

Math 244-Syllabus

Text book: Elementary Linear Algebra with Supplemental Applications, 11th Edition By Howard Anton and Chris Rorres

Chapter 1

1.1 Introduction to Systems of Linear Equations

1.2 Gaussian Elimination. (Example 9 on page 22 is NOT included).

1.3 Matrices and Matrix Operations

1.4 Inverses and Algebraic Properties of Matrices (Proofs of Theorems 1.4.4, 1.4.6, and 1.4.9 are included)

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 3

3.1 Vectors in 2-Space, 3-Space and n-Space (From Definition1, Page 136).

3.2 Norm, Dot Product and Distance in R^n (The proof of Theorem 3.2.6 and Theorem 3.2.7 is included).

3.3 Orthogonality (Definition1, Example1 (a), Theorem 3.3.3, Example 6)

Chapter 4

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

4.2 Subspaces (All except Example 12, the proof of Theorem 4.2.4 is included)

4.3 Linear Independence (Proof of Theorem 4.3.3 is included)

4.4 Coordinates and Basis (From Definition 1)

4.5 Dimension (Exercise 7 (d) is solved in the lecture)

4.7 Row Space, Column Space and Null space

4.8 Rank, Nullity and the Fundamental Matrix Spaces (The proof of theorem 4.8.5 is included). (The concept of orthogonal complement is NOT included).

4.9 Basic Matrix Transformations in R^2 and R^3 (From page 265 to the end of the section is NOT included)

4.10 Properties of Matrix Transformations

Chapter 5

5.1 Eigenvalues and Eigenvectors