ECOLOGY & EVOLUTION (HBSc)

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. 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 & EVOLUTION

## SPECIALIST Program Plan

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<th>PLAN YOUR ACADEMICS*</th>
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<td><strong>1ST YEAR</strong></td>
<td><strong>2ND YEAR</strong></td>
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| Enrol in courses BIO120H5, 123HS, CHM112HS, 120HS, and MAT134Y5/135Y5/137Y5. Attain 1.0 credit from the second list of required first year courses in the Academic Calendar. | Enrol in courses BIO202H5, 205HS, 206HS and 207HS. 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. |
| Choose a program of study (Subject POSI) 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 utmONE and LAUNCH through the Office of Student Transition. Join a RGASC Peer Facilitated Study Group. |  |

## BUILD SKILLS

<table>
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<th>BUILD A NETWORK</th>
<th>BUILD A GLOBAL MINDSET</th>
<th>PLAN FOR YOUR FUTURE</th>
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<tr>
<td>Networking simply means talking to people and developing relationships with them. Start by joining the Ereidle Biology Society (EBS). Follow them @utmEBS. Go to the EBS Meet the Prof Night, or the Biology department’s Walk with your Professor.</td>
<td>Attend events held by the International Education Centre (IEC) to explore different cultures through food, music, and sport or through sight-seeing around the GTA.</td>
<td>Attend the Program Selection &amp; 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.</td>
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<td>Use the Co-Curricular Record (CCR). Search for opportunities beyond the classroom, and keep track of your accomplishments. Attend the Get Experience Fair through the Career Centre (CC) to learn about on- and off-campus opportunities.</td>
<td>Explore careers through the CC’s Estern Job Shadowing Program. Ask the Biology Undergraduate Assistant about the BioPath: Professional Development Program.</td>
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<td>Ask your professor about volunteering in their lab.</td>
<td>Consider further education? Attend the CC’s Graduate and Professionals School Fair. Talk to professors – they are potential mentors and references for further education.</td>
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## 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 to create your own plan using My Program Plan. Update your plan yearly.

### 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 BIO389Y5. Visit the EEO website for ROP Course Prerequisites. Attend the RGASC’s 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.

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 BIO312HS. Speak to the Biology Undergraduate Advisor.

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

Establish a professional presence on social media (e.g., LinkedIn). Join a professional association. Check out the Canadian Society for Ecology and Evolution and South Peel Naturalists’ Club who promote the preservation and conservation of local flora and fauna, land and water.

Go to UofT’s Ecology & Evolutionary Biology Annual Atwood Colloquium.

Earn credits overseas! Study for a summer, term or year at one of 120 universities through the Course Based Exchange program. Speak to the Global Mobility Coordinator and the Biology Undergraduate Advisor to select the appropriate courses.

Why not work abroad? Read up on worldwide employment trends and industry outlooks through GoinGlobal. Attend the Go Global Expo. See if you are eligible for International Experience Canada.

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).

Market your skills to employers. Get your resume critiqued at the CC. Attend the CC workshop Now That I’m Graduating What’s Next? Write a strong application for further education. Attend the CC’s Mastering the Personal Statement workshop.

*Consult the Academic Calendar for greater detail on course requirements, program notes and degree requirements.

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Visit www.utm.utoronto.ca/program-plans for the online version and links.
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 analyze and evaluate information.

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.

Department of Biology

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Mississauga ON Canada L5L 1C6

Undergraduate Advisor: 905-828-3999
d.matias@utoronto.ca
www.utm.utoronto.ca/biology

Services that support you
- AccessAbility Resource Centre (AARC)
- Career Centre (CC)
- Centre for Student Engagement (CSE)
- Experiential Education Office (EEO)
- 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)

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
University of Toronto Mississauga
3359 Mississauga Rd
Mississauga ON Canada L5L 1C6

905-828-5400
www.utm.utoronto.ca/prospective

Get involved

Check out 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.

Students can also access professional services, health and counselling, indigenous services, international education, experiential education, and more.