

Linear Algebra: Math 110

Fall 2001, MWF 8–9 in 3 Evans

Professor: Michael Anshelevich, 1063 Evans, manshel@math.berkeley.edu.

Office hours: Tu 11–12, F 2–3. The office hours for my other class are M 11–12, W 2–3. You are welcome to come by then, but the students from the other class have priority.

Class homepage: <http://www.math.berkeley.edu/~manshel/m110/m110.html>. I will use it to post homework assignments and last-minute announcements. Also, if you want to be on the mailing list for the class, send me email in the first week of classes.

Text: Friedberg, Insel, and Spence, *Linear Algebra*, 3rd ed.

Prerequisites: Math 54. Some topics you should be familiar with: mathematical induction and the basics of complex numbers, solving systems of linear equations, determinants.

Syllabus:

- Vector spaces: general theory and examples.
- Linear transformations, matrices, and the relationship between them.
- Determinants: a brief review.
- Eigenvalues, eigenvectors, and diagonalization.
- Inner product spaces.
- Special classes of operators.
- Jordan canonical form.

Exams: We will have two in-class midterms, the 1st one on September 26th, the 2nd one on October 24th. The final exam is on December 13th, 8-11. No make-up exams will be given. If, under *exceptional* circumstances, you need to miss one of the midterms, the score from the other midterm will substitute for it.

Homework: weekly, due on Wednesdays. There will be problems you need to turn in, and other problems for extra study. No late homework will be accepted; the lowest score will be dropped. You are encouraged to work together, but you must each turn in your own work.

Grading: Homework 20%, each midterm 20%, final 40%.

Comments: In this course you will learn new material, even though you have already seen most of the topics in Math 54. However, unlike in that course, we will put serious emphasis on proofs. An important component of this course is learning to give rigorous proofs, in particular learning what it means to prove a mathematical statement. The hope is that, by the end of the course, the need for precision will become apparent, and precision in your mathematical reasoning second nature...