (3) Materials Science and Engineering
MRKT 360 (3) Marketing of Technology

* Students may take up to 12 Research Project credits but only 6 of these may be used to fulfill the program requirement.

Attainment of the Honours degree requires a CGPA of at least 3.00.

6.2 Cognitive Science

MINOR PROGRAM IN COGNITIVE SCIENCE (27 credits)

Required Course (3 credits)
PSYC 532 (3) Cognitive Science

Complementary Courses (24 credits)
from outside of the student's home department, selected from the courses listed below.

Computer Science
COMP 424 (3) Topics: Artificial Intelligence 1
COMP 426 (3) Automated Reasoning
COMP 558 (3) Fundamentals of Computer Vision

Educational Psychology
EDPE 555 (3) Applied Cognitive Science

Linguistics
LING 331 (3) Phonology 1
LING 355 (3) Language Acquisition 1
LING 370 (3) Introduction to Semantics
LING 371 (3) Syntax 1
LING 419 (3) Linguistic Theory 1
LING 440 (3) Morphology
LING 531 (3) Phonology 2
LING 555 (3) Language Acquisition 2
LING 571 (3) Syntax 2
LING 590 (3) Introduction to Neurolinguistics

Mathematics
MATH 318 (3) Mathematical Logic
MATH 328 (3) Computability and Mathematical Linguistics

Philosophy
PHIL 210 (3) Introduction to Deductive Logic 1
PHIL 304 (3) Chomsky
PHIL 306 (3) Philosophy of Mind
PHIL 310 (3) Intermediate Logic
PHIL 410 (3) Topics in Advanced Logic 1
PHIL 415 (3) Philosophy of Language
PHIL 419 (3) Epistemology
PHIL 506 (3) Seminar: Philosophy of Mind
PHIL 507 (3) Seminar: Cognitive Science

Psychology
PSYC 211 (3) Introductory Behavioural Neuroscience
PSYC 212 (3) Perception
PSYC 213 (3) Cognition
PSYC 301 (3) Learning
PSYC 308 (3) Behavioural Neuroscience 1
PSYC 311 (3) Human Cognition and the Brain
PSYC 353 (3) Laboratory in Human Perception
PSYC 410 (3) Special Topics in Neuropsychoiology
PSYC 413 (3) Cognitive Development
PSYC 470 (3) Memory and Brain

6.3 Computer Science

6.3.1 Computational Molecular Biology, Minor

Note: Because a minimum of 18 new credits must be completed in a Minor in the Faculty of Science (see Section 3.5.3 of the Faculty of Science section of the Undergraduate Programs Calendar), students in Computer Science or Joint Computer Science programs cannot take the Minor Program in Computational Molecular Biology.

6.3.2 Computer Science, Minor

MINOR PROGRAM IN COMPUTER SCIENCE (24 credits)

Required Courses (12 credits)
COMP 202 (3) Introduction to Computing 1
COMP 203 (3) Introduction to Computing 2
COMP 206 (3) Introduction to Software Systems
COMP 302 (3) Programming Languages and Paradigms

Complementary Courses (12 credits)
selected from:
COMP 251 (3) Data Structures and Algorithms
COMP 273 (3) Introduction to Computer Systems
COMP 303 (4) Programming Techniques
COMP 304 (3) Object-oriented Design
COMP 310 (3) Computer Systems and Organization
COMP 330 (3) Theoretical Aspects: Computer Science
COMP 335 (3) Software Engineering Methods
COMP 350 (3) Numerical Computing
or MATH 317 (3) Numerical Analysis
COMP 360 (3) Algorithm Design Techniques
COMP 409 (3) Concurrent Programming
COMP 410 (3) Mobile Computing
COMP 412 (3) Software for E-commerce
COMP 420 (3) Files and Databases
COMP 421 (3) Database Systems
COMP 423 (3) Data Compression
COMP 424 (3) Topics: Artificial Intelligence 1
COMP 426 (3) Automated Reasoning
COMP 433 (3) Personal Software Engineering
COMP 435 (3) Basics of Computer Networks
COMP 490 (3) Intro to Probabilistic Analysis Algorithms
COMP 505 (3) Advanced Computer Architecture
COMP 506 (3) Advanced Analysis of Algorithms
COMP 507 (3) Computational Geometry
COMP 520 (4) Compiler Design
COMP 522 (4) Modelling and Simulation
COMP 524 (3) Theoretical Foundations of Programming Languages
COMP 526 (3) Probabilistic Reasoning and AI
COMP 533 (3) Object-Oriented Software Development
COMP 534 (3) Team Software Engineering
COMP 535 (3) Computer Networks 1
COMP 537 (3) Internet Programming
COMP 538 (3) Person-Machine Communication
COMP 540 (3) Matrix Computations
COMP 557 (3) Computer Graphics
MAJOR PROGRAM IN COMPUTER SCIENCE (60 credits)

