

# Math 322 Linear (Matrix) Algebra and Its Applications

Algebra of matrices, the solutions of simultaneous linear equations, matrix factorizations, determinants, linear transformations, vector spaces over the reals, linear independence of vector space, eigenvectors, eigenvalues, characteristic equations, diagonalizations, Markov Chains, inner products, orthogonality, Gram-Schmidt process, and least-square problems.

## **Recommended Text:**

Linear Algebra and Its Applications (3rd Edition)  
by David C. Lay (Addison-Wesley).

## **Recommended Sections of Book:**

Chapter 1 Sections 1.1 - 1.5, 1.7 - 1.9

Chapter 2 Sections 2.1 - 2.3, 2.5

Chapter 3 Sections 3.1, 3.2

Chapter 4 Sections 4.1, 4.2, 4.3, 4.4

Chapter 5 Sections 5.1 - 5.3, 5.7

Chapter 6 Sections 6.1, 6.2, 6.3, 6.4, 6.5



## Math 322

### *Linear Algebra and Its Applications*

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

#### Problem Assignments

- Section 1.1 (1,3,4,5,7,11,13,15,23,24,25)  
1.2 (1,3,7,9,11,17,19,21,23,25,27)  
1.3 (1,3,5,9,11,13,15,17,21,23,24)  
1.4 (1,3,5,7,9,12,14,15,21,23,24,25)  
1.5 (1,3,5,9,15,16,19,23,24,25,26)  
1.7 (1,3,5,7,9,11,13,15,17,21,22)  
1.8 (1,3,5,9,11,13,17,19,20,21,22,24,29)  
1.9 (1,3,5,7,9,17,23,24,29,30,35)  
  
2.1 (1,2,3,4,5,6,9,10,11,13,15,16,23,27,30)  
2.2 (1,3,5,7,9,10,11,13,22,29,31,33)  
2.3 (1,3,5,6,7,11,12,13,17,24,36,37)  
2.5 (1,3,5,6,7,9,11,15,17,24)  
2.8 (1,2,5,6,7,9,10,15,16,21,23,24,25,27)  
2.9 (1,2,3,5,7,9,11,13,15,17,18,19)  
  
3.1 (1,3,5,7,9,11,15,19,21,22,23,25,27)  
3.2 (1,3,4,5,7,11,15,17,21,24,25,29,31,32)  
  
4.1 (1,3,5,6,7,8,9,10,13,14,23,24,35,36)  
4.2 (1,3,5,7,13,15,17,23,25,26,29,30,31,33,34,35)  
4.3 (1,3,5,9,10,12,13,15,19,21,22,23,29,31,32,33)  
4.4 (1,3,4,5,7,9,10,11,13,14,15,16,17,18,21,22,27,29)  
  
5.1 (1,2,3,5,7,9,11,13,17,19,21,22,25,27)  
5.2 (1,3,5,9,11,19,21,22,25)  
5.3 (1,2,3,5,7,11,17,21,22,24,27,28)  
  
6.1 (1-8,9,10,11,13,16,17,19,21,23,24,25,27,28)  
6.2 (1,3,5,7-11,13,15,16,17-20,21,23,24,26,27,29,32,33)  
6.3 (1,3,5,7,9,11,12,15,17,19,21,22,23)  
6.4 (1-4,7,9,11,13,15,17,19,20)  
6.5 (1-5,7,9,11,13,15,17,19)