Math Analysis 361A Fall 2003

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Meeting Times

MATH 361A Section 01 meets T-Th 10:00 - 10:50 in LA5-343.
Office hours (held in my office: FO3-218):

Wednesdays and Fridays, 11:00-12:00.
Feel free to stop by, email or call to schedule an appointment or ask a question!

Description:

Topics: Rigorous study of calculus and its foundations. Structure of the real number system. Sequences and series of numbers. Limits, continuity, and differentiability of functions of one real variable. Students will be asked to write valid mathematical proofs.

Prerequisites: MATH 222 or 224 and MATH 233 or 247.

Goals:

In addition to gaining mastery of the topics, the students should be able to

- **reason deductively** from explicit assumptions and definitions.
- correctly **use the language** of mathematics and the vocabulary of analysis both verbally and in well written sentences.
- **produce examples** of mathematical objects satisfying various properties.
- determine **how to begin** thinking about mathematical questions in such a way to efficiently approach a solution.
- determine whether or not a mathematical argument is complete, and **assess the validity** of mathematical assertions.

Text:

Introduction to Real Analysis, by Robert G. Bartle an Donald R. Sherbert. Third edition, Wiley, 2000.

Assignments:

Homework. **Expect daily homework assignments, due the following class period.**

To accommodate a wide range of student abilities, I will often assign two sets of homework, allowing the student to choose which problems to complete. For example, I might say, "Do 2 of the following 4 problems." The problems will be labeled "Fundamental" and "Challenging." All students will be held responsible for the Fundamental problems on the exams, independent of which problems they choose to complete as homework. The challenging problems will reinforce the ideas of the fundamental problems, but will often require students to use skills and ideas that extend beyond the focus of the current sections. ***All students are encouraged to attempt all problems!***

The assignments will be graded subject to the following rules:

- A problem completed correctly and on time will receive 10 points.
- A problem completed correctly and *up to one week* late will receive 8 points. *(I* really *want you to do the homework!!)*
- An incorrect problem (one which is either mathematically wrong or written poorly) will receive partial credit and may be corrected and resubmitted *within a week* from when it is returned for up to 8 points. *(In fact, I* really *want you to do the homework* correctly*!! Even if you need help or more time.)*

Quizzes. From time to time you may be asked to start class with a short activity, for example recalling definitions and theorems from the previous lecture, or writing down a proof of a Theorem. By and large, these are not to be graded, but when they are, you will be warned in advance. The scores from any graded quizzes will be added into the homework scores for the purposes of creating a course grade.

Exams	
September 26	Midterm 1
October 24	Midterm 2
November 19	Midterm 3
TBA	Final Exam in two sections: Section 1 Section 2 (Cumulative)

Grade Distributions	
Homework and Quizzes	40%
Midterm 1	12%
Midterm 2	12%
Midterm 3	12%
Final Exam Section 1 Section 2	 12% 12%