

# MATRIX ANALYSIS

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## COURSE DESCRIPTION

This course assumes a strong background in linear algebra and basic analysis. We will focus on matrices over the real and complex numbers.

Topics covered include: eigenvalues, eigenvectors, geometric vs algebraic multiplicity, unitary equivalence, similarity, Hermitian and normal matrices, block matrices, non-negative matrices, QR factorization and the Jordan form, positive semidefinite matrices and Cholesky's algorithm, eigenvalue interlacing theorems, majorization and estimates on eigenvalues of sums of Hermitian matrices, norms and their applications to eigenvalue estimates, traces, moments, and the Specht invariants.