Computing for Engineers

Last Updated: Tue, 01/06/2026

Course prefix: CS

Course number: 1371

Section: A, B & GR

CRN (you may add up to five):
21246 21262 31452

Instructor First Name: Cedric

Instructor Last Name: Stallworth

Semester: Spring

Academic year: 2026

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 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, and directory information. The course also provides instruction on how to make plots of the results of their data analyses. It concludes by exposing students to images.

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 problems involving various forms of data.

2. Use a six-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:

MATLAB Programming Language & IDE

MATLAB is an excellent first language for engineers. MATLAB is a registered trademark of The MathWorks, Inc. It is an interpreted language that provides students immediate feedback from their actions, and postpones many of the tedious details of correctness until a program is run. MATLAB has an interactive development environment (IDE) that is ideal for ordinary engineering computation. The course is conducted from the MATLAB programming environment.

MATLAB is available free of charge for students to install on their personal computers. Follow the instructions provided at this link (https://matlab.gatech.edu/ (Links to an external site.)). Be careful to set your affiliation to Student and select the latest MATLAB version for students. MATLAB is also available on all the public computers on campus.

Video Lectures (Suggested, Not Required)

- This class has a video library of recorded lectures.
- The course calendar details which videos correspond to in-class lectures. **Video Index**

Learning Management System (LMS) = Canvas

- All course information and resources will be found on the class Canvas site.
- This includes, but is not limited to: Syllabus, Assignments, Submissions, Announcements, Grades & Feedback, Resources, etc.
- The files and slides that are covered in each lecture are provided by going to **Files > Stallworth's Files > Lecture Notes** on Canvas

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 three possible grade distributions. We will calculate your grade for all three distributions. Your course grade will be the higher of the three.

Grade distribution 1: (Basic)

- 15% Homework (10 Assignments worth 1.5% each)
- 15% Lecture Quizzes (24 Quizzes, Highest 18 worth ~ 0.833% each)
- 40% 3 Midterm Exams
    - 13% Exam 1
    - 13% Exam 2
    - 14% Exam 3
- 30% Final Exam

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

- 15% Homework (10 Assignments worth 1.5% each)
- 15% Lecture Quizzes (24 Quizzes, Highest 18 worth ~ 0.833% each)
- 26% 3 Midterm Exams
    - 13% Exam 1
    - 13% Exam 2
- 44% Final Exam

Grade distribution 3: (Final Exam Dropped)

- 15% Homework (10 Assignments worth 1.5% each)
- 15% Lecture Quizzes (24 Quizzes, Highest 18 worth ~ 0.833% each)
- 70% 3 Midterm Exams
    - 23% Exam 1
    - 23% Exam 2
    - 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 2.5% of Extra Credit can be earned in the following ways
    - 1.25% from Homework
    - 1.25% from Recitation
- Your final grade will be assigned as a letter grade according to the following scale. There is no curve in this class.
    - A 90-100%
    - B 80-89%
    - C 70-79%

- D 60-69%
- F 0-59%

Attendance policy:

This is a synchronous course. While it is not mandatory, students are expected to attend all lectures. There will be quizzes given in lecture that are worth 15% of your grade. Recitation is optional but is an opportunity to gain understanding and to earn some extra credit.

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.

Core IMPACTS statement(s) (if applicable):

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