

Syllabus for Math 22, Spring 2007

Linear Algebra

Instructor: Rebecca Weber

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Office Hours: 9:00–9:50 AM Mondays and Wednesdays, 2:00–3:30 PM Thursdays, and by appointment. I am also available for 15–20 minutes after class every day.

Course Meets: 10 hour, 10:00-11:05 MWF, Kemeny 007

X-hour: Thursday 12:00-12:50

Textbook: *Linear Algebra and Its Applications*, third edition, David C. Lay

General Information

Linear algebra is one of the fundamental subjects of mathematics – I sometimes feel that a solid grasp of linear algebra will get you more than halfway to understanding many (most?) mathematics colloquium-style talks. We will discuss linear equations, matrices, determinants, vector spaces, eigenvalues, eigenvectors, and orthogonality.

Math 22 walks a difficult line: on the one hand, it should be useful for people not going into mathematics, who need to know some linear algebra for engineering, physical and natural sciences, or computer science. To address that aspect we will cover some applications (a tiny fraction of all that exist, but we'll try to hit some highlights). On the other hand, it is still a mathematics major prerequisite course, so there will be a strong focus on theory and proofs.

Course Organization

The course will be primarily lecture-based. **We will use all X-hours.** This is to allow us to cover a good bit of material at a reasonable pace while allowing time to cover applications and do in-depth work on proof writing. It will also allow for X-hour review sessions before the two exams during the term, and for the last day of class to be a final exam review. The course webpage will have a day-by-day schedule for the entire term (though this is subject to change during the quarter).

Attendance

I will not take attendance, though you must obviously attend on exam days. I feel there are three major reasons to come to class: (1) it's a relatively painless way to study, (2) I present the material in lecture the way I think about it – and I write the exams, and (3) it's the easiest way to show me you care about your progress in the class – those who cut lots of class and then run into difficulty with the material have only themselves to blame.

Assignments and Grading

There will be weekly homework assignments, primarily out of the textbook, due on Fridays. Additionally, there will be periodic proof assignments, wherein you are given a statement and asked to come up with a proof. These proofs will be graded on a credit/no credit basis, with unlimited rewrites allowed, where credit is given for an essentially flawless proof (in both substance and form). I will be specific in my critique and expect it to be rare for more than one rewrite to be necessary.

There will be two examinations roughly one third and two thirds of the way through class. Your grade will be computed as follows:

Midterms	100 pts	each
Homework	100 pts	
Final Exam	200 pts	
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Total	500 pts	

Please note I do not curve individual assignments. I begin with the ten percent scale (90% and up an A, 80% and up a B, etc.), and will only curve at the end, and only if a curve is necessary.

Help on Material

There are many ways to get help with the material. Here are some:

- (1) Ask questions during, before, or after class.
- (2) Discuss material with your classmates. I want everyone to write up their own homework, but feel free to discuss it with each other. However, while you may discuss the manner of proving the statements I give you, please do not discuss the way to write it up. I want you each to develop your writing skills independently.
- (3) Come to office hours to discuss questions. Office hours are nothing more than time put aside when I am guaranteed to be in my office free to meet with you. You do not need to make an appointment, nor feel bad about interrupting whatever I'm filling my time with when you come in.
- (4) Make an appointment to meet with me. While I prefer this be done only in cases where the above options simply don't work out, or when the discussion is to be confidential, I am happy to meet with you at other times. The goal is for you to succeed in this class.