MATH 4310 · Linear algebra
Fall 2022

Professor: Kathryn Mann.
Office hours: Monday 10-11am and Wednesday 1-2pm, Malott 563

Teaching Assistant: Jeffrey Jiang.
Office hours: Monday 1-2pm and Tuesday 3-4pm, ROOM TBA.

Linear algebra is the study of linear transformations – an essential tool in much of modern mathematics, with applications in mathematical modeling, engineering, economics, and computer science. This course covers both theory and applications.

Format. This course integrates active learning materials, meaning that you will be **doing(!)** math during the lectures, typically on worksheets and in class discussion.

Prerequisites and overlap.
This is a 4000-level course. You must have some prior experience writing proofs (i.e. from a 3000 level course). You should also have taken MATH 2210, 2230, 2310, or 2940.
Undergraduates who plan to attend graduate school in mathematics should take MATH 4330 instead of 4310.
Because of overlap in content, you can only receive credit for one of MATH 4310, 4315 or 4330

Textbook. *Linear algebra done right. (Third edition)* by Axler. Available online for free through the library catalogue.
I will use the textbook as a guide, reference and supplement. We will not cover the whole book, and we may cover a few things not in the book. What matters is what is done in lectures and homework!

Assignments and tests.
• *Problem sets:* are typically assigned on Wednesdays and due the following Wednesday, posted on the course Canvas site.
• *Written project:* you will research and write about an application of linear algebra. Details will be posted on canvas.
• *Prelims:* Two in-class prelims, on Friday 9/23 and Friday 10/21
• *Final exam* Yes! This will be scheduled by the college.

What if I am sick, etc...?
• Your lowest 2 homework scores are dropped automatically. *this is so you may skip two assignments without penalty and without asking.*

• You may turn in HW on gradescope up to 48 hours late, with an automatic penalty as follows: up to 1 hour late (10% penalty), between 1 and 24 hours late (20% penalty), or between 24 and 48 hours late (50% penalty). No homework is accepted after 48 hours.

• **Do not** e-mail the instructor or TA with other requests for late homework.
But **do** e-mail the instructor if you have an extended illness, or other serious long-term circumstance that interferes with your semester beyond needing to skip two homework sets.

• *Sickness on the day of a test*: if you are very ill or have a serious emergency on the day of a test, you should contact your instructor at least two hours before the starting time.

• Worksheets are posted on canvas, and I encourage you to ask your classmates for notes if you miss a lecture

Do your own work. You are encouraged to work with your peers on problem sets – the Math Support Center is a great place to meet other people working on homework! However, you must write up *your own* solutions. Set aside time for yourself to both attempt problems on your own, and to write a good copy of your solutions alone.

You must follow Cornell's code of academic conduct. Plagiarism, copying, taking answers or parts of answers from books, notes, the internet, other people, etc, etc. is not tolerated and will result in a score of 0 for all people involved and may lead to an academic integrity hearing and further consequences.

Accommodations. Please contact Cornell SDS as soon as possible if you need accommodations for class, assignments, or the prelim. They will send me a letter. Please also feel free to reach out to me by e-mail or set up an appointment to chat so we can make this class work for you.

Grading scheme
• Problem sets: 35%
• Prelim 1: 15%
• Prelim 2: 15%
• Project: 5%
• Final exam: 30%