ECOLOGY AND EVOLUTION (HSBc)
Department of Biology

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. 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.

MAKE THE MOST OF YOUR TIME AT UTM!

We want to help you maximize your university experience, so we’ve pulled together information and interesting suggestions to get you started, although there are many more! As you review the chart on the inside pages, note that many of the suggestions need not be restricted to the year they are mentioned. In fact, activities such as joining an academic society, engaging with faculty and seeking opportunities to gain experience should occur in each year of your study at UTM. Read through the chart and create your own plan using My Program Plan found at www.utm.utoronto.ca/program-plans

Programs of Study (POSt)
- Specialist Program ERSPE1020 Ecology and Evolution (Science)
- Minor Program ERMIN2364 Biology (Science)

Check out...
Dive into marine biology! In BIO378H5 you’ll explore the evolution of marine mammals, their adaptations to aquatic environments, as well as their population and behavioural ecology. Investigate threats to marine mammal populations and their conservation.

What can I do with my degree?
The career you choose will depend on your experience and interests. Visit the Career Centre to explore your career options.

Careers for Graduates: Environmental health officer; Restoration biologist; Conservation officer; Agronomist; Entomologist; Zoologist; Marine biologist; Ecologist; Biological technician; Environmental educator; Regulatory/ government affairs specialist; Veterinary technician; Clinical research coordinator assistant; Informationist; Aquaculture technician; Herbarium technician.

Workplaces: Government; Scientific R&D; Zoos; Aquariums; National/provincial parks; Academic medical centres/laboratories; Non-profit agencies; Non-government organizations.
# ECOLOGY AND EVOLUTION SPECIALIST Program Plan

## HOW TO USE THIS PROGRAM PLAN
Read through each year. Investigate what appeals to you here and in any other Program Plans that apply to you.

Visit [www.utm.utoronto.ca/program-plans](http://www.utm.utoronto.ca/program-plans) to create your own plan using My Program Plan.

Update your plan yearly.

### 1ST YEAR
- Enrol in courses BIO150H5, 152H5, CHM110H5, 120H5, and MAT134Y5/137Y5/137Y5. Attain 1.0 credit from the second list of required first year courses in the Academic Calendar.
- Choose a program of study (Subject POSt) once you complete 4.0 credits. Use the Degree Explorer Planner and the Academic Calendar to plan your degree.
- Start strong and get informed with [RGASC](#) through the Centre for Student Engagement (CSE). Join a RGASC Peer Facilitated Study Group.

### 2ND YEAR
- Enrol in courses BIO202H5, 203H5, 208H5, 206H5, and 207H5.
- Throughout your undergraduate degree:
  - use the Degree Explorer to ensure you complete your degree and program requirements.
  - see the Office of the Registrar about degree requirements and the Biology Undergraduate Advisor about program requirements.

### 3RD YEAR
- For third year and higher, view the Academic Calendar for course requirements and options.
- Consider applying for the Research Opportunity Program (ROP) course BIO399Y. Visit the EEU website for ROP Course Prerequisites. Attend the RGASC’s Program for Accessing Research Training (P.A.R.T) to enhance your research skills.

### 4TH OR FINAL YEAR
- Ensure you have at least 6.0 credits at the 300/400 level, of which 1.5 credits must be at the 400 level.
- Conduct a research project under the supervision of a faculty member through BIO481Y5. Speak to the Biology Undergraduate Advisor for advice and details.
- Log on to ACORN and request graduation.

## PLAN YOUR ACADEMICS

### BUILD A NETWORK
- Visit the UTM Library Reference Desk.
- Attend events held by the International Education Centre (IEC), whether you are an international or domestic student. Explore different cultures through food, music, and sport or through sight-seeing around the GTA.
- Start with the International Education Week events and learn about the diversity, culture, and international opportunities on campus!

### BUILD A GLOBAL MINDSET
- Attend the Program Selection & Career Options workshop offered by the Office of the Registrar and the CC.
- Check out Careers by Major at the CC to see potential career options.

### PLAN FOR YOUR FUTURE
- Explore careers through the CC’s Extern Job Shadowing Program. Ask the Biology Undergraduate Assistant about the BioPath Professional Development Program.
- Considering further education? Attend the CC’s Graduate and Professional Schools Fair. Talk to professors — they are potential mentors and references for further education.

**Note:** Consult the Academic Calendar for greater detail on course requirements, program notes and degree requirements.
Skills developed in Ecology and Evolution

To be competitive in the job market, it is essential that you can explain your skills to an employer. Visit the Career Centre to learn how to articulate and market the following skills:

Communication & interpersonal: write scientific reports; present research findings; interact professionally with a multidisciplinary team of researchers, technicians, students and professors; and literacy writing.

Research: collect and preserve field organisms; dissect preserved or euthanized specimen; inspect specimens; and analyze and evaluate information.

Technical: use specialized computer programs; perform laboratory procedures; maintain laboratory equipment and instrumentation; and comply with quality control procedures.

Quantitative: analyze data for trends and apply statistical tests to data.

Critical thinking & problem-solving: logically interpret trends and results.

Get involved

Check out the 100+ student organizations on campus. Here are a few:

- Erindale Biology Society (EBS)
- UTM Student Union (UTMSU)
- UTM Athletics Council (UTMAC)

For a listing of clubs on campus visit www.utm.utoronto.ca/clubs.

Services that support you

- Accessibility Services (AS)
- Career Centre (CC)
- Centre for Student Engagement (CSE)
- Experiential Education Unit (EEU)
- Health & Counselling Centre (HCC)
- Indigenous Centre (IC)
- International Education Centre (IEC)
- Office of Student Transition (OST)
- Office of the Registrar (OR)
- Recreation, Athletics and Wellness Centre (RAWC)
- Robert Gillespie Academic Skills Centre (RGASC)
- UTM Library, Hazel McCallion Academic Learning Centre (HMALC)

Department of Biology

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FUTURE STUDENTS

Admission to UTM

All program areas require an Ontario Secondary School Diploma, or equivalent, with six Grade 12 U/M courses, or equivalent, including English. The admission average is calculated with English plus the next best five courses. The Grade 12 prerequisites for this program are Advanced Functions, Biology and Chemistry. The approximate average required for admission is low- to mid-80s. More information is available at utm.utoronto.ca/viewbook.

NOTE: During the application process, applicants will select the Life Sciences admissions category, but will not officially be admitted to a formal program of study (Specialist, Major, and/or Minor) until after first year.

Sneak Peek

What is nutrient cycling? Take BIO205H5 and learn about the scientific study of ecology. Topics include regulation, competition and biodiversity. Our students also have access to our herbarium which houses about 95,000 specimens of vascular plants.

Effective biological training involves careful study of real organisms, both living and dead. Consequently, almost all Biology courses with laboratories involve students in one or more of the following activities with animals, plants, and/or microorganisms: collecting and preserving organisms from the field; dissecting or handling preserved or euthanized specimens (or properly anaesthetized living specimens); observing and making measurements on organisms maintained under laboratory conditions approved by the Canadian Council of Animal Care.

Student Recruitment & Admissions

Innovation Complex, Room 1270
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905-828-5400
www.utm.utoronto.ca/future-students