Computer Programming for Engineers: MATLAB
COP 2271   Section 7C11, 8809 and 8811
Class Periods: Tuesday and Thursday, 3rd Period, 11:00 am to 12:05 pm   ***Location:*** NEB 100
Lab Periods: Wednesday, 5th and 6th Period, 2 to 4:10 pm   ***Location:*** NEB 101
Academic Term: Summer 2018

Instructor:
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Office Phone Number – 352-294-1385
Office Hours: TBA

Undergraduate Tutors: TBA

Course Description
Computer programming and the use of computers to solve engineering and mathematical problems. Emphasizes applying problem-solving skills. An intensive course for students pursuing technical careers in fields employing a reasonably high degree of mathematics. The programming language used depends on the department. In one semester, several languages may be taught, but no more than one per section. Students are required to learn a specific language must enroll in the correct section.

Course Pre-Requisites / Co-Requisites
MAC 2312 - Analytic Geometry and Calculus 2 with a minimum grade of C

Course Objectives
The main objective of this course is to provide a foundation in programming for engineering problem solving using the MATLAB software package. Students will develop the skills to implement software solutions to a wide-range of engineering problems. Furthermore, students will be able to apply these skill sets to other programming languages.

Professional Component (ABET):
This course uses several programming assignments that teach students how to effectively develop programming solutions to engineering problems. Students will develop the skills to analyze a given engineering/mathematical question and pose it is a software solution.

Relation to Program Outcomes (ABET):
The table below is an example. Actual outcomes will vary by program. Below is applicable only to MSE.

Outcome	Coverage*
a. Apply knowledge	High
b1. Conduct experiments	
b2. Statistical design of experiments	
c. Design	
d. Function on teams	Low
e. Solve problems	High
f. Professional and ethical responsibility	Medium
g. Communicate	Medium
h1. Economic impact	
h2. Global, societal, and environmental impact	
i. Lifelong learning	
j. Contemporary issues	
k. Techniques, skills, and tools for degree program	High

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not part of the course.

Course Outline and Support
The course web site, accessible through Canvas (http://lss. at.ufl.edu) via your Gatorlink login, will be the primary point of contact and support for the students. Course announcements, class discussions, laboratory assignments, and grades will be posted there.

Required Textbook and Software
- We will use the Canvas course site (http://lss.at.ufl.edu) **EXTENSIVELY** to post course material. It will be every student's responsibility to be familiar with the material posted on the course web site.
- MATLAB Student Version (any recent version should be fine)
  You may consider using UFApps to access a number of popular software applications for "free" including Matlab at: http://info.apps.ufl.edu/
  Matlab is also available for purchase and download at
  http://www.mathworks.com/academia/student_version/index.html

Recommended Textbook
- Title: MATLAB: A Practical Introduction to Programming and Problem Solving
- Author: Stormy Attaway
- Publication date and edition: August 6, 2016, 4th Edition
- ISBN-13: 978-0128045251

Course Schedule
Week 1:   MATLAB interface and basic commands, pseudocode
Week 2:   Variable creation, operators, user input and output
Week 3:   Flow control: if statements, switch statements
Week 4:   While loops
Week 5:   For loops
Week 6:   Exam 1
Week 7:   Summer Break
Week 8:   Vectors (arrays), matrices, strings
Week 9:   Algorithms implementation, plotting
Week 10:   Image manipulation
Week 11:   Scripts and functions
Week 12:   Exam 2
Week 13:   Final Project Submission

Lecture Attendance and Expectations
Regular attendance is optional but is strongly encouraged. Each student is responsible for all material covered in lecture and for knowing all announcements made during class even if they do not explicitly appear on the syllabus. Attendance may be taken in lecture but only for statistical purposes. Please note that attendance is required for both exams (exceptions must be discussed with the instructor in the first week of class)!

Web Section Expectations
The class is setup exactly the same for students enrolled in the web sections of the course, including lectures and online material. Each web student is still responsible for all material covered in the lecture videos and for knowing all announcements made during class even if they do not explicitly appear on the syllabus.

Lab Attendance and Expectations
Lab attendance is required except for excused absences which must be documented in advance (except for emergencies). Furthermore, attendance will be taken at the beginning of lab and all students must be present for their attendance to count. **Each student is allowed to drop 1 laboratory grade, no questions asked.** Each week in lab, students will complete activities related to the current class topic which must be turned in before leaving lab that day. There is no outside work required for the lab. **Please note attendance is a large portion of your lab grade.**

Make-Up Policy

Makeups for exams, quizzes, and the final project are not normally allowed. If you cannot attend an exam or quiz, you must contact the instructor well in advance. Submitting an exam, quiz, or final project late will result in a zero. Arrangements will be made for students on a case by case basis for excused reasons. Failure to contact the instructor prior to the exam, quiz, or final project will result in a zero. You are allowed to submit homework assignments up to 24 hours late with a penalty of 20 points. This only applies to homework and not the final project or extra credit assignments. It is the student's responsibility to honor and respect the given deadlines posted on Canvas (http://lss.at.ufl.edu).

Evaluation of Grades

Homework is assigned and collected through Canvas. **Please note the deadlines are strictly enforced and there are no dropped homework assignments.** For example if the deadline is 11:59 pm, any assignment submitted after this time is considered late. It is also your responsibility to submit the correct file and ensure the submission was successful before the deadline (please double check your Canvas submissions). If you are unable to submit your homework through Canvas, send a copy of your assignment to ashishjuit@ufl.edu before the stated deadline!

There will be two regular exams and a final project. All exams must be taken in person and will emphasize the most recently covered material. Exam times and locations will be announced in class and posted on the course website.

The relative weighting of the course is the following:

Assignment	Total Points	Percentage of Final Grade
Assignments	100 each	35%
Exam 1	100	22%
Exam 2	100	22%
Final Project	100	21%
		100%

Lab Grading Scheme

The lab is intended to provide extra help and more practice to students in learning programming; think dedicated office hours! The lab will reinforce topics covered in class and also introduce special programming topics. Lab grades are based solely on attendance and completing lab activities during lab. **Please note that lab attendance is required!**

Grading Policy

The final grading scheme for the course and lab is given below. **Note that this is only a general guide as the course instructor reserves the right to adjust the final numerical grading demarcations.** The final grade demarcations will not be higher than shown (i.e. an A will always be 90-100 despite the curve). Also, no individual assignment or exam will be curved.

Percent	Grade
90 - 100	A
87 - 89.9	B+
80 - 86.9	B
77 - 79.9	C+
70 - 76.9	C
66.7 - 69.9	D+
60 - 66.6	D
0 - 59.9	E

Note: A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better).

More information on UF grading policy may be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu/evals. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

Campus Resources:

Health and Wellness

U Matter, We Care:
Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. https://www.crc.ufl.edu/.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus*:* https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints*:* http://www.distance.ufl.edu/student-complaint-process.