Course Syllabus

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Course Information

Course: **CS 1132 Short Course in MATLAB** (2 credits)

Instructor: **K.-Y. Daisy Fan**

Course Description

2 credits. S/U Only. Introduction to the MATLAB programming language. Covers the basic programming constructs of MATLAB, including assignment, conditionals, iteration, functions, arrays, vectorized computation, and scientific graphics. Designed for students who need MATLAB for research or other courses. Does not assume any previous programming experience.

Expected Outcome

Students who take this course will understand the basic MATLAB constructs and be able to write simple programs.

Times & Places

- **Lecture**: MW 2:40 - 3:30pm for both in-person and online enrollment
  - *In-person*: **Only students who have enrolled for in-person lecture *and* have received a seat number are allowed in the room**. Each student will be notified via **CMS (https://cmsx.cs.cornell.edu/)** of their seat number, which will be for both Monday and Wednesday.
  - *Online*: Link to be published Feb 8

  The recording of the in-person lecture will be available, generally within 24 hours of the lecture.
- **Lab**: Online F 2:40 - 3:30pm. Zoom link TBA. If participating in lab is a significant hardship *due to time zone difference*, please inform the instructor to discuss possible alternatives.

Office and Consulting Hours

Office and Consulting Hours will be held online using Zoom.

Consulting hours will be provided with online queuing for ad hoc drop in.

TA office hours will be open, drop-in style.

Professor office hour will be by appointment (sign-up link TBA)

More details TBA.

Communication

Course announcements and materials will be posted on the course website. Synchronous meetings (lecture, lab, office hour) will use Zoom. Assignments and grades will be managed by **CMS (https://cmsx.cs.cornell.edu/)** . If you have a question about course material, post it to Ed Discussion (online forum); public posts are preferred so that others can benefit from the discussion (posts can be anonymous to other students). If you need to request special accommodation or discuss something one-on-one with the instructor, email is preferred.

Material

- *Textbook: Highly recommended for beginners; optional for experienced programmers*

    - *Programming in MATLAB (an interactive ebook by zyBook). A subscription will last until June 6, 2021. A subscriber can print a personal copy of the book but it will exclude the interactive contents.*
- *Software:* MATLAB Student Version available *for free* to current students (with Cornell NetID)
    - Use **MATLAB Online (https://matlab.mathworks.com/)** via your web browser--no download required!
    - Or download MATLAB student version onto your personal computer. Get MATLAB through the CU Software Licensing Store at **http://licensing.store.cornell.edu (https://licensing.store.cornell.edu/)** . You will need **this license number and activation key (https://downloads.cornell.edu/campus_license/student/matlab/Cornell-MATLAB-Student-License-2020.pdf)** and you must sign up for the account using your Cornell email address.
    - All students can use MATLAB Online at public computer labs across campus. Some public labs have MATLAB installed: on the Engineering Quad (Upson Hall) and in Robert Purcell on north campus.

Academic Integrity

Simply put, academic integrity is about respecting yourself and respecting others. You respect yourself by submitting work completed through your own effort; you respect others by acknowledging contribution from others when such external contribution is allowed. Refer to the University **Code of Academic Integrity (http://theuniversityfaculty.cornell.edu/academic-integrity/)** for further information. Ignorance of the Code is not an acceptable excuse.

Community of Learning

Cornell supports an inclusive learning environment where diversity and individual differences are respected, appreciated, and recognized as a source of strength. It is expected that students in this class will respect differences and demonstrate diligence in understanding how other peoples' perspectives, behaviors, and worldviews may be different from their own. By participating in this course, all students and staff commit to contribute positively to our community of learning:

- Recognize that everyone will start from different bases of knowledge. Be respectful and constructive while being critical.
- Listen to one another and, especially during group work, actively encourage everyone to contribute.
- Help build a lively and active online learning environment:
    - Enable video during lecture, lab, and other group meetings.
    - Outside of class meetings, ask *and answer* questions on our Ed discussion forum, always remembering to be respectful and constructive.

Assessment

Though S/U only, the course **requires mastery of the material: you must pass the course at the B level**. Specifically, your overall course score must be 85 or higher, assessed through programming assignments. There is no exam.

Lab exercises	10%
Assignment 1	20%
Assignment 2	30%
Assignment 3 + Book "Challenge Activities"	40%

Multiple submissions are allowed in order to help you achieve mastery. For each assignment, if your first submission isn't perfect you may correct and *re*-submit it **once** without penalty; each *additional re*-submission, if allowed, incurs a 10% deduction for that assignment. We will accept a (re)submission that is late but within 24 hours of the deadline with a 10% penalty for that assignment. For each assignment, penalties accumulate--carry forward--from (re)submission to resubmission.

Note that your assignment will receive a substantial point deduction if it is not properly annotated with comments. Always include *concise* comments in your code!

The 40% of the course score from Assignment 3 (A3) plus Book Challenge Activities (BCA) is flexible: A3 is worth at least 30%; BCA is worth at most 10%.
Example 1: Suppose you correctly solve all the BCA questions. Then you have earned 10 overall course points out of 100 and

your A3 is then worth 30% of your course score.
Example 2: Suppose you correctly solve half of the BCA questions. Then you have earned 5 overall course points out of 100 and your A3 is then worth 35% of your course score.
Example 3: Suppose you did not do any of the BCA questions. Then your A3 is worth 40% of your course score.

New programmers are strongly advised to complete the BCA, i.e., "Challenge Activities" in the textbook (zyBook) in order to get enough practice with programming. (Note that only the CHALLENGE Activities in the required sections, i.e., the sections NOT marked optional, count for credit; the Participation Activities do not count.) If you are an experienced programmer and choose not to obtain the specified textbook, your course score does not suffer in this flexible scoring scheme.

Accommodation

For Students with Disabilities: Your access in this course is important to us. Please request your accommodation letter early in the semester, or as soon as you become registered with Student Disability Services (SDS), so that we have adequate time to arrange your approved academic accommodations.

- Once SDS approves your accommodation letter, it will be emailed to both you and the instructor. Please follow up with the instructor to discuss the necessary logistics of your accommodations.
- If you are approved for exam accommodations please consult with the course instructor at least one week before the scheduled exam date to make the alternative testing arrangements.
- If you need an immediate accommodation, please contact the course instructor by email and SDS at sds_cu@cornell.edu.
- If you have, or think you may have a disability, please contact Student Disability Services for a confidential discussion: sds_cu@cornell.edu, 607-254-4545, **https://sds.cornell.edu/ (https://sds.cornell.edu/)** .

For Physical and Mental Health: If your physical or mental health prevents you from completing required work, email the course instructor as soon as possible to make an alternative arrangement for the missed work.

Schedule and Topics (subject to change)

- Week 1: MATLAB basics, conditionals, user-defined function
- Week 2: Loops, 1-dimensional array (vector), simple graphic
- Week 3: 2-dimensional array (matrix), nested loops
- Week 4: Vectorized arithmetic and examples
- Weeks 5 & 6: Type char array, cell arrays, file input/output
- Week 7: Application to image processing

Alongside the above topics, throughout the course you will practice **testing and debugging**.

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