**BIOTECHNOLOGY (HBSc)**

*Department of Biology*

**Biotechnology** is the “application of scientific and technical advances in life science to develop commercial products”. This discipline combines biological sciences (genetics, biochemistry, molecular biology, microbiology, cell biology) with other science disciplines (chemistry, engineering, information technology, robotics, etc.). Advancement in biotechnology sees direct application in agriculture (e.g. genetic modification of food, environmental products), medicine (e.g. drug production, gene therapy), and industry (e.g. ‘white biotechnology’). With such rapid growth in this area, biotechnologists will play a vital role in shaping the future.

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**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.

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**Programs of Study (POSt)**

- Specialist Program ERSPE1118 Biotechnology (Science)

**Check out...**

Learn how to clone! In BIO314H5, you’ll perform advanced molecular biology techniques including cloning and transformation of bacteria and plants. Get excited about disease! In BIO315H5 you’ll learn exciting new topics in the structure and function of normal and diseased cells.

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**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:** Pharmaceutical financial analyst; Biological technician; Regulatory / government affairs specialist; Compliance promotion specialist; Pharmacologist; Informationist; Doctor; Physician’s assistant; Nurse; Quality controller; Food science technologist / food scientist; Biotechnologist.

**Workplaces:** Manufacturing and processing; Government; Scientific R&D; Zoos, aquariums, national/provincial parks; Hospitals and medical centres; Pharmaceutical; Academic medical centres/laboratories; Consulting firms.
**BIOTECHNOLOGY SPECIALIST Program Plan**

### 1ST YEAR
- Enrol in courses BIO152, BIO153, MAT132, MAT134, CHM110 and CHM120.
- Choose a program of study (Subject POS) once you complete 4.0 credits. Use the Degree Explorer and the Academic Calendar to plan your degree.
- Develop foundational academic skills and strategies by enrolling in a smtDNC course.
- Build community and gain academic support through LAUNCH. Join a RGASC Peer Facilitated Study Group.

### BUILD SKILLS
- Use the Co-Curricular Record (CCR) Search for opportunities beyond the classroom, and keep track of your accomplishments.
- Attend the Get Hired Fair through the Career Centre (CC) to learn about on- and off-campus opportunities.
- Attend the Experiential Education Fair.

### 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.

### BUILD A GLOBAL MINDSET
- Attend events held by the International Education Centre (IEC), whether you are an international or domestic student. Explore your culture and other cultures through weekly/regular conversations, Language Conversation Circles, debates, and activities to enhance your global and intercultural mindset.
- Get a global experience through our Biology Seminar Series. 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.

### PLAN YOUR ACADEMICS*
- Enrol in BIO259H5 as the statistics course for this program.
- **STA215H5 will no longer be accepted as an appropriate course for this program AFTER 2022-2023 Academic year.** Beginning 2023-2024 Academic year all students will be required to complete BIO259H5 as the statistics course for this program.
- 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.

### PLAN FOR YOUR FUTURE
- Consult the Academic Calendar for greater detail on course requirements, program notes and degree requirements.

### 2ND YEAR
- Enrol in MGMT101, 102; BIO200, 202/203, 206, 207; CHM211, 242, 243 and BIO259H5 or STA215H5**

### 3RD YEAR
- Enroll in BIO334, BIO335, BIO360, BIO370, BIO372, BIO374; CHM311, CHM361, JBC472.
- 1.0 credit from 3rd and 4th year courses as seen in the Academic Calendar for course requirements and options.
- Attend the RGASC's Program for Accessing Research Training (P.A.R.T.) to enhance your research skills.

### 4TH OR FINAL YEAR
- Attend 1.0 credit from CHM/BIO courses at the 400 level. Ensure you have at least 7.0 credits at the 300/400 level, of which 1.5 must be at the 400 level.
- Gain practical research experience! Apply for JCB487YS. Speak to the Biology Undergraduate Advisor.
- Log on to ACORN and request graduation.

### 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.

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

**STA215H5 will no longer be accepted as an appropriate course for this program AFTER 2022-2023 Academic year. Beginning 2023-2024 Academic year all students will be required to complete BIO259H5 as the statistics course for this program.*

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

Revised on: 6/14/2022
Skills developed in Biotechnology

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: conduct journal research and utilize logical reasoning to interpret results/data derived from scientific experimentation.

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.

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

- 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.

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 pharmacology? Take BIO200H5 and learn about the absorption and calculation of dosages. Our courses are taught by faculty from the departments of Biology, Chemistry and Management, as well as from the Master of Biotechnology.

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
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905-828-5400
www.utm.utoronto.ca/future-students