

APPLIED LINEAR ALGEBRA

MATH/CSCI 2050

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Prerequisite: MATH 1950

Hours Credit: 3 hours

Catalog Description:

Matrix algebra, simultaneous equations, vector spaces, applications of linear algebra and computational considerations. A computer algebra package such as Maple is introduced with required assignments.

For Whom Intended:

This is a first course in linear algebra for undergraduates in mathematics, computer science, and other technical programs.

Objectives:

The purpose of the course is to present the student with the basic ideas, terminology, and techniques for the solution of linear algebra problems, including the related computational considerations.

Topics:

1. Solution of systems of linear equations
2. Matrix representation of linear equations
3. Inverse of a matrix
4. Determinants
5. Vector representations
6. Relationship between vectors
7. Vector spaces and subspaces
8. Linear independence
9. Bases of vector spaces
10. Linear transformations
11. Rank of a matrix
12. Eigenvalues and eigenvectors
13. Additional applications of linear algebra

Method of Instruction:

The class will be presented primarily in lecture form with student discussion encouraged.

Evaluation and Grading:

The grade will be determined primarily from in-class examinations, problem assignments, and computer programming assignments.

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Text: Linear Algebra and Its Applications, by Lay, Pearson Publisher, 2003.

Bibliography:

Bretscher, O., Linear Algebra with Applications, 2nd Ed, Prentice Hall, 2001.

Maloney, J., A Maple Supplement to Linear Algebra, Pearson Prentice Hall, 2005.

Poole D., Linear Application a Modern Introduction, Brooks/Cole, 2003.

Spence L., Insel A., and Frieberg, Elementary Linear Algebra a Matrix Approach, Prentice Hall, 2000.

Williams G., Linear Algebra with Applications, Jones and Bartlett, 2001.

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