# Notes on Exam 2, Math 554, Summer 2004

1. Exam 2 is Thursday June 10 and it covers sections 1.4, 1.5, 1.7, 2.1, 2.2, 2.3, and 2.4.

2. Be able to define "bounded above", "upper bound", "supremum", "one-to-one", "onto", "have the same cardinality", "finite", "countable", "uncountable", "sequence", "the sequence converges", "the limit of a sequence", "monotone increasing", "monotone decreasing", "monotone", and "limit point".

3. Be able to state: the least upper bound property of the real numbers, the Archimedian Property of the real numbers, the theorem about monotone sequences, the nested interval property, a version of the Bolzano-Weierstrass Theorem.

4. Be able to prove: $(0, 1)$ is uncountable, the set of positive rational numbers is countable, the limit of a product of two sequences is the product of the limits of the individual sequences, the theorem about monotone sequences, the nested interval property, a version of the Bolzano-Weierstrass Theorem.

5. The material on the old exams which is covered on your exam 2:
   (a) Exam 1 (2004): 1, 2, 3, 4, 5, 6, 7.
   (b) Exam 1 (2000): 1, 2, 3, 4, 5, 6, 7, 8.
   (c) Exam 2 (2000): 1, 2, 3, 4, 5, 6, 7, 8.
   (d) Exam 3 (2000): 1, 2, 3, 4, 5, 6, 7.
   (e) Final Exam: 4, 5, 6, 8, 9, 14.