

# BIOLOGY (HBSc)

## Department of Biology

**Biology** is the study of living organisms and involves observation and analysis of the tree of life. The foundation of biology is based upon the core concepts of evolution: natural selection and speciation. The study of biology is applicable to all facets of life, helping address such major problems as conservation, overpopulation, pollution, medicine and disease.

UTM Biology is a dynamic community. With nearly 40 active research scientists, more than one hundred graduate students and many post-doctoral fellows doing state-of-the-art research using the latest techniques, our students will have the opportunity to learn from the best. Our undergraduate research projects and summer student placements in research labs will give students valuable, first-hand experience working in a laboratory environment.

## 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](http://www.utm.utoronto.ca/program-plans)

### Programs of Study (POSt)

- Specialist Program ERSPE2364 Biology (Science)
- Major Program ERMAJ2364 Biology (Science)
- Minor Program ERMIN2364 Biology (Science)

### Check out...

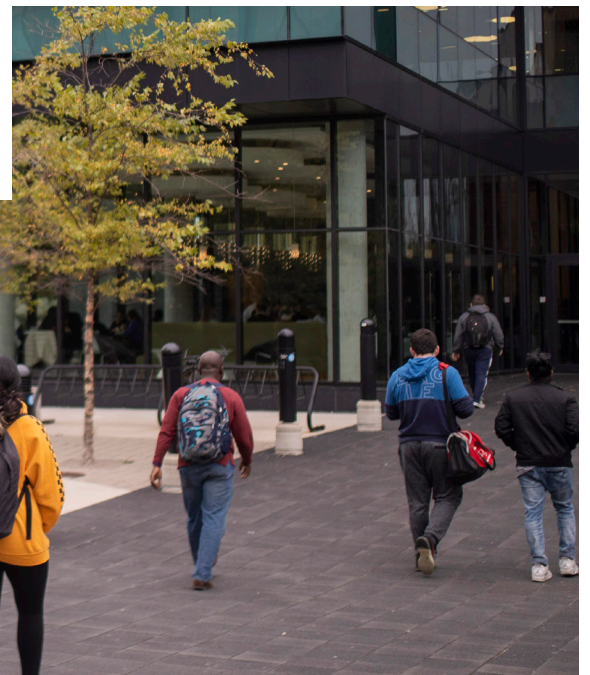
How do plants compete and defend? Learn about the population and community ecology of plants in BIO330H5. What's the connection between animal behaviour and their physiology? In BIO380H5, learn about early embryonic development by studying how the embryo becomes organized so that all of the tissues and organs of the adult body form in the right places at the proper times.

### 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:** Biological technician; Environmental educator; Greenhouse grower; Paramedic; Science magazine editor/ writer; Zoology field researcher; Informationist; Doctor; Physician's assistant; Nurse; Quality controller; Food science technologist; Aquaculture technician; Botanist; Herbarium technician; Dietitian.

**Workplaces:** Manufacturing and processing; Government; Industrial inspection firms; Scientific R&D; Conservation authorities; Zoos, aquariums, national/ provincial parks; Pharmaceutical; Academic medical centres/laboratories; Health care.



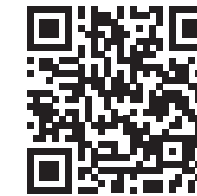
# BIOLOGY

## MAJOR 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.



	1 <sup>ST</sup> YEAR	2 <sup>ND</sup> YEAR
PLAN YOUR ACADEMICS*	<p>Enrol in courses BIO152H5, BIO153H5; CHM110H5, CHM120H5; MAT132H5 and MAT134H5. For the Biology Specialist (ERSPE2364), attain 1.0 credit from the second list of required first year courses in the <b>Academic Calendar</b>.</p> <p>Choose a program of study (Subject POST) once you complete 4.0 credits. Use the <b>Degree Explorer</b> and the <b>Academic Calendar</b> to plan your degree.</p> <p>Develop foundational academic skills and strategies by enrolling in a <b>utmONE</b> course.</p>	<p>Enroll in courses: BIO202H5, BIO203H5, BIO205H5, BIO206H5, BIO207H5, and BIO259H5.</p> <p>Consider applying for the <b>Research Opportunity Program (ROP)</b> courses BIO299Y and BIO399Y. Visit the EEU website for <b>ROP Course Prerequisites</b>. Attend the RGASC's <b>PART</b> to enhance your research skills.</p>
BUILD SKILLS	<p>Use the <b>Co-Curricular Record (CCR)</b>. Search for opportunities beyond the class room, and keep track of your accomplishments.</p> <p>Attend the <b>Get Hired Fair</b> through the Career Centre (CC) to learn about on- and off-campus opportunities.</p> <p>Attend the <b>Experiential Education Fair</b>.</p>	<p>Use the <b>Career &amp; Co-Curricular Learning Network (CLNx)</b> to find postings for on- and off-campus work and volunteer opportunities as well as <b>Work-Study</b>.</p> <p>Apply to become an Experiential Education Unit <b>Student Ambassador</b> and earn a CCR notation. Ask your professor about volunteering in their lab.</p>
BUILD A NETWORK	<p>Networking simply means talking to people and developing relationships with them. Start by joining the <b>Erindale Biology Society (EBS)</b>. Follow them @utmEBS. Go to the <b>EBS Meet the Prof Night</b>.</p> <p>Visit the UTM Library <b>Reference Desk</b>.</p>	<p>Do you have a professor you want to connect with? Ask them a question during office hours. Discuss an assignment. Go over lecture material. Don't be shy! Learn <b>Tips On How to Approach a Professor</b> available through the Experiential Education Unit (EEU).</p>
BUILD A GLOBAL MINDSET	<p>Engage with the many programs offered by the <b>International Education Centre (IEC)</b>, whether you are an international or domestic student. Consider joining the <b>Canada Eh?</b> day trips or <b>English Language Conversation Circles</b> to deepen your global mindset.</p> <p>First-year international students can also take advantage of <b>THRIVE'IN</b>, a one-day conference dedicated to helping you start your UTM journey successfully.</p>	<p>Participate in <b>International Education Week</b> and engage in programs like <b>Global and Intercultural Fluency Training Series (GIFTS)</b> to build on your leadership and communication skills in global citizenship.</p> <p>Learn about and prepare for a future <b>UTM Abroad Experience</b> through the IEC to strengthen and enhance your intercultural skill set, and learn about other cultures while sharing your own!</p>
PLAN FOR YOUR FUTURE	<p>Students in the Specialist Program (ERSPE2364) can apply to join the <b>UTM Co-op Internship Program (UTMCIP)</b> stream at the end of their first year. The UTMCIP includes mandatory Work-Readiness modules, followed by a 12- or 16-month paid, full-time, academically related work experience.</p> <p>Get ready to select your Program of Study by attending the <b>Program Selection &amp; Career Options workshop</b> offered by the Office of the Registrar and the CC.</p>	<p>Learn how your academics and career goals work together in a <b>Career Counselling appointment</b>.</p> <p>Explore careers through the CC's <b>Job Shadow Program</b> or <b>In the Field</b>.</p> <p>Considering <b>further education</b>? Attend the CC's <b>Graduate &amp; Professional Schools Fair</b>. Research application requirements, prepare for admission tests (LSAT, GMAT) and research funding options (OGS, SSHRC).</p>

