

640:250-C1 Introduction to Linear Algebra with MATLAB**General Information**

Text: Spence, Insel & Friedberg *Elementary Linear algebra: A Matrix Approach, 2nd Edition*
ISBN # 978-0-13-187141-0, Prentice-Hall, Upper Saddle River, NJ 07458

Lecturer:

Section C1 (MW 1:40-3:00, ARC 333):

Prof. Roe Goodman (<http://www.math.rutgers.edu/~goodman>)

Office: Hill 428

Office hours: M 4:00-5:00, Th 2:00-3:00 and by appointment

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>). Under **Undergraduate** click on **Course Information** and **Course Materials**, and then **Math 250 Introductory Linear Algebra**. Follow the link to Spring 2010 Matlab Sections.

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 substantial linear algebra capabilities). Some graphing calculators can do linear algebra calculations with a small number of variables, and you might find such a calculator useful (but not required) to check your numerical solutions to some of the homework problems involving matrices.

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.

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; the due dates are indicated on the course syllabus. **SUBMIT PRINTED VERSIONS (not electronic) AT THE BEGINNING OF THE CLASS PERIOD ON THE DUE DATE;** late submissions not accepted in general. There will be one short written quiz each week (except for the weeks of midterm exams), as indicated on the course syllabus. No makeup quizzes are given, but the lowest quiz grade will be dropped. Your final course grade will be determined on the following 600-point basis:

midterm exams: 100 points each (total = 200)

MATLAB assignments: 25 points each (total = 150)

quizzes: 50 points

final exam: 200 points