

COURSE LISTING – FALL 2026

Course	Course Name	Professor	Schedule	Location
CP8101*	Research Methods	Dr. A. Ferworn	Friday 12:00 - 15:00	KHE129
CP8205	Advanced Human-Computer Interaction	Dr. A. Scavarelli	Friday 08:00 - 10:00 Monday 14:00 - 15:00	DSQ23 DSQ13
CP8301	Secure Computing	Dr. J. Misic	Wednesday 12:00 - 15:00	VIC503
CP8307	Introduction to Computer Vision	Dr. R. Wang	Thursday 08:00 - 11:00	DSQ06
CP8310*	Directed Studies: Master's	N/A	N/A	N/A
CP8312*	Directed Studies: Doctoral	N/A	N/A	N/A
CP8317	Performance Evaluation	C. Gravel	Tuesday 15:00 - 18:00	VIC210
CP8318	Machine Learning	Dr. E. Lugez	Wednesday 08:00 - 11:00	ENG103
CP8321	Introduction to Deep Learning	Dr. A. Sadeghian	Thursday 15:00 - 18:00	VIC306
CP8327	Model-Driven Engineering	Dr. S. Mustafiz	Monday 15:00 - 18:00	ENGLG14
CP8337*	Directed Studies: Research Methodologies	N/A	N/A	N/A
CP8339	Recommender Systems	Dr. C. Ding	Tuesday 12:00 - 15:00	ILC102
CP9101	Method of Instruction	Dr. P. Raman	Wednesday 15:00 - 18:00	ENGLG12

* Requires a Directed Studies, Research Methods and Non-CS Course Enrollment Request Form for enrollment, available at <https://www.torontomu.ca/cs/graduate/forms-guidelines/>

Notes:

1. Fall 2026 classes begin Tuesday, September 8, 2026.
2. Refer to the Significant Dates for course ADD and DROP deadlines:
<https://www.torontomu.ca/graduate/calendar/significant-dates/>
3. See the Graduate Calendar for Program Curriculum and Course Descriptions:
<https://www.torontomu.ca/graduate/calendar/programs-and-courses/>

COURSE DESCRIPTIONS

CP8101 Research Methods

This course is designed to assist graduate students in developing the skills necessary to design and execute a research protocol aligned with their degree requirements. It complements the specific research programs devised by the student in collaboration with their supervisors. The course covers several topics, such as: the nature of scientific inquiry, library research skills, formulation and testing of hypotheses, experimental design, literature reviews, publishing in peer-reviewed venues, and professional responsibilities in research. Pass/Fail.

CP8205 Advanced Human-Computer Interaction

Current trends in user interface technology; topics include alternative interaction devices, user interface tools, and interface modeling techniques. Usability testing and human factors. 1 Credit. *Note: This course is cross-listed with undergraduate course CPS613, for which the pre-requisite is CPS209.*

CP8301 Secure Computing

The importance of security for computer systems: protection, access control, distributed access control, Unix security, applied cryptography, network security, firewalls, secure coding practices, safe languages, mobile code. Computer and network forensics techniques. Computer security techniques. Legal and Ethical issues. Topics may include cryptographic protocols, privacy, anonymity, and/or other topics as time permits. 1 Credit.

CP8307 Introduction to Computer Vision

This course describes foundational concepts of computer vision. In particular, the course covers the image formation process, image representation, feature extraction, model fitting, motion analysis, 3D parameter estimation and applications. 1 Credit. *Note: This course is cross-listed with undergraduate course CPS843, for which the pre-requisites are [CPS305 and MTH108 and MTH207 and (MTH380 or MTH304)] or ELE 532.*

CP8310 Directed Studies: Master's

This course is for Master's students who wish to gain knowledge in a specific area for which no graduate level classes are offered. Students are required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study) in an organized format. 1 Credit.
Not available to Course option students.

CP8312 Directed Studies: Doctoral

This doctoral-level directed studies course provides an opportunity for students to engage in in-depth research and exploration of advanced topics in computer science that are not covered by existing courses in the program. Students will work closely with a faculty advisor to identify and investigate emerging areas of interest or specialized topics, which may include interdisciplinary applications, novel computational methods, or theoretical advancements. 1 Credit.

CP8317 Performance Evaluation

Probability Theory; Transforms of probability distributions; Branching processes; Discrete time Markov Chains; Continuous time Markov

Chains; Birth-Death processes; Intermediate queuing theory, M/G/1 queues; Renewal theory; Gated and limited systems; Hidden Markov model. 1 Credit.

CP8318 Machine Learning

Machine learning is the study of algorithms that learn to perform a task from prior experience. Machine learning has a broad range of applicability, including computer vision, robotics, medical diagnosis, bioinformatics and natural language processing. This course will cover the underlying theory and practical applications of machine learning. 1 Credit. *Note: This course is cross-listed with undergraduate course CPS803, for which the pre-requisites are MTH108 and MTH207 and CPS305 and (MTH380 or MTH304).*

CP8321 Introduction to Deep Learning

This course is an introduction to deep learning and its applications. The main topics discussed in the course include feedforward/recurrent neural networks, backpropagation learning algorithm, Convolutional Neural Networks (CNN), Long Short Term Memory (LSTM), and Autoencoders. 1 Credit.

CP8327 Model-Driven Engineering

This course is designed to introduce students to the field of model-driven engineering (MDE). MDE is a software and systems development methodology in which software models are treated as first-class citizens in the engineering process. Topics to be discussed include modelling languages, domain-specific modelling, model transformation, model management, modelling and simulation, and model analysis. Required background: Basic software engineering knowledge is expected. 1 Credit. *Note: This course is cross-listed with undergraduate course CPS865, for which the pre-requisite is CPS406.*

CP8337 Directed Studies: Research Methodologies

This course offers students the opportunity to engage in individualized, in-depth study of research methodologies in computer science under the supervision of a faculty member. The course is designed to develop advanced skills in designing, conducting, and evaluating research, emphasizing the critical analysis of existing work, research design principles, and the ethical dimensions of conducting research. Students will work closely with their supervisor to tailor the course content to their research interests and academic goals. Pass/Fail.

CP8339 Recommender Systems

Recommender systems are software systems that help users in the decision-making process. They serve as filtering tools to alleviate the information overload problem. In this course, students will learn the basic concepts of recommender systems, three types of recommender systems (content-based, collaborative filtering and hybrid), popular models (machine learning based, matrix factorization, deep learning based) and evaluation measurements. Special recommendation applications and advanced topics may be discussed, such as session-based recommender systems, fairness and bias. 1 Credit.

CP9101 Method of Instruction

Students will learn to select appropriate teaching methods; establish goals and performance objectives and construct lesson plans. Students will be shown classroom management and presentation techniques. In addition, students will be introduced to the principles of learning and instruction. Student will learn to formulate questions and employ good questioning technique. Each student will be given opportunities to prepare and present short lessons. Each student will be required to prepare and present at

least two five minutes lessons based on computer science related topics. Student lessons will be evaluated by the student, class members and the instructor. 1 Credit.