

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Syllabus of Math 280 (061)

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Course # : Math 280
 Title : Introduction to Linear Algebra
 Textbook: *Elementary Linear Algebra*, 6th ed. (1996), by Bernard Kolman
 Objectives: To introduce the students to the basic concepts and techniques of elementary linear algebra.

Week	Date	Section	Material	J qo gy qtnl'
1	Sept.9-14*	1.1	Systems of linear equations	2,4,8,15,18,20
		1.2	Matrices: Matrix operations	2,6,8,11,14,25
2	Sept.16-20	1.3	Algebraic properties of matrix operations	3,12,19,20,30,32
		1.4	Special types of matrices	1,3,7,10,15,36
3	Sept. 24**.- 27	1.5	Echelon form of a matrix	1,6c,8,14,24,26
		1.6	Finding A^{-1}	6,8,14,24,26
4	Sept.30- Oct.4	2.2	Vector spaces	3,4,9,12,18,21
		2.3	Subspaces	2,6,8,10,11,24
5	Oct.7-11	2.4	Linear independence	2,4,6,12(a,c),19,23
		2.5	Basis and dimension	2,4,8,10,13,15,20,26
6	Oct.28- Nov.1	2.6	Coordinates and isomorphisms	2,4,13,17,22,35
		2.7	Homogeneous sytems	2,6,14,18,19
7	Nov.4-8	2.8	The rank of a matrix	2,6,10,14,20,26
		3.1	The standard inner product on R^2 and R^3	2,6,8,10,24,28,31
8	Nov.11-15	3.3	Inner product spaces	7,10,14,28,34,36
		3.4	The Gram-Schmidt process	2,8,9,14,23,26
9	Nov.18-22	4.1	Definitions and example of a linear transf.	2,7,10,13,16,20
		4.2	The kernel and range of a linear transf.	2,4,9,13,19,26
10	Nov.25-29	4.3	The matrix of a linear transf.	2,7,9,14,18,22
		4.6	Similarity	2,5,6,7,18,16
11	Dec.2-6	5.1	Definition of a determinant	8,10,12,14,16
		5.2	Properties of determinants	4,9,11,20,26,30
12	Dec.9-13	5.3	Cofactor expansion	2,4,6,8,12,14
		5.4	The inverse of a matrix	2,4,7,10,12,13
13	Dec.16-20	5.5	Other applications of determinants	2,3,4,6,8,13
		6.1	Diagonalization	2,5,8,10,11,15,16,18,
14	Jan.6-10 (2007)	6.1	Diagonalization (cont'd.)	22,26,29,33
		6.2	Diagonalization of symmetric matrices	2,4,16,20,24,28,31
15	Jan.13-17	6.2	(cont'd.)	
		6.3	Real quadratic forms	2,4,10,12,16,18

*Thursday 14 September is a normal Saturday class.

** Saturday 23 September is a national holiday.