

Syllabus - Math 322 - Linear Algebra

Department of Mathematics
Millersville University

Description

A rigorous introduction to linear algebra. Includes systems of linear equations, matrix algebra, determinants, vector space, inner product spaces, geometry in \mathbb{R}^n , linear transformations, orthogonal transformations, eigentheory and diagonalization. (4 credits)

This course may be taken for general education credit (G2).

Prerequisites

Math 311 (prerequisite or corequisite); Math 310 recommended.

Objectives

Students will demonstrate an understanding of matrix algebra, the solution of systems of linear equations, determinants, vector spaces and subspaces (including abstract vector spaces over fields), the subspaces and their dimensions associated to a matrix (row space, column space, null space, rank, and nullity), linear transformations, change of basis, inner product spaces, eigenvalues and eigenvectors, and diagonalization.

Students will write proofs involving the structures of linear algebra.

Assessment

Students will demonstrate their understanding through work in class, homework, and examinations.

Topics

1. Systems of linear equations and matrix algebra
2. Determinants
3. Vector spaces
4. Linear transformations
5. Eigenvalues and eigenvectors
6. Inner product spaces

Recent Textbooks

Howard Anton and Chris Rorres, *Elementary Linear Algebra* (10th edition - applications version).
New Jersey: John Wiley & Sons, Inc., 2010.

Revised: January 28, 2016