Course Announcement: Introduction to Number Theory (Math 6110)

http://math.colorado.edu/∼kstange/teaching.html
Fall 2024, MATH 6110, Introduction to Number Theory
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Course Description

The course is a tapas in number theory, meant as an elective for students at all stages, including first-year students.

Topics (aspirational, and subject to change especially in response to student interest):

1. quadratic reciprocity is cool

2. p-adic numbers are crazy

3. number theorists love to solve Diophantine equations

4. prime numbers are the meaning of life

5. the generatingfunctionology of primes (Riemann zeta)

6. Sage Mathematical Software for fun and profit

7. possibly a peek at continued fractions, elliptic curves, arithmetic dynamics...

8. whatever else people have an interest in

Pre-requisites

The course will be accessible to first-year math PhD students.

Graduate students from other departments and undergraduates are encouraged to contact me to enroll, if they have already seen the equivalent of the core of a standard undergraduate curriculum. Note: as a mathematics graduate course, this is a proof-based course.

Resources

Some relevant texts I will likely use:

1. *A classical introduction to modern number theory*, Ireland and Rosen.

Credit

I'll assign homework on a rolling basis (including using Sage). We'll have homework presentation days.

Students wishing to receive credit for the course shall attend lecture regularly, and show evidence of having done some homework competently, at a minimum. Students wishing to receive an A for the course shall, in addition, present homework solutions regularly.