PHYSICS (HBSc)
Department of Chemical & Physical Sciences

Life Science? It began with Physics! Physics encompasses the study of the universe from the largest galaxies to the smallest subatomic particles. Want skills? Physicists learn them! Physicists are problem solvers. Their analytical skills make physicists versatile and adaptable so they work in interesting places.

Want a job? People hire physicists! Physics brings a broad perspective to any problem. Because they learn how to consider any problem they are not bound by context. Like money? Physics beats other sciences! Even when the job market is slow, physicists get job offers for well-paying jobs. Employers know that a physicist brings additional skills with expertise and pay accordingly.

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 ERSPE1944 Biomedical Physics Specialist (Science)
- Major Program ERMAJ1944 Physics (Science)
- Minor Program ERMIN1944 Physics (Science)

Check out...
Have a soft spot for quantum mechanics? Check out JCP321H5. Curious about lasers and radiation? Then get excited for PHY451H5! Topics include electromagnetism, light metal interactions, multipole radiation and simple models of optical dispersion.

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: Acoustic emissions technician; Astrophysicist; Laser fusion scientist; Material scientist; Medical physicist; Nuclear medical technologist; Optical technician; Planetarium guide; Quality controller; Radiation safety technician; Science journalist; Seismic analyst; Sound engineer.

Workplaces: Aerospace; Energy development; Government; Renewable energy; Research laboratories; Manufacturing; Observatories; Planetariums; Research centres; Space industry.
### 1st Year

**Enrol in courses (PHY136H5, 137H5Y, 146H5, 147H5Y, and MAT134Y5/135Y5/137Y5).**

Choose a program of study (Subject POS) once you complete 4.0 credits. Use the Degree Explorer Planner and the Academic Calendar to plan your degree.

Start strong and get informed with utmONE and LAUNCH through the Office of Student Transition. Join a RGASC Peer Facilitated Study Group.

### 2nd Year

**Enrol in courses (PHY241H5, 242H5, 245H5 and JCP221H5).**

Consider applying for Research Opportunity Program (ROP) courses PHY299Y and PHY399Y. Visit the EEO for ROP Course Prerequisites. Attend the RGASC’s Program for Accessing Research Training (P.A.R.T.) to enhance your research skills.

Use the Co-Curricular Record (CCR). Search for opportunities beyond the classroom, and keep track of your accomplishments.

Use the Career Learning Network (CLN) to find postings for on- and off-campus work and volunteer opportunities.

Networking simply means talking to people and developing relationships with them. Start by joining the UTM Physics Club. Go to the Erindale Chemical & Physical Sciences Society’s Meet the Pros Night. Visit the UTM Library Reference Desk.

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).

Attend the Get Experience Fair through the Centre (CC) to learn about on- and off-campus opportunities.

Visit the UTM Library Reference Desk. Go over lecture material. Don’t be shy! Learn Tips On How to Approach a Professor available through the Experiential Education Office (EEO).

Embark on a UTM Abroad Co-Curricular Experience through the IEC. Take advantage of this opportunity to travel with a faculty member and learn about a topic of interest in a unique location.

Attend events held by the International Education Centre (IEC) to explore different cultures through food, music, sport or sight-seeing around the GTA.

Refer Traveling in Canada? Check out the IEC’s UTM Across Canada program.

### 3rd Year

**Enrol in courses (PHY324H5, 325H5, 347H5, 451H5; JCP321H5 and 421H5).** To complete the Physics major, you need to acquire 1.0 additional 300/400 level PHY/JCP credits.

Throughout your undergraduate degree:
- use the Degree Explorer to ensure you complete your degree and program requirements.
- see the Office of the Registrar and the CPS Academic Counsellor.

Apply to TRIUMF - Canada’s national laboratory for particle and nuclear physics - that accepts 70 undergraduate students from across the country and abroad every year as part of its Undergraduate Student Program.

Apply for NSERC Undergraduate Program awards e.g. USRA to work in a lab in the summer.

Establish a professional presence on social media (e.g., LinkedIn).

Join a professional association. Check out the Canadian Association of Physicists or the American Physical Society.

Go to a conference such as the Canadian Undergraduate Physics Conference.

Earn credits overseas! Study for a summer, term or year at one of 120 universities. The CPS department has identified 9 partners which are most relevant to our students. Speak to the IEC for details about Course Based Exchange and funding.

What’s your next step after undergrad?
- Entering the workforce? Evaluate your career options through a CC Workshop. Consider a role as a RGASC Facilitated Study Group Leader.
- Write a strong application for further education. Attend the CC’s Mastering the Personal Statement workshop.
- Considering further education? Research application requirements, prepare for admission tests (LSAT, MCAT), and research funding options (OGS, NSERC) for graduate studies.

### 4th Year

**Senior students complete a research project.** Speak to the CPS Academic Counsellor to discover available opportunities such as Independent Study Courses (PHY473H5 (Supervised Reading) and PHY489Y5 (Introduction to Research in Physics)).

Log on to ACORN and request graduation.

Skills are transferrable to any job regardless of where you develop them. Need to strengthen your presentation skills? Consider a role as a RGASC Facilitated Study Group Leader.

### Plan Your Academics

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<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
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Skills developed in Physics

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:

**Technical**: strong emphasis on lab work using state-of-the-art technology as well as advanced instrumentation and numerical computation.

**Written & oral communication**: explain complex concepts and theories to others, as well as clearly explain scientific research and write reports.

**Research**: define a problem; establish hypotheses; apply and integrate fundamental scientific principles; gather scientific data; and review scientific literature.

**Problem-solving**: see relationships among factors; analyze data; and interpret observations.

Get involved

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

- UTM Physics Club
- 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.

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 Chemical & Physical Sciences

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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 Physics are Advanced Functions, Physics and Chemistry. The approximate average required for admission is mid- to high-70s. More information is available at 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

Want to learn about the mysteries of Schrodinger’s cat and other quantum phenomena? Take JCP321H5 and then go even deeper with JCP421H5. You’ll never see the world the same way again!

Our students have access to new, state-of-the-art teaching laboratories and are involved in cutting-edge research projects in our research labs. Our physics equipment ranges from basic mechanic setups all the way to an atomic force microscope (AFM) that can achieve single atom resolution. We have an active undergraduate student club – the UTM Physics Club – to provide students with an opportunity for fun physics-based activities. To date, the main focus has been building a Tesla coil that will play music.

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