

640:250C Introduction to Linear Algebra (MATLAB Sections)**General Information**

Text: Kolman & Hill, *Introductory Linear Algebra with Applications*, 7th ed.,
ISBN # 0-13-018265-6, 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: Linear algebra is the most widely-used mathematics tool in engineering, applied science, and statistics. 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 and some graphing calculators can do linear algebra problems with a small number of variables). The MATLAB sections of Math 250 use the same textbook and syllabus as the regular sections of Math 250. In addition to homework assignments, quizzes, and exams, you will 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. 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 a wide range of interesting applications.

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) on Sun Ultra 10 workstations.

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 course 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 frequent 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. 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: The MATLAB assignments will also have optional section (various applications of Linear Algebra) that you can do to get bonus points.

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