

**Syllabus for Math 2530 – Linear Algebra**  
**Department of Mathematics and Statistics, Wright State University**  
**Text: Linear Algebra and Its Applications, David C. Lay, 5th 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 1.9 The Matrix of a Linear Transformation	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 Space, Column Space, 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 of a Matrix	3, 5, 7, 10, 11, 13, 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 6.1 Inner Product, Length, Orthogonality	2, 3, 5, 8, 11, 12, 19, 21, 22, 23, 24, 25 2, 6, 11, 14, 17, 18, 10, 20, 26, 28
12	6.2 Orthogonal Sets 6.3 Orthogonal Projections	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-Squares Problems 6.6 Applications to Linear Models (Up to Example 1)	3, 5, 7, 9, 11, 17, 18, 13, 15 1, 3, 5, 6, 7, 9, 12, 15, 16, 17 1, 2, 3, 4