

Syllabus and Problems
Mathematics 250, Introduction to Linear Algebra, Section 04
Fall Semester 2011

Text: *Elementary Linear Algebra: A Matrix Approach*, Spence, Insel, & Friedberg, 2nd Edition, Prentice-Hall (ISBN # 0-13-716722-9).

Lecture	Date	Reading	Topics
1	9/1	1.1, 1.2	Matrices and Vectors
2	9/6	1.3	Systems of Linear Equations
3	9/13	1.4	Gaussian Elimination
4	9/15	1.6	Span of a Set of Vectors
5	9/20	1.7	Linear Dependence and Linear Independence
6	9/22	2.1	Matrix Multiplication
7	9/27	2.2	Applications of Matrix Multiplication
8	9/29	2.3	Invertibility and Elementary Matrices
9	10/4	2.4	Inverse of a Matrix
10	10/6	2.6	LU Decomposition of a Matrix
11	10/11	Exam 1	1.1-1.7, 2.1-2.4
12	10/13	3.1	Determinants; Cofactor Expansions
13	10/18	3.2	Properties of Determinants
14	10/20	4.1	Subspaces
15	10/25	4.2	Basis and Dimension
16	10/27	4.3	Column Space and Null Space of a Matrix
17	11/1	5.1	Eigenvalues and Eigenvectors
18	11/3	5.2	Characteristic Polynomial
19	11/8	5.3	Diagonalization of Matrices
20	11/10	5.5	Applications of Eigenvalues
21	11/15	Exam 2	2.6, 3.1-3.2, 4.1-4.3, 5.1-5.3
22	11/17	6.1	Geometry of Vectors
23	11/22	6.2	Orthogonal Vectors; Gram-Schmidt Process
24	11/29	6.3	Orthogonal Projection
25	12/1	6.4	Least-Squares
26	12/6	6.5	Orthogonal Matrices
27	12/8	6.6	Symmetric Matrices and Quadratic Forms
28	12/13	Review	

Note: This is an approximate syllabus only and because of differences in weekly schedules, some variations are to be expected.

Final Examination: Friday, December 16, 8-11 am

Suggested Homework Problems

Mathematics 250

Sec. 1.1:	1, 3, 5, 7, 9, 35, 39, 45, 46
Sec. 1.2:	1, 3, 11, 13, 15, 17, 21, 22, 23, 25, 29, 31, 33, 35, 36, 37, 39, 40, 41, 42
Sec. 1.3:	1, 3, 5, 7, 9, 11, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 45
Sec. 1.4:	1, 3, 5, 7, 9, 13, 15, 19, 21, 25, 27, 29, 31, 35, 44-46, 51-62
Sec. 1.6:	1, 3, 5, 9, 11, 13, 15, 17, 19, 21, 23, 25, 31, 35, 42, 45
Sec. 1.7:	1, 3, 5, 7, 9, 11, 13, 17, 21, 23, 25, 27, 29, 33, 39, 40, 41
Sec. 2.1:	1, 5, 7, 9, 11, 13, 15, 17, 19, 21, 22, 23, 24, 25, 27, 29, 31
Sec. 2.3:	1, 3, 5, 7, 11, 13, 15, 21, 29, 31, 33, 41
Sec. 2.4:	1, 3, 5, 7, 11, 15, 17, 19, 25, 27, 30
Sec. 2.5:	3, 5, 7, 9, 10, 11, 12, 13, 14, 15, 19
Sec. 3.1:	1, 3, 5, 7, 9, 11, 14, 15, 17, 19, 21, 25, 31, 33, 37, 39, 41, 43
Sec. 3.2:	1, 3, 5, 7, 11, 15, 21, 25, 39-45
Sec. 4.1:	1, 3, 5, 9, 11, 13, 15, 19, 21, 23, 25, 27, 29, 31, 33, 36, 37, 38, 42
Sec. 4.2:	1, 3, 4, 5, 7, 9, 11, 13, 15, 27, 29
Sec. 4.3:	1, 3, 5, 7, 9, 11, 13, 15, 37-42, 47
Sec. 5.1:	3, 7, 13, 17, 21, 39, 42, 43, 44, 45, 48
Sec. 5.2:	1, 3, 5, 9, 13, 15, 17, 21, 23, 25, 27, 41, 45, 47, 51, 52
Sec. 5.3:	1, 3, 7, 9, 11, 13, 15, 17, 19, 23, 25, 27, 29, 33, 35, 37, 39, 45, 51, 52, 53
Sec. 5.5:	45, 49, 53, 57
Sec. 6.1:	1, 3, 5, 7, 9, 11, 13, 17, 21, 23, 25, 30-35, 49, 52
Sec. 6.2:	1, 3, 5, 7, 9, 13, 15, 17, 19, 21, 23
Sec. 6.3:	1, 5, 7, 9, 13, 15, 17, 21, 29
Sec. 6.4:	1, 5, 7, 11, 17, 21
Sec. 6.5:	3, 5, 7, 9, 11, 22
Sec. 6.6:	1, 3, 5, 13, 17, 19