

Math 4342
Number Theory II

Fall 2012

Instructor: Dr. Ryan C. Daileda

Instructor URL: <http://www.trinity.edu/rdaileda>

Course URL: <http://www.trinity.edu/rdaileda/numbers>

Office Hours and Contact Information: Consult either of the above web pages.

Textbook: *Introduction to Analytic Number Theory* by Tom M. Apostol

Course Content: I plan to cover selected material from chapters 2 through 9 of the textbook. Chapters 2 and 3 treat general properties of arithmetic functions and their averages. Chapter 4 is concerned with the distribution of primes (including a sketch of Selberg's elementary proof of the Prime Number Theorem). Chapter 6 covers the necessary group theoretic background needed for the proof of Dirichlet's Theorem on primes in arithmetic progressions, which is given in chapter 7. Chapter 8 discusses Gauss sums and primitive Dirichlet characters, while chapter 9 is dedicated to quadratic reciprocity, a topic briefly introduced in Number Theory I.

Homework: Homework will be assigned daily and will consist of reading as well as problem solving. All assignments will be posted on the course homework web page. Reading assignments are to be completed daily while written work will typically be turned in once a week. Due dates for written work will be clearly indicated as the work is assigned. Please do not hand in late assignments without consulting me *prior* to their due dates. **I reserve the right to penalize or refuse to accept late assignments.**

Submitted work should be written up *neatly*, and multiple pages should be stapled or paper-clipped together. Do not use paper from a spiral notebook unless you remove the ragged edge. **Failure to adhere to these guidelines may be penalized.**

Collaboration on homework assignments is permitted and encouraged, but **NO COPYING**. In other words, you should feel free to talk to other students while you are in the process of thinking about a problem. However, when it comes time to write up your solution, you should do this by yourself without outside assistance. **Attempting to pass off the work of others (regardless of the source) as your own will be considered a violation of the Honor Code.**

Exams: There will be two midterm exams during the semester, as well as a cumulative final exam. Approximate dates for the exams are as follows:

First Midterm Exam	Tuesday, September 25 (tentative)
Second Midterm Exam	Tuesday, October 30 (tentative)
Final Exam	Wednesday, December 12, 8:30 - 11:30 AM

Exact dates and times for the midterm exams will be announced in class and posted on the course web page. The in-class final exam period is set by the registrar, but I reserve the right to give a take-home final exam instead.

Grades: Your course grade will be based upon the scores on the homework, midterm exams, and the final exam as follows:

Homework	40 %
Midterm Exams	40 % (each)
Final Exam	20 %

Your letter grade will be determined by the overall percentage you earn as well as by how well the class performs overall, i.e. *there will be a grading curve*. So you can gauge your performance throughout the semester, cutoffs for major grades (A, B, C, D, F) will be determined for each exam and announced in class.

Expectations: Each student is expected to invest a significant amount of time and effort outside the classroom for every hour of lecture. Even though written work will not be collected daily, **you are strongly encouraged to keep up with reading and problems as they are assigned.**

Attendance: Attendance is highly encouraged but is not mandatory. Roll will not be taken, but excessive absences should be explained to me.

Use of Previous Exams: Students are permitted to obtain and study exams given in previous offerings of this course. I will (upon request) gladly provide access to copies of exams I have given in the past. However, **previous exams should not be used to judge the content or difficulty of the exams that will be given in this course.**

Academic Integrity: All students are covered by the Trinity University Honor Code that prohibits dishonesty in academic work. Under the Honor Code, a faculty member will (or a student may) report an alleged violation to the Academic Honor Council. It is the task of the Council to investigate, adjudicate, and assign a punishment within certain guidelines if a violation has been verified.

Students who are under the Honor Code are required to pledge all written work that is submitted for a grade: “On my honor, I have neither given nor received any unauthorized assistance on this work” and their signature. The pledge may be abbreviated “pledged” with a signature.

The specifics of the Honor Code, its underlying philosophy, and the norms for sanctioning can all be found on the Academic Honor Council website, accessed through the Trinity Homepage:

http://www.trinity.edu/departments/academic_affairs/honor_code/

Special Needs: If you have a documented disability and will need accommodations in this class, please speak with me privately early in the semester so I may be prepared to meet your needs. If you have not already registered with Disability Services for Students, contact the office at 999-7411. You must be registered with DSS before I can provide accommodations.