Introduction to Analysis

Syllabus

MA28 - Introduction to Analysis	Spring 2009
Meeting Times	MWThF 1:00-1:50pm
Location	Seeley Mudd 204
Instructor	Ben Hutz
E-mail	bhutz@amherst.edu
Office	Seeley Mudd 502
Office Hours	Mon: 6:30-8pm, Tue:5:15-6:30pm, Wed: 2-3pm
Text	Understanding Analysis, Stephen Abbott

Overview

This course is an introduction to the study of real analysis. We will cover sequences and series, some basic topology of the real numbers, functional limits and continuity, the derivative, and sequences and series of functions. Many of these topics sound familiar from the calculus courses you have taken. We will be discussion these topics in more depth and detail (and more proof). Essentially, we will be covering the material from a first semester calculus course, but we will be doing so in a mathematically careful fashion. The need for being more careful will be demonstrated by examples (and counterexamples). There will be many proofs in this course and there will be an emphasis on writing rigorous proofs.

Evaluation

The assessments in this course will be weekly homework assignments, 2 in-class exams, and a take-home final. Specifically, your grade is determined by

- 25% Homework
- 25% Each in-class exam
- 25% Take-home final exam

Grades in this course will be curved. **Late homework will be penalized 25% per day starting with any assignment not turned in by the end of the class in which it is due.**

Exams		
Exam 1	Monday 3/2	TBD
Exam 2	Monday 4/13	TBD
Final Exam	Take-home	Cumulative

Expectations

Mathematics is a very personal discipline that is best learned by doing rather than by observing. Therefore, the class will be structured mainly with lectures to emphasize particular topics, but time will also be spent on in-class examples and problems. The class meetings are not intended to be a complete encapsulation of the course material, but instead will focus on the major concepts from the text and clarifying the more subtle ideas in the course. You should expect to put in spend 6-9 hours per week outside of class. There will be some weeks where you spend more time (e.g. preparing for exams), and there may be some weeks where you do not spend the full 9 hours.

Homework

The homework will consist of weekly problems sets from the textbook. While you are strongly encouraged to do all of the problems on your own, you may work with two or three other students on the problem sets. If you do work with someone else you should indicate that in a note on the top of your assignment. For the first few assignments, I strongly recommend that you attend office hours and discuss your proofs before turning them in.

Keep in mind that a proof is essentially a logical argument and you should take care to make sure that the reader is able to follow your argument. You should

- Use complete sentences which are grammatically correct.
- Clearly state assumptions.
- Write clearly and legibly.

Class Attendance

Although class attendance is not a specified percentage of your grade, I highly recommend attending. If you do miss class, you are responsible for the material that was covered.

Please come see me during my office hours! If you have a conflict and cannot make my office hours, please email me and we can set up an appointment for another time.

Statement of Intellectual Responsibility

It is expected that you will follow the Statement of Intellectual Responsibility of Amherst College as it pertains to this course. In particular, the assignments that you turn in should be your own work (or your group's work). In this case of the weekly homework assignments, this does not preclude seeking aid from other resources and students, but that aid should be in the form of learning the material, NOT rote copying of solutions. In the case of the group projects, if there is more than one group working on the same project, discussion between those groups is not permitted beyond the basic clarification of the statement of the problem. The exams will be conducted in class without the aid of outside resources or communication among students. For more details on the Amherst College Honor Code see `http://www.amherst.edu/~dos/conduct/`