King Saud University Math Department 1st Semester 1939 – 1940 H

**Math 244 Contents**

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| --- | --- |
| Matrices   * Matrices and Matrix Operations * Elementary Row Operations * Inverse of Matrix * Special Matrices | Inner Product Spaces   * Definition of Inner Product * Orthogonality * Orthonormal Basis |
| Determinants   * Definition of Determinant * Properties of Determinants * The Adjoint Matrix | Linear Transformations   * Basic Properties * Kernel and Image of Linear Transformation * Matrix of Linear Transformation |
| Systems of Linear Equations   * Gauss and Gauss–Jordan Methods * Homogeneous systems of linear equations * Cramer’s Rule | Eigenvalues and Eigenvectors & Diagonalization  -Eigenvalues and Eigenvectors  -Diagonalization |
| Vector Spaces   * Definition of a Vector Space * Subspaces * Linear Combination and Spanning Sets * Linear Dependence & Linear Independence * Basis and Dimension * Coordinates and Change of Basis * Rank of the Matrix |  |

**Textbook**: Elementary Linear Algebra (Anton and Rorres), 11th edition

**Evaluation**: 1st Midterm: 25%- 2nd Midterm : 25% - Exercise: 10% - Final Exam: 40%

Exam Dates:

1st Exam: xx/xx/2018 7:00 – 8:30 PM

2nd Exam: xx/xx/2018 7:00 – 8:30 PM

Calculators are Not Allowed in Exams