Math 115A/1 **s98 EE.**

Announcements for Final Exam

When: Monday, June 15, 11:30-2:30, as in the Schedule of Classes.

Style: Similar to midterms, but 120 points.

Coverage:

All lectures; all homework; all handouts; all labs.

Reading from text: Sections from which you had homework. For Chapter 7, rely on lectures and handouts instead of the text.

You can omit any topics that were never mentioned in lecture or homework. For a guide to change of basis, use Handout S.

Proofs to know specifically: **SEE OTHER SIDE**

Review: Pedro will hold a review session on **Monday, June 8, 4-6 p.m.** in **MS 3970.** There will also be some review in lecture Wednesday; bring questions.

Lecture trade: I'll lecture Tuesday and Pedro will hold discussion section Friday.

Office Hours:

	Monday	June 8	2:30-3:30	(as usual)
	Wednesday	June 10	9:30-10:30	(as usual)
	Thursday	June 11	3:00-4:00	special
not	Friday	June 12		(note change)
	Monday	June 15	10:00-11:00	special

The rest of exam week there will not be regular office hours but I'll be around.

Errata:

p. S 2, Ex. 2.2, should say $1 + 2x$, not $1 + x$.
p. T 13, line 5, should say we still need to prove "$\Leftarrow$", not "$\Rightarrow$".
Problem T-10 refers to Handout G, not Handout I.
p. Z-5, item 1 should have $z' = x + 2y$, $w' = 2x + y$.
Assignment #6 was mistakenly labeled Assignment #5.
On Assignment #4, the problems are from Section 5.1, not 5.4.
In Assignment #8, problems to hand in are from §6.2, not 6.1.

Proofs to know specifically:

(a) Proofs that the following are subspaces: the span of a list of vectors, the nullspace of a matrix, the range and kernel of a linear transformation.

(b) The reason for the uniqueness property of a basis, starting from the condition of being linearly independent and spanning.

(c) $T : V \to W$ is one-to-one $\Leftrightarrow \ker T = \{\mathbf{0}\}$.

(d) For a square matrix A, λ is an eigenvalue of $A \Leftrightarrow \lambda$ is a root of the characteristic polynomial of A.

(e) An $n \times n$ matrix A is diagonalizable $\Leftrightarrow$ there are n linearly independent eigenvectors. (See p. T 12-13. On p. T 13, note correction: "$\Leftarrow$" for "$\Rightarrow$".)

(f) Eigenvectors belonging to distinct eigenvalues are linearly independent. Know proof for case of two eigenvectors only.

(g) An orthonormal set of vectors is linearly independent.

(h) P is orthogonal $\Rightarrow P^tP = I \Rightarrow P^{-1} = P^t \Rightarrow PP^t = I \Rightarrow P^t$ is orthogonal.

(i) For a real symmetric matrix A, two eigenvectors that belong to distinct eigenvalues are orthogonal.

In addition, know reasoning from homework problems.