Math 18: Linear Algebra

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Lecture: 8:00 - 8:50 AM MWF, HSS 1330

Office Hours: 9:00 - 10:00 AM MWF, AP&M 6333

Website: www.math.ucsd.edu/∼kdevleming/teaching/fa19/math18/

Textbook: *Linear Algebra and its Applications*, Lay et. al., fifth edition.

Overview

Linear algebra is the study of systems of linear equations. What is an efficient way to find all solutions to such a system? How many solutions are there? When is it guaranteed that a solution will exist? We will answer these questions and study the solution sets themselves, abstracting much of what you already know and leading us toward the notion of a vector space. We will explore various *real life* applications along the way.

Class will consist of a lecture portion on Monday, Wednesday, and Friday, and a discussion section on Thursday. In class, we will incorporate active learning in the form of worksheets, small group work, and plenty of problem solving. Linear algebra is often the first math class you encounter that comes with vocabulary, so (much like a foreign language) you will need to practice using the terminology. These active learning segments will give you the opportunity to do so.

Exams

Exams will be held on the following days:

- Midterm 1: in-class, Friday, October 18

- Midterm 2: in-class, Friday, November 15

- Final: 8:00 - 11:00 AM, Monday, December 9

For each exam, calculators are **not** allowed, but you may have one 8.5×11 inch double-sided handwritten note sheet. There are **no** make-up exams. If you are caught cheating on an exam, you will receive a score of 0 and be reported to the Academic Integrity Office.

Homework

Electronic homework will be assigned, submitted, and graded via MyMathLab. You must purchase an access code to use this system, which is bundled with the physical textbook or can be purchased alone with access to an eBook. The homework assignments will typically be due on Thursdays at 11:59 PM. Check MyMathLab for exceptions.

MATLAB

Linear algebra is used in many different applications, some of which we will see in lecture. However, it is often used in very large-scale problems, so requires the use of a computer. MATLAB is one tool for doing these types of computations. In this course, there is a MATLAB component, and more information is available on the Math 18 `MATLAB website.` You fill find the assignments and more information there. MATLAB assignments will be handed in via Gradescope and your lowest score will be dropped when computing your final grade. At the end of the quarter, there is a MATLAB quiz. The quiz is not required, although could help your grade if you do well (see grading below).

Grading

Your course grade will be the highest of the following weighted averages:

- MATLAB (10%**) Homework (10%), Midterm 1 (20%), Midterm 2 (20%), Final (40%),

- MATLAB (10%**) Homework (10%), best midterm score (30%), Final (50%)

    (**): Your MATLAB score will be computed either as 5% homework and 5% quiz or 10% homework, whichever is greater.

Academic Integrity

As college students, it is up to you to take responsibility for your education. This includes respecting yourself, each other, your instructor, and your TAs and taking pride in your work. Students caught cheating will face an administrative sanction which may include suspension or expulsion from the university.

Getting Help

If you have any questions, I encourage you to come to my office hours or those of your TAs. Check the course website for times and locations.

I also encourage you to use `Piazza.` Piazza is an online discussion forum that allows you to ask questions using mathematical symbols and expressions. Piazza was designed to enable you to get help quickly and efficiently from classmates, TAs, and instructors. Rather than emailing questions to me or your TAs, I encourage you to post your questions there. You have the choice to be anonymous to your peers on Piazza (although I am able to see who is posting what).

Next, the `Teaching and Learning Commons` is an excellent source of help for this class. There is free walk-in tutoring and this class will be supported by their Study Groups. Check their website for more information.

For students with disabilities, the `Office for Students with Disabilities` (OSD) is an on-campus resource to determine reasonable accommodations in class and on exams. They can help students with various physical, psychological, and learning disabilities.

If you are struggling with your mental health and well-being, UCSD Counseling and Psychological Services (`CAPS`) provides free, confidential psychological counseling and crisis services for all registered students.