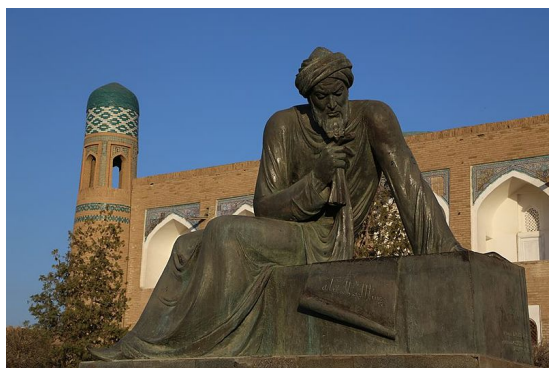


Course Policies

Prof. Shahed Sharif

Textbook. We will be using *A First Course in Abstract Algebra*, 3rd ed. by J. Rotman. We will be covering chapter 1–3, 5, and parts of chapters 6 and 7 as time permits.



Software. Homework and exams will be turned in via [Gradescope](#). Please obtain a scanner or scanning app (such as Adobe Scan, available for free with your CSUSM credentials), and use it to convert your homework assignments to pdf format. Then upload these to Gradescope. Please make sure to identify which problem is on which pages.

Course description. An introduction to the theory of groups, rings, and fields, with abstract ideas reinforced by concrete and important examples, such as permutation groups, polynomial rings, and finite fields. The power of the axiomatic systems introduced will be illustrated via

several applications to concrete and classical problems.

Muhammad ibn Musa al-Khwarizmi was a ninth century Persian scholar often called the father of algebra. He is best known for his book, *The Compendious Book on Calculation by Completion and Balancing*, which featured solutions of linear and quadratic equations. The word “completion” (from completing the square) in Arabic is *al-jabr*, from which we get the word algebra. You may have also noticed a common mathematical word that sounds like al-Khwarizmi! Beyond mathematics, al-Khwarizmi made many scholarly contributions, including to astronomy and geography. There is a crater on the moon named after him.

Course objectives. Upon successful completion of this course, students will know fundamental definitions and results about groups, rings, and fields. Students will improve in their ability to read and write proofs, and will also be able to apply the tools of abstract algebra to solve problems. Problems include those involving combinatorics (i.e. counting), geometry, and polynomials. Students will also gain a higher level understanding of topics covered in mathematics up through calculus, especially in the theory of polynomials.

Course requirements. The grading scheme is as follows:

20% for homework
40% for two exams
40% for final exam

Homework is posted every Friday on my webpage and is due on Gradescope the following Friday. If you missed the announcement, check my webpage or email me.

Many of the problems are proofs and explanations. These must be written legibly and in complete sentences. *You will be graded on your writing!* Correct and clear grammar is essential to a correct proof. Of course, your reasoning must also be completely clear for full credit. Rewriting homework before handing it in is highly advisable. You may type your problem sets, but if you do, please use \LaTeX . Homework fulfills this course's writing requirement.

After homework is handed in, I will be happy to go over complete solutions in office hours. Feel free to also e-mail me questions.

The **first exam** is tentatively scheduled for October 2. The **second exam** is tentatively scheduled for November 8. The **final exam** will be Monday, December 11, 4–6 PM. If it would help, the final exam score will replace your lowest midterm exam score.

Late assignment policy. Late homework is not accepted. There are no exceptions! Instead, the lowest two homeworks scores are dropped.

Make-up exams are not given. The replacement policy for exams will be used instead.

Office hours. My office hours are Tuesday and Wednesday, 1–2:30 PM. Drop by the math conference room at that time—you don't need an appointment, or even any questions! If you have a conflict, send me an email and we'll work out an alternate time. You can also email me any questions that you have. Make sure you include as much relevant detail as possible—pictures are fine.

Ethics. You are encouraged to work with others on graded assignments, but the final product should be your own work. In particular, you may not read your classmates' finished assignments until your own is completed! The same goes for other sources—online, back of the book, or other sources. Avoid looking at these sources, or if you do, take no notes on them. Failure to follow these guidelines is considered plagiarism, and all involved parties will *at a minimum* earn a zero on the relevant assignment and have their actions reported to the Dean of Student Affairs.

Using ChatGPT or similar AI tools is also considered cheating, and is also a bad idea: AI is very good at writing proofs that look convincing, but are completely wrong.

ADA policy. Students with disabilities who require reasonable accommodations must be approved for services by providing appropriate and recent documentation to the Office of Disability Support Services (DSS) in Administrative Hall 4300 (ph: (760) 750-4905; TTY: (760) 750-4909). Students authorized by DSS to receive reasonable accommodations should meet with me during my office hours in order to ensure confidentiality.