revised 1/9/07 Spring, 2007

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

General Information

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 Descriptions` and then `Introductory Linear Algebra Math 250`. 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 carry out linear algebra calculations using MATLAB 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. NO PROGRAMMING KNOWLEDGE OF MATLAB IS REQUIRED.

The MATLAB software package is installed on PC's in all the Rutgers public computer labs (in ARC, Loree, College Avenue, Livingston).

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. Links to MATLAB tutorials and related web sites can be found on the course web page. The student edition of MATLAB can also be obtained at the Rutgers University book store.

Note: Some of the MATLAB assignments use the *symbolic toolbox*, which is not installed in the computers in the engineering school running MATLAB. The MATLAB program is not available on MacIntosh computers in the Rutgers public computer labs.

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. Each section will have quizzes and/or graded homework, as determined by the instructor. Your final course grade will be determined on the following 600-point basis:

midterm exams: 100 points each (total = 200)
MATLAB assignment: 25 points each (total = 150)
quizzes and/or homework: 50 points
final exam: 200 points