APPM5450 – Spring 2007 – Notes on the final

The final covers the same material as the three midterms, as well as some material from Sections 12.6 – 12.8. In reviewing the material, you may find the midterms for this and last year useful, as well as the final from 2006 (note that question 1(g) on last year's final is outside of this year's curriculum as we skipped Chapter 13).

Chapter 8: Important concepts include projections, orthogonal decompositions of a Hilbert space, the Riesz representation theorem, the properties of self-adjoint operators. Recall that we did not cover the Fredholm alternative in as great detail as the book does.

Chapter 9: Focus on the spectral theorem for self-adjoint compact operators. There may be questions on other parts of the spectrum than the point spectrum, but if so, they will be part of the "hard" questions.

Chapter 11: Most of the material in sections 11.1 – 11.8 is included (there will be no questions on concepts not covered in class, though). Make sure that you are fluent with the rules for how to "manipulate" distributions; you may find the review questions on homework 10 useful.

Chapter 12: On the final, two concepts from Chapter 12 will be emphasized: The convergence theorems (Lebesgue dominated convergence in particular), and L^p spaces. Of the inequalities in Section 12.7, you only need to know Hölder's and Minkowski's. The material on measures, the definition of the Lebesgue integral, and Fubini's theorem will *not* be emphasized.