

To be appended to Program Change Proposal for:

## BA&Sc; Environment;

(basc\_environment\_revision\_2008.doc)

### Course list

Deleted courses shown as ~~strikeout~~, added courses shown as underlined italics. Courses at Macdonald Campus are shown with (M). Superscript numbers (<sup>1</sup>) refer to notes in the Rationale.

| Current Program (54 credits)  | Proposed Program (54 credits)   |
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| <p><b>Required Courses</b> (18 credits)</p> <p>ENVR 200 (3) The Global Environment<br/>           ENVR 201 (3) Society and Environment<br/>           ENVR 202 (3) The Evolving Earth<br/>           ENVR 203 (3) Knowledge, Ethics and Environment<br/>           ENVR 301 (3) Environmental Research Design<br/>           ENVR 400 (3) Environmental Thought</p> <p><b>Complementary Courses</b> (36 credits)</p> <p>3 credits* - Senior Research Project<br/>           AGRI 519 (6) Sustainable Development Plans (in Barbados)<br/>           ENVR 401 (3) Environmental Research<br/>           ENVR 451 (6) Research in Panama (in Panama)<br/>           * Only 3 credits will be applied to the program; extra credits will count as electives.</p> <p>3 credits of statistics:<br/>           AEMA 310 (3) Statistical Methods 1 (M)<br/>           BIOL 373 (3) Biometry<br/>           GEOG 202 (3) Statistics and Spatial Analysis<br/>           PSYC 204 (3) Introduction to Psychological Statistics</p> <p>30 credits - students must take courses from 3 of the following areas and at least 6 credits must be at the 400-level or higher, selected either from these lists or in consultation with the program advisor</p> <p><b>Area 1: Population, Community and Ecosystem Ecology</b><br/>           BIOL 308 (3) Ecological Dynamics<br/>           BIOL 432 (3) Limnology<br/>           BIOL 441 (3) Biological Oceanography<br/>           ENVR 540 (3) Ecology of Species Invasions<br/>           or BIOL 540 (3) Ecology of Species Invasions<br/>           GEOG 350 (3) Ecological Biogeography<br/>           PLNT 460 (3) Plant Ecology (M)<br/>           WILD 205 (3) Principles of Ecology (M)<br/>           WILD 410 (3) Wildlife Ecology (M)<br/>           WOOD 410 (3) The Forest Ecosystem (M)</p> <p><b>Area 2: Biodiversity and Conservation</b><br/>           BIOL 305 (3) Animal Diversity<br/>           BIOL 327 (3) Herpetology<br/>           BIOL 341 (3) History of Life.<br/>           BIOL 355 (3) Trees: Ecology &amp; Evolution<br/>           BIOL 465 (3) Conservation Biology<br/>           ENTO 440 (3) Systematic Entomology (M)</p> | <p><b>Required Courses</b> (18 credits)</p> <p>ENVR 200 (3) The Global Environment<br/>           ENVR 201 (3) Society and Environment<br/>           ENVR 202 (3) The Evolving Earth<br/>           ENVR 203 (3) Knowledge, Ethics and Environment<br/>           ENVR 301 (3) Environmental Research Design<br/>           ENVR 400 (3) Environmental Thought</p> <p><b>Complementary Courses</b> (36 credits)</p> <p>3 credits* - Senior Research Project<br/>           AGRI 519 (6) Sustainable Development Plans (in Barbados)<br/>           ENVR 401 (3) Environmental Research<br/>           ENVR 451 (6) Research in Panama (in Panama)<br/>           * Only 3 credits will be applied to the program; extra credits will count as electives.</p> <p>3 credits of statistics:<br/>           AEMA 310 (3) Statistical Methods 1 (M)<br/>           BIOL 373 (3) Biometry<br/>           GEOG 202 (3) Statistics and Spatial Analysis<br/> <sup>1</sup> <u><b>MATH 203 (3) Principles of Statistics 1</b></u><br/>           PSYC 204 (3) Introduction to Psychological Statistics</p> <p>30 credits - students must take courses from <sup>2</sup> <u><b>at least</b></u> 3 of the following areas and at least 6 credits must be at the 400-level or higher, selected either from these lists or in consultation with the program advisor</p> <p><b>Area 1: Population, Community and Ecosystem Ecology</b><br/>           BIOL 308 (3) Ecological Dynamics<br/>           BIOL 432 (3) Limnology<br/>           BIOL 441 (3) Biological Oceanography<br/>           ENVR 540 (3) Ecology of Species Invasions<br/>           or BIOL 540 (3) Ecology of Species Invasions<br/>           GEOG 350 (3) Ecological Biogeography<br/>           PLNT 460 (3) Plant Ecology (M)<br/> <sup>3</sup> <u><b>ENVB 305 (3) Population and Community Ecology (M)</b></u><br/>           WILD 410 (3) Wildlife Ecology (M)<br/> <sup>3</sup> <u><b>ENVB 410 (3) Ecosystem Ecology (M)</b></u></p> <p><b>Area 2: Biodiversity and Conservation</b><br/>           BIOL 305 (3) Animal Diversity<br/>           BIOL 327 (3) Herpetology<br/>           BIOL 341 (3) History of Life.<br/>           BIOL 355 (3) Trees: Ecology &amp; Evolution<br/>           BIOL 465 (3) Conservation Biology</p> |

