

MATH 521 - ABSTRACT ALGEBRA I

DEPARTMENT OF MATHEMATICS & STATISTICS
UNIVERSITY OF NEW MEXICO
(FALL 2026)

BASIC INFORMATION

Course: MATH 520 - Abstract Algebra I

Course Webpage: <https://rcdeba.github.io/Math520.html>

Class Time: MW 8:30 am - 9:45 am

Class Location: SMLC 352

INSTRUCTOR INFORMATION

Instructor: Deba Raychaudhury

Email: draychaudhury@unm.edu

Office: SMLC 322

Office Hours: MW 11:00 am - 12:00 noon, F 1:00 pm - 2:00 pm, or by appointments

COURSE DETAILS

Course Description: This is a graduate level course in group and ring theory. Some of the important topics are groups, permutation groups, Sylow theorems, introduction to ring theory, polynomial rings, principal ideal domains, unique factorization domains.

Course Goals: This is a fundamental course for pure math graduate students to solidify their proof writing skills and to discuss the relevant group and ring theory needed for the Algebra Qualifying Exam.

Learning Outcomes:

- Write clear and concise proofs pertaining to algebraic structures (groups, subgroups, rings, subrings, ideals).
- Learn techniques to show a group is not simple.
- Identify groups as solvable or nilpotent.
- Learn techniques to classify groups of a given finite order.
- Identify domains such as PIDs, UFDs and Euclidean domains.

Text: Abstract Algebra Third Edition by Dummit and Foote.

Method of Evaluation: Students will be evaluated based on Homework and Exams.

- *Homework (200 points):* There will be 11 homework altogether, each worth 20 points (see the tentative schedule for homework due dates). The lowest homework score will be dropped. Homework will not be graded unless it is written in order and labeled appropriately. The definitions and theorems given in class and in the text will be the only tools for the homework proofs. If the theorem has a name, it should be used. Otherwise, the theorem should be fully described with words. Each week 4 or 5 of the assigned problems will be graded.

- **Exams (400 points):** There will be 2 midterms (100 points each) and 1 final (200 points) exam. There are no make up exams. If a test is missed, notify me as soon as possible on the day of the exam. For the midterms only, if a student has a legitimate and documented excuse, their grade will be recalculated without that test. The Midterms are tentatively scheduled for Monday, October 5 and Wednesday, November 18.

Letter Grades: (General guidelines for letter grades are subject to change; but they won't get any more strict) Letter grades A, B, C, D correspond to grades $\geq 88\%$, 77% , 66% , 55% , respectively. The letter grade F will be assigned if the grade is below 55% .

POLICIES AND STATEMENTS

Credit-hour statement: This is a three-credit-hour course. Class meets for two 75-minute sessions of direct instruction for 15 weeks during the fall 2026 semester. Please plan for a minimum of six hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week.

Responsible Learning and Academic Honesty: Cheating and plagiarism (academic dishonesty) are often driven by lack of time, desperation, or lack of knowledge about how to identify a source. Communicate with me and ask for help, even at the last minute, rather than risking your academic career by committing academic dishonesty. Academic dishonesty involves claiming that work created by another source is your own original work. It is a **Student Code of Conduct** violation that can lead to a disciplinary procedure.

You are allowed to collaborate with other students in the course, but you must submit your own original work. It is permitted to use outside resources (other textbooks, Stack Exchange, ChatGPT, etc) to aid in your understanding of the course material. When you use a resource in work submitted for this class, document how you used it and distinguish clearly between your original work and the material taken from the resource.

Generative Artificial Intelligence Use: In this course, I will provide you with course-level and assignment-level guidance or directions for how and when to use and disclose generative artificial intelligence (AI) tools for submitted work. My goal is to support you in building your AI literacy skills and making informed and critical choices in how and when to use AI to the benefit of your learning and future professional development.

Generative AI is a type of AI that refers to technologies that generate text, images, audio, video, code, or other content in response to user prompts. You should acknowledge meaningful generative AI assistance when you submit work. A brief statement is sufficient. For example: *"I used ChatGPT to help brainstorm possible paper topics and revise my introduction for clarity. I reviewed and edited the final version myself."* or *"I used Adobe Firefly to generate an illustrative image for my presentation. I revised the slide design myself and verified that the image was appropriate for the assignment."*

You do not need to disclose minor uses such as spelling correction, sentence-level grammar correction, citation formatting, basic image cropping, basic color correction, file conversion, or accessibility-related tools related to an accommodation documented with UNM **Accessibility Resource Center**, unless an assignment specifically requires disclosure.

You remain responsible for the quality and appropriateness of the work you submit, including AI-generated content. You **may not** use AI to misrepresent your learning, fabricate sources or data, create misleading images or visual evidence, submit work you do not understand, or avoid

the intellectual or creative work the assignment is designed to support. UNM's [Academic Integrity Guide for Students](#) applies to AI-assisted work.

You should not enter private, confidential, regulated, or sensitive information into AI tools unless the tools and use have been approved by UNM for that purpose. This includes personally identifiable information, peer or instructor-created work, nonpublic community data, private chat logs, and images, voice recordings, or likenesses of real people without appropriate permission.

Learning works best when we start from a position of trust. In our course, students are expected to act honestly and responsibly, and I am expected to provide clear guidance about course expectations. On my part, I will also disclose to you how and when I am using generative AI tools with statements like those above. I also hold myself to the same standards of authorship, critical judgment, quality, and integrity that I have outlined in this policy. If you have questions about what constitutes appropriate AI use, please ask.

Accommodations: UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructor, it is my objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact [Accessibility Resource Center](#) at arcsrvs@unm.edu or 505-277-3506.

UAP 2720 and 2740: Our classroom and university should foster mutual respect, kindness, and support. If you have concerns about discrimination, harassment, or violence, please seek support and report incidents. Find confidential services at [LoboRESPECT Advocacy Center](#), the [Women's Resource Center](#), and the [Arcoiris Center](#). UNM prohibits discrimination on the basis of sex (including gender, sex stereotyping, gender expression, and gender identity). All instructors are "responsible employees" who must [communicate reports](#) of sexual harassment, sexual misconduct and sexual violence to [Compliance, Ethics and Equal Opportunity](#). For more information, please see [UAP 2720](#) and [UAP 2740](#).

Respectful Conduct Expectations: I am committed to building with you a positive classroom environment in which everyone can learn. I reserve the right to intervene and enforce standards of respectful behavior when classroom conduct is inconsistent with University expectations and/or classroom community agreements. Interventions and enforcement may include but are not limited to required meetings to discuss classroom expectations, written notification of expectations, and/or removal from a class meeting. Removal from a class meeting will result in an unexcused absence. Seven or more unexcused absences may result in permanent removal and a drop from the course (see attendance policy). The University of New Mexico ensures freedom of academic inquiry, free expression and open debate, and a respectful campus through adherence to the following policies: [D75: Classroom Conduct](#), [Student Code of Conduct](#), [University Policy 2240 – Respectful Campus](#), [University Policy 2210 – Campus Violence](#).

Thriving and Finding Support: Students are especially successful at UNM when they take advantage of support and get involved in campus and academic life. The Student Life tab on the student and instructor MyUNM login page provides direct links to [well-being resources](#), including financial capability, mental health, food, jobs, and resource centers. The Student Life tab on MyUNM will help you identify [academic resources](#) like peer tutoring and opportunities like study abroad. You can contact academic advisors and resource advisors for information and guidance via Student Hub on MyUNM. I look forward to providing you with information about academic opportunities related to our class and to helping you find support resources.