

# Math 4391

## Number Theory II

Fall 2008

**Instructor:** Dr. Ryan C. Daileda

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**Scheduled Lectures:** MWF 12:30 PM - 1:20 PM, Marrs McLean Science Building (MMS), Room 110

**Office Hours:** Monday and Wednesday 3:00 - 5:00 PM, Tuesday and Thursday 10:00 - 11:30 AM, Friday 1:30 - 3:00 PM, and by appointment

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

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

**Prerequisites:** Math 3341 (Number Theory I) and Math 3360 (Real Analysis I) or 3362 (Modern Algebra I).

**Course Content:** At the very least, I am planning to cover most of Chapters 2, 3, 4, 6 and 7 of the textbook. These chapters cover general properties and averages of arithmetic functions, the distribution of primes (including a sketch of Selberg's elementary proof of the Prime Number Theorem), and the proof of Dirichlet's Theorem on primes in arithmetic progressions. Time permitting we may consider other topics, such as Gauss sums (Chapter 8), partitions (Chapter 14), and possibly even Dirichlet series (Chapter 11).

**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. **Unexcused late and missing papers count zero.**

Homework exercises are to be written *neatly* using *one side* of  $8.5 \times 11$  inch paper, and multiple pages should be stapled or paper-clipped together. Do not use paper from a spiral notebook unless you can tear off the ragged edge. **Failure to adhere to these guidelines will be penalized. Sloppy work and work written on the backs of pages will not be graded!**

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.

**Exams:** There will be two midterm exams during the semester as well as a cumulative take-home final exam. Specific dates for the midterms will be announced in class and posted on the course

web page at least a week in advance. The final exam will be handed out on the last day of class and will be due by 5:00 PM on December 16 (the end of final exam period scheduled for our class).

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

<b>Homework</b>	40%
<b>Midterm Exams</b>	30%
<b>Final Exam</b>	30%

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 work and thought 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**. I have no sympathy for students who routinely save all of their work for the night before it is due.

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

**Academic Integrity:** All students are covered by the Trinity University Honor Code that prohibits dishonesty in academic work.

The Code asserts that the academic community is based on honesty and trust, and defines specific violations as well as the procedure to determine if a violation has occurred. The Code also covers the process of hearings for alleged violations and the various sanctions applied for specific violations. The Code also provides for an appeal process.

The Code is implemented by the Academic Honor Council. Under the 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 collect the pertinent evidence, adjudicate, and assign a sanction 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/](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.