

# EARTH SCIENCE (HBSc)

*Department of Chemical & Physical Sciences*

**Earth Science** is the discipline that studies our planet and all of its natural environments. Our program offers training in both critical streams of Earth Science: Resources & Tectonics and Earth, Climate & Life. Through our program, students become well equipped to understand the causes and consequences of radical shifts already underway in Earth's climate system. Addressing modern climate change requires an understanding of the underlying physics and chemistry of the earth-climate system, as well as knowledge of how climate and life have co-evolved in the past. Our ancient fossil heritage archives the response of life to global perturbations providing rigorous data with which our students can test emerging climate models.

## 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 ERSPE1465 Earth Science (Science)
- Major Program ERMAJ1465 Earth Science (Science)
- Minor Program ERMIN1465 Earth Science (Science)

### Check out...

Where in the world are minerals? Learn exploration methods and mining practices in ERS401H5. Interpret ancient geological environments! Enrol in ERS325H5, a Field Camp held on the north shore of Lake Huron.

### 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:** Mine geologist; Surveyor; Geological technician; Prospector; Technical sales representative; Minerals processing technician; Exploration geologist; Compliance officer; Survey technician; Hydrologist; Environmental technician; Cartographer; GIS Specialist; Meteorologist; Paleontologist.

**Workplaces:** Mineral and hydrocarbon sector; Environmental sector; Government; Financial institutions; Academic institutions; National/provincial parks.



# EARTH SCIENCE

## 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 (ERS101H5 or ERS111H5 or ENV100Y5); (MAT132H5, MAT134H5) or (MAT135H5 or MAT136H5) or (MAT137H5 or MAT139H5) or MAT137Y5; (CHM110H5 and CHM120H5) or (PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5); ISP100H5.</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>Develop foundational academic skills and strategies by enrolling in a <b>utmONE</b> course. Build community and gain academic support through <b>LAUNCH</b>. Join a RGASC <b>Peer Facilitated Study Group</b>.</p> | <p>Enrol in courses ERS201H5 and ERS202H5 and ERS203H5; 0.5 credits from ERS211H5 or ERS225H5 or GGR214H5 or GGR217H5 or GGR227H5 or GGR272H5 or GGR276H5 or GGR278H5.</p> <p>Consider applying for <b>Research Opportunity Program (ROP)</b> courses ERS299Y, ERS399Y and ERS499Y. Visit the EEU website for <b>ROP Course Prerequisites</b>. Attend the RGASC's <b>PART</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 Career Centre (CC) to learn about on- and off-campus opportunities.</p> <p>Attend the <b>Experiential Education Fair</b>.</p>                                                                                                                                                                                                                                                                                                  | <p>Use the <b>Career &amp; Co-Curricular Learning Network (CLNx)</b> to find postings for on- and off-campus work and volunteer opportunities.</p> <p>Work on-campus through the <b>Work-Study program</b>. View position descriptions on the CLN.</p> <p>Sign up to become an <b>Experiential Education Unit Student Ambassador</b> and earn a CCR notation.</p>                                                                  |
| BUILD A NETWORK        | <p>Networking simply means talking to people and developing relationships with them. Start by joining the <b>J. Tuzo Wilson Club</b> and follow the Facebook group <b>UTM Earth Science</b>. Go to the Erindale Chemical &amp; Physical Sciences Society's Meet the Prof Night.</p> <p>Visit the UTM Library <b>Reference Desk</b>.</p>                                                                                                                                                                                                                                                                                      | <p>Do you have a professor you would like to 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>Engage with the many programs offered by the <b>International Education Centre (IEC)</b>, whether you are an international or domestic student. Consider joining the <b>Canada Eh?</b> day trips or <b>English Language Conversation Circles</b> to deepen your global mindset.</p> <p>First-year international students can also take advantage of <b>THRIVE-IN</b>, a one-day conference dedicated to helping you start your UTM journey successfully.</p>                                                                                                                                                              | <p>Participate in <b>International Education Week</b> and engage in programs like <b>Global and Intercultural Fluency Training Series (GIFTS)</b> to build on your leadership and communication skills in global citizenship. 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>The Career Centre's <b>model</b> can help! Get started today by visiting <b>My Career Centre</b> to begin exploring on your own.</p> <p>Stop by the Hello desk in the <b>Student Services Hub</b>. Our Career Centre team is ready to support you.Attend the <b>Program Selection &amp; Career Options</b> workshop offered by the Office of the Registrar and the CC.</p> <p>Students in the Specialist Program (ERSPE1465) can apply to join the <b>UTM Co-op Internship Program (UTMCIP)</b> stream at the end of their first year.</p>                                                                                | <p>Learn how your academics and career goals work together in a <b>Career Counselling appointment</b>.</p> <p>Explore careers through the CC's <b>Job Shadow Program</b>.</p> <p>Considering <b>further education</b>? Attend the CC's <b>Graduate &amp; Professional Schools Fair</b>. Research application requirements, prepare for admission tests (LSAT, GMAT) and research funding options (OGS, SSHRC).</p>                 |

