

EE 602 Analytical Methods (Fall 2008)

Text Book:

Gilbert Strang, *Introduction to Linear Algebra*, Third Edition, Wellesley -Cambridge Press, Wellesley (2003) ISBN 0-9614088-9-8

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>

Office Hours: Monday 2-3pm, Wednesday 3pm-4pm

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 square 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