MA302.01 Spring 18: Programming in Mathematics Syllabus

 **10:00 MWF 318 Knott Hall**

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Class webpage: math.loyola.edu/~loberbro/ma302/index.html

Moodle: moodle.loyola.edu

Workspace: workspace.loyola.edu

Office Hours: 11-12 MWF. Also by appointment (see my schedule)

NOTE: I teach at noon in Butler Hall, so I will have to leave my office by 11:45. I realize that my office hours may conflict with your schedule. I'm around many other times than just my office hours so feel free to stop by or make an appointment. You can also email me with questions, but please be patient for my response. There may be an opportunity to do online office hours through ZOOM (https://loyola.zoom.us). (Get the APP!) I also have another office in 138L Maryland Hall.

 I reserve the right to make changes to the syllabus at any time during the term by announcing them in class and on the webpage. You are responsible for knowing not only what is discussed/announced in class but also what is posted on Moodle/class website.

Requisites

Prerequisite: CS201 (Intro. to Computer Science). Corequisite: MA301 (Intro. to Linear Algebra).

Course Description:

OFFICIAL: The basics of MATLAB programming are covered through the investigation of various mathematical topics, including functions, conditional statements, loops, and plotting.

UNOFFICIAL: This course is designed to give you more familiarity with basic programming and plotting. This will give you the basic skills to use MATLAB or other software/programming languages to do calculations, experiments, and analyses in subsequent courses and beyond. In addition, you will be exposed to some familiar and some new mathematical topics.

Text:

None required to purchase. Documentation will be posted and linked on the course website or Moodle. There is a lot of documentation available for free. See my Links page.

Recommended Instead:

1. HIGHLY RECOMMENDED IF YOU HAVE YOUR OWN COMPUTER: the student version of MATLAB which can be found at MathWorks.com. You may also be able to get the Bookstore to get it for you. It is relatively inexpensive - about the same price or cheaper as a TI graphing calculator! The most basic version is just $49 and should be all you'll need for this course. The $99 version comes with Simulink and the most popular addons. If you're planning on either going to graduate school or taking more programming or numerically intensive courses, then I would strongly consider buying it the $99 version.
2. *MATLAB Primer or Getting Started Guide* by The MathWorks, Inc.

Calculators:

A graphing calculator is not required nor will you find it very useful for this course.

Grading:

Based on:	
Quizzes	30%
Assignments	40%
Final Project	30%

Basic Scale:	
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

I give +/- grades, the cutoffs being at the 7's and 3's, respectively. Thus 80-82.9 = B-, 83-86.9 = B, 87-89.9 = B+.

Learning Goals:

By the end or this course, you should

- be able to write their own subroutines (as well as use existing MATLAB commands) to solve problems arising from mathematical and statistical applications
- be more familiar with control statements (if/then/else statements) and loop structures in programming
- understand the mathematical and statistical concepts discussed in the assignments and final project

In addition, this course follows the broader University Learning Aims and the Natural and Applied Sciences Learning Aims.

Assignments:

Most weeks there will be an assignment for you to complete outside of class and hand in at the *beginning* of class on the due date. Anything to be turned in electronically must also be turned in by the time posted on the assignment and/or Moodle. **The lowest assignment grade will be dropped when computing your final grade.**

LATE ASSIGNMENTS: assignments may be turned in late, but will be docked 4 points. I WILL NOT ACCEPT ANY LATE ASSIGNMENTS ONE WEEK AFTER ITS DUE DATE.

Quizzes:

Quizzes will be given about every other week on Fridays. They will mostly cover MATLAB code, not the mathematics covered in class. More specifics on the quizzes will be given the class before each quiz. **The lowest quiz grade will be dropped when computing your final grade. No make-ups will be given.**

Final Project:

The final project will be more in depth than a typical assignment and will be presented during the last day of class and our final exam time (**Friday, May 4 at 6:30 PM**). Specific information on the final project will be given later in the semester.

Extra Credit:

Do not count on extra credit in this course to boost your grade. I make it a policy to not give extra credit on an individual basis so do not ask for it, especially at the end of the semester.

Classroom Etiquette:

When you come to class, I expect you to not only be in attendance physically but also mentally. That means no cell phones, no leaving class during lecture, no extraneous chatter, etc. If you know you must leave class, sit by the door to minimize the disruption. If cell phones and texting become a problem, I will confiscate the phone.

Honor Code:

All students of the University are expected to understand the meaning of the Loyola University Honor Code. Ignorance of the Code is not a valid reason for committing an act of academic dishonesty. The following constitute violations of the Code and are defined in the Community Standards Handbook: cheating, stealing, lying, forgery, plagiarism and the failure to report a violation.

As it pertains to this course: I expect and encourage you to work with others on homework (by collaborating, not emailing or copying!). Any questions or concerns should be directed immediately to me.

Student Athletes:

If you are a student athlete, please provide me with your travel schedule indicating when you will need to miss class to participate in athletic events. While travel for athletics is an excused absence, you will need to make up any missed work. Please remind me before you are going to miss a class. Absences only on the travel letter will be accommodated.

Students Needing Accommodations:

To request academic accommodations due to a documented disability, please contact Disability Support Services (DSS), Newman Towers West 107, at DSS@loyola.edu or call 410-617-2750/2062. If you already registered with DSS and requested an accommodations letter (and DSS has sent the letter to your professors via email), please schedule a brief meeting to discuss the accommodations you might need in this class. Please contact Marcia Wiedefeld, Director of DSS, if you have any questions at mwiedfeld@loyola.edu or 410-617-2062.