

CS 1371 Syllabus

Computing for Engineers (3 credits)

Spring 2026

Instructor Information

Instructor

Edmond Chow

Instructor email

echow@cc.gatech.edu

General Course Information

Description

Foundations of computing with an introduction to design and analysis of algorithms and an introduction to design and construction of programs for engineering problem-solving.

This course is taught using MATLAB (as it is done historically in this course), but its concepts extend to other programming languages such as Python and C. This course will also explore the use of generative AI tools in computer programming.

Recitation Session

Students are required to attend the recitation session on Day 2 each week (except for the first week). These will be led by the TA and will involve individual and group work to be handed in at the end of each session.

Course Learning Outcomes

- Decompose complex problems into sequential, logical steps that can be implemented using loops and conditional branches.
- Design data structures to store data and functional interfaces for organizing computations.

- Apply vectorized operations to process large datasets efficiently.
- Use debugging techniques to systematically identify and resolve errors in computer programs.

Topics

- Variables, arrays, strings
- Control flow (conditionals, iteration, etc.)
- Functions and scope (variable passing)
- Input and output
- Testing and debugging
- Plotting in MATLAB
- Code organization, style, and documentation
- Structures and object-oriented programming
- Coding for efficiency and parallelism
- Generative AI for programming

Recommended Textbook

Engineering Computation using MATLAB, 3rd Edition, David M. Smith

Grading Policy

- Assignments (15%)
- Midterm exams (three exams totaling 45%), on Mon Sep 21, Wed Oct 21, Wed Nov 18
- Final exam (40%)

Description of Graded Components

The midterm and final exams are in-class and closed book and notes. No electronic resources are allowed. Solutions containing a small number of syntax errors will not be penalized for these errors, but the logic and clarity of your solutions and programs will count for most of the points.

Final Grade Assignment

```
grades = 'FDCBA'; grade = grades(sum(score >= [0, 60, 70, 80, 90]));
```

Course Policies

Attendance and/or Participation

Students are expected to attend and actively participate in-person. Participation in the recitation sessions is required.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

This is a Core IMPACTS course that is part of the Institutional Priority area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad Orienting Question:

- How does my institution help me to navigate the world?

Completion of this course should enable students to meet the following Learning Outcome:

- Students will demonstrate the ability to think critically and solve problems related to academic priorities at their institution.

Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:

- Critical Thinking
- Teamwork
- Time Management

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.