

# COMPARATIVE PHYSIOLOGY (HBSc)

*Department of Biology*

**Physiology** is the study of living matter and its interaction between internal and external environments. It integrates physical and life sciences in order to understand body functions and the origins of disease in both plants and animals. This discipline incorporates the study of control mechanisms, compensations, and cooperation among body molecules, cells, tissues, and organs. Physiology unifies the life sciences from molecule to organism, providing the link from genomics and molecular signaling pathways to behaviour and disease. UTM Biology is a dynamic community. With nearly 40 active research scientists, more than 100 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](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 ERSPE0482 Comparative Physiology (Science)

### Check out...

How do plants respond to environmental factors and global change? Find out in BIO312H5 through the physiological study of plants. Get excited about animal physiology in BIO409H5. This laboratory course experiments are designed to familiarize students with techniques and experimental design commonly used in the study of physiology.

### 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:** Physiotherapist; Ornithologist; Informationist; Biological technician; Zoologist; Doctor; Physician's assistant; Nurse; Research technician; Health policy analyst; Herbarium technician.

**Workplaces:** Government; Zoos; Aquariums; Pharmaceuticals; Academic medical centres/laboratories; Manufacturing; Hospitals and medical centres.



# COMPARATIVE PHYSIOLOGY

## 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.

	1 <sup>ST</sup> YEAR	2 <sup>ND</sup> YEAR	3 <sup>RD</sup> YEAR	4 <sup>TH</sup> OR FINAL YEAR
PLAN YOUR ACADEMICS*	<p>Enrol in courses BIO152H5, BIO153H5; CHM110H5, CHM120H5; MAT132H5 and MAT134H5. Attain 1.0 credit from the second list of required first year courses in the <a href="#">Academic Calendar</a>.</p> <p>Choose a program of study (Subject POST) once you complete 4.0 credits. Use the <a href="#">Degree Explorer</a> and the <a href="#">Academic Calendar</a> to plan your degree.</p> <p>Develop foundational academic skills and strategies by enrolling in a <a href="#">utmONE</a> course. Build community and gain academic support through <a href="#">LAUNCH</a>. Join a RGASC <a href="#">Peer Facilitated Study Group</a>.</p>	<p>Enrol in courses: BIO202H5, BIO203H5, BIO205H5, BIO206H5, BIO207H5, BIO208H5, BIO209H5 and BIO259H5.</p> <p>Consider applying for the <a href="#">Research Opportunity Program (ROP)</a> courses BIO299Y and BIO399Y. Visit the EEU website for <a href="#">ROP Course Prerequisites</a>. Attend the RGASC's <a href="#">PART</a> to enhance your research skills.</p>	<p>Enrol in courses BIO304H5, BIO310H5, BIO312H5, BIO360H5, CHM242H5 and CHM243H5. Attain 2.0 credits from a list in the <a href="#">Academic Calendar</a>.</p> <p>Throughout your undergraduate degree:</p> <ul style="list-style-type: none"> <li>use the <a href="#">Degree Explorer</a> to ensure you complete your degree and program requirements.</li> <li>see the <a href="#">Office of the Registrar</a> about degree requirements and the <a href="#">Biology Undergraduate Advisor</a> about program requirements.</li> </ul>	<p>Enroll in BIO409H5. Ensure you have completed at least 1.0 BIO at the 400 level for this program.</p> <p>Gain research skills by working one-on-one with graduate students and a professor through BIO481Y5. Speak to the <a href="#">Biology Undergraduate Advisor</a>.</p> <p>Log on to ACORN and request graduation.</p>
BUILD SKILLS	<p>Use the <a href="#">Co-Curricular Record (CCR)</a>. Search for opportunities beyond the class room, and keep track of your accomplishments.</p> <p>Attend the <a href="#">Get Hired Fair</a> through the Career Centre (CC) to learn about on- and off-campus opportunities.</p> <p>Attend the <a href="#">Experiential Education Fair</a>.</p>	<p>Use the <a href="#">Career &amp; Co-Curricular Learning Network (CLNx)</a> to find postings for on- and off-campus work and volunteer opportunities as well as <a href="#">Work-Study</a>.</p> <p>Ask your professor about volunteering in their lab.</p> <p>Apply to become a <a href="#">Wellness Ambassador</a> with the HCC</p>	<p>Explore your interests. Why not pass on your passion for science? Be a UTM <a href="#">Let's Talk Science Outreach</a> volunteer.</p> <p>Consider applying for BIO481Y5 or BIO400Y5 for your fourth year. Check with the Biology Department for more information.</p>	<p>Apply to the Ontario Ministry of Natural Resources Internship Program as a recent graduate. Look at the <a href="#">MNRF website</a> for eligibility and application details.</p> <p>Consider applying for NSERC USRA or UTEA for the summer following graduation.</p>