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| <p>MICR 331 (3) Microbial Ecology (<i>M</i>)<br/> PLNT 358 (3) Flowering Plant Diversity (<i>M</i>)<br/> WILD 307 (3) Natural History of Vertebrates (<i>M</i>)<br/> WILD 350 (3) Mammalogy (<i>M</i>)<br/> WILD 420 (3) Ornithology (<i>M</i>)</p> <p><b>Area 3: Field studies in ecology and conservation</b><br/> BIOL 240 (3) Montereian Flora (at Mont St. Hilaire)<br/> BIOL 331 (3) Ecology/Behaviour Field Course (at Mont St. Hilaire)<br/> BIOL 334 (3) Applied Tropical Ecology (in Barbados)<br/> BIOL 553 (3) Neotropical Environments (in Panama)<br/> GEOG 495 (3) Field Studies - Physical Geography (in Southern Quebec)<br/> GEOG 499 (3) Subarctic Field Studies (in Schefferville)<br/> WILD 475 (3) Desert Ecology (in Arizona)</p> <p><b>Area 4: Hydrology and water resources</b><br/> GEOG 322 (3) Environmental Hydrology<br/> or BREE 217 (3) Hydrology and Water Resources (<i>M</i>)<br/> or CIVE 323 (3) Hydrology and Water Resources<br/> EPSC 549 (3) Hydrogeology<br/> GEOG 372 (3) Running Water Environments<br/> GEOG 522 (3) Advanced Environmental Hydrology<br/> GEOG 537 (3) Advanced Fluvial Geomorphology<br/> NRSC 540 (3) Socio-Cultural Issues in Water (<i>M</i>)</p> <p><b>Area 5: Human Health</b><br/> ANSC 330 (3) Fundamentals of Nutrition (<i>M</i>)<br/> or NUTR 307 (3) Human Nutrition (<i>M</i>)<br/> PATH 300 (3) Human Disease<br/> PARA 410 (3) Environment and Infection (<i>M</i>)<br/> PHAR 303 (3) Principles of Toxicology<br/> or NUTR 420 (3) Toxicology and Health Risks (<i>M</i>)</p> <p><b>Area 6: Earth and soil sciences</b><br/> ATOC 215 (3) Oceans, Weather and Climate<br/> EPSC 201 (3) Understanding Planet Earth<br/> GEOG 272 (3) Earth's Changing Surface<br/> GEOG 305 (3) Soils and Environment<br/> GEOG 321 (3) Climatic Environments<br/> SOIL 326 (3) Soil Genesis and Classification (<i>M</i>)</p> <p><b>Area 7: Economics</b><br/> AGEC 333 (3) Resource Economics (<i>M</i>)<br/> ECON 208 (3) Microeconomic Analysis and Applications<br/> or AGECE 200 (3) Principles of Microeconomics (<i>M</i>)<br/> ECON 326 (3) Ecological Economics<br/> ECON 347 (3) Economics of Climate Change<br/> ECON 405 (3) Natural Resource Economics<br/> GEOG 216 (3) Geography of the World Economy</p> <p><b>Area 8: Development and Underdevelopment</b><br/> ANTH 212 (3) Anthropology of Development<br/> ANTH 418 (3) Environment and Development<br/> ECON 313 (3) Economic Development 1<br/> ECON 314 (3) Economic Development 2<br/> GEOG 408 (3) Geography of Development</p> | <p><sup>3</sup> <b><u>ENTO 440 (3) Insect Diversity (<i>M</i>)</u></b><br/> MICR 331 (3) Microbial Ecology (<i>M</i>)<br/> PLNT 358 (3) Flowering Plant Diversity (<i>M</i>)<br/> WILD 307 (3) Natural History of Vertebrates (<i>M</i>)<br/> WILD 350 (3) Mammalogy (<i>M</i>)<br/> WILD 420 (3) Ornithology (<i>M</i>)</p> <p><b>Area 3: Field studies in ecology and conservation</b><br/> BIOL 240 (3) Montereian Flora (at Mont St. Hilaire)<br/> BIOL 331 (3) Ecology/Behaviour Field Course (at Mont St. Hilaire)<br/> BIOL 334 (3) Applied Tropical Ecology (in Barbados)<br/> BIOL 553 (3) Neotropical Environments (in Panama)<br/> GEOG 495 (3) Field Studies - Physical Geography (in Southern Quebec)<br/> GEOG 499 (3) Subarctic Field Studies (in Schefferville)<br/> WILD 475 (3) Desert Ecology (in Arizona)</p> <p><b>Area 4: Hydrology and water resources</b><br/> GEOG 322 (3) Environmental Hydrology<br/> or BREE 217 (3) Hydrology and Water Resources (<i>M</i>)<br/> or CIVE 323 (3) Hydrology and Water Resources<br/> EPSC 549 (3) Hydrogeology<br/> GEOG 372 (3) Running Water Environments<br/> GEOG 522 (3) Advanced Environmental Hydrology<br/> GEOG 537 (3) Advanced Fluvial Geomorphology<br/> NRSC 540 (3) Socio-Cultural Issues in Water (<i>M</i>)</p> <p><b>Area 5: Human Health</b><br/> ANSC 330 (3) Fundamentals of Nutrition (<i>M</i>)<br/> or NUTR 307 (3) Human Nutrition (<i>M</i>)<br/> PATH 300 (3) Human Disease<br/> PARA 410 (3) Environment and Infection (<i>M</i>)<br/> PHAR 303 (3) Principles of Toxicology<br/> or NUTR 420 (3) Toxicology and Health Risks (<i>M</i>)</p> <p><b>Area 6: Earth and soil sciences</b><br/> ATOC 215 (3) Oceans, Weather and Climate<br/> EPSC 201 (3) Understanding Planet Earth<br/> GEOG 272 (3) Earth's Changing Surface<br/> GEOG 305 (3) Soils and Environment<br/> GEOG 321 (3) Climatic Environments<br/> <sup>3</sup> <b><u>SOIL 326 (3) Soils in a Changing Environment (<i>M</i>)</u></b></p> <p><b>Area 7: Economics</b><br/> AGEC 333 (3) Resource Economics (<i>M</i>)<br/> ECON 208 (3) Microeconomic Analysis and Applications<br/> or AGECE 200 (3) Principles of Microeconomics (<i>M</i>)<br/> ECON 326 (3) Ecological Economics<br/> ECON 347 (3) Economics of Climate Change<br/> ECON 405 (3) Natural Resource Economics<br/> GEOG 216 (3) Geography of the World Economy</p> <p><b>Area 8: Development and Underdevelopment</b><br/> ANTH 212 (3) Anthropology of Development<br/> ANTH 418 (3) Environment and Development<br/> ECON 313 (3) Economic Development 1<br/> ECON 314 (3) Economic Development 2</p> |
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| <p>GEOG 410 (3) Geography of Underdevelopment: Current Problems<br/> POLI 227 (3) Developing Areas/Introduction<br/> POLI 445 (3) International Political Economy: Monetary Relations<br/> SWRK 374 (3) Community Development/Social Action</p> <p><b>Area 9: Cultures and People</b><br/> ANTH 206 (3) Environment and Culture<br/> ANTH 339 (3) Ecological Anthropology<br/> GEOG 210 (3) Global Places and Peoples</p> <p><b>Area 10: Human Ecology and Health</b><br/> ANTH 227 (3) Medical Anthropology<br/> GEOG 300 (3) Human Ecology in Geography<br/> GEOG 303 (3) Health Geography<br/> PHIL 343 (3) Biomedical Ethics<br/> SOCI 225 (3) Medicine and Health in Modern Society<br/> SOCI 309 (3) Health and Illness</p> <p><b>Area 11: Spirituality, Philosophy, Thought</b><br/> EDER 461 (3) Society and Change<br/> PHIL 220 (3) Introduction to History and Philosophy of Science 1<br/> PHIL 221 (3) Introduction to History and Philosophy of Science 2<br/> PHIL 237 (3) Contemporary Moral Issues<br/> PHIL 341 (3) Philosophy of Science 1<br/> PHIL 348 (3) Philosophy of Law 1<br/> RELG 270 (3) Religious Ethics and the Environment<br/> RELG 340 (3) Religion and the Sciences<br/> RELG 370 (3) Human Condition</p> <p><b>Area 12: Environmental management</b><br/> AGRI 210 (3) Agro-Ecological History (M)<br/> AGRI 435 (3) Soil and Water Quality Management (M)<br/> AGRI 452 (3) Water Resources in Barbados (in Barbados)<br/> ENTO 336 (3) Economic Entomology (M)<br/> GEOG 302 (3) Environmental Management 1<br/> GEOG 380 (3) Adaptive Environmental Management<br/> GEOG 404 (3) Environmental Management 2 (in Panama)<br/> NRSC 333 (3) Physical and Biological Aspects of Pollution (M)<br/> NRSC 382 (3) Ecological Monitoring and Analysis (M)<br/> NRSC 383 (3) Land Use: Redesign and Planning (M)<br/> NRSC 437 (3) Assessing Environmental Impact (M)<br/> SOIL 335 (3) Soil Ecology and Management (M)<br/> WILD 401 (4) Fisheries and Wildlife Management (M)<br/> WILD 415 (2) Conservation Law (M)<br/> (if this course is