

# CPS 710: Compilers and Interpreters

Fall 2024, All Sections

## Instructor Information

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- **Instructor Name:** Sophie Quigley
- **Office Location:** ENG263
- **Office Hours:** Wednesdays 2:00-4:00 in office and Zoom (link in D2L calendar)
- **Phone:** (416) 979 – 5000, ext. 557401
- **Course Website:** my.torontomu.ca and [www.cs.torontomu.ca/~cps710/](http://www.cs.torontomu.ca/~cps710/)
- **Email Address:** [cps710@cs.torontomu.ca](mailto:cps710@cs.torontomu.ca)

## Email Policy

- The official email address for this course is [cps710@cs.torontomu.ca](mailto:cps710@cs.torontomu.ca).
- In accordance with the Policy on Torontomu Student E-mail Accounts (Policy 157), Toronto Metropolitan University (TMU) requires that any electronic communication by students to TMU faculty or staff be sent from their official university email account.
- Emails sent from a student's TMU email address to the official course email address and which only require a simple response will normally be answered within one business day. Replies to emails requiring more complex responses will take longer. Answers to technical questions may sometimes be provided verbally during classes or office hours instead of by email.

## Course Description

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### [CPS 710 - Compilers and Interpreters](#)

Introduction to compiler design: theory, techniques, and tools. Students will develop an interpreter or compiler. Assembler and preprocessors will also be briefly discussed.

**Weekly Contact:** Lab: 1 hr. Lecture: 3 hrs.

**Prerequisites:** (CPS 305 or COE 428) and (CPS 420 or MTH 314)

## Course Details

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### Teaching Methods

The lectures and labs in this course will be in person on campus, and they will not be recorded. The slides used for the lectures will be posted in D2L and in the shared course Google drive.

A large component of the instruction in this course is project based: throughout the semester students will gradually develop an interpreter for a small domain specific language.

### Course Materials

Information about references and software required for this course can be found at [CPS710 References and Software](#).

### Technology Used

All the technology required for this course, except for digitization of hand written work, is available in the Computer Labs of the Department of Computer Science. In addition to [D2L and G Suite](#), here are the technologies that will be used in this course:

- The [Google drive for the course](#) will be used for additional material.
- [Crowdmark](#) (browser based) to submit some of the work. Work should be scanned or photographed and submitted in pdf or image format in the associated Crowdmark assessment.
- Assignments will be developed in [Java](#) using the [JavaCC](#) package on the Department of Computer Science server. To access the servers remotely you will need SSH and SFTP clients.

Students may use Generative AI (e.g. ChatGPT, Grammarly, Perplexity, DeepL Translator) only for grammar correction or as a study tool for tests and exams, but not for other assessments in the course. Failure to stay within these limits will be considered a breach of Policy 60. In particular the use of Generative A.I. for code generation is completely prohibited.

### Topics and Course Schedule

The schedule of topics for this course can be found in calendar form in the [Topics and Course Schedule](#) page also available in D2L.

## Specification Grading: Learning Outcomes, Assessments, and Grades

This course uses [specification grading](#) which ties the course assessments and final grade to demonstrations of learning outcomes. All information regarding specification grading in this course is described in detail in the [CPS710 Detailed Learning Outcomes and Grading Scheme](#) referring to tables in the Google sheet [Learning Outcomes and their Assessments](#).

These documents explain:

- How the specification grading philosophy is applied in CPS710.
- The CPS710 learning outcomes in detail.
- How these learning outcomes will be assessed.
- How the assessment of the learning outcomes will translate into a final grade.

Generally, the assessments will consist of

- A series of D2L quizzes based on the learning outcomes, including a take home final exam.
- A series of small independent labs to be submitted in Crowdmark, and possibly resubmitted as D2L assignments
- A series of programming assignments that build on each other and culminate in the development of an interpreter for a small language. The development is in Java and [JavaCC](#), and the work is [submitted on the CS UNIX systems](#).

In this course, students are encouraged to resubmit their work until the learning objectives have been met. Some of the knowledge may also be demonstrated orally during office hours. The only exceptions are the first three assignments that cannot be resubmitted because solutions are provided to be used as building bases for the next assignment.

## Assessment Dates and Submissions

All the details related the submission of assessments can be found in the [F24 Assessment Submissions](#) table. This includes the dates when all the assessments will be handed out, deadlines for submission of work to be assessed, and processes and dates for submitting late work or resubmitting it for reevaluation when available. The dates of the assessments are also displayed in calendar form in the [Topics and Course Schedule](#). Submission instructions are provided in the [Submission of Course Work](#) page.