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

3 <sup>RD</sup> YEAR	4 <sup>TH</sup> OR FINAL YEAR
<p>Attain 2.0 credits in Biology from the 300 or 400 level.</p> <p>In the spring of your third year, attend the Biology Department's Information Session regarding <b>BIO400Y5</b> Internship Course and <b>BIO481Y5</b> Research Thesis course.</p> <p>See the <b>Office of the Registrar</b> about degree requirements and the <b>Biology Undergraduate Advisor</b> about program requirements.</p>	<p>Conduct a research project under the supervision of a faculty member through <b>BIO481Y5</b>. Speak to the <b>Biology Undergraduate Advisor</b> for advice and details.</p> <p>Log on to ACORN and request graduation.</p>
<p>Learn techniques biologists use in the field! Use field ornithology techniques in <b>BIO326H5</b>, and observe and analyze animal behaviour in <b>BIO318Y5</b>. Speak to the <b>Biology Undergraduate Advisor</b> for details.</p> <p>Ask your professors about volunteering in their labs for research experience.</p>	<p>Apply to the Ontario Ministry of Natural Resources Internship Program as a recent graduate. Look at the <b>MNR website</b> for eligibility and application details.</p> <p>Consider applying for the <b>Summer Undergraduate Research Project</b> following the completion of your degree. Speak the <b>Biology Undergraduate Advisor</b>.</p>
<p>Establish a professional presence on social media (e.g. LinkedIn).</p> <p>Curious about grad school? Connect with a grad student through the CSE's <b>Grad Connect</b> program to get the inside scoop.</p>	<p>Join a professional association. Check out the <b>Association of Professional Biology</b> or the <b>Canadian Society of Plant Biologists</b>.</p> <p>Go to the <b>Canadian Undergraduate Conference on Healthcare</b> or the <b>Ontario Biology Day</b>.</p>
<p>Get a global experience through our <b>Biology Seminar Series</b>. Every Friday during the academic year, the Department of Biology hosts an exciting seminar given by a guest speaker. Guest speakers are from Ontario, across Canada, as well as International. Topics cover every aspect of biology. All Biology students are welcome to attend.</p> <p><b>Earn credits overseas!</b> Apply to study for a summer term, or year at one of 170+ universities. Speak to the IEC for details about <b>Course Based Exchange</b>, funding and travel safety.</p>	<p>Do you want to study dolphin and whale biology and conservation in tropical Asia, or the ecology of the Arctic? Enrol in <b>BIO416H5</b> to choose from a variety of field courses offered through the <b>Ontario Universities Program in Field Biology</b>.</p> <p>Engage in programs like <b>ISTEP</b> and <b>THRIVE</b> to support your transition out of the University!</p>
<p>Attend CC workshops to learn the basics of creating a resume and cover letter, preparing for an interview, and creating a strong LinkedIn profile. To register, visit the UTM Events page on <b>CLNx</b>. You would also find exciting networking opportunities to connect with employers, industry professionals and alumni.</p> <p>Thinking about <b>BIO481Y5</b> Research Project? Secure a supervisor well ahead of course enrollment.</p>	<p>Attend the CC workshop, <b>Now That I'm Graduating What's Next</b> to learn how to develop your job search plan.</p> <p>Ready for employment? Schedule an <b>Employment Strategist Appointment</b> to review your documents and practice your skills. If you are still unsure about the next steps in your career journey, schedule a <b>Career Counsellor Appointment</b> to gain support exploring career options and establishing a career plan.</p>

Revised on: 8/28/2024

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



# BIOLOGY

## Skills developed in Biology

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 full listing of clubs on campus visit the **Student Groups and Societies Directory**

## 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)**
- **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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[d.matias@utoronto.ca](mailto:d.matias@utoronto.ca)  
[www.utm.utoronto.ca/biology](http://www.utm.utoronto.ca/biology)

## 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's in your genes? Take BIO207H5 to find out about the principles of Mendelian inheritance and modern genetics. Our department also offers students 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/future-students](http://www.utm.utoronto.ca/future-students)

