

Computing for Engineers

Last Updated: Thu, 07/31/2025

Course prefix: CS

Course number: 1371

Section: A

CRN (you may add up to five):
81164

Instructor First Name: Cedric

Instructor Last Name: Stallworth

Semester: Fall

Academic year: 2025

Course description:

This course is intended as an introduction to solving problems by coding solutions in the MATLAB

programming environment. It assumes no prior knowledge of programming or coding skills. Students will

develop a beginner's skill level for deriving algorithms. This will be complemented by them learning how to

use the MATLAB language and integrated development environment in concert to code these algorithms as

functions. The development of the students' skills and knowledge base will be done in the context of them

encoding real world data; processing the data with respect to a given problem; and outputting a correct

answer in the appropriate format.

The course begins with an introduction to the concepts of data encoding and the methodology of writing

functions. There is also a good deal of time spent on getting the students familiar with the programming and

evaluation environments. From that foundation, students are exposed to variables, functions, and scope. The

course then expands the students' abilities to deal with data collections of vectors and arrays. Next, they

learn the power of conditional and iteration statements. They then use these abilities to deal with the more

complex data collections of cell arrays, spreadsheets, text files, structures, directory information and images.

The course also provides instruction on how to make plots of the results of their data analyses.

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 basics problems involving numeric and character data.

2. Use a six-step process to develop an algorithmic solution to a problem.

3. Understand and utilize the fundamental concepts of coding

a. Comments

b. Variables

c. Data

d. Functions

e. Conditionals

f. 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 are linked in

the Canvas page. Students are provided access to video lectures that cover the course concepts.

Grading policy:

There is no curve in this course. However, there are opportunities to earn extra credit. (See Homework,

Lecture Quizzes, and Recitation). There are two possible grade distributions. We will calculate your grade

for both distributions. Your course grade will be the higher of the two.

Grade distribution 1: (Basic)

- 15% Homework
- 15% Lecture Quizzes
- 40% 3 Midterm Exams
 - o 13% Exam 1
 - o 13% Exam 2
 - o 14% Exam 3
- 30% Final Exam

Grade distribution 2: (Final Exam Replaces Lowest Exam Grade)

- 15% Homework
- 15% Lecture Quizzes
- 26% 2 Midterm Exams
 - o 13% Highest Midterm Exam Score
 - o 13% Second Highest Midterm Exam Score
- 44% Final Exam

Grade distribution 3: (Final Exam Dropped)

- 15% Homework

15% Lecture Quizzes

- 70% 3 Midterm Exams

- o 23% Exam 1

- o 23% Exam 2

- o 24% Exam 3

- 0% Final Exam

Extra Credit can be earned in the following ways

- Extra Credit points are added to your class average.

- A total of 4% of Extra Credit can be earned in the following ways

- o 1.25% from Homework (see the Homework section below)

- o 1.50% from Lecture Quizzes (see Lecture Quizzes section below)

- o 1.25% from Recitation Attendance (see Recitation section below)

Attendance policy:

This is a synchronous course. While not mandatory, students are expected to attend all lectures. There

will be attendance quizzes given in lecture for extra credit. Recitation is optional but is an opportunity

for extra credit.

Academic honesty/integrity statement:

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. All students enrolled at Georgia Tech, and all

its campuses, are to perform their academic work according to standards set by faculty members,

departments, schools and colleges of the university; and cheating and plagiarism constitute fraudulent

misrepresentation for which no credit can be given and for which appropriate sanctions are warranted

and will be applied. For information on Georgia Tech's Academic Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or Academic Honor Code.

Any student suspected of cheating or plagiarizing 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 statement(s) (if applicable):

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

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge

in foundational academic areas. This course will help students 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