MA402 Fall 2013: MATLAB Programming in Mathematics

9:00 MWF: 004 SH

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Class webpage: `http://math.loyola.edu/~loberbro/ma402/index.html`
Moodle: `http://moodle.loyola.edu.`
Citrix: `http://ctx.loyola.edu`

Office Hours

Monday	Tuesday	Wednesday	Thursday	Friday
10-11	—	—	2-3:30	10-11:30

Also by appointment (see my schedule).

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 what was discussed/announced in class but also posted on Moodle/class website.

Prerequisites: CS201 and MA301.

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

Required Text: *Matlab: A Practical Introduction to Programming and Problem Solving, Third Edition* by Stormy Attaway.

Recommended:

1. The student version of MATLAB for your own computer. It costs around $100.
2. MATLAB Primer (formerly Getting Started with MATLAB) by The MathWorks, Inc. The link to this PDF can be found on Moodle/class website.

Grading:

Based on:

		Basic Scale		
Quizzes	30%	A	90-100%	I give +/- grades, the cutoffs being at the
Assignments	40%	B	80-89%	7's and 3's, respectively.
Final Project	30%	C	70-79%	Thus 80-82.9 = B-, 83-86.9 = B, and
		D	60-60%	87-89.9 = B+.
		F	0-59%	

Assignments: Most weeks there will be an assignment for you to complete outside of class and hand in 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 5 points for each SCHOOL day it is turned in late (by 4PM). For example if it is due on Friday, turning it in on Monday counts as -5, on Tuesday another -5 points, etc. I WILL NOT ACCEPT ANY LATE ASSIGNMENTS ONE WEEK AFTER THE 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 or assignments. 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 on the last day of class and during our final exam time (**Wednesday, December 18 at 9 AM**). 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 texting, 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 assignments (by collaborating, not 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 and game 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. Absences only on the travel letter will be accommodated.

Students with Disabilities: To request academic accommodations due to a 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.

Learning Outcomes: At the end of the term, if a student successfully completes the course, s/he will have achieved:

the following Undergraduate Learning Aims of the University:

- Intellectual Excellence
    - appreciation of and passion for intellectual endeavor and the life of the mind

- appreciation of and grounding in the liberal arts and sciences
- excellence in a discipline, including understanding of the relationship between one's discipline and other disciplines; understanding the interconnectedness of all knowledge
- habits of intellectual curiosity, honesty, humility, and persistence

- Critical Understanding: Thinking, Reading, and Analyzing

  - the ability to evaluate a claim based on documentation, plausibility, and logical coherence
  - the ability to analyze and solve problems using appropriate tools
  - the ability to use mathematical concepts and procedures competently, and to evaluate claims made in numeric terms
  - the ability to use information technology in research and problem solving, with an appreciation of its advantages and limitations

- Eloquentia Perfecta: the ability to use speech and writing effectively, logically, gracefully, persuasively, and responsibly

- Diversity: recognition of the inherent value and dignity of each person, and therefore an awareness of, sensitivity toward, and respect for the differences of race, gender, ethnicity, national origin, culture, sexual orientation, religion, age, and disabilities

the following Natural and Mathematical Sciences learning aims:

- develop their innate curiosity about the natural world and take a life-long interest in science news and advancements

- explore one or more of the central ideas that form the foundation for modern science

- understand the process of science - its methodology, how questions are framed, how data are acquired, how arguments are constructed and conclusions reached . In this context, students should learn what science is not and have the ability to recognize and reject pseudoscientific claims. In addition, students should also have the ability to recognize the limits of science. Students also should understand the relationship between science and technology and how the results of scientific discovery can be applied to the needs of society. Students should learn the linkage between experimental methodology and scientific content

- learn to reason mathematically, and to think critically and analytically through statistical or mathematical methods. Because of the close interrelationship between science and math, in each science course in the core, students will achieve a better understanding of the power of quantitative tools used in the particular discipline

- learn how recent technological advances have facilitated and accelerated scientific inquiry. They gain a realistic understanding of the potential and limitations of computation

and the following learning goals of the course:

- 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 .