THE OHIO STATE UNIVERSITY

Catalog Description:
Matrix algebra, vector spaces and linear maps, bases and dimension, eigenvalues and eigenvectors, applications.

Prerequisite:
C- or better in 2153, 2162.xx, 1172, 2182H or 4182H; or credit for 254, 263.xx, 263.01H or 264H

Exclusions:
Restricted to graduate students in engineering. Not open to students with credit for 2568 (568), 5101 (601), 5520H (520H) or 572.

Text:
Introduction to Linear Algebra, 5th edition, by L.W. Johnson, R.D. Riess, and J.T. Arnold, published by Pearson, ISBN: 9780321628217.

Topics List:

Part I
1.1   Introduction to Matrices and Systems of linear equations
1.2   Echelon Form and Gaussian-Jordan Elimination
1.3   Consistent Systems of linear Equations
1.5   Matrix Operations
1.6   Algebraic Properties of Matrix operations
1.7   Linear Independence and Nonsingular Matrices
1.9   Matrix Inverses and Their Properties

Midterm 1

Part II
2.1   Vectors in The Plane (Review only because it was done in 1152)
2.2   Vectors in Space (Review only because it was done in 1152)
2.3   The Dot Product and The Cross
3.1   Introduction
3.2   Vector Space Properties of $\mathbb{R}^n$
3.3   Examples of Subspaces
3.4   Bases for Subspaces
3.5   Dimension
5.2   Vector Spaces
5.3   Subspaces
5.4   Linear Independence, Bases, and Coordinates
3.6   Orthogonal Bases for Subspaces
3.7   Linear Transformation from $\mathbb{R}^n$ to $\mathbb{R}^m$

Midterm 2

Part III

Final