# *COP 2271 Computer Programming for Engineers: MATLAB*

*Summer A 2023*

*Class # 15862*

***Instructor***

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Office Hours: Tuesday for 1 hour after class (virtual, use the Zoom link for the class period posted on Canvas) *If you would like to meet at another time then send me an email and I will gladly schedule a time to meet with you that works with your schedule*

***Course Website:*** Canvas. EVERYTHING will be posted to Canvas. You are responsible for all material and announcements posted to Canvas.

***Course Interaction***: All classes will be done in a virtual setting, but you will be expected to attend the virtual class times like you would in-person. The class will meet at the regularly scheduled time every TR via Zoom. Attendance is expected for all class periods. The material is best learned through interaction and engagement.

***Instructional Team***

To be announced on Canvas

***Meeting Times and Rooms***

Class Number 15862

Meeting times: TR 2-3 (9:30am – 12:15pm)

***Catalog Description***

Computer programming and the use of computers to solve engineering and mathematical problems. It is a two-credit course that 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.

***Prerequisite/ Corequisite***

MAC 2312 Analytic Geometry and Calculus 2

***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.

***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 |

***Texts and Readings:***

- An official textbook is not required. 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.
- 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 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 1: | Introduction to information, technology and computers, input and output, variables, operators |
| Week 2: | Flow control: if statement, while loops, break, continue |
| Week 3: | For loops, nested flow control, series and patterns based computation |
| | **Exam 1** |
| Week 4: | Matrices and vectors, strings and ciphers, pixels, image manipulation |
| Week 5: | Binary images, image thresholding, matrix concatentation |
| | **Exam 2** |
| Week 6: | Functions, data analysis, plotting, computational ethics |
| | **Final project submission** |

***Organization of the Course:***

This course runs on a flipped classroom design. Every class period students will be expected to work in phases of before class, during class, and after class work

Before class:

1. Watch the content videos for a particular module
2. Complete a quiz based on it before coming to the class.

During the class:

1. Complete the activities
2. Ask any questions to the instructor
3. Submit activities upon leaving the class

After the class:

1. Complete and submit the homework assignment

In addition, students are expected to complete two exams and one-course project

All submissions are made through the Canvas page

***Grading Criteria***

Homework is assigned 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 will not be accepted. 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 your instructor before the stated deadline!

There will be two regular exams and a final project. All exams will emphasize the most recently covered material. Exam details will be posted on Canvas (https://elearning.ufl.edu).

| Assignment | Total Points | Percentage of Final Grade |
|---|---|---|
| Quizzes | 10 each | 10% |
| In class Activities | 100 each | 15% |
| Homework sets | 100 each | 20% |
| Exam 1 | 100 | 20% |
| Exam 2 | 100 | 20% |
| Final Project | 100 | 15% |
| | | 100% |

***Grade Policy***

| Percent | Grade | Grade Points |
|---|---|---|
| 90.0-100.0 | A | 4.00 |
| 87.0-89.9 | B+ | 3.33 |
| 80.0-86.9 | B | 3.00 |
| 77.0-79.9 | C+ | 2.33 |
| 70.0-76.9 | C | 2.00 |
| 66.7-69.9 | D+ | 1.33 |
| 60.0-66.6 | D | 0.67 |
| 0-59.9 | E | 0.00 |

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

***Attendance Policy:***

- **Class attendance is required** except for excused absences which must be documented in advance (except for emergencies) and consistent with university policies in the undergraduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx). Furthermore, attendance will be taken during the class, and students must be present for their attendance to count and to receive credit for the in-class activities.
- Each week, during the class, students will complete activities related to the current class topic, which must be turned in upon leaving the class that day.
- As in all courses, any unauthorized recording of the class and unauthorized sharing of recorded materials is prohibited.
- Makeups for exams, quizzes, in-class activities, homework assignments and the final project are not normally allowed. If you cannot attend an exam, you must contact the instructor well in advance.
- Submitting an exam, quiz, activity, assignment 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.
- It is the student's responsibility to honor and respect the given deadlines posted on Canvas

***Online Exams through Honorlock***

- Honorlock will proctor your exams this semester. Honorlock is an online proctoring service that allows you to take your 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, you will need Google Chrome and to download the Honorlock Chrome Extension. You can download the extension 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, and show your ID. Honorlock will be recording your exam session by webcam as well as recording your 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 them by live chat, phone (844-243-2500), and/or email (support@honorlock.com).

***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 in-class activities, weekly homeworks, project, quiz, and exam solutions may be shared by students except for a discussion at a conceptual level when allowed.
- Collaboration (helping out others at a conceptual level through discussions) is encouraged in the course. However, **looking at any piece of your peer's code, sharing files, searching for solutions found online, or using someone else to code your solution is strictly prohibited**.
- Any student found to have violated these rules, **whether a provider or receiver of unauthorized help**, will be given a zero on that assignment and will be reported to the Honor Court. Additional

penalty like grade deductions may be applied depending on the severity of the case. If you aren't clear on what constitutes plagiarism, ask the instructor.

- **NOTE**: Students will have the opportunity to inform the instructor in case they took any unauthorized help for a particular assignment within **24 hours of the submission deadline**. In such a case **they will receive no credit** for that particular assignment and **no further action will be taken**.
- **I strongly encourage you to reach out whenever you have doubts.**

***General Class Policies***

1. Attend each class session on time and be prepared. Have the preparatory activities done, and ***be ready to ask questions***.
2. Professional presentation is expected on all submittals.
3. Be respectful and considerate of everyone.
4. The syllabus is subject to change based on factors and needs of the course environment.

***In-class Recording***

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

***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.

A violation of the honor code will result in academic sanctions (typically a failing grade assigned for the course) and further disciplinary action. If you have any questions or concerns, please consult with the instructor in this class.

***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 Undergraduate Program Coordinator

• Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@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 and Copyrighted Material***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use and the use of copyrighted material. 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 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/.

**COVID-19**

• You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.

• If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus.

• If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.

• UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.

• Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

*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.