Math 471 (80279) - Theory of Numbers - Spring 2026
TuTh 1:00 → 2:15 LGRT 204

Professor: Eyal Markman
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Office hours: Tuesday 3:00 → 4:00 pm, Thursday, 4:00 → 5:00 pm, and by appointment. Office hours are held in 1223G LGRT.
Course Web page: `https://eyalmarkman.github.io/Home-page/math421_spring26_html/math471.html` **Please check it often!**

Text: *A Lively Introduction with Proofs, Applications, and Stories,* by Pommersheim, Marks, and Flapan, ISBN: 9780470424131, Wiley 2010.

Prerequisites: MATH 233, 235, and either MATH 300 or COMPSCI 250.

Homework: Will be assigned weekly and will be due each Thursday unless mentioned otherwise. The homework will be graded by a special grader. Due to lack of funds it will not be possible to grade all the homework problems assigned. A few of the homework problems will be corrected and graded every week. Nevertheless, for your own benefit, you will be asked to hand in *all* the homework problems assigned. Your grade on each homework assignment will be calculated as follows:

70% The grade on the corrected problems.
30% Credit for handing in *most* of the homework problems assigned. Partial credit will be given.

Late homework will not be collected. Instead, your three lowest grades will be dropped.
Grades:

Homework–20%
Two Midterms–50% (each 25%)
Final Exam –30%

First Midterm: Thusday, March 26, during class period.

Second Midterm: Thursday, April 23, during class period.

Final: To be scheduled by the registrar. Make-ups will not be given to accommodate travel plans.

See back . . .

Syllabus:

Chapter 3: Divisibility and primes, Sections 3.1 to 3.6.

Chapter 4: The Euclidean algorithm, Sections 4.1, 4.2, 4.3.

Chapter 5: Linear Diophantine Equations, Sections 5.1 to 5.4.

Chapter 6: The fundamental Theorem of Arithmetic, Sections 6.1, 6.2. Chapter 7: Modular arithmetic, Sections 7.1 to 7.4.

Chapter 8: Modular number systems, Sections 8.1 to 6.6 and section 6.9. Chapter 9: Exponents modulo n, Sections 9.1 to 9.5.

Chapter 10: Primitive roots, Sections 10.1 to 10.3.

Chapter 11: Quadratic residues, Sections 11.1 to 11.6.

Chapter 13: Gaussian integers, Sections 13.1 to 13.6

Other topics (Chapter14, and/or section 15.1) as time permits.