# 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**

**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 (All except Example 12, the proof of Theorem 4.2.6 is NOT included)**

**4.3 Linear Independence**

**4.4** Coordinates and Basis (From Definition 1)

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

**4.6** Change of Basis

**4.7** Row Space, Column Space and Null space

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

## Chapter 5

**5.1** Eigenvalues and Eigenvectors

**5.2** Diagonalization (From " Geometric and Algebraic Multiplicity" on Page 309 to the end of the section is NOT included)

## Chapter 6

**6.1** Inner Products (An Application of Weighted Inner Product on Page 347, Example 3, Example 8, Example 9, Example 10 and Example 11 are NOT included)

**6.2** Angle of Orthogonality in Inner Product Spaces (From " Orthogonal Complements" on Page 359 to the end of the section is NOT included)

**6.3** Gram-Schmidt Process; QR- Decomposition (From " Coordinates Relative to Orthonormal Bases" on Pages 366-369 are NOT included)

## Chapter 8

**8.1** General Linear Transformations (Examples 9, 17, 18 and 19 are NOT included)

**8.4** Matrices for General Linear Transformations (Theorem 8.4.1 and Example 6 are NOT included)