

Instructor: Moon Duchin \langle moon.duchin@tufts.edu \rangle Bromfield-Pearson 113 / Barnum M35
Office Hours: Tuesdays 2:45-4:15 in BP 113/conference room (algebra only); Fridays 9-10 in Barnum M35 (algebra plus advising).

TA: David Gentile \langle david.gentile@tufts.edu \rangle Bromfield-Pearson 300
Office Hours: Fridays 1:30-2:30 outside BP 300

Text: *Abstract Algebra* (third edition), by J. Beachy and W. Blair, Waveland Press, 2006.
Note this is not the most recent edition. Talk to me if you are having issues getting the text.

Description: There are three classical research fields in mathematics: Algebra, Analysis, and Geometry. This course will introduce the basic mathematical objects of Algebra—groups, rings and fields—with an emphasis on a current research topic that is usually neglected in undergraduate curricula: infinite groups. I will try to provide some historical and mathematical context for the importance of Algebra, and to show you how it connects up to areas in Analysis and Geometry. We will aim to address the material in chapters 1–5 of the course text; further topics in the text will be covered in the sequel course (Math 146).

Tests Etc: There are two midterms and a final for this course, which will each be one-hour tests. In addition, I use a free app called Socrative to give smartphone “quizzes” periodically. These are mainly intended just to give me real-time feedback on whether you’re all with me.

Midterm I (Groups) will be in class on Thursday October 17.

Midterm II (Rings) will be in class on Tuesday Nov 19.

Final Exam (plus project presentations) will be 3:30-5:30 on Monday Dec 16.

Problem Sets: Problem sets will be assigned every week with a mix of book problems and ones I write myself. Assignments will be posted at

<https://sites.tufts.edu/algebra/homework>

You may (and **should**) collaborate in your work on the problems, but **your solutions must be written in your own words.**

Projects: I will offer a collection of optional projects (coding, history, etc) that can offset some of the HW and quizzes in your grade. The menu of projects will be complete by the time of the 2nd midterm. If you choose to do a project, you’ll have a very short writeup due on the last day of class and you’ll have two minutes and two slides to make a brief presentation at the final exam (Dec 5).

Grades: I like to grade all problems (HW and exams) on a scale of 0-4, where 4 means “nailed it”, 3 is mostly right, 2 is a good start, 1 is a start, and 0 means blank or not responsive. A very complicated problem might be broken down into several 4-point parts. At the end of the term, I will use my professional judgment to convert this to letter grades that reflect your mastery of the material and the completeness of your work. In my courses, an 80% average at the end of the term always earns an A. I love to give As.

For both homework and quizzes, your lowest two scores will be dropped. Just being present for the quizzes counts as a question you got right.

Default grading scheme: quizzes 10%; HW 30%; Midterm I, Midterm II, and Final 20% each. If you do a project: quizzes 5%, project 15%, HW and exams 20% each.

Learning Objectives: I want to use the course to teach you to read and write proofs!

The course aims to provide students with a solid conceptual foundation in abstract algebra; the course will be taught in accordance with Items 1, 2, and 6 but may hit on everything from the list of learning objectives for mathematics.

<http://ase.tufts.edu/faculty/committees/objectives/math.htm>

Disability Services: If you are requesting an accommodation due to a documented disability, you should contact the Accessibility Services Office at the *beginning* of the Semester.

<http://students.tufts.edu/student-accessibility-services>

However, talk to me! I’m committed to making this class accessible to everyone whether or not you go through that office.

