

# CHEMISTRY (HBSc)

*Department of Chemical & Physical Sciences*

**Chemistry** plays a vital and well-integrated role in many areas of scientific discovery, including the development of new drugs, materials and diagnostics. Advancements made in the field of chemistry have brought improvements to our quality of life, and will help us to control the impact we are making on our environment in order to form the basis for a strong economy. Chemistry plays a major role in solving global issues such as combating disease, feeding our growing population and providing clean energy.

Chemistry at UTM provides preparation for work in areas such as medicine, pharmaceutical and biotechnology research, materials production and quality assurance.

## 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](http://www.utm.utoronto.ca/program-plans)

### Programs of Study (POSt)

- Specialist Program ERSPE1995 Biological Chemistry (Science)
- Specialist Program ERSPE1376 Chemistry (Science)
- Major Program ERMAJ1376 Chemistry (Science)
- Minor Program ERMIN1376 Chemistry (Science)

### Check out...

Curious about forensics? Learn how to analyze physical evidence — drugs and alcohol, gunshot residue, explosives and paint analysis — through FSC311H5. Interested in science education? Consider CPS398H5, Teaching Opportunities in Sciences.

### 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:** Food scientist; Microbrewery technologist; Hazardous waste management technologist; Quality controller; Pulping and bleaching manager; Biochemistry technologist; Medical lab technologist; Water purification chemist; Government affairs specialist; Forensic laboratory analyst.

**Workplaces:** Cosmetics and fragrance production; Pulp and paper; Pharmaceutical; Government; Medical organizations; Food and beverage production; Plastic manufacturing; Scientific R&D.



# CHEMISTRY

## MAJOR 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](http://www.utm.utoronto.ca/program-plans) to create your own plan using [My Program Plan](#). Update your plan yearly.



	1 <sup>ST</sup> YEAR	2 <sup>ND</sup> YEAR
PLAN YOUR ACADEMICS*	<p>Enrol in courses (CHM110H5,120H5); (MAT132H5, 134H5)/(MAT135H5, 136H5)/MAT134Y5/ 135Y5/ 137Y5/ 157Y5.</p> <p>Choose a program of study (Subject POST) once you complete 4.0 credits. Use the <b>Degree Explorer</b> and the <b>Academic Calendar</b> to plan your degree.</p> <p>Start strong and get informed with <b>utmONE</b> and <b>LAUNCH</b> through the Centre for Student Engagement (CSE). Join a RGASC <b>Peer Facilitated Study Group</b>.</p>	<p>Enrol in courses CHM211H5, 231H5, 242H5, 243H5 and JCP221H5.</p> <p>Consider applying for <b>Research Opportunity Program (ROP)</b> courses CHM299Y5 or CHM399Y5. Visit the EEU website for <b>ROP Course Prerequisites</b>. Attend the RGASC's <b>Program for Accessing Research Training (P.A.R.T.)</b> to enhance your research skills.</p>
BUILD SKILLS	<p>Use the <b>Co-Curricular Record (CCR)</b>. Search for opportunities beyond the classroom, and keep track of your accomplishments.</p> <p>Attend the <b>Get Experience Fair</b> through the CC to learn about on- and off-campus opportunities.</p>	<p>Use the <b>Career Learning Network (CLNx)</b> to find postings for on- and off-campus work and volunteer opportunities.</p> <p>Explore your interests! Do you want to make UTM eco-friendly? Become a <b>Green Ambassador</b> with the Environmental Affairs Office.</p>
BUILD A NETWORK	<p>Networking simply means talking to people and developing relationships with them. Start by joining the <b>Erindale Chemical and Physical Sciences Society (ECPS)</b>. Make sure to go to the <b>ECPS's Meet the Profs Night</b>.</p> <p>Visit the UTM Library <b>Reference Desk</b>.</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 <b>Tips On How to Approach a Professor</b> available through the Experiential Education Unit (EEU).</p>
BUILD A GLOBAL MINDSET	<p><b>Attend events held by the International Education Centre (IEC)</b>, whether you are an international or domestic student. Explore your culture and other cultures through weekly/regular conversations, <b>Language Conversation Circles</b>, debates, and activities to enhance your global and intercultural mindset.</p>	<p>Engage in programs like the <b>Global and Intercultural Fluency Training Series (GIFTS)</b> or learn about and prepare for a future <b>UTM Abroad Experience</b> through the IEC to strengthen and enhance your intercultural skill set, and learn about other cultures while sharing your own!</p>
PLAN FOR YOUR FUTURE	<p>Attend the <b>Program Selection &amp; Career Options</b> workshop offered by the Office of the Registrar and the Career Centre (CC).</p> <p>Check out <b>Careers by Major</b> at the CC to see potential career options.</p>	<p>Explore careers through the CC's <b>Job Shadowing Program</b>.</p> <p>Considering <b>further education</b>? Attend the CC's <b>Graduate and Professional Schools Fair</b>. Talk to professors – they are potential mentors and references.</p>

