Math 3312

Spring 2026

Instructor
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We will be using Piazza in this course for announcements and discussion. You might be familiar with it from other courses, but it makes it easy to have mathematical discussions, and allows anonymous posts, as well as group-based interactions. If you have any questions about the homework or any other course content, I strongly encourage you to post them on the Piazza page, so that the entire class can benefit from the discussion. You can post the questions anonymously if you wish.

Course content

This course is a continuation of concepts from last semester. We will begin by studying fields, vector spaces and linear transformations. We will see that the proof from the Fall of the Fundamental theorem of finitely generated abelian groups can also be used to classify linear transformations up to change of basis. Finally, we will bring all the threads from the year together in the form of Galois theory, the crown jewel of undergraduate mathematics (and 19th century algebra).

Lectures

There is no prescribed textbook for the class. Notes will be posted on the class webpage following every lecture. Moreover, lectures will be live synchronously on Zoom, and a video of each lecture will be posted to an unlisted Youtube playlist for easy asynchronous access.

Office hours

Some office hours will be over Zoom. I will announce this ahead of time. Zoom sessions will be recorded, and also available via the unlisted Youtube playlist.

Homeworks

Homeworks are an essential part of this course. They will be posted on the class webpage by Friday and will be due the following Tuesday evening. The first homework will be due Thursday of second week, January 22. You will upload the completed assignments on Gradescope.
To make things as legible as possible, I encourage you all to use LaTeX to type up your homeworks. I will share the homework files with you on Overleaf, which is an online TeX platform that is fairly self-explanatory and easy to use.

No late papers will be accepted. However, you are allowed to drop *one* homework of your choice without its affecting your grade. If you turn in all homeworks, I will automatically drop your worst one.
Homework solutions will be available on the afternoon of the due date for each homework.
You are allowed, in fact encouraged, to discuss your homework assignments with other students. However, you must write up the solutions individually.

AI and its discontents

There's no sugarcoating this: LLMs have advanced to the point where they can do large chunks of the homework for you. How you choose to use this power is up to you: There are ways to use them as assistants that help you *understand* and *organize* the material better for yourself, and there are ways to use them to voluntarily atrophy your cognitive abilities. I myself make use of it to quickly go through references and to summarize long papers, but you really have to know what you're doing in order to not be misled by hallucinations (which are aplenty).
It might also be helpful to remember that one purpose of learning is for you to eventually be able to create *new knowledge*. On a shorter timescale, the exams in the class are in-class with pen and paper, and no outside assistance, so you should make sure that you're preparing yourself to do well there. I and your TA will do our best to make sure that you have the resources to be able to do so.

Exam dates

Midterm 1 (in class): Wed, Feb 18
Midterm 2 (in class): Mon, Mar 30
Final (in class): Fri, May 8, 9 am

Grading Policies

Homework:	20%
Midterms:	45%
Final:	35%