

MATLAB Seminar Spring 2019

Course Description and Objectives

This is a seminar discussing topics related to MATLAB as a supplement to coursework taken in the Department of Chemical Engineering. The purpose of this “course” is to help students become more familiar with coding in MATLAB and to be able to utilize MATLAB to solve problems and answer questions. Students should be aware that this is a new course that is being continually improved. Your feedback is always appreciated.

At the end of this seminar course, students should be able to:

1. Employ basic coding skills and practices;
2. Use built-in functions;
3. Plot data in a clear and organized fashion;
4. Create new functions;
5. Solve problems in MATLAB;
6. Be comfortable with the MATLAB interface and be able to troubleshoot their code.
7. Be prepared to use the principles and tools learned in this class to solve problems not covered in detail as part of this seminar and to continue learning related material as needed in the future.

Instructor

This course is taught by a graduate student, Whitney Blocher McTigue, from the Chemical Engineering Department on a voluntary basis.

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Course Logistics

The seminar will be on Tuesdays at 6:30pm – 7:30pm in LGRT 201. There is no grading for attendance, though missing lectures may make future sessions difficult to follow.

Textbook and Other Materials

There is no textbook for this course; however, *MATLAB for Engineers* by Holly Moore is a good reference and older versions of this book are available on Amazon and are very inexpensive.

Every lecture will have slides and associated code that will be available on Box, as well as practice problems and solutions.

Assignments

There are no graded assignments in this course. However, there will be practice problems given out for students to try along with example code on how to answer these questions.

Examinations

There are no exams in this course.

Grading

No grades are given out for this course; this is purely for your own benefit.

Topics

1. Variables, Arrays and matrices
2. Built-in functions
3. Troubleshooting and debugging
4. Boolean logic
5. *If/else* statements
6. *For* and *while* loops
7. Nested loops and *if/else* statements
8. User defined functions
9. Nested functions
10. User Controlled Inputs / Outputs
11. Importing from Excel
12. Plotting
13. 3-D Plotting and Interpolation
14. Symbolic Mathematics

Date	Topic
Jan. 29	Variables, Arrays and Matrices
Feb. 5	Built-In Functions
Feb. 12	2-D Plotting
Feb. 26	Logic, Troubleshooting, and <i>if/else</i> Statements
Mar. 5	Importing Data, Interpolation, and Input / Output
Mar. 19	User-Defined Functions
Mar. 26	Nested Functions and Using Multiple Functions
Apr. 2	<i>for</i> and <i>while</i> Loops
Apr. 9	Nested Loops and 3-D Plotting
Apr. 16	Symbolic Mathematics

Note: Topics covered will follow what is being discussed in ENGIN 110. Order and topics subject to change based on need and interest. However, students from the entire Chemical Engineering Department are welcome to participate.

Accommodation Statement

The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester so that we may make appropriate arrangements.

Diversity

We are all members of an academic community with a shared responsibility to cultivate a climate where all students/individuals are valued and where both they and their ideas are treated

with respect. The diversity of the participants in this course is a valuable source of ideas, problem solving strategies, and engineering creativity. If you feel that your contribution is not being valued for any reason, please speak with me privately. You may also speak with Dr. Paula Rees, Assistant Dean for Diversity (rees@umass.edu, (413) 545-6324, Marston 128), submit a comment to the box on the door of Marston 128, or submit an anonymous comment online <http://tinyurl.com/UMassEngineerClimate>.

Academic Honesty

Although many of the assignments for this class involve discussion with your classmates, you alone are responsible for individual assignments (most homework assignments and the individual paper). The exams require independent thinking and, therefore, individual efforts on homework assignments will be good practice for you.

Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent (http://www.umass.edu/dean_students/codeofconduct/acadhonesty/).