taken, 1 additional credit of complementary courses must be taken)<br/> WOOD 441 (3) Integrated Forest Management (M)</p> | <p>GEOG 408 (3) Geography of Development<br/> GEOG 410 (3) Geography of Underdevelopment: Current Problems<br/> POLI 227 (3) Developing Areas/Introduction<br/> POLI 445 (3) International Political Economy: Monetary Relations<br/> SWRK 374 (3) Community Development/Social Action</p> <p><b>Area 9: Cultures and People</b><br/> ANTH 206 (3) Environment and Culture<br/> ANTH 339 (3) Ecological Anthropology<br/> GEOG 210 (3) Global Places and Peoples</p> <p><b>Area 10: Human Ecology and Health</b><br/> ANTH 227 (3) Medical Anthropology<br/> GEOG 300 (3) Human Ecology in Geography<br/> GEOG 303 (3) Health Geography<br/> PHIL 343 (3) Biomedical Ethics<br/> SOCI 225 (3) Medicine and Health in Modern Society<br/> SOCI 309 (3) Health and Illness</p> <p><b>Area 11: Spirituality, Philosophy, Thought</b><br/> EDER 461 (3) Society and Change<br/> PHIL 220 (3) Introduction to History and Philosophy of Science 1<br/> PHIL 221 (3) Introduction to History and Philosophy of Science 2<br/> PHIL 237 (3) Contemporary Moral Issues<br/> PHIL 341 (3) Philosophy of Science 1<br/> PHIL 348 (3) Philosophy of Law 1<br/> RELG 270 (3) Religious Ethics and the Environment<br/> RELG 340 (3) Religion and the Sciences<br/> RELG 370 (3) Human Condition</p> <p><b>Area 12: Environmental management</b><br/> AGRI 210 (3) Agro-Ecological History (M)<br/> AGRI 435 (3) Soil and Water Quality Management (M)<br/> AGRI 452 (3) Water Resources in Barbados (in Barbados)<br/> ENTO 336 (3) Economic Entomology (M)<br/> GEOG 302 (3) Environmental Management 1<br/> GEOG 380 (3) Adaptive Environmental Management<br/> GEOG 404 (3) Environmental Management 2 (in Panama)<br/> <sup>3</sup> <b><u>NRSC 333 (3) Pollution and Bioremediation (M)</u></b><br/> NRSC 382 (3) Ecological Monitoring and Analysis (M)<br/> NRSC 383 (3) Land Use: Redesign and Planning (M)<br/> NRSC 437 (3) Assessing Environmental Impact (M)<br/> SOIL 335 (3) Soil Ecology and Management (M)<br/> WILD 401 (4) Fisheries and Wildlife Management (M)<br/> WILD 415 (2) Conservation Law (M)<br/> (if this course is taken, 1 additional credit of complementary courses must be taken)<br/> WOOD 441 (3) Integrated Forest Management (M)</p> |
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## Rationale

1. Students in this program come from diverse backgrounds and areas of study. They have needed to take MATH 203 as an equivalent statistics course for this Complementary Course requirement. MATH 203 already exists in the programs for six of the Science domains, and all three of the Arts domains.
2. It has always been the intent of the program that students could take courses from many areas, as long as they have a coherent program overall. We wanted to avoid having students take all their courses in one or two areas, so we specified three as a minimum, but some students took this to mean three areas maximum.
3. Course names and numbers changed associated with Faculty of Agricultural and Environmental Sciences program changes:
  - WILD 205 (3) Principles of Ecology – now: ENVB 305 (3) Population and Community Ecology
  - WOOD 410 (3) The Forest Ecosystem – now: ENVB 410 (3) Ecosystem Ecology
  - ENTO 440 (3) Systematic Entomology – now: ENTO 440 (3) Insect Diversity
  - SOIL 326 (3) Soil Genesis and Classification – now: SOIL 326 (3) Soils in a Changing Environment
  - NRSC 333 (3) Physical and Biological Aspects of Pollution – now: NRSC 333 (3) Pollution and Bioremediation