RUTGERS
UNIVERSITY | NEWARK

LINEAR ALGEBRA

21:640:350 (3 credits)

COURSE DESCRIPTION:

Row reduction, solving linear systems; vector spaces, subspaces, bases; linear transformations, images and kernels; eigenvalues, eigenvectors, and diagonalization of matrices; applications to differential equations, computer graphics, and numerical calculation.

PREREQUISITE:

21:640:136 (Calculus II), or 21:640:156 (Honors Calculus II), or permission of instructor. Credit NOT given for both 21:640:219 (Basic Linear Algebra) and 21:640:350 (linear Algebra.)

TEXTBOOK:

"Linear Algebra with Applications," (5th edition), by Otto Bretscher, published by Pearson.

DEPARTMENT WEB SITE: http://www.ncas.rutgers.edu/math

THIS COURSE COVERS THE FOLLOWING:

Topics include: Linear equations, matrices, linear transformations, inverses, images and kernels of linear transformations. Vector spaces, bases, linear independence, dimension, isomorphism. Orthogonality and least squares. Orthogonal transformations. Inner product spaces. Determinants. Geometric interpretation of the determinant. Eigenvalues and eigenvectors. Complex eigenvalues. Diagonalization, stability. Symmetric matrices and quadratic forms. Linear differential equations.

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