

Formal Languages and Automata

CSC 448 / CSC 2405, Fall 2021

University of Toronto

Course Information

Instructor: Swastik Kopparty (swastik.kopparty@utoronto.ca)

Course web page: Quercus + <https://www.math.toronto.edu/swastik/courses/automata-F21/>

Lecture: Wednesdays 1pm-3pm in Bahen 1240 (and also Zoom, link coming soon)

TA: Harry Sha

Tutorial: Fridays 1pm-2pm in Bahen 1240

Instructor Office hours: Wednesday 11am-12noon, on Zoom (link coming soon)

TA Office hours: TBD, on Zoom (link coming soon)

Text Book: Introduction to the Theory of Computation, 3rd edition (Sipser).

Topics

This course will study increasingly sophisticated mathematical models for computers, and how to understand the power and limitations of these models. Topics include: Regular Languages, Finite Automata, Regular Expressions, Context-Free Languages, Context-Free Grammars, Pushdown Automata, Computability Theory, Turing Machines, Undecidability and a taste of Computational Complexity Theory. This course will need comfort with proofs and mathematical precision.

Grading Scheme:

There will be homeworks every 1-2 weeks, 1 midterm, and 1 final.

The midterm will be on October 27 from 1pm - 3pm. The final will be during the regular final exam period.

Their weights in calculating your final grade will be:

Homework	35%
Midterm	25%
Final	40%

Academic Integrity

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The [University of Toronto's Code of Behaviour on Academic Matters](#) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor in all relevant courses
- Making up sources or facts
- Obtaining or providing unauthorized assistance on any assignment

On tests and exams:

- Using or possessing unauthorized aids
- Looking at someone else's answers during an exam or test
- Misrepresenting your identity

In academic work:

- Falsifying institutional documents or grades
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes

All suspected cases of academic dishonesty will be investigated following procedures outlined in the *Code of Behaviour on Academic Matters*. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, please reach out to me. Note that you are expected to seek out additional information on academic integrity from me or from other institutional resources (for example, the [University of Toronto website on Academic Integrity](#)).

General policies

- The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.
- This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.

Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the instructor.

For questions about the recording and use of videos in which you appear, please contact your instructor.

- Students with diverse learning styles and needs are welcome in this course. If you have a disability that may require accommodations, please feel free to approach me and/or the Accessibility Services* office. [Accessibility Services on the St. George campus](#)
- The University provides reasonable accommodation of the needs of students who observe religious holy days other than those already accommodated by ordinary scheduling and statutory holidays. Students have a responsibility to alert members of the teaching staff in a timely fashion to upcoming religious observances and anticipated absences and instructors will make every reasonable effort to avoid scheduling tests, examinations or other compulsory activities at these times.