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.

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

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.

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.
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.

1ST YEAR
Enrol in courses BIO150H5, BIO153H5, MAT132H5, MAT134H5, CHM10H5, CHM120H5, MGM101H5 and MGM102H5.
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 uOne course. Build community and gain academic support through LAUNCH.
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.

2ND YEAR
Enrol in BIO200H5, BIO202H5, BIO203H5, BIO206H5, BIO207H5, CHM211H5, CHM242H5, CHM243H5 and BIO259H5.
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.

3RD YEAR
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 (PART) to enhance your research skills.
Explore your interests. Why not pass on your passion for science? Be a UTM Let's Talk Science Outreach volunteer.

4TH OR FINAL YEAR
Enroll in JCB472H5 and ensure you attain 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 or BIO481YS. Speak to the Biology Undergraduate Advisor.
Explore your interests. Why not pass on your passion for science? Be a UTM Let's Talk Science Outreach volunteer.

**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.

1ST YEAR
Enrol in courses BIO150H5, BIO153H5, MAT132H5, MAT134H5, CHM10H5, CHM120H5, MGM101H5 and MGM102H5.
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Gain practical research experience! Apply for JCB487YS or BIO481YS. Speak to the Biology Undergraduate Advisor.
Explore your interests. Why not pass on your passion for science? Be a UTM Let’s Talk Science Outreach volunteer.

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

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**PLAN YOUR ACADEMICS**

**BIOLOGY SPECIALIST Program Plan**

**1ST YEAR**
Enrol in courses BIO150H5, BIO153H5, MAT132H5, MAT134H5, CHM10H5, CHM120H5, MGM101H5 and MGM102H5.
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 uOne course. Build community and gain academic support through LAUNCH.
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.

**2ND YEAR**
Enrol in BIO200H5, BIO202H5, BIO203H5, BIO206H5, BIO207H5, CHM211H5, CHM242H5, CHM243H5 and BIO259H5.
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• see the Office of the Registrar about degree requirements and the Biology Undergraduate Advisor about program requirements.

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Gain practical research experience! Apply for JCB487YS or BIO481YS. Speak to the Biology Undergraduate Advisor.
Explore your interests. Why not pass on your passion for science? Be a UTM Let’s Talk Science Outreach volunteer.

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**BUILD SKILLS**

**1ST YEAR**
Networking simply means talking to people and developing relationships with them. Start by joining the Erindale Biology Society (EBS). Follow them @UofTlEBS. Go to the EBS Meet the Prof Night, or the biology department's Walk a Biologist and the Biology Seminar Series.
Visit the UTM Library Reference Desk.

**2ND YEAR**
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 Tips On How to Approach a Professor available through the Experiential Education Unit (EEU).

**3RD YEAR**
Get a global experience though our Experiential Education Unit (EEU).

**4TH OR FINAL YEAR**
Engage in programs like ISTEP and THRIVE to support your transition out of the University!

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**BUILD A NETWORK**

**1ST YEAR**
Engage with the many programs offered by the International Education Centre (IEC), whether you are an international or domestic student. Consider joining the Canada Eh? day trips or English Language Conversation Circles to deepen your global mindset.
First-year international students can also take advantage of THRIVE, a one-day conference dedicated to helping you start your UTM journey successfully.

**2ND YEAR**
Get a global experience though 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.

**3RD YEAR**
Expanding your intercultural awareness and developing intercultural skills will help you in your academics, personal growth and are highly sought after by employers.

**4TH OR FINAL YEAR**
Earn credits overseas! Apply to study for a summer term, or year at one of 170+ universities. Speak to the IEC for details about Course Based Exchange; funding and travel safety. Attend Global Learning Based Exchange.

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**BUILD A GLOBAL MINDSET**

**1ST YEAR**
Join a professional association. Check out the Canadian Association for Plant Biotechnology.
Go to the Ontario Biology Day, or the Canadian Undergraduate Conference on Healthcare.

**2ND YEAR**
Curious about grad school? Connect with a grad student through the OSE’s Grad Connect program to get the inside scoop.

**3RD YEAR**
Establish a professional presence on social media (e.g., LinkedIn).

**4TH OR FINAL YEAR**
What’s your next step after undergrad? Consider future graduate programs such as the Master of Biotechnology.

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**PLAN FOR YOUR FUTURE**

**1ST YEAR**
Speak to the Biology Undergraduate Advisor for biology program advice and details.
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.

**2ND YEAR**
Explore careers through the CC’s Job Shadow Program.
Considering further education? Attend the CC’s Graduate & Professional Schools Fair. Talk to professors – they are potential mentors and references for further education.

**3RD YEAR**
What’s your next step after undergrad? Consider future graduate programs such as the Master of Biotechnology.
Considering further education? Research application requirements, prepare for admission tests (LSAT, MCAT), and research funding options (OGS, NSERC, CIHR).

**4TH OR FINAL YEAR**
Engage in programs like ISTEP and THRIVE to support your transition out of the University!

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

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

Department of Biology
William G. Davis Building, Rm 3056
University of Toronto Mississauga
3359 Mississauga Rd
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 (EDIQ)
- 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
3359 Mississauga Rd
Mississauga ON Canada L5L 1C6

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