

SYLLABUS FOR MATH 574 --- FALL 2007

CLASS: MATH 574
CLASS NO: 39762

Room: KAP 138

Time: MW 8:30-9:45

Instructor: Robert Guralnick
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Office Hours (subject to change): MW 10-11, M 12-1

Web Site: <http://www-rcf.usc.edu/~guralnic>
Required Text Horn & Johnson, Matrix Analysis

Course Goals: To introduce the main concepts and ideas of matrix theory and linear algebra and to indicate how matrices can be used in other aspects of mathematics.

Course Description: Some of the topics to be included are: Equivalence of matrices with applications to determinants, linear system theory, Similarity of matrices and canonical forms with applications to matrix equations; Functions of matrices with applications to differential equations; Special classes of matrices and representation theorems for real and complex matrices; Quadratic and hermitian forms with applications to roots of polynomials and stability; Non-negative matrices including Perron-Frobenius theory with applications to stochastic processes and oscillation theory; Other topics as time permits.

Grading: There will be approximately 4 homework assignments to be turned in (there will be other homework assigned as well); In addition, there will be one or two midterms but no final.

First day of Class: Monday, August 27th.
Last day of Class: Friday, December 7th
Holidays Labor Day Monday, September 3rd