

Linear Algebra and Its Applications

3rd ed., David C. Lay (Addison-Wesley)

Below is a syllabus for MA 322. The syllabus is written for two exams and a final. However, if you wish to change the number or timing of exams, please do so. Note that the final is a fixed time during final week.

Problem Assignments

Sections	Problems
1.1 Systems of Linear Equations	(1,3,4,5,7,11,13,15,23,24,25)
1.2 Row Reduction and Echelon Forms	(1,3,7,9,11,17,19,21,23,25,27)
1.3 Vector Equations	(1,3,5,9,11,13,15,17,21,23,24)
1.4 The Matrix Equation $Ax=b$	(1,3,5,7,9,12,14,15,21,23,24,25)
1.5 Solution Sets of Linear Systems	(1,3,5,9,15,16,19,23,24,25,26)
1.7 Linear Independence	(1,3,5,7,9,11,13,15,17,21,22)
1.8 Introduction to Linear Transformations	(1,3,5,9,11,13,17,19,20,21,22,24,29)
1.9 The Matrix of a Linear Transformation	(1,3,5,7,9,17,23,24,29,30,35)
2.1 Matrix Operations	(1,2,3,4,5,6,9,10,11,13,15,16,23,27,30)
2.2 The Inverse of a Matrix	(1,3,5,7,9,10,11,13,22,29,31,33)
2.3 Characterizations of Invertible Matrices	(1,3,5,6,7,11,12,13,17,24,36,37)
	EXAM 1
2.5 Matrix Factorizations	(1,3,5,6,7,9,11,15,17,24)
2.8 Subspaces of R^n	(1,2,5,6,7,9,10,15,16,21,23,24,25,27)
2.9 Dimension and Rank	(1,2,3,5,7,9,11,13,15,17,18,19)
3.1 Introduction to Determinants	(1,3,5,7,9,11,15,19,21,22,23,25,27)
3.2 Properties of Determinants	(1,3,4,5,7,11,15,17,21,24,25,29,31,32)
5.1 Eigenvectors and Eigenvalues	(1,2,3,5,7,9,11,13,17,19,21,22,25,27)
5.2 The Characteristic Equation	(1,3,5,9,11,19,21,22,25)
5.3 Diagonalization	(1,2,3,5,7,11,17,21,22,24,27,28)

6.1	Inner Product, Length, and Orthogonality	(1-8,9,10,11,13,16,17,19,21,23,24,25,27,28)
6.2	Orthogonal Sets	(1,3,5,7-11,13,15,16,17-20,21,23,24,26,27,29,32,33)
EXAM 2		
6.3	Orthogonal Projections	(1,3,5,7,9,11,12,15,17,19,21,22,23)
6.4	The Gram-Schmidt Process	(1-4,7,9,11,13,15,17,19,20)
6.5	Least-Squares Problems	(1-5,7,9,11,13,15,17,19)
4.1	Vector Spaces and Subspaces	(1,3,5,6,7,8,9,10,13,14,23,24,35,36)
4.2	Null Spaces, Column Spaces, and Linear Transformations	(1,3,5,7,13,15,17,23,25,26,29,30,31,33,34,35)
4.3	Linearly Independent Sets; Bases	(1,3,5,9,10,12,13,15,19,21,22,23,29,31,32,33)
4.4	Coordinate Systems	(1,3,4,5,7,9,10,11,13,14,15,16,17,18,21,22,27,29)
4.5	The Dimension of a Vector Space	(1,3,7,10,11,13,15,16,17,19,20,21,25,29)
4.6	Rank	(1,2,3,4,5,7,9,13,17,18)

FINAL EXAM