**Math 240-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** 

**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**

**Pages 169, 170**

**Chapter 4**

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

**4.2 Subspaces (All except Example 12)**

**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**

**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)**