## Intellectual Property

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Sophie Quigley holds the copyright in the works of all original materials used in this course and students registered in this course can use the materials for the purposes of this course but no other use is permitted, and there can be no sale or transfer or use of the work for any other purpose without explicit permission of Sophie Quigley.

**In particular, none of the course material, including programming assignments, their solutions, or work that integrate their solutions, are to be disseminated outside of this course without the explicit permission of Sophie Quigley**

## University Policies

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Students are required to adhere to all relevant university policies found in their online course shell in D2L and/or on [the Senate website](#), and in particular [Academic Integrity Policy 60](#).

## Important Resources Available at Toronto Metropolitan University

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- [The University Libraries](#) provide research [workshops](#) and individual consultation appointments. There is a drop-in Research Help desk on the second floor of the library, and students can use the [Library's virtual research help service](#) to speak with a librarian, or [book an appointment](#) to meet in person or online.
- [Student Life and Learning Support](#) offers group-based and individual help with writing, math, study skills, and transition support, as well as [resources and checklists to support students as online learners](#).
- You can submit an [Academic Consideration Request](#) when an extenuating circumstance has occurred that has significantly impacted your ability to fulfill an academic requirement. You may always visit the [Senate website](#) and select the blue radio button on the top right hand side entitled: Academic Consideration Request (ACR) to submit this request.

For Extenuating Circumstances, Policy 167: Academic Consideration allows for a once per semester ACR request without supporting documentation if the absence is less than 3 days in duration and is not for a final exam/final assessment. Absences more than 3 days in duration and those that involve a final exam/final assessment, always require documentation. Students must notify their instructor once a request for academic consideration is submitted. See Senate [Policy 167: Academic Consideration](#).

- If taking a remote course, familiarize yourself with the tools you will need to use for remote learning. The [Remote Learning Guide](#) for students includes guides to completing quizzes or exams in D2L Brightspace, with or without [Respondus LockDown Browser and Monitor](#), [using D2L Brightspace](#), joining online meetings or lectures, and collaborating with the Google Suite.
- Information on Copyright for [Faculty](#) and [students](#).
- Information on Academic Integrity for [Faculty](#) and [students](#).

## Accessibility

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- The final exam is a two hour exam scheduled in a three hour exam period. This is to ensure that all students can finish the final exam on time, whether or not they have any registered academic accommodations. The questions on this exam will also be randomly selected from a question bank that students can review beforehand.
- Please contact Sophie Quigley using any of the methods described on the front page if you discover an accessibility barrier with any course material or technology.

## Academic Accommodation Support

Academic Accommodation Support (AAS) is the university's disability services office. AAS works directly with incoming and returning students looking for help with their academic accommodations. AAS works with any student who requires academic accommodation regardless of program or course load.

- Learn more about [Academic Accommodation Support](#).
- Learn [how to register with AAS](#).
- Learn about [Policy 159: Academic Accommodation of Students with Disabilities](#)

Academic Accommodations (for students with disabilities) and Academic Consideration (for students faced with extenuating circumstances that can include short-term health issues) are governed by two different university policies. Learn more about [Academic Accommodations versus Academic Consideration](#) and how to access each.

## Wellbeing Support

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At Toronto Metropolitan University, we recognize that things can come up throughout the term that may interfere with a student's ability to succeed in their coursework. These circumstances are outside of one's control and can have a serious impact on physical and mental well-being. Seeking help can be a challenge, especially in those times of crisis.

If you are experiencing a mental health crisis, please call 911 and go to the nearest hospital emergency room. You can also access these outside resources at anytime:

- **Distress Line:** 24/7 line for if you are in crisis, feeling suicidal or in need of emotional support (phone: 416-408-4357)
- **[Good2Talk](#):** 24/7-hour line for postsecondary students (phone: 1-866-925-5454)
- **[Keep.meSAFE](#):** 24/7 access to confidential support through counsellors via [My SSP app](#) or 1-844-451-9700

If non-crisis support is needed, you can access these campus resources:

- **[Centre for Student Development and Counselling](#):** 416-979-5195 or email [csdc@torontomu.ca](mailto:csdc@torontomu.ca)
- **[Consent Comes First – Office of Sexual Violence Support and Education](#):** 416-919-5000 ext 3596 or email [osvse@torontomu.ca](mailto:osvse@torontomu.ca)
- **[Medical Centre](#):** call (416) 979-5070 to book an appointment

We encourage all Toronto Metropolitan University community members to access available resources to ensure support is reachable. You can find more resources available through the [Toronto Metropolitan University Mental Health and Wellbeing](#) website.