

## Math 4378 topics

- 5.1 Eigenvalues and Eigenvectors (Review)
- 5.2 Diagonalizability (Review)
- 5.3\* Matrix Limits and Markov Chains
- 5.4 Invariant Subspaces and the Cayley–Hamilton Theorem
  
- 6.1 Inner Products and Norms
- 6.2 The Gram–Schmidt Orthogonalization Process and Orthogonal Complements
- 6.3 The Adjoint of a Linear Operator
- 6.4 Normal and Self-Adjoint Operators
- 6.5 Unitary and Orthogonal Operators and Their Matrices
- 6.6 Orthogonal Projections and the Spectral Theorem
- 6.7\* The Singular Value Decomposition and the Pseudoinverse
- 6.8\* Bilinear and Quadratic Forms
- 6.9\* Einstein’s Special Theory of Relativity
- 6.10\* Conditioning and the Rayleigh Quotient
- 6.11\* The Geometry of Orthogonal Operators
  
- 7.1 The Jordan Canonical Form I
- 7.2 The Jordan Canonical Form II
- 7.3 The Minimal Polynomial
- 7.4\* The Rational Canonical Form

The topics indicated with a \* are at the discretion of the instructor.