Freshman Program students interested in Computer Science should try to take COMP 202 if possible, but it is not required for entry to the Major. A student entering with insufficient programming background may take COMP 202 but it will not count for program credit.

Required Courses (42 credits)
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 206 (3) Introduction to Software Systems
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 310 (3) Computer Systems and Organization
- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 350 (3) Numerical Computing
- COMP 360 (3) Algorithm Design Techniques
- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 240 (3) Discrete Structures 1
- MATH 323 (3) Probability Theory
- MATH 340 (3) Abstract Algebra and Computing

Complementary Courses (18 credits)
15 credits from:
- COMP 303 (4) Programming Techniques
- COMP 304 (3) Object-oriented Design
- COMP 335 (3) Software Engineering Methods
- COMP 361 (3) Systems Development Project
- COMP 409 (3) Concurrent Programming
- COMP 410 (3) Mobile Computing
- COMP 412 (3) Software for E-commerce
- COMP 420 (3) Files and Databases
- COMP 421 (3) Database Systems
- COMP 423 (3) Data Compression
- COMP 424 (3) Topics: Artificial Intelligence 1
- COMP 426 (3) Automated Reasoning
- COMP 433 (3) Personal Software Engineering
- COMP 435 (3) Basics of Computer Networks
- COMP 490 (3) Intro to Probabilistic Analysis Algorithms
- COMP 505 (3) Advanced Computer Architecture
- COMP 506 (3) Advanced Analysis of Algorithms
- COMP 507 (3) Computational Geometry
- COMP 520 (4) Compiler Design
- COMP 522 (4) Modelling and Simulation
- COMP 524 (3) Theoretical Foundations of Programming Languages
- COMP 525 (3) Formal Verification
- COMP 526 (3) Probabilistic Reasoning and AI
- COMP 531 (3) Theory of Computation
- COMP 533 (3) Object-Oriented Software Development
- COMP 534 (3) Team Software Engineering
- COMP 535 (3) Computer Networks 1
- COMP 537 (3) Internet Programming
- COMP 538 (3) Person-Machine Communication
- COMP 540 (3) Matrix Computations
- COMP 547 (3) Cryptography and Data Security
- COMP 557 (3) Computer Graphics

or from courses outside of the School approved by the adviser, to a maximum of 6 credits.

Honours students must maintain a CGPA of 3.00 and must have at least this average upon graduation as well.

Required Courses (45 credits)
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 252 (3) Algorithms and Data Structures
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 310 (3) Computer Systems and Organization
- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 350 (3) Numerical Computing
- COMP 362 (3) Honours Algorithm Design
- COMP 400 (3) Technical Project and Report
- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 240 (3) Discrete Structures 1
- MATH 323 (3) Probability Theory
- MATH 340 (3) Abstract Algebra and Computing

Complementary Courses (27 credits)
24 credits from Major Program in Computer Science complementary courses in Computer Science, 12 credits of which must be taken at the 500 level.

3 credits above the 300 level from Major Program in Computer Science complementary courses in Mathematics, which must be taken at the 300 level or above.

