

Module Syllabus:

Course Title: Linear Algebra 2
 Course Code: 250341
 Semester: Second 2005/2006
 Lecturer : Amin Witno
 Office Room: 819 (Ext. 341)
 Office Hours: Sunday–Thursday 1–2
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Short Description:

This module is a second course in theoretical Linear Algebra for upper-level undergraduate students. Topics include Abstract Vector Spaces, Linear Transformations, Matrices and Matrix Operations, Systems of Linear Equations, Determinants, Diagonalization, Inner Product Spaces.

Topics by the Week:

Week	Dates	Topics
1	26/2 – 2/3	Vector spaces, Subspaces
2	5/3 – 9/3	Linear Combinations, Systems of Linear Equations
3	12/3 – 16/3	Linear Dependence, Bases, Dimension
4	19/3 – 23/3	Linear Transformations, Null Spaces, Ranges
5	26/3 – 30/3	Matrix of Linear Transformation, Compositions, Matrix Multiplications
6	2/4 – 6/4	Isomorphisms, Change of Coordinate Matrix
7	9/4 – 13/4	Elementary Matrix Operations, Inverses, Ranks
8	16/4 – 20/4	Systems of Linear Equations
9	23/4 – 27/4	Properties of Determinants, Cramer’s Rule
10	30/4 – 4/5	Linear Operators, Eigenvalues and Eigenvectors
11	7/5 – 11/5	Diagonalization, Similar Matrices
12	14/5 – 18/5	Applications to Systems of ordinary differential equations, Matrix Exponential
13	21/5 – 25/5	The Cayley Hamilton Theorem
14	28/5 – 1/6	Inner Products and Norms, Gram-Schmidt Process, Orthogonal Diagonalization
15	4/6 – 8/6	Review for Final Exam
16	10/6 – 18/6	Final Exam will be held in this period

Mark Distribution:

- Quiz 1 23/03/2006 05%
- Exam 1 06/04/2006 20%
- Quiz 2 27/04/2006 05%
- Exam 2 11/05/2006 20%
- Final Exam 15/06/2006 50%

References:

- Gilbert Strang, Linear Algebra and Its Applications, 4th Edition 2006, Brooks Cole
- Kenneth Hoffman, Linear Algebra, 3rd Edition 2004, Prentice Hall
- Friedberg, Insel, and Spence, Linear Algebra, 4th Edition 2003, Prentice Hall
- Howard Anton, Elementary Linear Algebra, 9th Edition 2005, Wiley

Websites:

- Basic Sciences Department- <http://www.philadelphia.edu.jo/math>
- Amin Witno Website- <http://www.witno.com/>