Foundations of Analysis

Syllabus

<u>Instructor</u>: Michael Henle
     <u>Office Hours</u>: T and Th 3:30-5:00 P.M. in King 202
     <u>Phone</u>: x58383 or 775-7676

<u>Text</u>: **Understanding Analysis** (by Stephen Abbott)

<u>Evaluations</u>:

Written Problem Solutions (due DAILY)	200
Midterm Exams (due October 10 and November 14)	200
Final Exam (due Thursday December 18 at 9 PM)	200
TOTAL:	600 points

<u>Course Goals</u>:
  1. To build intuitive understanding of numbers, limits, sequences, functions, continuity, differentiation and integration.
  2. To study the logical structure of classical analysis (i.e. the calculus).

<u>Outline of the Semester</u>:

Week of	Topics	Reading
September 3	Irrational numbers	§1.1
September 8	Proofs and logic	§1.2
September 15	Completeness of the real numbers	§1.3-1.4
September 22	Limits of infinite sequences	§2.1-2.3
September 29	Completeness and limits	§2.3-2.6
October 6	Basic topology of the real line	§2.7, 3.1-3.2
October 13	Compactness and connectedness	§3.3-3.4
	Fall Break	
October 27	Functional limits and continuity	§4.1-4.4
November 3	Compactness, connectedness and continuity	§4.5-4.6, 5.1
November 10	Differentiation	§5.2-5.4
November 17	Uniform concepts	§6.1-6.3
November 24	Series of functions	§6.4-6.5
December 1	Integration	§7.1-7.3
December 8	Fundamental Theorem of calculus	§7.4-7.5