EE 602 Analytical Methods (Spring 2008)

Text Book:
Gilbert Strang, *Introduction to Linear Algebra*, Third Edition, Wellesley -Cambridge Press, Wellesley (2003) ISBN 0-9614088-9-8
Web: http://web.mit.edu/18.06/www (for review material and problem sets)

Reference Book:
P. Lancaster and M. Tismenetsky, *The Theory of Matrices*, Second Edition, Academic Press, 1985.

Instructor:
Yi Guo, Prof. of ECE
Email: yguo1@stevens.edu
Ph: (201) 216 5658
Web Site: http://personal.stevens.edu/~yguo1

Grading Policy:
Mid-term Exam 40%
Final Exam (comprehensive) 60%

Homework will be assigned regularly. Exams may be based on the homework.

Schedule of Topics (tentative):

Week 1 – Matrix operations, special properties, Laplace's Theorem, Binet-Cauchy formula

Week 2 – Elementary operation, LU decomposition

Week 3 – Vector spaces and linear independence, linear systems theory

Week 4 – Linear algebraic equations, consistency test, solution techniques

Week 5 – Eigenvalues and eigenvectors, diagonalization of symmetric matrices

Week 6 – Linear differential equations, state space representation

Week 7 – Midterm exam

Week 8 – Solution of state space equations, the matrix exponential

Week 9 – Functions of matrix, spectral theory

Week 10 – Controllability and observability, quadratic forms, positive definite matrix

Week 11 – Lyapunov stability theory

Week 12 – Nonnegative matrices, stochastic matrices

Week 13 – Special topics, application examples

Week 14 – Course review