MAT 281E – Linear Algebra and Applications
Fall 2012

Instructor :   İlker Bayram
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Class Meets :   13.30 – 16.30, Friday
                EEB 5202

Office Hours :   10.00 – 12.00, Friday

Textbook :   G. Strang, 'Introduction to Linear Algebra', 4th Edition, Wellesley Cambridge.

Grading :   2 Quizzes (15% each), Midterm Exam (30%), Final (40%).

Webpage :   `http://ninova.itu.edu.tr/Ders/1039/Sinif/6402`

Tentative Course Outline

- Solving Linear Equations via Elimination

  Linear system of equations, elimination, LU Decomposition, Inverses

- Vector Spaces

  The four fundamental subspaces, solving $A\,x = b$, rank, dimension.

- Orthogonality

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

- Determinants

- Eigenvalues and Eigenvectors

  Eigenvalues, eigenvectors, diagonalization, application to difference equations, symmetric matrices, positive definite matrices, iterative splitting methods for solving linear systems, singular value decomposition.