6.3.5 Software Engineering, Major

MAJOR PROGRAM IN SOFTWARE ENGINEERING (69 credits)

Required Courses (60 credits)
- COMP 202 (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 304 (3) Object-oriented Design
- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 360 (3) Algorithm Design Techniques
- COMP 361 (3) Systems Development Project
- ECSE 321 (3) Introduction to Software Engineering
- ECSE 427 (3) Operating Systems
- ECSE 428 (3) Software Engineering Practice
- ECSE 429 (3) Software Validation
- ECSE 495 (3) Software Engineering Design Project
- MATH 223 (3) Linear Algebra
- MATH 240 (3) Discrete Structures 1
MATH 260 (3) Intermediate Calculus
MATH 323 (3) Probability Theory
MATH 324 (3) Statistics

Complementary Courses (9 credits)
selected from the following:
COMP 303 (4) Programming Techniques
COMP 335 (3) Software Engineering Methods
COMP 350 (3) Numerical Computing
COMP 409 (3) Concurrent Programming
COMP 410 (3) Mobile Computing
COMP 412 (3) Software for E-commerce
COMP 420 (3) Files and Databases
COMP 421 (3) Database Systems
COMP 424 (3) Topics: Artificial Intelligence 1
COMP 433 (3) Personal Software Engineering
COMP 435 (3) Basics of Computer Networks
COMP 505 (3) Advanced Computer Architecture
COMP 520 (4) Compiler Design
COMP 522 (4) Modelling and Simulation
COMP 525 (3) Formal Verification
COMP 526 (3) Probabilistic Reasoning and AI
COMP 533 (3) Object-Oriented Software Development
COMP 535 (3) Computer Networks 1
COMP 537 (3) Internet Programming
COMP 547 (3) Cryptography and Data Security
COMP 558 (3) Fundamentals of Computer Vision
COMP 560 (3) Graph Algorithms and Applications
COMP 566 (3) Discrete Optimization 1
COMP 575 (3) Fundamentals of Distributed Algorithms
COMP 577 (3) Distributed Database Systems
ECSE 200 (3) Fundamentals of Electrical Engineering
ECSE 210 (3) Circuit Analysis
ECSE 291 (2) Electrical Measurement Laboratory
ECSE 303 (3) Signals and Systems 1
ECSE 304 (3) Signals and Systems 2
ECSE 322 (3) Computer Engineering
ECSE 323 (5) Digital Systems Design
ECSE 404 (3) Control Systems
ECSE 411 (3) Communications Systems
ECSE 420 (3) Parallel Computing
ECSE 421 (3) Embedded Systems
ECSE 422 (3) Fault Tolerant Computing
ECSE 424 (3) Human-Computer Interaction
ECSE 425 (3) Computer Organization and Architecture
ECSE 426 (3) Microprocessor Systems
MATH 261 (3) Differential Calculus
MATH 381 (3) Complex Variables and Transforms

Complementary Courses (11 credits)
EPSC 201 (3) Understanding Planet Earth
or EPSC 233 (3) Earth and Life History
8 credits selected from:
EPSC 203 (3) Structural Geology 1
EPSC 231 (2) Field School 1
EPSC 243 (3) Environmental Geology
EPSC 334 (3) Invertebrate Paleontology
EPSC 350 (3) Tectonics
EPSC 451 (3) Hydrothermal Mineral Deposits
EPSC 452 (3) Mineral Deposits 2
EPSC 542 (3) Chemical Oceanography
EPSC 561 (3) Ore-forming Processes 1
EPSC 562 (3) Ore-forming Processes 2
BIOL 352 (3) Vertebrate Evolution
Other Earth and Planetary Sciences courses may be substituted with permission.

