

General Info

Instructor: Professor David Grant, grant@colorado.edu

Office Hours: M 2:30-3:30, W 12:30-1:30, (or by appointment), in Math 303 (x2-7208).

Class Meetings: MWF 11-11:50 PM in MATH 220.

Text: K. Ireland and M. Rosen, A Classical Introduction to Modern Number Theory (Springer, 2nd edition)

Prerequisites.

Course restricted to graduate students or undergraduates with permission of the instructor. We will assume a semester of algebra and later on, some galois theory. Some results from analysis will appear as well.

About the course: A topical outline.

We will cover foundational material in Chapters 1-8 and Chapter 9 through cubic reciprocity. After that, we can make some choices, either to study equations over finite fields (Chapters 10 and 11), do more with reciprocity (Chapters 12-14), or try to learn enough to state the major outstanding conjectures of number theory, the Riemann Hypothesis and the Conjecture of Birch and Swinnerton Dyer.

Class meetings, Course requirements and grading.

This course will meet three days a week. Homework will be assigned regularly, and will typically be due on Mondays. There will be a takehome midterm exam (midway through the term) and a takehome final exam, due at the end of our regularly scheduled final exam time, 4 p.m. on Dec. 15. The homeworks, and each exam, will account for 1/3 of your course grade.

You are allowed (even encouraged) to work together on homework assignments, but each of you must write up the solutions separately. In good academic fashion, if you do work with someone on a problem, just be sure to say on your homework who you worked with.

Further reading

There are many wonderful book on number theory (see, for example, the list at <http://mathworld.wolfram.com/NumberTheory.html>). You should look at several to get a variety of perspectives. From the mathworld list, I heartily recommend the books by Hardy and Wright and by Landau. “Number Theory” by Borevich and Shafarevich is also wonderful.

Et Cetera:

The last day to drop a course for a 100% refund (but \$200 fee) and without a “W” on your transcript is September 11. See <https://www.colorado.edu/registrar/students/withdraw> for costs associated to withdrawals after that date.

Required Syllabus Statements

ACCOMMODATION FOR DISABILITIES If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to me in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

CLASSROOM BEHAVIOR Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior and the Student Code of Conduct.

HONOR CODE All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website. I will expect each student to sign the pledge of the honor code on each exam.

SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct intimate partner abuse (including dating or domestic violence), stalking, protected-class discrimination or harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website. Please know that faculty and instructors have a responsibility to

inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.