



MAA MATHFEST

**Community and the Right
Amount of Help:
Fostering Success in a Graduate
Abstract Algebra Course for
Teachers**

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About us...

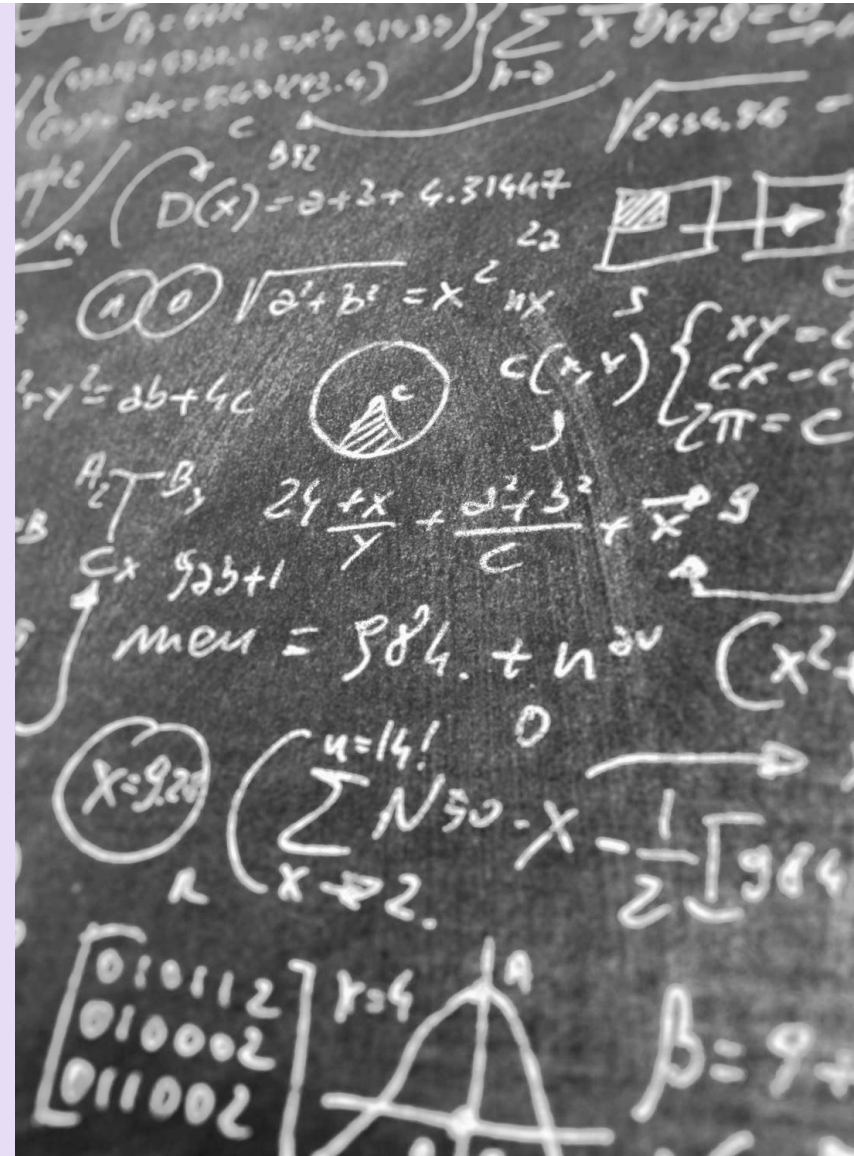
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Course

- Abstract Algebra Connections for Teachers (asynchronous)
- 7-12 mathematics teachers
- Students either:
 - Recently completed an undergraduate abstract algebra course
 - Have not taken a single course in abstract algebra
 - Have not had a proofs-based course in years

