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](http://www.utm.utoronto.ca/program-plans) found at [www.utm.utoronto.ca/program-plans](http://www.utm.utoronto.ca/program-plans).

**Programs of Study (POST)**

- Specialist Program ERSPE1020 Ecology and Evolution (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.
Enrol in courses BIO152H5, 153H5; CHM110H5, 112H5, and MAT132H5, 134H5. Attain 1.0 credit from courses in organismal biology, 0.5 credit from field courses, 2.0 credits from core ecology/evolutionary biology courses. View the Academic Calendar for course requirements and options.

3RD YEAR

Enroll in BIO313H5, BIO342H5, BIO443H5 and BIO360H5. Take 1.0 credit from courses in organismal biology, 0.5 credit from field courses, 2.0 credits from core ecology/evolutionary biology courses. View the Academic Calendar for course requirements and options.

Consider applying for the Research Opportunity Program (ROP) course BIO338Y. 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.

Learn techniques ecologists use in the field! Use field ornithology techniques in BIO326H5, and gain practical exposure to research methods of plant, animal, and microbial communities in BIO313H5. Speak to the Biology Undergraduate Advisor.

Establish a professional presence on social media (e.g. LinkedIn). Attend the Experiential Education Fair. Attend the RGASC’s Series (GIFTS). Engage in programs like the Global and Intercultural Fluency Training Series (GIFTSS) to strengthen and enhance your intercultural skill set, and learn about other cultures while sharing your own.

Do you want to study dolphin and whale biology and conservation in tropical Asia, or the ecology of the Arctic? Enrol in BIO416H5 to study dolphin and whale biology and conservation in tropical Asia, or the ecology of the Arctic? Enrol in BIO416H5 to attend.

4TH OR FINAL YEAR

Take 1.0 credits from other UTM biology courses at the 300/400 level and 1.0 credit from related courses from other departments as seen in the Academic Calendar.

Conduct a research project under the supervision of a faculty member through BIO481Y5. Speak to the Biology Undergraduate Advisor for advice and details.

Apply to the Ontario Ministry of Natural Resources Internship Program as a recent graduate. Look at the MNRF website for eligibility and application details.

Do you have a professor you really like or connect with? Ask them a question during office hours. Discuss an appropriate research opportunity! Join a professional association. Check out the Canadian Society for Ecology and Evolution and South Peak Naturalists’ Club who promote the preservation and conservation of local flora and fauna, land and water.

Go to UofT’s MNRF website for the online version and links. Market your skills to employers. Get your resume critiqued at the CC. Attend the Recent Graduate Opportunities Program (RGOP).

Now That I’m Graduating What’s Next?

Next?

What's your next step after undergrad?


Considering further education? Research application requirements, prepare for admission tests (LSAT, MCAT), and research funding options (OGS, NSERC, CIHR).

Ready to transition from the classroom to the workplace? Check out the Recent Graduate Opportunities Program (RGOP).

Visit www.utm.utoronto.ca/program-plans for the online version and links.
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](http://www.utm.utoronto.ca/clubs).

Services that support you

- Accessibility Services (AS)
- Career Centre (CC)
- Centre for Student Engagement (CSE)
- Equity, Diversity & Inclusion Office (EDIO)
- Experiential Education Unit (EEU)
- Health & Counselling Centre (HCC)
- Indigenous Centre (IC)
- International Education Centre (IEC)
- 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](http://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](http://www.utm.utoronto.ca/future-students)