

## Math 3328 - Linear Algebra

### Suggested Problem List

**Text: Elementary Linear Algebra with Applications, 3rd edition**

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This is a minimal problem list, redo all other problems done in text, videos, class

Section, Topic, Page	Assigned Problems
<b>Chapter 1: Introduction to Linear Equations and Matrices</b>	
1.1, Linear Systems and Matrices, 1-9,	1-4, 7, 10, 13, 15, 17, 21, 25, 29
1.2, Gaussian Elimination, 10-22,	1-6, 7, 8, 9, 10, 12, 15, 19, 23, 24
1.3, The Algebra of Matrices, 23-37,	1, 3, 4, 7, 9, 11, 13, 15, 16, 21, 25, 33, 35, 37
1.4, Inverses and Elementary Matrices, 38-56,	1-15 odd, 20, 25-35, 41, 42
1.5, LU Factorization, 57-70,	1-15 odd, 25, 27, 33, 35
1.6, Transpose and Symmetry, 71-76,	1-11 odd, 15, 17, 20, 23
<b>Chapter 3: Vector Spaces</b>	
3.1, Vectors in 2- and 3-Spaces, 130-148,	1, 5-11 odd, 21, 23-41 odd
3.2, Euclidean $n$ -Space, 149-155,	1, 5-17 odd, 21, 25, 29, 31, 33, 35
3.3, General Vector Spaces, 156-164,	1-4, 8-22, 25-30
3.4, Subspaces, Span, Null Spaces 165-178,	1-23 odd, 27, 31, 33, 37, 39, 43, 45, 47
3.5, Linear Independence, 179-186,	1-5 odd, 7, 11, 15, 19, 25
3.6, Basis and Dimension, 187-199,	1-5 odd, 7, 11, 15, 17, 21, 25, 29, 33, 35, 51
3.7, Fundamental Subspaces, Rank 200-215,	1, 5, 7, 13, 15, 17, 21
3.8, Coordinates and Change of Basis, 216-226,	1, 5, 17, 21, 23, 25, 34, 37
<b>Chapter 4: Linear Transformations, Orthogonal Projections, and Least Square</b>	
4.1, Matrices as Linear Transformations, 242-251,	7-15 odd, 19-33 odd
4.2, Inner Products, 252-261,	1, 5, 17, 21, 23, 25, 34, 37
4.3, Least Squares, Orthogonal Projection, 262-275,	7-25 odd
4.4, Orthogonal Bases and Gram-Schmidt, 276-285,	1-5 odd, 13, 17-21 odd, 29
4.5, Orthogonal Matrices, QR, LS, 286-295,	1-11 odd, 21, 22, 23
<b>Chapter 5: Eigenvalues and Eigenvectors</b>	
5.1, Determinants in brief, 321-330,	1-39 odd
5.2, Eigenvalues and Eigenvectors , 301-341,	1, 3, 7, 11-27
5.3, Diagonalization, 342-351,	1, 3, 9, 17-25 odd, 27, 29, 33
5.4, Symmetric Matrices, 352-358,	1-21 odd
5.5, An application: Quadratic Forms, 359-365,	1, 5-23 odd