Review Topics for Exam II

MATH 430

The exam is closed-book, closed-notes, and calculators are not allowed.

- Topics:

    - 4.1 - 4.3: Determinants and properties
    - 5.1, 5.2: Eigenvalues, eigenvectors, and diagonalizability
    - 5.4: Cayley-Hamilton Theorem
    - 6.1: Inner product, norms, orthogonal, and orthonormal sets
    - 6.2: Gram-Schmidt orthogonalization, orthogonal complements
    - 6.3: Adjoint and Least Squares Approximation
    - 6.4, 6.5: Normal, self-adjoint, and unitary operators

- You are expected to be able to prove the following results:

    1. In an inner product space V, if $\langle x, y \rangle = \langle x, z \rangle$ for all $x \in V$ then $y = z$.
    2. An orthogonal set of non-zero vectors is linearly independent.
    3. The adjoint T^* of a linear operator T is linear.
    4. Properties of normal operators
    5. Properties of self-adjoint operators

- Suggestion: Go over the examples solved in class and the related problems assigned for HWs 5-8, see separate file for additional practice problems.