Notes on the Final Exam, Math 544, Fall 2005

1. The Final Exam is Monday, December 5, 2PM, in our usual class room.

2. **Be sure to MASTER all of the homework.**

3. The Final Exam is comprehensive.

4. The Final Exam covers sections 1, 2, 3, 5, 6, 7, 9 of Chapter 1; sections 2, 3, 4, 5, 6, 7 of Chapter 3; sections 1, 4, 7 of Chapter 4; and sections 2, 3, 4, 5, and 7 of Chapter 5.

5. Be able to define "linear combination", "span", "linearly dependent", "linearly independent", "linear transformation", "basis", "null space", "column space", "dimension", "row space", "rank", "eigenvalue", "eigenvector", "orthogonal set", "nonsingular", "the inverse of a matrix", "vector space", and "diagonalizable".

6. Be sure to know many statements which are equivalent to "the matrix A is invertible".

7. Be able to state and use the Theorem about the linear dependence of p vectors in m-space. (I call this the Short Fat Theorem.)

8. Be able to state and use four theorems about dimension.

9. On the final exam, I am not likely to ask you to reproduce the entire proof of a big theorem which we proved in class, but I could ask you to prove a small step of a theorem which we did in class.

10. You are now able to do every question on every old exam, except maybe: Spring 02, Exam 2, problems 8 and 9; Summer 01, Exam 4, problems 6 and 7; Spring 02, Exam 4, problem 7; Spring 02, Final Exam, problems 2, 10; Spring 03, problem 14.