

640:250 Introduction to Linear Algebra

Text: Kolman & Hill, *Introductory Linear Algebra with Applications*, 7th ed., ISBN # 0-13-018265-6, Prentice-Hall, Upper Saddle River, NJ 07458

Suggested Course Syllabus

Lecture	Reading	Topics
1	1.1, 1.2	Linear Systems, Method of Elimination, Matrices
2	1.3, 1.4	Dot Product, Matrix Multiplication
3	1.5	Solving Linear Systems, Row Echelon Form
4	1.6	Inverse of a Matrix
5	1.7	<i>LU</i> Factorization
6	3.1	Definition and Properties of the Determinant
7	3.2	Cofactor Expansion, Matrix Inverse by Determinants
8	4.1, 4.2	Vectors in \mathbf{R}^2 and \mathbf{R}^n ; dot product and norm
9	6.1, 6.2	Vector spaces, Subspaces
10	Midterm Exam #1	
11	6.3	Linear Independence
12	6.4	Basis and Dimension
13	6.5	Homogeneous Systems, General Solution to $\mathbf{Ax} = \mathbf{b}$
14	6.6	Row Space, Column Space, and Rank of a Matrix
15	6.8	Orthogonal Bases, Gram-Schmidt Process
16	6.9	Orthogonal Complements, Fundamental Theorem of Linear Algebra
17	6.9, 7.1	Orthogonal Projections, <i>QR</i> Factorization
18	7.2	Least Squares Fitting of Data
19	A.1, A.2	Complex Numbers in Linear Algebra
20	Midterm Exam # 2	
21	8.1	Eigenvalues and Eigenvectors
22	8.2	Diagonalization of a Matrix
23	8.3	Diagonalization of Symmetric Matrices
24	9.2	Homogeneous Linear Differential Equations
25	9.3	Dynamical Systems
26	9.4	Quadratic Forms
27	4.3, 5.1	Introduction to Linear Transformations
28		Catch up and review

Final Exam (closed book)

Important Note: This is only a suggested syllabus. The timing of the mid-term exams and the selection and pacing of the topics may vary from section to section. Contact your instructor for the syllabus for your particular section.