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

3 <sup>RD</sup> YEAR	4 <sup>TH</sup> OR FINAL YEAR
<p>In third and fourth year, enrol in 1.0 credits from (CHM372H5, 373H5)/(CHM394H5, 395H5)/ (CHM396H5, 397H5), 2.5 addition 300/400-level CHM/ JCP credits, at least 1.5 of which must be lecture courses.</p> <p>Throughout your undergraduate degree:</p> <ul style="list-style-type: none"> <li>use the <b>Degree Explorer</b> to ensure you complete your degree and program requirements.</li> <li>see the <b>Office of the Registrar</b> and the <b>CPS Academic Counsellor</b>.</li> </ul>	<p>What is <b>Experiential Education</b>? It means learn by doing! Speak to the <b>CPS Academic Counsellor</b> about opportunities such as JCB487Y5 (Advanced Interdisciplinary Research Laboratory) and CPS400Y5 (Chemical and Physical Sciences Internship).</p> <p>Log on to ACORN and request graduation.</p>
<p>Work on-campus through the <b>Work-Study program</b>. View position descriptions on CLN.</p> <p>Explore your interests. Why not apply to become a <b>Wellness Ambassador</b> with the Health &amp; Counselling Centre's Physical Health team?</p>	<p>Skills are transferrable to any job regardless of where you develop them. Need to strengthen your leadership skills? Consider being a <b>UTM Let's Talk Science Outreach</b> volunteer.</p>
<p>Establish a professional presence on social media (e.g. LinkedIn).</p> <p>Attend the <b>E.A. Robinson Science Education Lecture</b> through the CPS department.</p> <p>Thinking about life after UTM? Connect with a UTM alumnus through the CSE's <b>Alumni Mentorship Program!</b></p>	<p>Join a professional association. Check out the <b>Chemical Institute of Canada</b> and the <b>Association of Professional Chemists of Ontario</b>.</p> <p>Go to the <b>Southern Ontario Undergraduate Student Chemistry Conference</b> or the <b>Canadian Society for Chemistry Conference and Exhibition</b>.</p>
<p><b>Earn credits overseas!</b> Apply to study for a summer, term or year at one of 140+ universities. The CPS department has identified partners which are most relevant to our students. Speak to the IEC for details about <b>Course Based Exchange</b>, funding and travel safety.</p>	<p>Learn about working abroad. Read up on worldwide employment trends and industry outlooks through <b>GoinGlobal</b>. Attend the <b>Go Global Expo</b>. See if you are eligible for <b>International Experience Canada</b>.</p>
<p>What's your next step after undergrad?</p> <p>Entering the workforce? Evaluate your career options through a CC <b>Career Counselling appointment</b>. Create a job search strategy - book a CC <b>Employment Strategies appointment</b>.</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 <b>resume critiqued</b> at the CC. Attend the CC workshop <b>Now That I'm Graduating What's Next?</b></p> <p>Write a strong application for further education. Attend the CC's <b>Mastering the Personal Statement workshop</b>.</p>

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# CHEMISTRY

## Skills developed in Chemistry

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:

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

**Technical:** experience with state-of-the-art laboratory technology and instruments; ability to use computer programs to manipulate and display data; and comply with quality control procedures while conducting experiments.

**Quantitative:** analyze data for trends and apply statistical packages to data to test for significance.

**Communication:** organize research ideas and information into comprehensive reports; and interact professionally with a multidisciplinary team of researchers, technicians, students and professors.

## Get involved

Check out the 100+ student organizations on campus. Here are a few:

- Erindale Chemical and Physical Sciences Society (ECPS)
- UTM Student Union (UTMSU)
- UTM Athletics Council (UTMAC)

For a listing of clubs on campus visit [www.utm.utoronto.ca/clubs](http://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 Chemical & Physical Sciences

William Davis Building, 4037A  
University of Toronto Mississauga  
3359 Mississauga Rd  
Mississauga ON Canada L5L 1C6

905-828-5351; 905-828-3800  
cpscounsellor.utm@utoronto.ca  
[www.utm.utoronto.ca/cps](http://www.utm.utoronto.ca/cps)

## 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. Your admission average is calculated using English plus your next best five courses. The Grade 12 prerequisites for Chemistry are Advanced Functions, Chemistry and Physics. The approximate average required for admission is mid- to high-70s. More information is available at [utm.utoronto.ca/viewbook](http://utm.utoronto.ca/viewbook).

**NOTE:** During the application process, applicants will select the Chemical & Physical 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

Support is available to first-year chemistry students through tutorial classes, office hours, Facilitated Study Groups and a 24/7 system of Virtual Office Hours. In addition, all of our students have access to new, state-of-the-art teaching laboratories.

Upper-year students can become involved in cutting-edge research projects in our research labs. We recently launched the Centre for Medicinal Chemistry, an interdisciplinary centre for the development of new drugs. It will become a research hub of leading scientists dedicated to developing innovative approaches in the fight against cancer and other diseases.

### 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](http://www.utm.utoronto.ca/future-students)

