Math 327: Introductory Real Analysis
(Autumn 2008)

Lectures: MWF 9:30–10:20, room 312 BLM

Professor: Anne Greenbaum,   C-434 Padelford, 543-1175

Office Hours: M,W 2:30–3:30, Th 10–11, or by appointment or drop by.

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                 Course materials: Click on "Math 327".

Text: *Advanced Calculus, 3rd ed.*, by Taylor and Mann.

Lecture Syllabus (page and section numbers refer to the textbook):

1. Review of absolute values and the triangle inequality (pp. 74-75).

2. Sec. 1.62, 1.64. Limits of sequences. (5 or 6 lectures)

   (a) Definition of e as a limit.
   (b) Algebraic limit rules; e.g., the limit of a sum is the sum of the limits, etc.
   (c) Squeezing principle.
   (d) Continuity principle: If $f(x)$ is a continuous function of x and if $\lim_{n\to\infty} x_n = a$, then $\lim_{n\to\infty} f(x_n) = f(a)$.

3. Chapter 2. The real number system. (4 or 5 lectures)

   We admit the natural numbers $\mathbf{N} = 1, 2, \ldots$, but from there, everything else (e.g., $\mathbf{Z}$, $\mathbf{Q}$, $\mathbf{R}$) is by construction.

4. Chapter 16. Point-set theory. (3 or 4 lectures)

   Bolzano-Weierstrass theorem, convergence of Cauchy sequences.

5. Chapter 19. Infinite series. (7 or 8 lectures)

   Absolute and conditional convergence, convergence tests.

6. Chapter 20. Uniform convergence (5 lectures)

   Continuity of the limit function, integration and differentiation of sequences and series.

Grading: There will be weekly homework assignments (30 %), two midterms (15 % each), and a final exam (40 %). The final exam (in class, closed book) will be on Wed., Dec. 10, 8:30–10:20.
Homework Policy: Students may collaborate on the homework, but each student must prepare his/her own homework paper for grading. Homework is due at the beginning of the class period on the due date. Homework turned in after the class on the due date but before the next class period will be accepted but docked 20%. Late homework will not be accepted after that time.