

14:440:127 Introduction to Computing for Engineers Fall 2007

This syllabus is subject to change. Please consult the class website for updates and announcements.

COURSE COORDINATOR: Dr. Holly Crawford, Associate Dean, School of Engineering. **E-mail Address:** hcrawfor@soemail.rutgers.edu

TEACHING ASSISTANTS: Mr. Josh Finch (Sections 4 and 5) (jwfinch@eden.rutgers.edu) MSE; Mr. Wojtek Tutak (Sections 1 and 3) (wojtek@eden.rutgers.edu) MSE; Mr. Mingliang Wang (Sections 10 and 12) (mingliang.ta@gmail.com) ECE; Ms. Nanyan Jiang (Sections 2 and 11) (nanyanj@eden.rutgers.edu) ECE [MSE=Materials Science and Engineering; ECE=Electrical and Computer Engineering].

TEACHING ASSISTANT OFFICE LOCATIONS AND OFFICE HOURS: Mr. Finch, Engineering Building A-224, Tuesdays 2:00 - 4:00 p.m.; Mr. Tutak, Engineering Building A-224, Wednesdays 10:00 – 12:00 p.m.; Mr. Wang, CoRE 625, Mondays, 2:00 – 4:00 p.m.; Ms. Jiang, CoRE 623, Thursdays, 3:00 – 5:00 p.m.

TEXTBOOKS: There is one required textbook for the class: *Introduction to Matlab 7 for Engineers*, by William J. Palm, III. This book is available at the Rutgers University bookstore.

COURSE WEBSITE: <http://coewww.rutgers.edu/classes/gen/gen127>

MATLAB SOFTWARE LOCATION: ARC Computing Center (Open 7/24).

MATLAB SOFTWARE PURCHASE: Matlab 7 (Release 14). This software is available in the aforementioned computer labs. Students may buy an academic license (student software that includes Matlab and Simulink) directly from Mathworks. Please visit the following website for further information:

http://www.mathworks.com/web_downloads/

OTHER TECHNOLOGICAL REQUIREMENTS:

1. *All students must have an Eden account.*

<http://rucs.rutgers.edu>

2. *All students must have an Engineering account.* The engineering account will be given out in recitation during the first week of the semester. For students who join the class after the first week, they must contact Mark Sproul in D-111 (msproul@jove.rutgers.edu). Students will use their Engineering account exclusively in this course.

QUESTIONS AND CONCERNS

If you have questions or concerns, don't be shy. **Please contact your TA** via email and/or attend office hours immediately. There is no such thing as a dumb question. Remember, don't let a problem sit on the back burner—**talk to your TA!!** Also, if your assigned TA's office hours are not convenient for you, you may attend any TA's office hours.

COURSE OBJECTIVES

This course is designed to provide students with an introduction to and overview Matlab (a powerful programming package for engineers and scientists). Students will learn

- The fundamentals Matlab
- How to write programs using Matlab
- How to solve engineering problems using Matlab

Course content is introduced in the weekly lectures. Homework will be discussed in the weekly recitations.

GRADING POLICY

Students are graded based on their performance on **two unannounced quizzes (10%--5% for each quiz; quizzes can be given in lecture and/or recitation); and three term exams (90%--25% for exam one; 30% for exam two, and 35% for exam three) which will be administered during the individual recitation periods.** Homework (readings and problems will be assigned weekly). Homework problems are used to help students understand the material more clearly and will be reviewed during recitation. However, homework will not be graded.

If, due to extraordinary circumstances (e.g. verifiable family death, verifiable student illness—must be verified with Dr. Jeffrey Rankin who is located in the Engineering Building, Room B-100), the student cannot attend recitation, it is the responsibility of the student to contact his or her Teaching Assistant by e-mail prior to the start of recitation. Once the extraordinary circumstances have been verified, the student and the TA will then work out a schedule for make-up quizzes and/or exams.

STUDENT IDENTIFICATION

Students must sign in for each recitation class and are required to attend the recitation class for which they are registered.

All students must know their TA name and recitation section number. Quiz and exam papers missing any or all of this information (in addition to the student's name) will not be graded.

Furthermore, all students are required to show their Rutgers University ID at every term examination. Students who do not show their Rutgers ID will not be allowed to sit for the exam.

