Notes on Exam 4, Math 554, Summer 2005

1. Exam 4 is Thursday, June 23, and it covers sections 3.1, 3.2, 4.1, and 4.2.

2. Be able to define "open set", "closed set", "closure", and "dense set", "compact", " $\lim_{x \to p} f(x) = L$ ", "continuous".

3. Be able to STATE: the theorem which characterizes the closed sets of $\mathbb{R}$ in terms of information about the limit points, the Heine-Borel Theorem, the Theorem which completely characterizes the compact subsets of $\mathbb{R}$, the Theorem which relates the limit of a function and the limit of various sequences, the Intermediate Value Theorem, the theorem about absolute maximum, the theorem about compact sets and continuous functions.

4. Be able to PROVE: "Every compact set is closed" and "The continuous image of a compact set is compact".

5. The material on the old exams which is covered on your exam 4:
   (a) Exam 3 (2004): 3, 4, 5.
   (b) Exam 4 (2005): 2.
   (c) Exam 4 (2000): 1, 2, 3, 4, 5, 6, 7.
   (d) Exam 4 (2004): 1, 2, 3, 4, 5, 7, 8.
   (e) Final Exam (2000): 1, 2, 3, 7, 10, 11, 12, 13, 15.
   (f) Final Exam (2004): 2, 3, 7, 8, 11, 13, 14.