

Math 244-Syllabus

Text book: Elementary Linear Algebra with Supplemental Applications, 11th Edition By
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Chapter 1

1.1 Introduction to Systems of Linear Equations

1.2 Gaussian Elimination

1.3 Matrices and Matrix Operations

1.4 Inverses and Algebraic Properties of Matrices

1.5 Elementary Matrices and a Method for Finding A^{-1}

1.6 More on Linear Systems and Invertible Matrices

1.7 Diagonal, Triangular and Symmetric Matrices

1.8 Matrix transformations (From Definition 1 to the end of example 1 and from page 80

“ A procedure for finding Standard Matrices” to the end of example 4)

Chapter 2

2.1 Determinants by Cofactor Expansion

2.2 Evaluating Determinants by Row Reduction

2.3 Properties of the Determinants and Cramer's Rule

Chapter 4

4.1 Real Vector Spaces (Exercise 11 is solved in the lecture)

4.2 Subspaces (Example 12 and page 200 are Not included)

4.3 Linear Independence

4.4 Coordinates and Basis (From Definition 1 to the end of the section), (Example 5 is Not included)

4.5 Dimension (Exercise 7 (d) is solved in the lecture), (Theorem 4.5.3, Example 4, and Theorem 4.5.5 are Not included)

4.6 Change of Basis

4.7 Row Space, Column Space and Null space (Theorem 4.7.2, Example 3, are Not included)

4.8 Rank, Nullity and the Fundamental Matrix Spaces. (The concept of orthogonal complement is NOT included).

4.9 Matrix Transformations from R^n to R^m (Expansion and Compressions, Shears and Orthogonal projections on lines through the origin are NOT included)

4.10 Properties of Matrix Transformations

Chapter 5

5.1 Eigenvalues and Eigenvectors

5.2 Diagonalization (From “Geometric and Algebraic Multiplicity”(page 309) to the end of the section is Not included)

Chapter 6

6.1 Inner Products (An Application of weighted Euclidean Inner Product (page 347), Example 3, Example 8, and Example 9 are Not included)

6.2 Angle and Orthogonality in Inner Product Spaces (From “Orthogonal Complements” (page 359) to the end of the section is Not included)

6.3 Gram–Schmidt Process; QR-Decomposition (From “Coordinates Relative to Orthonormal Bases” -page 366- to page 369 are Not included)