

MOLECULAR BIOLOGY (HBSc)

Department of Biology

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.

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. 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)
- Minor Program ERMIN2364 Biology (Science)
- Minor Program ERMIN0840 Biomedical Communications (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; Dietician; Aquaculture technician.

Workplaces: Manufacturing and processing; Government; Scientific R&D; Conservation authorities; Hospitals and medical centres; Pharmaceutical; Academic medical centres/laboratories; Consulting firms.



MOLECULAR BIOLOGY

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 to create your own plan using [My Program Plan](#). Update your plan yearly.



	1 ST YEAR	2 ND YEAR
PLAN YOUR ACADEMICS*	<p>Enrol in courses BIO152H5, 153H5; CHM110H5, 120H5; and MAT134Y5/ 135Y5/ 137Y5. Attain 1.0 credit from the second list of required first year courses in the Academic Calendar.</p> <p>Choose a program of study (Subject POST) once you complete 4.0 credits. Use the Degree Explorer Planner and the Academic Calendar to plan your degree.</p> <p>Start strong and get informed with utmONE and LAUNCH through the Office of Student Transition. Join a RGASC Peer Facilitated Study Group.</p>	<p>Enrol in courses BIO206H5, 207H5; CHM242H5, 243H5; STA215H5; plus 1.0 credit from BIO202H5, 203H5 and 205H5.</p> <p>Throughout your undergraduate degree:</p> <ul style="list-style-type: none"> 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.
BUILD SKILLS	<p>Use the Co-Curricular Record (CCR). Search for opportunities beyond the classroom, and keep track of your accomplishments.</p> <p>Attend the Get Experience Fair through the Career Centre (CC) to learn about on- and off-campus opportunities.</p>	<p>Use the Career Learning Network (CLN) to find postings for on- and off-campus work and volunteer opportunities as well as Work-Study.</p> <p>Ask your professor about volunteering in their lab.</p>
BUILD A NETWORK	<p>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.</p> <p>Visit the UTM Library Reference Desk.</p>	<p>Do you have a professor you really like or 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 Office (EEO).</p>
BUILD A GLOBAL MINDSET	<p>Attend events held by the International Education Centre (IEC) to explore different cultures through food, music, and sport or through sight-seeing around the GTA.</p>	<p>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. Feel free to bring your lunch!</p>
PLAN FOR YOUR FUTURE	<p>Attend the Program Selection & Career Options workshop offered by the Office of the Registrar and the CC.</p> <p>Check out Careers by Major at the CC to see potential career options.</p>	<p>Explore careers through the CC's Extern Job Shadowing Program. Ask the Biology Undergraduate Assistant about the BioPath: Professional Development Program.</p> <p>Considering further education? Attend the CC's Graduate and Professional Schools Fair. Talk to professors – they are potential mentors and references for further education.</p>

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

3 RD YEAR	4 TH OR FINAL YEAR
<p>Enrol in courses BIO314H5, 315H5, 360H5, 370Y5, 372H5; CHM361H5, 362H5, 372H5, 373H5; plus 0.5 of BIO304H5, 310H5, 341H5, 362H5, 368H5, 374H5, 375H5, 380H5; CHM347H5; PHY332H5, 333H5; BCH335H1, 340H1.</p> <p>Consider applying for the Research Opportunity Program (ROP) course BIO399Y. Visit the EEO website for ROP Course Prerequisites. Attend the RGASC's P.A.R.T. to enhance your research skills.</p>	<p>Attain 1.0 additional BIO credits. Ensure you have at least 5.0 credits at the 300/400 level, of which 1.0 must be at the 400 level.</p> <p>Gain practical collaborative research experience! Apply for JCB487Y5. Speak to the Biology Undergraduate Advisor for further information and similar opportunities.</p> <p>Log on to ACORN and request graduation.</p>
<p>Explore your interests. Why not pass on your passion for science? Be a UTM Let's Talk Science Outreach volunteer.</p>	<p>Apply to the Ontario Ministry of Natural Resources Internship Program as a recent graduate. Look at the MNRF website for eligibility and application details.</p> <p>Gain research skills by working one-on-one with graduate students and a professor through BIO481Y5. Speak to the Biology Undergraduate Advisor.</p>
<p>Establish a professional presence on social media (e.g., LinkedIn).</p>	<p>Join a professional association. Check out the Canadian Society for Molecular Biosciences or the Canadian Society of Microbiologists.</p> <p>Go to a conference such as Ontario Biology Day.</p>
<p>Gain some valuable work experience while travelling abroad! See if you are eligible for International Experience Canada.</p>	<p>Why not work abroad? Read up on worldwide employment trends and industry outlooks through GoInGlobal. Attend the Go Global Expo.</p>
<p>What's your next step after undergrad?</p> <p>Entering the workforce? Evaluate your career options through a CC Career Counselling appointment. Create a job search strategy — book a CC Employment Strategies appointment.</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 resume critiqued at the CC. Attend the CC workshop Now That I'm Graduating What's Next?</p> <p>Write a strong application for further education. Attend the CC's Mastering the Personal Statement workshop.</p>

Revised on: 9/12/2017

Visit www.utm.utoronto.ca/program-plans for the online version and links.

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 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

- AccessAbility Services (AS)
- Career Centre (CC)
- Centre for Student Engagement (CSE)
- Experiential Education Office (EEO)
- Health & Counselling Centre (HCC)
- Indigenous Centre (IC)
- International Education Centre (IEC)
- Office of Student Transition (OST)
- 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

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

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

