MA 541: Modern Algebra I
Fall 2021: TΘ 9:30–10:45 in CAS 116

Instructor:	Anna Medvedovsky
Email:	`medved@bu.edu`
Office:	~~MCS 126~~ MCS 127
Zoom:	Meeting ID: 964 5122 5226; passcode upon request
Office hours:	Monday afternoon & Thursday after class (exact times and format TBA)
TF:	John Jae Hyung Sim
TF email:	`simjhsim@bu.edu`
Discussion:	Fridays 9:05–9:55 in EPC 201 (B1) Fridays 10:10–11am in STH 318 (B2)
Website:	`http://math.bu.edu/people/medved/Teach/541F2021/Land.html`

Overview: MA 541 is a first course in abstract algebra, focusing on the theory of *groups*. Group theory initially developed starting in the late 18th century to describe symmetries, first of number systems and later of geometric figures. Today groups are an important structure in many areas of mathematics and related disciplines, from algebraic topology to number theory to cryptography and chemistry. More fundamental still is the algebraic approach to the theory: we define a useful mathematical object and study and classify such objects and maps between them.

Textbook: Our main textbook is

- Thomas Judson, *Abstract Algebra: Theory and Applications* (2021 Annual Edition).

The textbook is available free online (`http://abstract.ups.edu/aata/aata.html`); alternatively you may purchase an inexpensive paper copy (`http://abstract.ups.edu/purchase.html`). Barnes & Noble expects that paper copies will be available in the store before mid-September.

If you need more help with writing proofs, you may find helpful

- Richard Hammack, *The Book of Proof*.

This book is also available free online (`https://www.people.vcu.edu/~rhammack/BookOfProof/`).

Homework: Homework assignments are an essential part of the course! We will have 7–10 assignments, weekly with some breaks. Generally homework will be due on Tuesdays, either in class or by 5pm (either at a drop-off location or by email to `buma541f2021@gmail.com`).

You are very much encouraged to work together on problem sets, but you must hand in solutions which are written in your own words. A selection of problems from each homework set will be graded.

Keeping up with homework assignments is crucial for success in the course! If you run into trouble, do not wait — get help. Please come to office hours!

Exams: We will have a short in-class quiz, a take-home midterm assignment, and a take-home final assignment.

- **Quiz:** On Thursday, September 30, we will have a 30-minute in-class quiz.
- **Midterm:** On Tuesday, October 19, you will receive a take-home midterm, which will be due at the start of class on Tuesday, October 29. You are not allowed to work together on the midterm.
- **Final:** On Thursday, December 2, you will receive a take-home final, which will be due at the start of our last class on Thursday, December 9. The final will be cumulative but will focus more on material in the second half of the course. You are not allowed to work together on the final.

Grading: Your grade in the course will be computed as follows:

- Quiz: 10%
- Midterm: 20%
- Final: 25%
- Homework: 40%
- Instructor discretion: 5%

If you've turned in *all* the homework assigments, then the bottom homework grade will be dropped in computing the homework average.

Office hours note: I want to meet you! Please stop by office hours in the first three weeks of the semester — to discuss lectures or homework problems, algebra or number theory more generally, or just to introduce yourself.