Math 314, Linear Algebra, Course Syllabus, Fall 2017

Textbook: *Linear Algebra and Its Applications*, by David C. Lay, S. R. Lay, J. J. McDonald, 5th Ed.
The following table shows the material expected to be covered and the corresponding tentative problem assignments for each week of the semester. Note that what is shown here is approximate; please be alert for changes throughout the semester.

Week of	Section	Recommended Exercises
August 21	1.1 Systems of Linear Equations	1, 3, 5, 9, 10, 11, 15, 18, 19, 20, 23, 24, 25, 31
	1.2 Row Reduction and Echelon Forms	1, 3, 7, 11, 13, 15, 17, 19, 21, 22, 23, 24, 25, 26
	1.3 Vector Equations	1, 3, 5, 7, 9, 11, 13, 14, 15, 17, 18, 19, 23, 24, 25, 28
August 28	1.4 The Matrix Equation $A\mathbf{x} = \mathbf{b}$	1, 3, 7, 9, 11, 13, 14, 15, 17–24
	1.5 Solution Sets of Linear Systems	2, 5, 6, 7, 8, 9, 11, 12, 13, 15, 16, 20, 23, 24, 25, 40
	1.6 Applications	3(a,b), 7, 14
	Friday, September 1 is the last day to file a drop to remove course from student's record	
September 4	*September 4 is Labor day, student and staff holiday*	
	1.7 Linear Independence	1, 3, 5, 7, 8, 9, 13, 14, 15, 17, 19, 21, 22, 23, 24, 28, 30
	1.8 Introduction to Linear Transformations	1, 2, 3, 5, 7, 9, 11, 13–16, 19, 21, 22, 32, 33, 34
September 11	1.9 The Matrix of a Linear Transformation	1, 5, 7, 8, 13, 15, 17, 22–25, 38
	2.1 Matrix Operations	1, 3, 5, 7–11, 15, 16, 19, 22, 24
	2.2 The Inverse of a Matrix	1, 3, 5, 7, 8, 9, 10, 13, 20, 21, 23, 24, 29, 31, 32, 33
September 18	2.3 Characterization of Invertible Matrices	1–7(odd), 11, 12, 13, 16, 17, 19, 22, 33, 37
	2.5 Matrix Fractorizations	3, 5, 9, 11, 19
	Catch Up and Review	
September 25	**Midterm Exam I**	
	3.1 Introduction to Determinants	1–13 (odd), 39, 40
	3.2 Properties of Determinants	1–8, 11, 15, 18, 19, 25, 27, 28, 31
October 2	4.1 Vector Spaces and Subspaces	1–15, 17, 19, 20, 21, 23, 24, 25, 27
	4.2 Null Spaces, Column spaces	1, 2, 3, 5, 7, 11, 12, 15, 17, 19, 20, 21, 25–28, 30, 35, 37
	4.3 Linearly Independent Sets; Bases	1–19 (odd), 21–25, 31, 32
October 9	4.4 Coordinate Systems	1, 3, 5, 7, 8, 11, 13, 15, 16, 27, 28, 29
	4.5 The Dimension of a Vector Space	1–5, 7–17 (odd), 19, 20, 21, 29, 30, 31
	4.6 Rank	1, 3, 4, 5–15 (odd), 17, 18, 19, 21, 25, 27–29
	Friday, October 13 is the last day to change to P/NP	
October 16	*October 16–17 is Fall Break*	
	4.7 Change of Basis	1–9 (odd), 11, 12, 13, 15
	4.9 Applications/Catch Up	1, 3, 5, 9, 11
October 23	5.1 Eigenvectors and Eigenvalues	1–15 (odd), 19, 21, 22, 23, 24, 25, 27, 31, 33
	5.2 The Characteristic Equation	1, 3, 7, 9, 11, 13, 17, 21, 22, 23, 24
	5.3 Diagonalization	1, 3, 5, 7, 11, 15, 16, 19, 21, 22, 23, 24, 25, 27, 29
October 30	5.4 Eigenvectors and Linear Transformations	1, 3, 5, 8, 9, 11, 13, 19, 23, 27
	5.5 Complex Eigenvalues	1, 5, 9, 13, 16
	Catch Up and Review	
November 6	**Midterm Exam II**	
	6.1 Inner Product, Length and Orthogonality	1–19 (odd), 20, 25–31
	6.2 Orthogonal Sets	1, 5, 9, 11, 13, 15, 17, 23, 24, 27–29
	Friday, November 10 is the last day to withdraw from one or more courses	
November 13	6.3 Orthogonal Projections	1, 5, 7, 9, 11, 13, 15, 17, 21, 22, 23, 24
	6.6 Applications	1, 3, 7a, 9
	6.4 The Gram-Schmidt Process	1, 5, 9, 11, 15, 17, 18, 19, 22
November 20	6.5 Least-Squares Problems	1, 3, 5, 7, 11, 15, 17, 18, 19, 21
	Thanksgiving vacation is November 22-November 26	
November 27	7.1 Diagonalization of Symmetric Matrices	1–19 (odd), 23, 25, 26, 28, 29, 36
	7.2 Quadratic Forms	1–13 (odd), 21, 22, 23, 24
	7.4 Singular Value Decomposition	1, 3, 5, 7, 9, 11, 12, 13, 17, 18, 23
December 4	Catch Up and Review for Final Exam	
December 11		**TBA**

Ace Outcome 3: This course satisfies ACE Outcome 3: "Use mathematical, computational, statistical, or formal reasoning (including reasoning based on principles of logic) to solve problems, draw inferences, and determine reasonableness." Your instructor will provide examples, you will discuss them in class, and you will practice with numerous homework problems. The exams will test how well you've mastered the material. The final exam will be the primary means of assessing your achievement of ACE Outcome 3.
ADA Notice: Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office [www.unl.edu], 132 Canfield Administration, 472-3787 voice or TTY.
Course Evaluation: The Department of Mathematics Course Evaluation Form will be available through your Blackboard account during the last two weeks of class. You'll get an email when the form becomes available. Evaluations are anonymous and instructors do not see any of the responses until after final grades have been submitted. Evaluations are important—the department uses evaluations to improve instruction. Please complete the evaluation and take the time to do so thoughtfully.
Departmental Grading Appeals Policy: Students who believe their academic evaluation has been prejudiced or capricious have recourse for appeals to (in order) the instructor, the departmental chair, the departmental appeals committee, and the college appeals committee.
You are not allowed to have on your person during exams any device that can access the internet or communicate in any way. Cell phones, Apple watches, etc. should be put away in backpacks/purses.