BUILD A NETWORK	<p>Networking simply means talking to people and developing relationships with them. Start by joining the <a href="#">Erindale Biology Society (EBS)</a>. Follow them @utmEBS. Go to the <a href="#">EBS Meet the Prof Night</a>, or the Biology department's Walk with a Biologist.</p> <p>Visit the UTM Library <a href="#">Reference Desk</a>.</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 <a href="#">Tips On How to Approach a Professor</a> available through the <a href="#">Experiential Education Unit (EEU)</a>.</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 <a href="#">Grad Connect</a> program to get the inside scoop.</p>	<p>Attend or present your work at <a href="#">Ontario Biology Day</a>.</p>
BUILD A GLOBAL MINDSET	<p>Engage with the many programs offered by the <a href="#">International Education Centre (IEC)</a>, whether you are an international or domestic student. Consider joining the <a href="#">Canada Eh?</a> day trips or <a href="#">English Language Conversation Circles</a> to deepen your global mindset.</p> <p>First-year international students can also take advantage of <a href="#">THRIVE'IN</a>, a one-day conference dedicated to helping you start your UTM journey successfully.</p>	<p>Participate in <a href="#">International Education Week</a> and engage in programs like <a href="#">Global and Intercultural Fluency Training Series (GIFTS)</a> to build on your leadership and communication skills in global citizenship.</p> <p>Learn about and prepare for a future <a href="#">UTM Abroad Experience</a> through the IEC to strengthen and enhance your intercultural skill set, and learn about other cultures while sharing your own!</p>	<p>Get a global experience though our <a href="#">Biology Seminar Series</a>. 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 <a href="#">Course Based Exchange</a>, funding and travel safety.</p>	<p>Engage in programs like <a href="#">ISTEP</a> and <a href="#">THRIVE</a> to support your transition out of the University!</p>
PLAN FOR YOUR FUTURE	<p>Speak to the <a href="#">Biology Undergraduate Advisor</a> for biology program advice and details.</p> <p>Attend the <a href="#">Program Selection &amp; Career Options workshop</a> offered by the Office of the Registrar and the CC.</p> <p>Check out <a href="#">Careers by Major</a> at the CC to see potential career options.</p>	<p>Explore careers through the CC's <a href="#">Job Shadow Program</a>.</p> <p>Considering <a href="#">further education</a>? Attend the CC's <a href="#">Graduate &amp; Professional Schools Fair</a>. Talk to professors – they are potential mentors and references for further education.</p>	<p>What's your next step after undergrad?</p> <p>Entering the workforce? Evaluate your career options through a CC <a href="#">Career Counselling appointment</a>. Create a job search strategy — book a CC <a href="#">Employment Strategiest appointment</a>.</p> <p>Considering further education? Research application requirements, prepare for admission tests (LSAT, MCAT), and research funding options (OGS, NSERC, CIHR)</p>	<p>Market your skills to employers. Get your <a href="#">resume critiqued</a> at the CC. Attend the CC workshop <a href="#">Now That I'm Graduating What's Next?</a></p> <p>Write a strong application for further education. Attend the CC's <a href="#">Mastering the Personal Statement workshop</a>.</p> <p>Ready to transition from the classroom to the workplace? Check out the <a href="#">Recent Graduate Opportunities Program (RGOP)</a>.</p>

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

Revised on: 10/05/2023

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

# COMPARATIVE PHYSIOLOGY

## Skills developed in Comparative Physiology

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)**
- **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)**

## 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

Curious about animal physiology? Discover the diversity of structure and function in animals in BIO202H5. At UTM, Physiology explores a variety of topics, such as endocrinology, cardiovascular physiology, neurophysiology, and sensory physiology.

Effective biological training involves careful study of real organisms, both living and dead. 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)

