Math 5613: Algebra I

MWF 1:30-2:20, MSCS 428

Instructor: Jeff Mermin
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Course web page: https://math.okstate.edu/people/mermin/5613/

Office Hours   TBA or by appointment.

Subject matter   This is the standard introductory doctoral-level algebra curriculum. Universities worldwide refer to this material as "Groups, Rings, and Fields".

Relationship to other courses   I am taking the major themes of the two-semester Masters sequence (that is, a familiarity with the key definitions and big ideas involving groups, rings, and fields, but also a baseline level of mathematical maturity involving the reading and writing of proofs) as a prerequisite.

After this class, you should be well-positioned for almost any algebraically focused topics course, or to begin focused readings with a thesis advisor in an algebraic discipline.

Textbook   *Abstract Algebra (3rd edition)* by J. S. Dummit and R. M. Foote.

Grading   Your course grade will be out of 400 points, assigned as follows:
  100   Homework
  100   Midterm, tentatively Friday, September 26
  100   Midterm, tentatively Friday, November 7
  100   Final, Friday, December 12, 2:00-3:50 PM
A total score of 360 will guarantee you an A, a 320 will guarantee a B, etc.

Homework   There will be written homework assignments, assigned and collected roughly weekly. These assignments will mostly consist of proofs, and grading will emphasize clarity of exposition. All work should be written legibly on normal-sized and normal-shaped paper, and should make appropriate use of whitespace. All solutions should be written in complete mathematical sentences, and in such a way that a typical classmate would have no trouble understanding either the questions or the ideas involved in your solutions.

I want the experience of of algebra homework — especially the writing — to be a fundamentally collaborative one. The mechanism for achieving this is going to depend on the enrollment. We'll discuss it during the first week of class.

Late policy Because the course builds on itself, it is important that you not fall behind. Thus late written homework will not be accepted. However, I will allow you ten "grace days" on written homework in case of illness or other circumstances. These grace days may be used on any of the three parts of any assignment, but Canvas posts will count by calendar days, and the written submission will count by class meetings.

Collaboration Mathematics is a collaborative venture; you are encouraged to work together with friends and/or classmates on homework, including written homework. However, you must **write up your work yourself** and **acknowledge anyone who helped you**. For your own protection, you should insist that both you and your collaborators truly understand everything you claim.

Exams   I hope to assign take-home exams, to be distributed in class between two and seven calendar days before the official exam date. If for any reason I find this infeasible, we will have normal in-class exams during the class period.

Illness policy If you cannot attend one of the exams due to illness or another emergency, you must provide documentation to arrange a make-up.

If you cannot attend a regular class due to illness or another emergency, no documentation is necessary. If you aren't sure whether or not you're too ill to attend class, then you are too ill to attend class; please see a doctor. If you need to miss *several* classes, let me know as soon as possible, so that I may plan how to accommodate the situation.

Academic integrity Don't cheat, or help other students cheat. Please read my "rules for written assignments" at

https://math.okstate.edu/people/mermin/5613/airules.pdf.

(This document is part of the course syllabus.)

If, after reading this, you aren't sure whether or not something is allowed, ask me before you try it.

Don't violate academic integrity in any other way, either. You should be familiar with the University's general policies on academic integrity. You can find useful resources on this subject on the University's website at https://academicaffairs.okstate.edu/academic-integrity/index.html. To boil it down: don't cheat. Don't copy work from other students or allow other students to copy your work. Don't copy work that you find in online or printed sources and present it as your own. You are welcome to collaborate with other students when completing homework and studying for quizzes and exams. You are encouraged to seek help at the MLSC when you need it. You are also free to use online resources, such as YouTube videos, that offer additional explanations and examples related to something that you are trying to learn. However, it is a violation of academic integrity to submit work that you do not understand. If I have concerns about something that you have submitted then I may ask you to meet with me to explain your reasoning.

There are online sites that provide access to complete solutions to homework exercises and allow users to upload problems and request solutions to them. There are also AI tools such as ChatGPT, Bing AI, and Bard that may provide solutions to problems posed to them. It is a violation of academic integrity to use such sites or tools in any way in connection with this class. In particular, you may not upload problems to them nor copy solutions from them.

Links and attachments The course syllabus consists of three documents; please read them all.

This course information sheet may be found at

https://math.okstate.edu/people/mermin/5613/courseinfo.pdf

The document on academic integrity is available at

https://math.okstate.edu/people/mermin/5613/airules.pdf

Finally, the OSU syllabus attachment is on the web at

https://academicaffairs.okstate.edu/site-files/documents/syllabus-attachments/fall-2025-syllabus-attachment-07262025-revised.pdf

This has a lot of important information, including instructions about disability accomodations. Please contact me privately during the first week of the course if you need accommodations as the result of a disability.