TERM EXAMINATION SCHEDULE

All term examinations will be administered during the regular recitation periods. Students can only take the term examination in the recitation section for which they are scheduled.

The first exam will be held the week of October 8, 2007

The second exam will be held the week of November 12, 2007

The third exam will be held the week of December 3, 2007

GRADING SCALE

A: 92-100

B+: 87-91

B: 82-86

C+: 77-81

C: 72-76

D: 60-71

F: 59 and below

CHEATING AND PLAGIARISM POLICY

Cheating and plagiarism will not be tolerated in the class. All students must review the Rutgers University policy on these matters. Ignorance of this policy or failure to read this policy is not an excuse for cheating or plagiarism. This policy is located at <http://academicintegrity.rutgers.edu> and at <http://judicialaffairs.rutgers.edu>

ELECTRONIC DEVICES AND GENERAL COMPORIMENT POLICY

Students will have their cell phones and pagers turned off at all times during lecture and recitation. Recording devices (e.g. cell phones with cameras, video cameras, digital cameras, tape recorders) are not allowed in lecture and recitation. Students may not leave lecture or recitation prior to either's conclusion unless they have to use the restroom. Talking during lecture or recitation (unless it is for the purposes of class participation) is disrespectful. Please refrain from doing so. Food and drink are not allowed in the DSV and ARC computer labs.

RECITATION PRINTING POLICY

Printing is not allowed during recitation.

LECTURE, READING, AND PROBLEM REVIEW SCHEDULE

All reading and problem solving pages are from the Palm textbook. Each weekly date is keyed to the dates of the weekly lecture (Tuesdays and Wednesdays in the Fall semester).

- Week 1 (Sept. 4/5):** Course Overview
An Overview of Matlab I
Read: pp. 3-38
- Week 2 (Sept. 11/12):** An Overview of Matlab II
Read: pp. 38-67
Review: Problems 4, 11, 17, 25, 28, 42 (pp. 61-67)
- Week 3 (Sept. 18/19):** Numeric, Cell, and Structure Arrays I
Read: pp. 69-107
Review: Problems 5, 9, 15, 18, 29, 32 (pp. 125-134)
- Week 4 (Sept. 25/26):** Numeric, Cell, and Structure Arrays II
Read: pp. 107-139
Review: Problems 37, 43, 44, 48, 50, 51 (pp. 135-139)
- Week 5 (Oct. 2/3):** Functions and Files I
Read: pp. 141-162
Review: Problems 4, 6, 9, 12, 14, 16 (pp. 178-180)
- Week 6 (Oct. 9/10):** Functions and Files II
Read: pp. 163-172
Review: Problems 18, 19, 20 (pp. 180-181)
- Week 7 (Oct. 16/17):** Functions and Files III; Programming with Matlab I
Read: pp. 172-181 and pp. 183-200
Review: Problems 24, 25 (p.181); 2, 9, 12, 14 (pp. 241-243)
- Week 8 (Oct. 23/24):** Programming with Matlab II
Read: pp. 200-225
Review: Problems 18, 20, 23, 27, 31, 33 (pp. 244-254)
- Week 9 (Oct. 30/31):** Programming with Matlab III
Read: pp. 225-257
Review: 35, 37, 38, 39, 40, 41, (pp. 255-257)
- Week 10 (Nov. 6/7):** Advanced Plotting and Model Building I
Read: pp. 259-292
Review: Problems 4, 6, 9, 11, 24, 25 (pp. 340-349)
- Week 11 (Nov. 13/14):** Advanced Plotting and Model Building II
Read: pp. 292-311
Review: Problems 15, 21, 29, 31, 33, 34 (pp. 343-349)
- Week 12 (Nov 20/21):** **Thanksgiving Week: No lecture or recitation**
- Week 13 (Nov. 27/28):** Advanced Plotting and Model Building III
Read: pp. 334-357
Review: Problems 49, 51, 52, 53, 57, 58 (pp. 354-357)

Week 14 (Dec. 4/5): Statistics, Histograms, and Probability
Read: pp. 417-427
Review: Problems 1, 2, 3 (p. 458)

Week 15 (Dec. 11/12): The Normal Distribution
Read: pp. 427-436