ENVIRONMENT MAJOR- BIODIVERSITY AND CONSERVATION (B.SC.(AG.ENV.SC.)) OR (B.SC.) (63 CREDITS)

Offered by: Bieler School of Environment
Degree: Bachelor of Science (Agricultural and Environmental Sciences)
Program credit weight: 63

Program Description

This domain (63 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. Major in Environment program.

This domain links the academic study of biological diversity with the applied field of conservation biology. The study of biological diversity, or "biodiversity," lies at the intersection of evolution with ecology and genetics, combining the subdisciplines of evolutionary ecology, evolutionary genetics, and ecological genetics. It has two main branches: the creation of diversity and the maintenance of diversity. Both processes are governed by a general mechanism of selection acting over different scales of space and time. This gives rise to a distinctive set of principles and generalizations that regulate rates of diversification and levels of diversity, as well as the abundance or rarity of different species. Conservation biology constitutes the application of these principles in the relevant social and economic context to the management of natural systems, with the object of preventing the extinction of rare species and maintaining the diversity of communities. As the impact of industrialization and population growth on natural systems has become more severe, conservation has emerged as an important area of practical endeavour.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Suggested First Year (U1) Courses

For suggestions on courses to take in your first year (U1), you can consult the "Bieler School of Environment Student Handbook" available on the website (http://www.mcgill.ca/environment), or contact Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and Macdonald campus in Sainte-Anne-de-Bellevue.

Required Courses (18 credits)

Location Note: ENVR courses are taught at both McGill's Downtown campus and Macdonald campus. You should register in Section 001 of an ENVR course on the Downtown campus, and in Section 051 of an ENVR course on the Macdonald campus.

Expand allContract all

Course	Title	Credits
ENVR 200	The Global Environment.	3
ENVR 201	Society, Environment and Sustainability.	3
ENVR 202	The Evolving Earth.	3
ENVR 203	Knowledge, Ethics and Environment.	3
ENVR 301	Environmental Research Design.	3
ENVR 400	Environmental Thought.	3

Complementary Courses (45 credits)

Senior Research Project

3 credits will be applied to the program; extra credits will count as electives.

3 credits from:

Expand allContract all

Course	Title	Credits
AEBI 427	Barbados Interdisciplinary Project.	6
ENVR 401	Environmental Research.	3
ENVR 451	Research in Panama.	6
FSCI 444	Barbados Research Project.	6
GEOG 451	Research in Society and Development in Africa.	3

Biological Principles of Diversity/ Systematics/ Conservation

3 credits from:

Expand allContract all

Course	Title	Credits
AEBI 212	Evolution and Phylogeny.	3
BIOL 304	Evolution.	3

3 credits from:

Expand allContract all

Course	Title	Credits
AEBI 211	Organisms 2.	3
BIOL 305	Animal Diversity.	3

3 credits from:

Expand allContract all

Course	Title	Credits
BIOL 465	Conservation Biology.	3
WILD 421	Wildlife Conservation.	3

Ecology

3 credits from:

Expand allContract all

Course	Title	Credits
BIOL 308	Ecological Dynamics.	3
ENVB 305	Population and Community Ecology.	3

Statistics

3 credits from the following Statistics courses or equivalent:

Note: Other appropriate statistics courses may be approved as substitutions by the Program Adviser. Credit given for Statistics courses is subject to certain restrictions. Students in the Faculty of Arts or the Faculty of Science should consult the "Course Overlap" information in the "Course Requirements" section of the e-Calendar for the Faculty of Science.

Expand allContract all

Course	Title	Credits
AEMA 310	Statistical Methods 1.	3
GEOG 202	Statistics and Spatial Analysis.	3
MATH 203	Principles of Statistics 1.	3

Science, Policy, and Management

9 credits from:

Expand allContract all

Course	Title	Credits
AEBI 423	Sustainable Land Use.	3
AGEC 200	Principles of Microeconomics.[1]	3
AGEC 430	Agriculture, Food and Resource Policy.	3
BIOL 451	Research in Ecology and Development in Africa.	3
ECON 208	Microeconomic Analysis and Applications.[1]	3
ECON 225	Economics of the Environment.	3
ENVB 437	Assessing Environmental Impact.	3
ENVR 422	Montreal Urban Sustainability Analysis.	3
GEOG 302	Environmental Management 1.	3
GEOG 340	Sustainability in the Caribbean.	3
GEOG 360	Analyzing Sustainability.	3
GEOG 408	Geography of Development.	3
NRSC 451	Research in Ecology and Development in Africa.	3
PLNT 312	Urban Horticulture.	3
POLI 345	International Organizations.	3
POLI 350	Global Environmental Politics.	3
WCOM 314	Communicating Science.	3

[1] You may take AGEC 200 Principles of Microeconomics. or ECON 208 Microeconomic Analysis and Applications., but not both.

