MAT 250B: Algebra
Syllabus

Dr. Melissa Zhang

Winter Quarter 2024

1   Course information

Meetings

CRN	Lectures	Discussions
30858	Olson 158, MWF 2:10 – 3:00 pm	Hunt 110, T 2:10 – 3:00 pm

Short Description   This is a second-term graduate course in abstract algebra. Students are expected to enter the course with working knowledge of concepts covered in MAT150 (undergraduate algebra), as well as the material covered in MAT250A in this past fall quarter.

We will cover topics such as rings, algebras, modules, vector spaces, tensor products, exterior products, bilinear forms, fields and field extensions. We will roughly cover Chapters 6 and 8 in Rotman, and possibly Chapter 3 at the end.

Prerequisites   250A or consent of instructor

Text   Rotman, *Advanced Modern Algebra*, 2nd Edition

- There are copies of Rotman available from the library.

Instructor   Dr. Melissa Zhang (mlzhang@ucdavis.edu), MSB 2145

- I generally handle my emails once daily, on business days. If you email me, you can expect a response from me within 1-2 business days.

- If you want to speak privately during office hours, let me know. If you want to meet with me individually outside of office hours, please make an appointment by email at least 24 hours in advance.

Instructor office hours: MSB 2145, date/time TBD

Teaching assistant (TA):   Colby Brown (colbyabrown@math.ucdavis.edu)

TA office hours: TBD

Website: All materials for this course will be available at https://www.melissa-zhang.com/Teaching/2024-WI/MAT250B.html. This includes the syllabus, class calendar, lecture notes, homework PDFs and TeX files, and any other additional materials.

In addition to the class website, we will also use

- Canvas for (1) recording grades, (2) Equitable Access Bookshelf, and (3) important announcements

- Gradescope for submitting and grading assignments.

Course Drop Date: January 22, 2024 (10 Day Drop) See the class calendar for additional important dates.

Disclaimer: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. It is the responsibility of the student to seek clarification of the grading policy and/or course requirements and procedures from the instructor.

2 Assignments and grading

Your numeric grade will be calculated using the following weights. Each assignment type will be discussed further below.

Homework	20 %
Midterm Exam	30%
Final Exam	50%
Total	100%

Homework: Homeworks will be due weekly on **Friday nights at 11:59 pm, on Gradescope**. Your solutions **must** be submitted as LaTeX'ed PDFs; images may be hand-drawn and inserted as figures.

- Working problems is the most important action you can take to truly learn the material. You are encouraged to work on problems with your peers, but you must make sure to write down the solution in your own words, and that you fully understand what you've written. Some homework problems may show up on exams.

- Homeworks may be submitted up to 48 hours late on Gradescope. There is no penalty for a late submission (aside from the shame), but after these 48 hours, homeworks will no longer be accepted. I will post the solutions the following Monday.

- The above policies are in place to help you handle the fluctuations of your personal responsibilities throughout the quarter. No other extensions/drops will be granted, except in documented extenuating circumstances. All homeworks must be submitted by the last day of lecture.

Exams There will be two pen-and-paper exams, scheduled for the following dates:

- Midterm Exam: Wednesday, February 16, 2024, 2:10 PM – 3:00 PM (in class)

- Final Exam: Wednesday, March 20, 2024, 10:30 AM – 12:30 PM

These dates are very unlikely to change, so please plan accordingly. There will be **no makeup exams**. If for a documented, extenuating circumstance you have to miss the midterm exam, your grade will be replaced by your final exam grade. You must take the final exam to pass the class.

Letter grades: At the end of the quarter, letter grades will be assigned based on the distribution of numerical grades.

3 Course policies and procedures

Diversity and inclusion statement: In this classroom, you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class. (Source: modified from https://docs.asee.org/public/LGBTQ/Diversity_Statement.pdf)

Classroom expectations: We will discuss mathematics together on a daily basis. These discussions are important because they provide for a richer classroom discussion, and they ensure that we all encounter different ways – correct and/or incorrect – of thinking about the material. It will be important for you to listen attentively to your peers' thinking, even if you think you already have a full solution to the discussion problem. I expect you to respond respectfully and carefully to your peers' comments. When you are working in groups, I expect you to help your group members to all work at the same pace; it will be important for you to keep your peers informed about the choices you are making, and for you to check in with them to make sure they follow your thinking and are ready to move on.

Academic honesty: See the UC Davis Code of Academic Conduct at

> https://ossja.ucdavis.edu/code-academic-conduct

You are encouraged to discuss homework with others, but any solution that you hand in must be thought through and worked through on your own and written down in your own words.

Accessibility For accommodations for disabilities, go to

> https://sdc.ucdavis.edu

and begin the process as soon as possible. I will need to approve a letter from the Student Disability Center before making any accommodating changes to the policies stated on this syllabus for you. It is the student's responsibility to make sure all accommodations are set up through the SDC ahead of exams or class meetings where accommodations are needed.