

Syllabus for Math 2530 – Linear Algebra
Department of Mathematics and Statistics, Wright State University
Text: Linear Algebra and Its Applications, David C. Lay, 4th Edition

Week	Section	Suggested Problems
1	1.1 Systems of Linear Equations 1.2 Row Reduction and Echelon Forms	7, 11, 13, 15, 17, 21, 23, 25 2, 3, 11, 13, 15, 19, 21
2	1.3 Vector Equations 1.4 The Matrix Equation $Ax=b$	5, 9, 11, 13, 15, 19, 21, 25 5, 7, 9, 11, 13, 17, 18, 21, 22, 23
3	1.5 Solution Sets of Linear Systems 1.7 Linear Independence in R^n	1, 3, 5, 11, 13, 17, 23 2, 5, 8, 10, 11, 21, 23, 24, 27, 33, 36, 37
4	1.8 Linear Transformations on R^n 1.9 The Matrix of a Linear Transformation on R^n	2, 4, 9, 11, 14, 15, 16, 17, 18, 19, 21 1, 3, 6, 7, 8, 9, 14, 15, 19, 20, 22 23, 24, 27, 28, 29, 30
5	2.1 Matrix Operations 2.2 The Inverse of a Matrix 2.3 Characterizations of Invertible Matrices	2, 5, 9, 10, 12, 16 3, 6, 7, 8, 9, 11, 12, 13, 16, 31, 33, 35 5, 6, 7, 11, 19, 20, 27, 28
6	3.1 Determinants 3.2 Properties of Determinants 3.3 Cramer's Rule, Area and Volume	5, 11, 13, 15, 21, 23, 24, 37, 39 1, 3, 7, 9, 11, 13, 15, 17, 19, 21, 25, 27, 34, 35, 40 5, 7, 11, 18, 21, 23
7	4.1 Vector Spaces and Subspaces 4.2 Null Spaces, Column Spaces, Kernel and Range of a Linear Transformation	1, 2, 5, 6, 9, 11, 13, 15, 17, 21, 22, 23 1, 5, 7, 11, 15, 18, 22, 24, 25, 28, 31, 33
8	4.3 Linearly Independent Sets, Bases 4.4 Coordinate Systems	3, 5, 10, 11, 14, 15, 19, 21, 22, 23, 33, 34 3, 5, 7, 10, 11, 13, 15, 16, 17, 29, 31
9	4.5 The Dimension of a Vector Space 4.6 Rank	3, 5, 7, 10, 11, 13, 15, 15, 16, 17, 29, 31 2, 3, 5, 7, 8, 12, 14, 16, 17, 18
10	5.1 Eigenvalues and Eigenvectors 5.2 The Characteristic Equation	2, 6, 7, 8, 15, 16, 18, 19, 20, 21, 22, 25, 29 3, 6, 9, 11, 15, 18, 20, 21, 22
11	5.3 Diagonalization 5.4 Eigenvalues of Linear Transformations	2, 3, 5, 8, 11, 12, 19, 21, 22, 23, 24, 25 1, 3, 5, 9, 11, 13, 15, 16
12	6.1 Inner Product, Length, Orthogonality 6.2 Orthogonal Sets 6.3 Orthogonal Projections	2, 6, 11, 14, 17, 18, 10, 20, 26, 28 4, 5, 9, 10, 12, 13, 15, 19, 20, 23, 24 1, 3, 4, 7, 9, 12, 13, 15, 17, 19, 21, 22
13	6.4 The Gram-Schmidt Process 6.5 Least-Square Problems	3, 5, 7, 9, 11, 17, 18, 13, 15 1, 3, 5, 6, 7, 9, 12, 15, 16, 17

Note: Lectures: 13 weeks, Midterms and review: 1 week.