COMPUTER SCIENCE (HBSc)

Department of Mathematical & Computational Sciences

Computer science is concerned in the broadest sense with the study of computation and applications of computing. Its development has been stimulated by collaborations with many disciplines including engineering, the physical and life sciences, mathematics and statistics and commerce. However, computer science is much more than a set of techniques used in these application areas.

Computer science as a discipline encompasses a wide range of research areas including human-computer interaction, software engineering, numerical analysis, machine learning, and cryptography.

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 (POS)

- Specialist Program ERSPE1038 Information Security (Science)
- Specialist Program ERSPE1688 Computer Science (Science)
- Major Program ERMAJ1688 Computer Science (Science)
- Minor Program ERMIN1688 Computer Science (Science)

Check out...

Why not try machine learning? In CSC321 and CSC411, you can investigate how machines "learn" to classify situations with or without supervision (training data). Other courses introduce related topics: natural language understanding, reasoning and planning (CSC384H5), and neural networks (CSC321H5 and CSC411H5).

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: Data scientist; Software developer; Web/app developer; Software tester; Computer systems analyst; Systems architect; Network administrator; Database administrator; Business analyst; Computer architect.

Workplaces: Computer/telecommunication companies; Government; Banks; Insurance; Engineering firms; Test development companies.
**COMPUTER SCIENCE MAJOR Program Plan**

**1ST YEAR**
- **Plan Your Academics**
  - 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 Centre for Student Engagement (CSE). Join a RGASC Peer Facilitated Study Group.

**2ND YEAR**
- **Plan Your Academics**
  - Enrol in courses CSC207H5, 236H5, MAT223H5/240H5, two of (CSC209H5, 258H5, 263H5), CSC290H5, and STA250H5. Review your Degree Explorer Plan and the Academic Calendar to ensure you take the prerequisites you need for upper year courses.
  - Consider applying for Research Opportunity Program (ROP) courses CSC299Y, CSC399Y and CSC499Y. Visit the EEU website for ROP Course Prerequisites. Attend the RGASC’s P.A.R.T. to enhance your research skills.

**3RD YEAR**
- **Plan Your Academics**
  - Attain four half courses from any 300/400 level UTM CSC courses (including at least 0.5 credit from a 400-level course).
  - 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 MCS Undergraduate Counsellor.

**4TH OR FINAL YEAR**
- **Plan Your Academics**
  - What is Experiential Education? It means learn by doing! Speak to the MCS Undergraduate Counsellor about the workshop-based courses CSC420H5 (The Design of Interactive Computational Media) and CSC494H5 (Caspstone Design).
  - Conduct a research project under the supervision of a faculty member through CSC492H5 and CSC493H5. Speak to the MCS Undergraduate Counsellor for advice and details.

**Build Skills**
- **Build a Network**
  - Networking simply means talking to people and developing relationships with them. Start by joining the Mathematical and Computational Sciences Society (MCSS). Follow them on Twitter.
  - Get to know your TA. View the Math Help Room Schedule on the MCS departmental website. Visit the UTM Library Reference Desk.

**Build a Global Mindset**
- **Build a Network**
  - Attend events held by the International Education Centre (IEC), whether you are an international or domestic student. Explore different cultures through food, music, and sport or through sight-seeing around the GTA.
  - Embark on a UTM Abroad Experience through the IEC. Take advantage of this opportunity to travel as part of a class, or a co-curricular opportunity, and learn about a topic of interest in a unique location.

**Plan for your Future**
- **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.**
- **Explore careers through the CC’s Extern Job Shadowing Program.**
- **Consider further education?** Attend the CC’s Graduate and Professional Schools Fair. Talk to professors – they are potential mentors and references.
- **What’s your next step after undergrad?**
  - Considering further education? Research application requirements, prepare for admission tests (LSAT, GMAT) and research funding options (OGS, SSHRC).

*Consult the Academic Calendar for greater detail on course requirements, program notes and degree requirements.*
Skills developed in Computer 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:

**Research:** analyze and evaluate information; develop innovative systems; and develop ideas for presentation at a conference or in a journal.

**Technical:** write, debug, and test programs and research, design and develop computer systems (e.g., new computer languages, simulations, system analysis, etc.).

**Problem-solving:** conceptualize models; formulate, model, and solve problems from diverse areas; and collect, organize, analyze, and interpret results.

**Communication:** articulate, explain, and teach technical information to others, as well as question and probe to diagnose computer problems.

**Organizational:** manage time effectively and organize and maintain stored data.

Get involved

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

- Mathematical and Computational Sciences Society (MCSS)
- 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

- 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)

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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 and Calculus. The approximate average required for admission is high-70s. More information is available at utm.utoronto.ca/viewbook.

**NOTE:** During the application process, applicants will select the Computer Science, Mathematics & Statistics 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**

The first two years of the program are an introduction to broadly applicable tools and ideas. You’ll learn computing languages including, Python (CSC108H5) and Java (CSC207H5), as well as mathematical techniques (CSC236H5) and data structures (CSC148H5 and CSC263H5).

Our computing facilities are excellent. We have over 400 Linux PCs, Windows PCs and Apple Macs. Course offerings are intended to serve a wide variety of student interests ranging from information processing to applying computers to other fields. Our faculty enjoy a strong world-wide reputation in varied fields of research including: human-computer interaction, computer vision, machine learning and computing education.

**Student Recruitment & Admissions**

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