Notes on Exam 3, Math 544, Summer, 2007

1. Exam 3 is Wednesday, June 27. It covers sections 3.2, 3.3, 3.4, 3.5, 5.2, 5.3, 5.4, and 5.5.

2. Be able to define "column space", "null space", "basis", "dimension", "closed under addition", "closed under scalar multiplication", "subspace of $\mathbb{R}^n$ ", "linearly independen", "span".

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

4. Be able to state and use the Non-singular Matrix Theorem. (I have also called this the Invertible Matrix Theorem.) This result consists of a huge number of equivalent statements.

5. The material on the old exams which is covered on your exam 3:
   (a) Exam 2's:
   97: 3, 4, 5, 6, 7, 8, 9, 10.
   98: 3, 4, 7, 8, 10.
   01: 8, 9.
   02: 6.
   Spring 03: 5, 6, 7, 8.
   Summer 03: 3.
   04: 5, 10.
   Summer 05: 4, 7.
   Fall 05: 2, 3, 4, 5, 6, 7, 9, 10.
   Summer 06: 1, 3, 4, 5, 6, 7, 8, 9.
   Fall 06: 1, 3, 4, 5, 6, 7, 9.
   Summer 07: 1, 2, 3, 4, 5, 7, 8, 9.
   (b) Exam 3's:
   97: 1, 3, 4, 5, 6, 7, 8.
   98: 2, 3, 4, 5, 6, 7, 8, 9.
   01: 3, 4, 8, 9.
   02: 1, 2, 3, 7, 8, 9, 10.
   Spring 03: 1, 2, 3, 6, 7, 8, 9.
   Summer 03: 2, 4, 5, 6, 7, 8, 9.
   04: 1, 3, 4, 7, 8, 9.
   Summer 05: 1, 2, 3, 4, 5, 6, 7.
   Fall 05: 1, 4, 5, 6, 7, 8, 9, 10.
   Fall 06: all.
   (c) Exam 4's:
   98: 2, 4, 5, 7.
   01: 1, 2, 4, 5, 8, 9, 10.
   02: 2, 6, 8, 9.
   Spring 03: 8.

Summer 03: 1, 2, 5, 6.
Summer 04: 2, 3, 4, 5.
Summer 05: 1, 2.
Fall 05: 6, 7.
Fall 06: 2, 9.

(d) Final Exams:

97: 1, 3, 4, 6, 7, 8 (Notice that A and b for 6, 7, and 8 are given above problem 6.), 13, 15, 16.
98: 1, 7, 11, 14, 17.
01: 1, 2, 4, 7, 8, 9, 10 abcd, 13.
02: 1, 3, 5, 8, 11, 14, 16.
Spring 03: 2, 3, 4, 5, 6, 10, 12, 18.
Summer 03: 1, 2, 3, 4, 6, 7, 12, 14, 16, 17 defgh.
04: 1 cdefg, 4, 6, 10, 12, 13, 14.
Summer 05: 1 cdefg, 2, 8, 9, 10.
Fall 05: 1cdefg, 2, 7, 14, 15, 16.
Summer 06: 1, 2, 3defgh, 6, 7, 8, 9, 12.
Fall 06: 1, 2, 3, 6bcdef, 11.