6.4.2 Earth and Planetary Sciences, Major

MAJOR PROGRAM IN EARTH AND PLANETARY SCIENCES
(66 credits)
U1 Required Courses (27 credits)
EPSC 203 (3) Structural Geology 1
EPSC 210 (3) Introductory Mineralogy
EPSC 212 (4) Introductory Petrology
EPSC 223 (3) Earth and Life History
EPSC 220 (3) Principles of Geochemistry
EPSC 231 (2) Field School 1
EPSC 233 (3) Earth and Life History
EPSC 312 (3) Spectroscopy of Minerals
MATH 222 (3) Calculus 3
approved (3) statistics course
Note: Students who have not had the following course or its equivalent in CEGEP or the Freshman Program may be required to take MATH 133 Vectors, Matrices and Geometry.
U2 and/or U3 Required Courses (24 credits)
EPSC 320 (3) Elementary Earth Physics
EPSC 334 (3) Invertebrate Paleontology
EPSC 350 (3) Tectonics
EPSC 423 (3) Igneous Petrology
EPSC 445 (3) Metamorphic Petrology
EPSC 452 (3) Mineral Deposits 2
EPSC 455 (3) Sedimentary Geology
EPSC 519 (3) Isotope Geology

Complementary Courses (15 credits)
3 credits, one of:
EPSC 331 (3) Field School 2
EPSC 341 (3) Field School 3
plus 12 credits (4 courses) chosen from the following:
EPSC 330 (3) Earthquakes and Earth Structure
EPSC 425 (3) Sediments to Sequences
EPSC 435 (3) Geophysical Applications
EPSC 451 (3) Hydrothermal Mineral Deposits
EPSC 501 (3) Crystal Chemistry
EPSC 530 (3) Volcanology
EPSC 542 (3) Chemical Oceanography
EPSC 547 (3) High Temperature Geochemistry
EPSC 548 (3) Processes of Igneous Petrology
EPSC 549 (3) Hydrogeology
EPSC 550 (3) Selected Topics 1
EPSC 551 (3) Selected Topics 2
EPSC 552 (3) Selected Topics 3
EPSC 561 (3) Ore-forming Processes 1
EPSC 562 (3) Ore-forming Processes 2
EPSC 570 (3) Cosmochemistry
EPSC 580 (3) Aqueous Geochemistry
EPSC 590 (3) Applied Geochemistry Seminar

6.4 Earth and Planetary Sciences

6.4.1 Earth and Planetary Sciences, Minor

MINOR PROGRAM IN EARTH AND PLANETARY SCIENCES
(18 credits)
Required Courses (7 credits)
EPSC 210 (3) Introductory Mineralogy
EPSC 212 (4) Introductory Petrology
Note: Courses at the 300 or higher level in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of Undergraduate Studies.

### 6.4.3 Earth Sciences, Honours

**HONOURS PROGRAM IN EARTH SCIENCES** (75 credits)  
(CGPA ≥ 3.20)

**U1 Required Courses** (27 credits)
- EPSC 203 (3) Structural Geology
- EPSC 210 (3) Introductory Mineralogy
- EPSC 212 (4) Introductory Petrology
- EPSC 220 (3) Principles of Geochemistry
- EPSC 231 (2) Field School 1
- EPSC 233 (3) Earth and Life History
- EPSC 312 (3) Spectroscopy of Minerals
- MATH 222 (3) Calculus 3
- approved (3) statistics course

**Note:** Students who have not had the following course or its equivalent in CEGEP or the Freshman Program may be required to take MATH 133 Vectors, Matrices and Geometry.

**U2 and/or U3 Required Courses** (33 credits)
- EPSC 320 (3) Elementary Earth Physics
- EPSC 350 (3) Tectonics
- EPSC 423 (3) Igneous Petrology
- EPSC 445 (3) Metamorphic Petrology
- EPSC 452 (3) Mineral Deposits 2
- EPSC 455 (3) Sedimentary Geology
- EPSC 480D1 (3) Honours Research Project
- EPSC 480D2 (3) Honours Research Project
- EPSC 519 (3) Isotope Geology
- MATH 314 (3) Advanced Calculus
- MATH 315 (3) Ordinary Differential Equations