Field Courses

3 credits from:

Expand allContract all

Course	Title	Credits
BIOL 240	Monteregian Flora.	3
BIOL 331	Ecology/Behaviour Field Course.	3
BIOL 334D1	Applied Tropical Ecology.	1.5
BIOL 334D2	Applied Tropical Ecology.	1.5
BIOL 335	Marine Mammals.	3
BIOL 553	Neotropical Environments.	3
ENTO 340	Field Entomology.	3
ENVB 410	Ecosystem Ecology.	3
GEOG 495	Field Studies - Physical Geography.	3
PLNT 358	Flowering Plant Diversity.	3
PLNT 460	Plant Ecology.	3
WILD 401	Fisheries and Wildlife Management.	3
WILD 475	Desert Ecology.	3
WOOD 441	Integrated Forest Management.	3

General Scientific Principles

6 credits from:

Expand allContract all

Course	Title	Credits
ANSC 326	Fundamentals of Population Genetics.[1]	3
ATOC 341	Caribbean Climate and Weather.	3
BIOL 202	Basic Genetics.	3
BIOL 216	Biology of Behaviour.	3
BIOL 324	Ecological Genetics.[1]	3
BIOL 342	Global Change Biology of Aquatic Ecosystems.	3
BIOL 432	Limnology.	3
BIOL 441	Biological Oceanography.	3
BIOL 515	Advances in Aquatic Ecology.	3
BREE 217	Hydrology and Water Resources.[1]	3
BREE 529	GIS for Natural Resource Management.[1]	3
ENVB 313	Phylogeny and Biogeography.	3
ENVB 500	Advanced Topics in Ecotoxicology.	3
ENVB 529	GIS for Natural Resource Management.[1]	3
GEOG 272	Earth's Changing Surface.	3
GEOG 321	Climatic Environments.	3
GEOG 322	Environmental Hydrology.[1]	3
LSCI 204	Genetics.	3

MICR 331	Microbial Ecology.	3
SOIL 315	Soil Nutrient Management.	3

A second field course from the program curriculum may also be taken.

[1] Note: You may take one of BREE 529 GIS for Natural Resource Management., ENVB 529 GIS for Natural Resource Management. or GEOG 314 Geospatial Analysis.; you may take one of GEOG 322 Environmental Hydrology. or BREE 217 Hydrology and Water Resources.; you may take one of ANSC 326 Fundamentals of Population Genetics. or BIOL 324 Ecological Genetics..

Social Science

3 credits from:

Expand allContract all

Course	Title	Credits
AGEC 333	Resource Economics.	3
AGRI 411	Global Issues on Development, Food and Agriculture.	3
ANSC 555	The Use and Welfare of Animals.	3
ANTH 339	Ecological Anthropology.	3
ANTH 416	Environment/Development: Africa.	3
ANTH 451	Research in Society and Development in Africa.	3
ECON 326	Ecological Economics.	3
ENVR 421	Montreal: Environmental History and Sustainability.	3
GEOG 404	Environmental Management 2.	3
GEOG 498	Humans in Tropical Environments.	3
GEOG 530	Global Land and Water Resources.	3

Organisms and Diversity

6 credits from:

Expand allContract all

Course	Title	Credits
AEBI 421	Tropical Horticultural Ecology.	3
AGRI 340	Principles of Ecological Agriculture.	3
BIOL 310	Biodiversity and Ecosystems.	3
BIOL 343	Biodiversity in the Caribean.	3
BIOL 352	Dinosaur Biology.	3
BIOL 427	Herpetology.	3
BIOL 510	Advances in Community Ecology.	3
BIOL 540	Ecology of Species Invasions.	3
ENTO 330	Insect Biology.[1]	3
ENTO 350	Insect Biology and Control.[1]	3
ENVR 540	Ecology of Species Invasions.	3
PARA 424	Fundamental Parasitology.	3
PLNT 304	Biology of Fungi.	3
PLNT 434	Weed Biology and Control.	3
REDM 400	Science and Museums.	3
WILD 307	Natural History of Vertebrates.	3
WILD 350	Mammalogy.	3
WILD 420	Ornithology.	3

[1] Note: If chosen, you may take either ENTO 330 or BIOL 350.