Course Information.

Instructor: Shahin Kamali (LAS-3052A)
website: https://www.eecs.yorku.ca/~kamalis/
email: kamalis@yorku.ca

Lectures: 19:00 - 20:20, Mondays and Wednesdays (LSB 105)
Lectures will be broadcasted live on Zoom and also recorded via Zoom (https://yorku.zoom.us/j/94868378190)
Given the classroom limited support of recording, Zoom lives sessions and recordings come with no guarantee on the video quality.

Tutorials: 19:00 - 20:20, Tuesdays (LSB 103)
Tutorials will be broadcasted live on Zoom and also recorded via Zoom (https://yorku.zoom.us/j/99333038271?pwd=HDXebgpWuoDJusisHU5bza7qVsdbHf.1)
Given the classroom limited support of recording, Zoom lives sessions and recordings come with no guarantee on the video quality.

Office hours:
Mondays 15:00 - 16:00 in person at LAS-3052A
Tuesdays 15:00 - 16:00 on Zoom:
(https://yorku.zoom.us/j/98779403344) (or by appointment)

Communication.

- **e-Class Forum:** You are encouraged to be active on the "Assignment and Assessment Forum" on e-Class. You can use this forum to discuss the assignments and assessments. Do not reveal answers before due, but feel free to share your ideas and questions. I will follow the discussions and drop hints if necessary.

  You are also welcome to use the forum to ask the instructor any question about any aspect of the course.

- **Email:** You are welcome to email the instructor at kamalis@yorku.ca.
  Please add "[EECS 3101]" in the subject line, and allow 24 hours for response. In the unlikely case that you did not hear from me after 48 hours, I may have missed your email. Please send it again.

- **Anonymous feedback:** In case you need to raise an issue/concern/feedback anonymously, use this form: https://forms.office.com/r/2BR0RHYE23. You can use this form to share any concerns, issues, feedback, or questions about the course. Your responses are completely anonymous — I will not see your name, email, or any identifying information. Please feel free to be open and honest. The purpose of this form is to better understand your experience in the course and

address any questions or difficulties you may have. After reviewing submissions, I will take any necessary steps and may provide comments or clarifications either on the eClass forum or during class.

Course Goals and Intended Learning Outcomes:

This course exposes students to fundamentals of algorithm design and analysis. By the end of this course, students are expected to be able to:

- Understand and quantify why one algorithm is better than another;
- Choose an appropriate algorithm to solve a given computational problem, and justify that choice;
- Apply standard graph algorithms to a variety of network problems;
- Design new algorithms using a variety of techniques (divide & conquer, greedy algorithms, dynamic programming, backtracking);
- Prove correctness of an algorithm using pre- and post-conditions and loop invariants;
- Prove bounds on the running time of an algorithm;
- Apply classic algorithms to specific problems which can benefit from them;
- Recognize NP-complete and undecidable problems.

Course Overview: EECS 3101 is a course on analysis of data structures and algorithms. Students will learn new techniques for solving fundamental algorithmic problems efficiently. Possible topics to be covered include:

- Asymptotic notations (review)
- Recursive algorithms, and their runtime analysis
- Divide and Conquer algorithms
- Sorting
- Dynamic Programming
- Greedy Algorithms
- Graph algorithms
- Intractability

Textbook: The following book is our main recommended resource. While I encourage you to keep a copy in your library as a long-term reference, purchasing it is not required. **All essential material will be covered in sufficient depth through the course slides.**

- Introduction to Algorithms, third edition, by Cormen, Leiserson, Rivest, and Stein (CLRS), MIT Press, 2009.

The following books are useful references: Library:

- Algorithms and Data Structures, by Mehlhorn and Sanders, Springer, 2008.
- The Algorithm Design Manual, second edition, by Skiena, Springer, 2008.
- Advanced Data Structures, by Brass, Cambridge, 2008.

Grading: All students will be required to complete five assignments, two quizzes, a midterm exam, and a final exam. **The final grades will be calculated as the highest of the following options.**

Option 1:
assignments 25%
quiz 5%
quiz 5%
midterm exam 20%
final exam 45%

Option 2:
assignments 25%
quiz 1 5%
quiz 2 5%
midterm exam 32%
final exam 33%

Assignments: Assignments will be distributed in class during the term. Solutions must be submitted on Crowdmark (https://www.crowdmark.com/). To permit the prompt distribution of solutions and return of marked assignments, **late assignments will not be accepted**. Please include your name and student number on all submitted material.

Examinations. Two quizzes will be online. There will be a midterm exam held in class and a final exam held during the December exam period. Exams and quizzes will be closed book.

Allocation of final mark
We will use the standard grading scheme of York University posted at https://calendars.students.yorku.ca/2025-2026/grades-and-grading-schemes.

letter grade	percent grade
A+	90-100
A	80-89.99
B+	75-79.99
B	70-74.99
C+	65-69.99
C	60-64.99
D+	55-59.99
D	50-54.99
E	40-49.99
F	(below 40%)

Important Dates

These dates are tentative and may slightly change.

September 3: first class
September 22: assignment 1 due
September 30: quiz 1
October 6: assignment 2 due
October 11-17: reading week (no class)
October 27: midterm
November 3: assignment 3 due
November 4: last date to drop the course without receiving a grade
November 17: assignment 4 due
November 24: quiz 2
December 1: assignment 5 due
December 1: last class
December 2: fall classes end
December 4-19: exam period

Academic Integrity & Course Policies

Check https://www.yorku.ca/unit/vpacad/academic-integrity/.

Updated August 19, 2025.