Computing for Engineers

Last Updated: Tue, 07/29/2025

Course prefix: CS

Course number: 1371

Section: ROX

CRN (you may add up to five):
90512

Instructor First Name: Idel

Instructor Last Name: Martinez

Semester: Fall

Academic year: 2025

Course 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.

Course learning outcomes:

Upon successful completion of the course, you will be able to:

1. Use the MATLAB integrated development environment and programming language to write functions as solutions to basic problems involving numeric and character data.
2. Use a step-by-step process to develop an algorithmic solution to a problem.
3. Understand and utilize the fundamental concepts of coding
    1. Comments
    2. Variables
    3. Data
    4. Functions
    5. Conditionals
    6. Iterations
4. Translate a basic algorithm into code.
5. Test your coded solutions.
6. Trace and debug your code and the code of others.

Required course materials:

There are no required works to purchase for this course. All required learning materials will be linked in the modules or will be freely available through GT Library resources.

Students are required to have access to a working computer with a functional webcam and microphone.

Grading policy:

There is no curve in this course. However, there may be a chance to earn extra credit.

There are 3 possible grade distributions. We will calculate your grade for all 3 distributions. Your course grade will be the highest of the 3.

1. **Grade distribution 1: (Standard)**
   25% Homework
   37.5% 3 Midterm Exams (12.5% for each exam)
   37.5% Final Exam
2. **Grade distribution 2: (Final Exam Replaces Lowest Exam Grade)**
   25% Homework
   25% 2 Midterm Exams (12.5% Highest Midterm Exam Score and 12.5% Second Highest Midterm Exam Score)
   50% Final Exam
3. **Grade distribution 3: (Final Exam Dropped)**
   25% Homework
   75% 3 Midterm Exams (25% for each exam)
   0% Final Exam

Attendance policy:

Attendance and participation are essential to success in MATLAB. Because of this, you are expected to attend class in person and come prepared to class sessions. Though the course contains lecture videos, these will not sufficiently prepare the student for the course. Additional material, exercises, and discussions will be held in person.

Not attending a scheduled class in person results in an absence. This course allows for a specified number of absences without penalty, without needing to provide an excuse. Each absence after this number deducts the student's final grade by 2%.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy. Every Student is expected to read, understand, and abide by the Georgia Tech Academic Honor Code.

As a programming course, discussions about course sessions, programming concepts, and algorithms are encouraged. Exercises and practice problems are collaborative, for which students can collaborate by talking through problems, discussing the MATLAB programming

language, etc. However, the work submitted by a student must be their own. Students should not copy or send code to peers, but high-level discussions on their solutions are permitted. Additionally, students should not copy & paste to other sources such as Stack Overflow, AI agents, or other platforms that would compromise the integrity of their work or violate the course's guidelines on original submission. Students may use these resources for support, such as further inquiring about algorithms, programming language syntax, etc., but they should be used after first attempting the problem independently. The goal of these resources should be to supplement students' learning process and practice good programming practices, not replace their learning process.

No collaboration is permitted during quizzes or tests.

Core IMPACTS statement(s) (if applicable):

This is a Core IMPACTS course that is part of the Mathematics & Quantitative Skills 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 do I measure the world?

Completion of this course should enable students to meet the following Learning Outcome: Students will apply mathematical and computational knowledge to interpret, evaluate, and communicate quantitative information using verbal, numerical, graphical, or symbolic forms.

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

- Information Literacy
- Inquiry and Analysis
- Problem-Solving