**Complementary Courses** (15 credits)
- 3 credits, one of:
  - EPSC 331 (3) Field School 2
  - EPSC 341 (3) Field School 3
- plus 12 credits (4 courses) chosen from the following:
  - EPSC 330 (3) Earthquakes and Earth Structure
  - EPSC 334 (3) Invertebrate Paleontology
  - EPSC 425 (3) Sediments to Sequences
  - EPSC 435 (3) Geophysical Applications
  - EPSC 451 (3) Hydrothermal Mineral Deposits
  - EPSC 501 (3) Crystal Chemistry
  - EPSC 530 (3) Volcanology
  - EPSC 542 (3) Chemical Oceanography
  - EPSC 547 (3) High Temperature Geochemistry
  - EPSC 548 (3) Processes of Igneous Petrology
  - EPSC 549 (3) Hydrogeology
  - EPSC 550 (3) Selected Topics 1
  - EPSC 551 (3) Selected Topics 2
  - EPSC 552 (3) Selected Topics 3
  - EPSC 561 (3) Ore-forming Processes 1
  - EPSC 562 (3) Ore-forming Processes 2
  - EPSC 563 (3) Ore-forming Processes 3
  - EPSC 564 (3) Ore-forming Processes 4

**Note:** Courses at the 300 or higher level in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of Undergraduate Studies.

### 6.4.4 Geochemistry, Minor

**MINOR PROGRAM IN GEOCHEMISTRY** (25 credits)

**Required Courses** (10 credits)
- EPSC 201 (3) Understanding Planet Earth

**Complementary Courses** (15 credits)
- 15 credits selected from:
  - EPSC 220 (3) Principles of Geochemistry
  - EPSC 243 (3) Environmental Geology
  - EPSC 501 (3) Crystal Chemistry
  - EPSC 519 (3) Isotope Geology
  - EPSC 542 (3) Chemical Oceanography
  - EPSC 545 (3) Low Temperature Geochemistry
  - EPSC 561 (3) Ore-forming Processes 1
  - EPSC 562 (3) Ore-forming Processes 2

**Note:** Students who have not had the following course or its equivalent in CEGEP or the Freshman Program may be required to take MATH 133 Vectors, Matrices and Geometry.

**U2 and/or U3 Required Courses** (42 credits)
- EPSC 320 (3) Elementary Earth Physics
- EPSC 330 (3) Earthquakes and Earth Structure
- EPSC 350 (3) Tectonics
- EPSC 423 (3) Igneous Petrology
- EPSC 480D1 (3) Honours Research Project
- EPSC 480D2 (3) Honours Research Project
- EPSC 510 (3) Geodynamics and Geomagnetism
- EPSC 519 (3) Isotope Geology
- EPSC 570 (3) Cosmochemistry
- MATH 314 (3) Advanced Calculus
- MATH 315 (3) Ordinary Differential Equations
- MATH 317 (3) Numerical Analysis
- MATH 319 (3) Partial Differential Equations
- PHYS 340 (3) Electricity and Magnetism

**Complementary Courses** (12 credits)
- 3 credits, one of:
  - PHYS 251 (3) Classical Mechanics 1
  - PHYS 230 (3) Dynamics of Simple Systems
- plus 9 credits (3 courses) chosen from the following:
  - EPSC 334 (3) Invertebrate Paleontology
  - EPSC 425 (3) Sediments to Sequences
  - EPSC 435 (3) Geophysical Applications
  - EPSC 451 (3) Hydrothermal Mineral Deposits
  - EPSC 501 (3) Crystal Chemistry
  - EPSC 530 (3) Volcanology
  - EPSC 542 (3) Chemical Oceanography
  - EPSC 547 (3) High Temperature Geochemistry
  - EPSC 548 (3) Processes of Igneous Petrology
  - EPSC 549 (3) Hydrogeology
  - EPSC 550 (3) Selected Topics 1
  - EPSC 551 (3) Selected Topics 2
  - EPSC 552 (3) Selected Topics 3
  - EPSC 561 (3) Ore-forming Processes 1
  - EPSC 562 (3) Ore-forming Processes 2
  - EPSC 563 (3) Ore-forming Processes 3
  - EPSC 564 (3) Ore-forming Processes 4

