Comprehensive 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. Emerging fields for physiologists are the analysis of the functional implications of genomic sequence variation, developmental factors leading to chronic illness, and novel approaches for regenerative medicine. Physiologists find applications for their work in agriculture, veterinary medicine, military research, air and space travel, and exercise and fitness.

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 ERSPE0482 Comparative Physiology (Science)
- Minor Program ERMIN2364 Biology (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 vertebrate form and function! In BIO354H5 the design and adaptive consequences of vertebrate structure are revealed.

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

## 1st Year
- **Enrol in courses**: BIO150H5, 153H5; CHM110H5, 120H5; and MAT132H5, 134H5. 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 Planner and the Academic Calendar to plan your degree.
- Start strong and get informed with RASC and LAUNCH through the Centre for Student Engagement (CSE). Join a RGASC Peer Facilitated Study Group.

## 2nd Year
- **Enrol in courses**: BIO202H5, 203H5, 205H5, 206H5, 207H5, 210Y5; and STA215H5.
- Consider applying for the Research Opportunity Program (ROP) courses BIO209Y and BIO309Y. Visit the EEU website for ROP Course Prerequisites. Attend the RGASC’s P.R.A.R.T. to enhance your research skills.

## 3rd Year
- **Enrol in courses**: BIO304H5, 310H5, 312H5, 360H5, 409H5, CHM242H5 and 243H5. Attain 2.0 credits from a list in the Academic Calendar.
- 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.
- Explore your interests. Why not pass on your passion for science? Apply to become a Wellness Ambassador with the Health & Counselling Centre’s Physical Health team.
- Get involved in the community! Volunteer for a Community Day Event through the CSE, and build your skills in intercultural communication and teamwork.
- Attend events held by the International Education Centre (IEC), whether you are an international or domestic student. Explore different cultures through food, music, sport or through sight-seeing around the GTA.

## 4th or Final Year
- **Enrol in courses**: BIO416H5. Enrol in BIO416H5 to study dolphin and whale biology and conservation in tropical Asia, or the ecology of the Arctic. Enrol in BIO416H5 to choose from a variety of field courses offered through the Ontario Universities Program in Field Biology.
- Do you want to study dolphin and whale biology and conservation in tropical Asia, or the ecology of the Arctic? Enrol in BIO416H5 to choose from a variety of field courses offered through the Ontario Universities Program in Field Biology.
- Market your skills to employers. Get your resume critiqued at the CC. Attend the CC workshop Now That I’m Graduating What’s Next?
- 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.

## 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.

## HOW TO USE THIS PROGRAM PLAN

1. **Plan Your Academics**
   - Consult the Academic Calendar for greater detail on course requirements, program notes and degree requirements.
2. **Build Skills**
   - Use the Co-Curricular Record (CCR). Search for opportunities beyond the class room, and keep track of your accomplishments.
   - Attend the Get Experience Fair through the Career Centre (CC) to learn about on- and off-campus opportunities.
   - Ask your professor about volunteering in their lab.
3. **Build a Network**
   - Networking simply means talking to people and developing relationships with them. Start by joining the Erindale Biology Society (EBS). Follow them @utmEBS. Go to the EBS Meet the Prof Night, or the Biology department’s Walk with your Professor.
   - 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, sport or through sight-seeing around the GTA.
4. **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.
   - 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.
5. **Plan For Your Future**
   - Enrolling the workforce? Evaluate your career options through a CC Career Counselling appointment. Create a job search strategy — book a CC Employment Strategies appointment.
   - What’s your next step after undergrad?
   - Do you have a professor you really like or connect with? Ask your professor about volunteering in their lab.
   - Curious about grad school? Connect with a grad student through the CSE’s Grad Connect program to get the inside scoop.
   - What’s your next step after undergrad?
   - Get a global experience through our Biology Seminar Series. Every Friday during the academic year, the Department of Biology hosts an excelling 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. Feel free to bring your lunch!
   - Do you want to study dolphin and whale biology and conservation in tropical Asia, or the ecology of the Arctic? Enrol in BIO416H5 to choose from a variety of field courses offered through the Ontario Universities Program in Field Biology.
   - Market your skills to employers. Get your resume critiqued at the CC. Attend the CC workshop Now That I’m Graduating What’s Next?

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

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
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www.utm.utoronto.ca/future-students