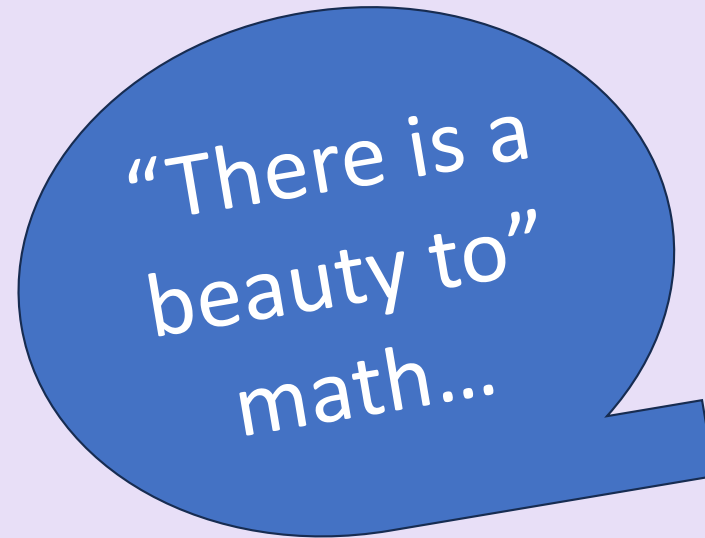


Survey Question

- Abstract Algebra is often a core required course for the MS in Mathematics Education at NAU. Rigor, abstraction, and a higher expected standard for mathematical communication can make this class intimidating for students—even well-prepared students. Despite this, you all are doing exceptionally well in this course. What is influencing you to do well in this course? Please describe what is helping you deal with the perceived (and real!) difficulty level of this course? Please discuss any assignments, study groups, help sessions, people, or whatever is motivating you to do well. (2 extra credit points on your exam 2).

Results

- 15 out of 17 students responded
- Results compiled by Dr. York
- Themes that emerged:
 - Support
 - Group Work
 - Professor
 - Textbook
 - Motivation



A group of people is shown sitting in a circle, engaged in conversation. The image is overlaid with a blue-to-orange gradient. A central blue rectangle contains the word "Support" in white text. In the top right corner, there are three small white icons: a plus sign, a solid dot, and an open circle. A thin white vertical line is visible on the left side of the image.

Support



Working with Peers

Student-Led Study Groups
Group Chat
Exams
Extra Resources Shared
Sense of Community

Professor

Help Sessions
Course Structure and Design
Timely Feedback
Guided Thinking
Pedagogy
Care about Students



Follow-ups
Great Examples
Deep Understanding
Approachable
Productive Struggle
Office Hours

Easy to Read

Videos for each Chapter

Worked Concrete Examples

Thorough Explanations

Illustration of Concepts

Online Resources with Lesson Notes

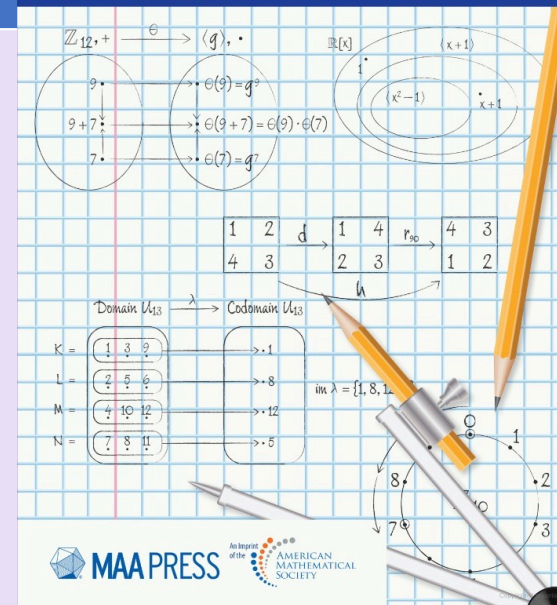
Textbook


AMS / MAA | TEXTBOOKS

VOL 72

**A Friendly Introduction
to Abstract Algebra**

Ryota Matsuura





Other Contributor to Success

“I think if this class was taught more in the lecture/take notes style, students would really struggle with the concepts.”

