

Brown Math 540-S02 Spring 2011 Syllabus

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Office hours: M 10-11am, W 11-12pm, F 1-2pm, or by appointment. Subject to change.

Text: Linear Algebra Done Wrong, by Sergei Treil. Available online at <http://math.brown.edu/~treil/papers/LADW/LADW.html>

Description: Linear algebra is the study of vectors and linear maps. It is a foundational subject in mathematics, and of extremely wide use in fields such as economics, physics, biology, computer science, engineering; basically any field which uses mathematics uses linear algebra. Indeed, while it is true that the world is full of nonlinear phenomena, the best way we have of studying nonlinear systems to approximate them by linear ones!

This is an honors course, which means the material will be covered in more depth and with a slightly more theoretical foundation than in Math 520.

It also means you will be expected to spend more time studying the material and working on homework assignments. Challenging problems will be fair game on homework and exams!

We will use the same exams and (mostly the same) homework problems as Section 1 (taught by Sergei Treil), and will try to keep to more or less the same schedule.

Grading: Your final grade will depend on weekly homework scores and exams (2 midterms and 1 final), weighted as follows:

Homework	15%
Midterms	40%
Final	45%

Just to give you an idea what to expect: the cutoff point for A is usually about 90%, the score below 50% usually means failing. Other cutoff points are distributed more or less uniformly.

Exams:

- 2 Midterms, TBD
- Final: Friday, May 13

There will be two in-class exams during the semester, the dates will be announced later. Exams are closed book and closed notes.

Make-ups will not be permitted except for a severe medical problem or dire family emergency. A written note from an appropriate person (doctor, parent, etc.) is required. If at all possible, you should notify me before the missed exam.

Homework: Homework problems will be assigned every lecture, and a portion of these will be collected and graded weekly. Although not all problems will be collected and graded, it is *extremely* important to do all the problems. They will be the model for most of the exam questions.

Your lowest homework score will be dropped. You are allowed (indeed, encouraged) to work on the homework assignments together, but must write up your answers separately. You will also need to cite your collaborators and any sources consulted on your homework assignments.

Homework should be turned in either in class, or by the required due date & time to the relevant box in the mail room of the Math Department (1st floor of Kassas, to the left as you enter the department.)

Tips for success:

- **Read the relevant material before class.** I will put sections of the book corresponding to each lecture on the website a day or so beforehand. You do not need to fully understand everything, however, having some familiarity with the subject of the lectures beforehand is extremely valuable. You will definitely get more out of each lecture this way. This is possibly the most important tip I discovered learning math while I was an undergrad.
- **Come to office hours.** Identify anything you don't understand very well, and ask me about it. This is an invaluable time to address individual questions that you have; there are no stupid questions! Also, if you have any questions or interests that go beyond the scope of this course, I'm more than happy to discuss these in office hours as well. Office hours are pretty boring for me when nobody comes!
- **Be responsible for your own learning.** In college, you are ultimately the best person to identify which things you understand well and which things you feel a little hazy about. Don't let yourself get away with the latter! While you're encouraged to work on homework assignments in groups, it is your responsibility to make sure you're not just leaning on your friends; make sure that by the time you hand the assignment in, you understand enough to be able to do the problems on your own. A good way to determine whether you really understand the material is to ask yourself **could I explain this to someone else?** Pretend (if necessary) that you have to tutor a friend in the class, and you'll quickly become aware of what you do and don't fully grasp.