

MAT 345 Linear Algebra
TENTATIVE Course Schedule & Partial Homework
 Siena Heights University Fall 2015

This is a list of recommended problems, by section. Contents will change/grow as the semester progresses, so check this page frequently. Attempt the problems as we complete the section listed, ask questions in class or in my office. You are not required to do every problem, but should do enough so that you're comfortable with the entire section. A (*) in a week number means one or more classes will not meet that week.

Week	Section	Topic	Problems
1	1.1	Linear Systems	1, 3, 7, 11, 17, 19, 21, 25
	1.2	Row Reduction; Echelon Forms	1, 3, 7, 9, 13, 17, 19
2*	1.3	Vectors & Vector Equations	1, 5, 7, 9, 11, 13, 15, 17 (list <u>3</u> vectors in the span), 21, 25
	1.4	Matrix Equations	1, 3, 5, 7, 9, 11, 13, 15, 17, 25
3	1.5	Solutions Sets of Linear Equations	1-21odd, 25a
	1.7	Linear Independence	1-31 odd
4	1.8	Linear Transformations	1-19 odd, 23, 33
	1.9	The Matrix of a Linear Transformation	1-27 odd
		<i>Exam 1 – Ch 1</i>	
5	2.1	Matrix Operations	1-13
	2.2	Matrix Inverses	1-20, 29, 30
6	2.3	Invertible Matrices	1-19 odd
	3.1	Intro to Determinants	1-4, 19-37
	3.2	Properties of Determinants	1, 3, 5, 7, 9, 15, 17, 19, 21, 25, 31-35
7	3.3	Cramer's Rule	1, 3, 5, 7, 9, 19, 21
		<i>Exam 2 – Ch 2, 3</i>	
8*	4.1	Vector Spaces; Subspaces	1, 3, 5, 6, 7, 14, 17, 18, 32, 33, 35
	4.2	Null spaces & Linear Transformations	3, 5, 7, 11, 15, 17, 21, 23
9	4.3	Bases	1, 3, 9, 15, 17, 19, 23, 25
	4.4	Coordinate Systems	3, 5, 7, 9, 11, 13, 17, 19, 21, 27
10	4.5	Dimension	1, 5, 7, 11, 13, 17, 21, 23
	4.6	Rank	1, 5, 7, 9, 11, 13
	4.7	Change Of Basis	1, 3, 5, 7, 9, 11, 18
11	5.1	<i>Exam Ch 4</i>	
	5.1	Eigenvalues	
	5.2	Characteristic Equation	
12	5.3	Diagonalization	
	5.4	Eigenvectors & Linear Transformations	
13*		<i>Exam Ch 5</i>	
14	6.1	Inner Product, Length, Orthogonality	
	6.2	Orthogonal Sets	
15	6.3	Orthogonal Projections	
	6.5	Least Squares	