Motivation

Be a Good Teacher

Provide for Family

Make Dr. H-Z Proud

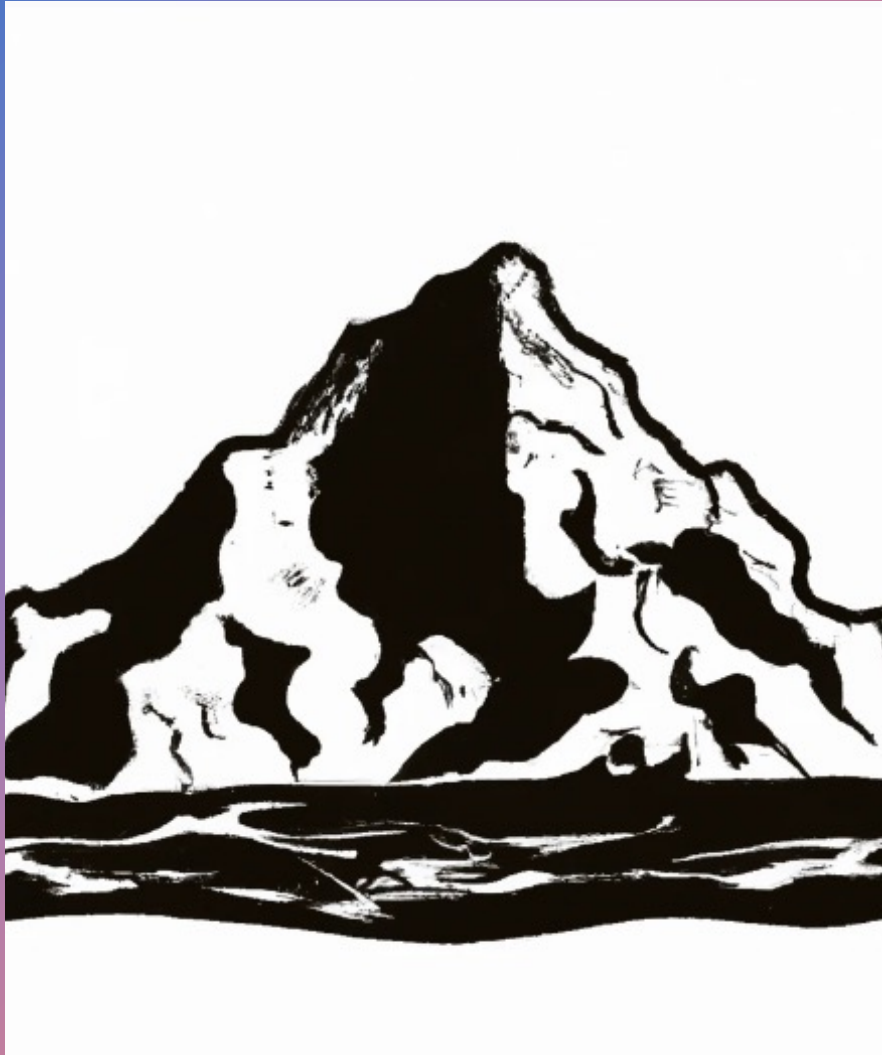
Personal Work Ethic

Always do my Best

Be a Good Example for Supporters

Self-Satisfaction

Enjoy Meeting Other Teachers



Challenges

- Not joining the study groups or not reaching out for help
- Like to work alone
- Time (work got in the way of meeting times)
- Big groups weren't conducive to everyone getting the individual help they needed (so some formed smaller groups)



Takeaways

- Continue doing what we are doing...
 - Professor help session
 - Timely feedback and explanations with additional resources
 - Showing that the professor cares about the individual student
 - Student-led sessions – both small group and large group – to meet individual needs
- Make a repository for student provided resources to share year after year

Questions or Suggestions?

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