

# Syllabus for Math 4305, Spring 2013

January 9, 2013

**Instructor:** Ernie Croot

**Meeting Times and Places:** 12:05 - 12:55 in Sustainable Ed. 110.

**Textbook:** *Linear Algebra with Applications*, fifth edition, Bretscher.

**Office Hours:** TBA

**Email Address:** [ecroot@math.gatech.edu](mailto:ecroot@math.gatech.edu).

**Grading Policy:** The breakdown of your grade is as follows. 30% for homework, 20% for each of the two midterms, and 30% for the final.

I use the standard 90-100 is an A, etc.; grades on each midterm are curved to at least 75 points.

**Subjects to be covered:** Linear systems; Gauss-Jordan elimination; linear transformations in  $R^n$ ; composed transformations and matrix products; inverses; subspaces, bases, dimension, coordinates with respect to bases; image and kernel; rank and nullity; general linear spaces and subspaces; linear transformations and general linear spaces; matrixes with respect to bases; orthogonal projections; orthonormal bases; gram-schmidt; QR factorization; least squares; general inner product spaces; determinants, geometric properties; eigenvalues and eigenvectors; diagonalization, matrix iterations; orthogonal diagonalization of symmetric matrices and quadratic forms; singular value decomposition.

**Please familiarize yourself with the honor code.**