MATH 250 - Introductory Linear Algebra
MW 6:10 - 7:30 PM, Room: FH-B2

Instructor: Triet Pham, Office: Hill Center Room 207, Email: trietpham@math.rutgers.edu

Office Hours: MW 4:30-5:30 pm, TTh 5:00 - 6:00 pm and by appointment.

Textbook: Elementary Linear Algebra by Spence, Insel and Friedberg.

Course Objectives: In this course we will study systems of linear equations, Gaussian elimination, matrices and determinants, vectors in two- and three-dimensional Euclidean space, vector spaces, introduction to eigenvalues and eigenvectors. If time allows, the following possible additional topics can be covered: systems of linear inequalities and systems of differential equations.

Course Outline: Please note that this is a tentative outline. As the course progesses, we may adjust the pace and / or the material if necessary.

Week	Reading	Topics
1	1.1, 1.2	Matrices, Vectors, and Linear Combinations
2	1.3	Systems of Linear Equations
	1.4	Gaussian Elimination
3	1.6	Span of a Set of Vectors
	1.7	Linear Dependence and Linear Independence
4	1.7, 2.1	Homogeneous Systems, Matrix Multiplication
	2.1	Matrix Algebra
	2.3	Invertibility and Elementary Matrices
5	App. E	Uniqueness of Reduced Row Echelon Form
	2.4	Inverse of a Matrix
	2.5	Partitioned Matrices and Block Multiplication
	Midterm Exam #1 (Monday week 6)	
6	2.6	LU Decomposition of a Matrix
7	3.1	Determinants; Cofactor Expansions
	3.2	Properties of Determinants
8	4.1	Subspaces
	4.2	Basis and Dimension
9	4.3	Column Space and Null Space of a Matrix
	5.1	Eigenvalues and Eigenvectors
10	5.2	Characteristic Polynomial
	5.3	Diagonalization of a Matrix
	Midterm Exam # 2 (Monday week 11)	
11	5.5	Examples of Diagonalization
12	6.1	Geometry of Vectors; Projection onto a Line
	6.2	Orthogonal Sets of Vectors; Gram-Schmidt Process; QR factorization

13	6.3	Orthogonal Projection; Orthogonal Complements
	6.4	Least Squares; Normal Equations
14	6.5, 6.6	Orthogonal Matrices; Diagonalization of Symmetric Matrices
	6.6	Diagonalization of Quadratic Forms
		Spectral Decomposition for Symmetric Matrices

Grade Breakdown:

Homework: 15 %
Quiz: 15 %
Midterm 1: 20 %
Midterm 2: 20 %
Final: 30 %

Academic Honesty: As a Rutgers University student, you have agreed to abide by the Universitys academic honesty policy, as stated in http://academicintegrity.rutgers.edu. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Extra help: All students are strongly encouraged to come to my office hours to discuss homework problems or any aspect of the course. I am also available by appointments if the office hours do not fit into your schedule. Sending me emails regarding your questions is also an excellent way to get a prompt response.

University Attendance Policy: Students are expected to attend classes regularly, according to what is stated in http://sasundergrad.rutgers.edu/academics/courses/registration-and-course-policies/attendance-and-cancellation-of-class

Important Dates:

Last Day to Withdraw (without a "W" grade) ..... Sept. 12, 2013
Last Day to Add ..... Sept. 13, 2013
First midterm ..... Oct. 7, 2013
Second midterm ..... Nov. 11, 2013
Last Day to Withdraw (with a "W" grade) ..... Oct. 28, 2013
Final Exam ..... Dec 16, 2013: 8:00 PM - 11:00 PM