### 6.4.5 Planetary Sciences, Honours

**HONOURS PROGRAM IN PLANETARY SCIENCES** (81 credits)  
(CGPA ≥ 3.20)

**U1 Required Courses** (27 credits)
- EPSC 203 (3) Structural Geology
- EPSC 210 (3) Introductory Mineralogy
- EPSC 212 (4) Introductory Petrology
- EPSC 220 (3) Principles of Geochemistry
- EPSC 231 (2) Field School 1
- EPSC 233 (3) Earth and Life History
- EPSC 312 (3) Spectroscopy of Minerals
- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 314 (3) Advanced Calculus

**Note:** Students who have not had the following course or its equivalent in CEGEP or the Freshman Program may be required to take MATH 133 Vectors, Matrices and Geometry.

**U2 and/or U3 Required Courses** (42 credits)
- EPSC 320 (3) Elementary Earth Physics
- EPSC 330 (3) Earthquakes and Earth Structure
- EPSC 350 (3) Tectonics
- EPSC 423 (3) Igneous Petrology
- EPSC 480D1 (3) Honours Research Project
- EPSC 480D2 (3) Honours Research Project
- EPSC 510 (3) Geodynamics and Geomagnetism
- EPSC 519 (3) Isotope Geology
- EPSC 570 (3) Cosmochemistry
- MATH 314 (3) Advanced Calculus
- MATH 315 (3) Ordinary Differential Equations
- MATH 317 (3) Numerical Analysis
- MATH 319 (3) Partial Differential Equations
- PHYS 340 (3) Electricity and Magnetism

**Complementary Courses** (12 credits)
- 3 credits, one of:
  - PHYS 251 (3) Classical Mechanics 1
  - PHYS 230 (3) Dynamics of Simple Systems
- plus 9 credits (3 courses) chosen from the following:
  - EPSC 334 (3) Invertebrate Paleontology
  - EPSC 425 (3) Sediments to Sequences
  - EPSC 435 (3) Geophysical Applications
  - EPSC 451 (3) Hydrothermal Mineral Deposits
  - EPSC 501 (3) Crystal Chemistry
  - EPSC 530 (3) Volcanology
  - EPSC 542 (3) Chemical Oceanography
  - EPSC 547 (3) High Temperature Geochemistry
  - EPSC 548 (3) Processes of Igneous Petrology
  - EPSC 549 (3) Hydrogeology
  - EPSC 550 (3) Selected Topics 1
  - EPSC 551 (3) Selected Topics 2
  - EPSC 552 (3) Selected Topics 3
  - EPSC 561 (3) Ore-forming Processes 1
  - EPSC 562 (3) Ore-forming Processes 2
  - EPSC 563 (3) Ore-forming Processes 3
  - EPSC 564 (3) Ore-forming Processes 4
6.5 Physics

6.5.1 Electrical Engineering, Minor Program

MINOR PROGRAM IN ELECTRICAL ENGINEERING
(23 or 25 credits)
[Program registration done by Student Affairs Office]

The Minor program does not carry professional recognition. Only students who satisfy the requirements of the Major in Physics are eligible for this Minor. Students registered for this option cannot count PHYS 241 towards the requirements of the Major in Physics, and should replace this course by another Physics or Mathematics course. Students who select ECSE 334 in the Minor cannot count PHYS 328 towards the requirements of the Major in Physics, and should replace this course by another Physics or Mathematics course.

**Required Courses** (17 or 19 credits)
ECSE 200 (3) Fundamentals of Electrical Engineering
ECSE 210 (3) Circuit Analysis
ECSE 219 (2) Electrical Measurements Laboratory
ECSE 303 (3) Signals and Systems 1
ECSE 305 (3) Probability and Random Sigs. 1
or ECSE 334(5) Introduction to Microelectronics
ECSE 330 (3) Introduction to Electronics

**Complementary Courses** (6 credits)

Note: Courses at the 300 or higher level in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of Undergraduate Studies.