

Department of Biology

Ecology and Evolution Specialist



What is Ecology & Evolution?

Ecology is the study of relations of organisms to each other and their environment. Evolution is, as described by Charles Darwin, “descent with modification”. Ecology and evolution are sister disciplines, both encompassing the study of natural selection, life history, development, adaptation, population, and inheritance.

Why Ecology & Evolution?

Ecology and evolution are broad disciplines seeking to understand the origins, diversity, and distribution of organisms. Biologists in this field recognize that all life has evolved and an understanding of the factors influencing the origin and maintenance of biological diversity is critical to all life on this planet. Research in this area seeks to help society make informed decisions about sustainable development, global temperature change, control of invasive species, preservation of genetic diversity and ecosystem integrity, as well as the control of emerging infectious diseases.

Why Study Ecology & Evolution at UTM?

UTM Biology offers a wide range of courses that deal with biological diversity, conservation, molecular evolution, animal behaviour, population and community ecology, evolutionary and ecological theory, and systematics. Students exposed to these subjects and courses come to appreciate that this discipline presents a host of scientific problems that are both intellectually challenging and critical to our future.

First-Year Life Sciences at UTM

All Ecology and Evolution Specialist students complete the following courses in their first year:

- **BIO152H5** – Intro to Evolution & Evolutionary Genetics
- **BIO153H5** – Diversity of Organisms
- **CHM110H5** – Chemical Principles I
- **CHM120H5** – Chemical Principles II
- **MAT134Y5** – Calculus for Life Sciences
- **1.0 credit from a list of other first year courses of their choosing (ie. Physics, Psychology etc)**

How Do You Study Ecology & Evolution at UTM?

Ecology & Evolution Specialist
(14.5 credits)

Courses to Look Forward To!

The department of Biology offers more than 50 undergraduate courses. Students in the Ecology and Evolution Specialist complete a series of broad second year, and some required third year courses. They have the flexibility to select about a third of their upper year courses from a list of courses based on their personal interests.

Required Courses

- **BIO202H5:** Introduction to Animal Physiology
- **BIO203H5:** Introductory Plant Morphology & Physiology
- **BIO205H5:** Ecology
- **BIO206H5:** Introduction to Cell & Molecular Biology
- **BIO207H5:** Introductory Genetics
- **STA215H5:** Introduction to Applied Statistics
- **BIO313H5:** Field Methods & Statistical Analyses in Ecology
- **BIO342H5:** Evolutionary Biology
- **BIO360H5:** Biometrics I
- **BIO416H5: Field Course** - Students must choose from a variety of field courses over a two-week period in the summer. In addition to tuition fees, students are expected to pay for room and board

Some possible upper year electives are:

- **BIO311H5:** Landscape Ecology
- **BIO318Y5:** Animal Behaviour
- **BIO326H5:** Ornithology
- **BIO330H5:** Plant Ecology
- **BIO333H5:** Freshwater Ecology
- **BIO335H5:** Mycology
- **BIO338H5:** Forensic Entomology
- **BIO339H5:** Plant Identification & Systematics
- **BIO373H5:** Microbial Ecology
- **BIO406H5:** Current Topics in Ecology & Evolution
- **BIO436H5:** Plant Interactions
- **BIO445H5:** Evolutionary Ecology
- **BIO443H5:** Phylogenetic Principles
- **BIO464H5:** Conservation and Biodiversity
- **GGR227H5:** Ecosystems & Environmental Change
- **GGR307H5:** Environmental Soil Science

Experiential Learning in Biology

We offer a wide-range of unique learning opportunities across all of our disciplines:

- **Research Opportunity Program (ROP):** participate in original research with a professor, learn research methods, and share in the excitement and discovery of acquiring new knowledge
- **BIO481 - Senior Research Project:** conduct an independent research project under the supervision of a faculty member; learn how to design, carry out, and analyze and evaluate results/data
- **BIO400 – Internship:** learn to apply biology knowledge and skills through a 200-hour work placement in the private or public sector
- **BioPath Professional Development Program:** two-year program open to all biology students. The program aims to facilitate the development of transferrable skills that will help students be successful beyond university.

Career Paths

- Research (Grad School)
- Education
- Government (Ministry of Environment)
- National/ Provincial Parks
- Conservation Authorities
- Consulting

Departmental Events

The Biology Department offers exciting opportunities for students to expand their interest in biology through a weekly departmental seminar featuring exciting guest speakers from across North America as well as our popular “Walk with your Professor” series where participants are led on a nature walk through the beautiful Mississauga campus.

For more information on career options, please visit the Career Centre site
<http://www.utm.utoronto.ca/careers/>.

For more information on these programs, please explore our Academic Calendar -
<https://student.utm.utoronto.ca/calendar/calendar.pl>.