Molecular Biology is an interdisciplinary science that draws its major themes from biochemistry, cell biology, and genetics. Its emphasis is on the structure, chemistry, and functions of nucleic acids and focuses on the biochemical basis of cellular genetics. As the cornerstone of contemporary biotechnology, molecular biology provides some of the most successful experimental tools in medicine and agriculture. Applications for molecular biology can also be seen in the fields of genetics and microbiology.

Molecular Biology at UTM provides in-depth training in critical analyses of scientific concepts and literature as well as advanced laboratory skills. Subject areas include virology, immunology, cancer biology, plant and animal developmental biology, and biotechnology. 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 found at www.utm.utoronto.ca/program-plans

Programs of Study (POST)

- Specialist Program ERSPE1237 Molecular Biology (Science)

Check out...

What is the molecular and genetic basis of cancer building?
Examine the role of oncogenes, tumor suppressor genes and cell cycle regulating proteins in the developing of this disease through BIO477H5.

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: Cytotechnologist; Bacteriologist; Microbiologist; Medical geneticist; Biological technician; Toxicologist; Veterinary technician; Zoologist; Informationist; Community health worker; Radiation therapist; Doctor; Dietitian; Aquaculture technician.

Workplaces: Manufacturing and processing; Government; Scientific R&D; Conservation authorities; Hospitals and medical centres; Pharmaceutical; Academic medical centres/laboratories; Consulting firms.
Consult the Academic Calendar for greater detail on course requirements, program notes and degree requirements.

**MOLECULAR BIOLOGY SPECIALIST Program Plan**

### 1ST YEAR

- **Enrol in courses BIO150H5, BIO153H5, CHM110H5, CHM120H5; MAT133H5 and MAT134H5. Attain 1.0 credit from the second list of required first year courses in the Academic Calendar.**
- 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 an unesota course. Build community and gain academic support through LAUNCH. Join a RGASC Peer Facilitated Study Group.

### 2ND YEAR

- **Enrol in courses BIO206H5, BIO207H5, CHM242H5, CHM243H5, BIO259H5. Plus 1.0 CR from BIO202H5, BIO203H5 & BIO205H5.**
- 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

- **Enrol in courses BIO314H5, BIO315H5, BIO342H5, BIO360H5, BIO368H5, BIO374H5, BCH335H1, BCH340H1.**
- Throughout your undergraduate degree:
  - use the Degree Explorer to ensure you complete your degree and program requirements.

### 4TH OR FINAL YEAR

- **Enrol in courses BIO477H5 or BIO419H5 plus 1.0 additional credit from the list of courses detailed in the Academic Calendar.**
- Gain practical collaborative research experience! Apply for BIO400Y5, BIO401Y5 or BIO487Y5. Speak to the Biology Undergraduate Advisor for further information and similar opportunities.

### 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.

### 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 on Twitter. Go to the EBS Meet the Prof Night, or the Biology department’s Walk with a Biologist or the Biology Seminar Series.
- Visit the UTM Library Reference Desk.

### BUILD A GLOBAL MINDSET

- 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 THINKWIE, a one-day conference dedicated to helping you start your UTM journey successfully.

### PLAN FOR YOUR FUTURE

- **Consider further education? Attend the CC’s Graduate & Professional Schools Fair.** Talk to professors – they are potential mentors and references for further education.
- 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.

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

Skills developed in Molecular 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: 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

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
What’s in your genes? Take BIO207H5 to find out about the principles of Mendelian inheritance and modern genetics. Curious about animal physiology? Discover the diversity of structure and function in animals in BIO202H5.

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
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