Computer Programming for Engineers: MATLAB
COP 2271 Section EED5
Class Periods: Wednesday, 3-4 period, 11:00 AM-1:45 PM
Location: Online (Synchronous)
Academic Term: Summer 2021

Instructor:
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(352) 294-1383
Office Hours: Thursday, 12:30 pm -2:30 pm, office location (Online – TBA on Canvas)

Peer Mentor:
Please contact through the Canvas website
- William Kao, williamkao@ufl.edu, office location (Online – TBA on Canvas), office hours (TBA on Canvas)

Course Description
Computer programming and the use of computers to solve engineering and mathematical problems. Emphasizes applying problem solving skills; directed toward technical careers in fields employing a reasonably high degree of mathematics. The programming language used depends on the demands of the departments in the college. Several languages may be taught each semester, no more than one per section. Those 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 analyze and break down an engineering program and solve it algorithmically using MATLAB. After this course, students will have an understanding of various programming constructs and how they can be used to solve a computational problem.

Materials and Supply Fees
Not applicable

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):

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	High
3. An ability to communicate effectively with a range of audiences	Low

4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Medium
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	High

[*]Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software
An official textbook is not required but recommended. We will use the Canvas course site (https://elearning.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. You may consider using **UFApps** to access a number of popular software applications for "free" including MATLAB at: https://info.apps.ufl.edu/; MATLAB Student Version (*any recent version works for the class*) is also available for you to purchase and download at: https://www.mathworks.com/products/matlab/student.html.

Recommended Materials
- Title: MATLAB: A Practical Introduction to Programming and Problem Solving
- Author: Stormy Attaway
- Publication date and edition: August 6, 2016, 4th Edition (*earlier editions will suffice too*)
- ISBN-13: 978-0128045251

Course Schedule
Week 01 (05/10 – 05/14):   Introduction - Information, Technology, Computers
Week 02 (05/17 – 05/21):   MATLAB interface, user input and output, variables, operators
Week 03 (05/24 – 05/28):   Selection – if statement
Week 04 (05/31 – 06/04):   Repetition – while loops, break, continue
Week 05 (06/07 – 06/11):   Repetition – for loops, nested flow control
Week 06 (06/14 – 06/18):   Series and patterns based computation / **Exam 1**
Week 07 (06/21 – 06/25):   Summer Break
Week 07 (06/28 – 07/02):   Matrices and vectors (arrays)
Week 08 (07/05 – 07/09):   Strings and ciphers
Week 09 (07/12 – 07/16):   Pixels and image manipulation
Week 10 (07/19 – 07/23):   Binary images and thresholding
Week 11 (07/26 – 07/30):   Matrix concatenation / **Exam 2**
Week 12 (08/02 – 08/06):   Functions, data analysis and plotting; Computational ethics and advance topics / **Final Project**

Class Expectations
This course runs on a **flipped classroom** design. Students will be expected to work in phases of before class, during class, and after class work every week.

Before class:
1) Watch the **content videos** for a particular module.
2) Complete a **quiz** based on the videos *before* coming to class.

During class*: (A personal **laptop** is **REQUIRED** during class)*
1) Complete and submit **in-class activities** on the weekly assigned module-related topic *by Wednesday at 11:59 PM*.
2) Ask any questions to the instructor, peer mentor or classmates.

After class:
1) Complete and submit weekly **homework** assignment. All homework assignments will be due on *Sunday at 11:59 PM*.

In addition, students are expected to complete and submit **two exams** and **one final project.** All submissions are made through the Canvas course site. **Each student's lowest-graded quiz and in-class will be dropped** (no questions asked). Please note that there will be *NO dropped homework grades*. Every student is responsible for being aware of all posted course material and all announcements made during class even if they do not explicitly appear on the syllabus.

Attendance Policy
*Regular **attendance** is **REQUIRED*** except for excused absences. Weekly online classes will be held *synchronously via Zoom*. All students *must* join the designated class link provided through the Canvas website (https://elearning.ufl.edu) **on time** for their attendance to count. Attendance will be taken during class. **It is important to note that students are *NOT allowed to submit in-class assignments without attendance.*** Excused absences must be consistent with university policies in the undergraduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation.

Online Course Recording
Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Make-Up Policy
Makeups for exams, quizzes, in-class activities, homework assignments and the final project are NOT normally allowed. Late submission of an exam, quiz, activities, assignments or final project will result in a zero. If you cannot attend an exam, you *must* contact the instructor well in advance to schedule a make-up exam (at least 7 days before an announced exam date). 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. **Students are allowed to submit homework assignments up to 24 hours late *with a penalty of 20 points***. This *only* applies to homework assignments and *not* the final project or extra credit assignments. It is the student's responsibility to honor and respect the given deadlines posted on the Canvas course site (https://elearning.ufl.edu).

Evaluation of Grades
All assignments are assigned through the Canvas course site. **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 each student's responsibility to submit the correct file and ensure the submission is 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 your instructor before the stated deadline! There will be **two exams** and **one final project**. **All exams must be taken online using**

Honorlock and will emphasize the most recently covered material. Exam details will be posted on the Canvas course site.

Assignment	Total Points	Percentage of Final Grade
Quizzes (12)	10 each	10%
In-class Activities (12)	100 each	15%
Homework Assignments (8)	100 each	24%
Exam 1	100	16%
Exam 2	100	16%
Final Project	100	19%
		100%

Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

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 who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation
Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-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://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-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.

Academic Dishonesty
- **Sharing or copying of code** through any medium such as email, text, snapchat etc., and plagiarism, in addition to other dishonest behaviors, are all considered to be academic dishonesty. No information regarding the project, quiz, and exam solutions may be shared by students except for a discussion at a conceptual level.
- Collaboration (helping out others at a conceptual level through discussions) is encouraged in the course. However, looking at any piece of a classmate's code, sharing files, searching for solutions found online, or using someone else to complete an assignment or the final project is strictly prohibited.
- Any student found to have violated these rules, whether a provider or receiver of an unauthorized help, will be given a zero on that assignment and will be reported to the Honor Court. If students aren't clear on what constitutes plagiarism, ask the course staff.
- **It is strongly encouraged for you to visit the course staff in-office hours whenever you have doubts.**

Online Exams through Honorlock
- Honorlock will proctor each student's exams this semester. Honorlock is an online proctoring service that allows you to take an exam from the comfort of your home. You DO NOT need to create an account, download software or schedule an appointment in advance.
- Honorlock is available 24/7 and all that is needed is a **computer**, a **working webcam**, and a **stable Internet connection**. To get started, each student will need Google Chrome and to download the Honorlock Chrome Extension. The extension can be downloaded at www.honorlock.com/extension/install.
- When you are ready to test, log into Canvas, go to your course, and click on your exam. Clicking "Launch Proctoring" will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will be recording your exam session by webcam as well as recording screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device.
- Honorlock support is available 24/7/365. If you encounter any issues, you may contact Honorlock by live chat, phone **(844-243-2500)**, and/or email **(support@honorlock.com)**.

Commitment to a Safe and Inclusive Learning Environment
The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:
• Your academic advisor or Graduate Program Coordinator
• Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
• Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
• Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

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: https://registrar.ufl.edu/ferpa.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 Discrimination, Harassment, Assault, or Violence
If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

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://care.dso.ufl.edu.

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