MAT 281E – Linear Algebra and Applications

Fall 2010

Instructor :	İlker Bayram EEB 1103 ibayram@itu.edu.tr

Class Meets :	13.30 – 16.30, Friday EEB 4104
Office Hours :	10.00 – 12.00, Friday
Textbook :	G. Strang, 'Introduction to Linear Algebra', 4^{th} Edition, Wellesley Cambridge.
Grading :	Homeworks (10%), 2 Midterms (25% each), Final (40%).
Course Webpage :	http://web.itu.edu.tr/ibayram/Courses/MAT281E/

Tentative Course Outline

- Solving Linear Equations via Elimination

  Linear system of equations, elimination, LU Decomposition, Inverses

- Vector Spaces

  The four fundamental subspaces, solving $Ax = b$, rank, dimension.

- Orthogonality

  Orthogonality, projection, least squares, Gram-Schmidt orthogonalization.

- Determinants

  Determinant, cofactor matrices, Cramer rule.

- Eigenvalues and Eigenvectors

  Eigenvalues, eigenvectors, diagonalization, application to differential/difference equations, symmetric matrices, positive definite matrices, singular value decomposition.