

640:250-C2 Introduction to Linear Algebra (MATLAB Section)**General Information**

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Text: Spence, Insel & Friedberg *Elementary Linear Algebra: A Matrix Approach*

ISBN # 0-13-716722-9, Prentice-Hall, Upper Saddle River, NJ 07458

Course Web Page: This document, other course materials, information about the course, and links to relevant web sites are posted on the Mathematics Department web site (<http://www.math.rutgers.edu>) Click on **course materials** and then **Math 250 Linear Algebra**. Follow the indicated links from there.

Computer Component of Course: This is a MATLAB section of Math 250. You will use the same textbook and syllabus as the regular sections of Math 250, but in addition to regular homework assignments, quizzes, and exams, you must do several MATLAB assignments in one of the Rutgers computer labs (or on your own computer, if you buy a copy of the Student Edition of MATLAB). You will create a printed writeups of your MATLAB sessions to hand in for grading.

Linear algebra is the most widely-used mathematics tool in engineering, applied science, statistics and mathematics. Unlike the one-variable calculus problems that you can solve by hand calculation (or with the aid of a graphing calculator), real linear algebra computations need substantial computer resources. The best software package for this purpose is generally agreed to be MATLAB (although other symbolic computer programs such as MAPLE or MATHEMATICA also have linear algebra capabilities). Even though you will not get more units of academic credit by taking Math 250C (rather than Math 250), you will learn a major computer language that allows you to apply the theoretical concepts of linear algebra to concrete computational problems.

The MATLAB software package is installed on PC's in all the Rutgers public computer labs (in ARC, Loree, College Avenue, Livingston). Students in the School of Engineering can also use MATLAB in the DSV Lab (Eng B-125/127).

If you want to install MATLAB on your personal computer, the Student Edition (for Windows, Linux or Macintosh) can be purchased directly from the publisher, MathWorks, Inc. by going to their website: www.mathworks.com. It includes documentation and tutorials. Chapter 12 of the textbook provides a brief introduction to MATLAB. Links to MATLAB-related web sites can be found on the course web page.

Exams, Homework, and Grades: There will be two midterm exams and a final exam (all exams will be closed book). There will be six MATLAB assignments. Although homework will not be graded, there will be weekly short quizzes based on the homework problems. The quizzes will usually be given at the end of the class period and returned at the beginning of the next class. There will be no makeup quizzes (some of the quiz grades will be dropped). Your final course grade will be determined on the following 600-point basis:

each midterm exam: 100 points

each MATLAB assignment (required part): 25 points

quizzes: 50 points

final exam: 200 points

NOTE: Each MATLAB assignment has an optional question (some application of Linear Algebra). Each one counts for 10 bonus points, so you can obtain up to 60 bonus points from these questions (more than half a midterm exam).