

MAT 312 / AMS 351
Applied Algebra
Fall 2024

Instructor: Robert Lazarsfeld
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Office Hours: Tues 1:30 - 2:30, Wed 11 - 12, Thurs 1:30 - 2:30, and by appointment.

Class Notes: I will try to post my personal lecture notes to the class Brightspace site around the time of the lecture. However these will not take the place of attending the lectures.

Contacting me: You can contact me by email, or in person during office hours.

Course Content: We will study algebraic concepts that are useful in discrete and applied mathematics. Specific topics include elementary number theory (Euclidean algorithm, prime factorization, modular arithmetic etc) and groups (permutations, Lagrange's theorem etc), applications to coding theory (public key codes, error correcting codes, etc).

Some experience with proof-based math is desirable but not absolutely essential.

Text: Humphreys and Prest, Numbers, Groups and Codes, 2nd edition.

Recitations: every student should be enrolled in one of the three recitation sections.

Homework groups and homework: There will be two sorts of homework assigned: practice problems, which you should do for yourself, and group homework that will be handed in and graded. Students will be assigned to HW groups of four or five students that should meet and work together on the assignments. Each group will turn in one assignment. It is critical that you take turns writing up the final versions, and that you each understand your group's solutions, since exam problems will be similar to the homework.

Brightspace: All course material will be posted to Brightspace. Mostly it will be in folders under the Course Content tab.

Exams: There will be two midterm exams and a final. The midterms will be in-class, the weeks of September 23 and November 4, precise day to be announced. The final will be at the scheduled time, Thursday Dec 12, 11:15 am - 1:45 pm.

Grading: The group HW will count for 15% of the grade, each of the midterms will count for 25% and the final will count for 35%.

University-Required Statements: See <https://www.stonybrook.edu/commcms/faculty-pathways/pages/syllabus.php> for additional university-required statements attached to all syllabi.