| 3 <sup>RD</sup> YEAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4 <sup>TH</sup> OR FINAL YEAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>In third and fourth year, enrol in 3.0 additional credits at the 300/400 level from ERS301H5 or ERS302H5 or ERS303H5 or ERS304H5 or ERS311H5 or ERS312H5 or ERS315H5 or ERS325H5 or ERS381H5 or ERS401H5 or ERS402H5 or ERS403H5 or ERS404H5 or ERS411H5 or ERS412H5 or ERS425H5 or PHY351H5 or JGE378H5 or CPS400Y5.</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>CPS Academic Counsellor</b> and the <b>Office of the Registrar</b></li></ul>            | <p>In third and fourth year, enrol in 3.0 additional credits at the 300/400 level from ERS301H5 or ERS302H5 or ERS303H5 or ERS304H5 or ERS311H5 or ERS312H5 or ERS315H5 or ERS325H5 or ERS381H5 or ERS401H5 or ERS402H5 or ERS403H5 or ERS404H5 or ERS411H5 or ERS412H5 or ERS425H5 or PHY351H5 or JGE378H5 or CPS400Y5.</p> <p>Enrol in a course with hands on experience such as ERS401H5 which includes weekly field trips. Speak to the <b>CPS Academic Counsellor</b> to learn more.</p> <p>Log on to ACORN and request graduation.</p> |
| <p>Interpret ancient geological environments in the field. ERS325 is a Field Camp held on the north shore of Lake Huron in the summer. Speak to the <b>CPS Academic Counsellor</b> to learn more.</p>                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Skills are transferrable to any job regardless of where you develop them. Need to strengthen your collaboration skills? Consider a role as a <b>Waste Ambassador</b> with the Sustainability Office.</p> <p>Apply to the CPS400 Internship Course. Speak to the <b>CPS Academic Counselor</b> for more details.</p>                                                                                                                                                                                                                       |
| <p>Establish a professional presence on social media (e.g., LinkedIn).</p> <p>Attend a lecture presented by the <b>E.A. Robinson Science Education Lectureship</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>Geological Association of Canada</b> or the <b>Toronto Geological Discussion Group</b>.</p> <p>Go to the <b>Prospectors &amp; Developers Association of Canada (PDAC) Convention</b>.</p>                                                                                                                                                                                                                                                                                               |
| <p>Expanding your intercultural awareness and developing intercultural skills will help you in your academics, personal growth and are highly sought out by employers.</p> <p><b>Earn credits overseas!</b> Apply to study for a summer term, or year at one of 170+ universities. Speak to the IEC for details about <b>Outbound Exchange</b>, funding and travel safety. Attend Global Learning Week to learn about the various opportunities available to you!</p>                                                                                                                                                  | <p>Engage in programs like <b>ISTEP</b> and <b>THRIVE-OUT</b> to support your transition out of the University!</p>                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>Attend CC workshops to learn the basics of creating a resume and cover letter, preparing for an interview, and creating a strong LinkedIn profile. To register, visit the UTM Events page on <b>CLNx</b>. You would also find exciting networking opportunities to connect with employers, industry professionals and alumni.</p> <p>Are you ready to take the next step in preparing for further education? Get started by checking out the Pursue Learning section of <b>My Career Centre</b> and attending a drop-in session with a <b>Career Counsellor</b> for best practices for grad school preparation.</p> | <p>Attend the CC workshop, <b>Now That I'm Graduating What's Next</b> to learn how to develop your job search plan.</p> <p>Ready for employment? Schedule an <b>Employment Strategist Appointment</b> to review your documents and practice your skills. If you are still unsure about the next steps in your career journey, schedule a <b>Career Counsellor Appointment</b> to gain support exploring career options and establishing a career plan.</p>                                                                                   |

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

# EARTH SCIENCE

## Skills developed in Earth Science

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:** read, critically evaluate and produce professional papers and geologic maps.

**Investigative:** knowledge of the origin, composition, and evolution of the Earth, and how the Earth system responds to internal and external forces, as well as understand spatial data and temporal geologic change.

**Technical:** identify, describe and classify earth materials and structures, as well as analyze quantitative geologic data.

**Critical thinking & problem-solving:** recognize bias and incompleteness in the geologic record; apply physics, chemistry, biology, statistics and mathematics to solve geologic problems; and apply geoscience knowledge to address problems affecting society.

## Get involved

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

- J. Tuzo Wilson Club
- Erindale Chemical and Physical Sciences Society (ECPS)
- UTM Student Union (UTMSU)
- UTM Athletics Council (UTMAC)

For a listing of clubs on campus visit the **Student Groups and Societies Directory**

## 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)**
- **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 Science

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[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. The admission average is calculated with English plus the next best five courses. The Grade 12 prerequisites for this program 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

As citizens of the world, we are, and will increasingly be, required to make decisions about our relation with Earth: we need to be sufficiently informed to contribute to the ongoing debates. In ERS111H5 you'll get the chance to focus on our relationship with Earth: how she supports us, how she affects us, and how we affect her. Curious about the materials that form the Earth? Get excited about ERS201H5. The course includes an optional field trip to the Algonquin-Bancroft area of eastern Ontario.

Our students have access to new, state-of-the-art teaching laboratories and are involved in cutting-edge research projects in our research labs.

### 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)

