MATH 320 LINEAR ALGEBRA

İzzet Coşkun, MWF 9:00-9:50 a.m.
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Welcome to Math 320! This course is an introduction to Linear Algebra. Linear Algebra is one of the great subjects of modern mathematics and an invaluable tool in many other disciplines ranging from economics to computer science and physics to engineering. In this course we will explore solutions to linear systems of equations, vector spaces and linear transformations.

Course webpage: http://www.math.uic.edu/~coskun/math320f2017.html

Venue: 316 Taft Hall

Office hours: MW 10-11, F 11-12 and by appointment.

Text: The required text for this course is Linear Algebra by Jim Hefferon available on line at http://joshua.smcvt.edu/linearalgebra/book.pdf

Prerequisites: Calculus I, II, III. Some familiarity with writing proofs is helpful, but not required.

Requirements: There will be weekly homework, a mid-term and a final. The midterm and the homework will count for 30 % of your grade each. The final exam will account for 40 % of your grade. In order to pass the course, you must pass the final exam. The homeworks will be due Wednesdays in the beginning of class. No late homework will be accepted. You may collaborate on the homework problems, but you must write your own solutions and properly acknowledge any help you receive from others. I consider the homework to be the most important part of this course. Anyone who misses more than two problem sets will receive a failing grade.

Topics: The following is a tentative list of topics that will be covered in the course. Please read the material in the text book before class.

Aug 28	Linear systems of equations	Chapter 1 Section 1
Aug 30	Gaussian Elimination	Chapter 1 Section 2
Sep 1	Gaussian Elimination	Chapter 1 Section 2
Sep 4	No class: Labor Day	
Sep 6	Reduced Echelon Form	Chapter 1 Section 3
Sep 8	Applications	Chapter 1 Topics
Sep 11	Vector Spaces	Chapter 2 Section 1
Sep 13	Vector Spaces	Chapter 2 Section 1
Sep 15	Linear Independence	Chapter 2 Section 2
Sep 18	Bases	Chapter 2 Section 3
Sep 20	Dimension	Chapter 2 Section 3
Sep 22	Applications	Chapter 2 Topics
Sep 25	Homomorphisms	Chapter 3 Section 1
Sep 27	Isomorphisms	Chapter 3 Section 1

Sep 29	Rank and kernel	Chapter 3 Section 2
Oct 2	Null Space and Range	Chapter 3 Section 2
Oct 4	Matrices	Chapter 3 Section 3
Oct 6	Matrices	Chapter 3 Section 4
Oct 9	Change of bases	Chapter 3 Section 5
Oct 11	Gram-Schmidt Orthogonalization	Chapter 3 Section 6
Oct 13	Projections	Chapter 3 Section 6
Oct 16	Determinants	Chapter 4 Section 1
Oct 18	Determinants	Chapter 4 Section 1
Oct 20	Determinants	Chapter 4 Section 2
Oct 23	MIDTERM	
Oct 25	Determinants	Chapter 4 Section 3
Oct 27	Applications	Chapter 4 Topics
Oct 30	Eigenvalues	Chapter 5 Section 1
Nov 1	Eigenvectors	Chapter 5 Section 2
Nov 3	Eigenvectors	Chapter 5 Section 2
Nov 6	Eigenvectors	Chapter 5 Section 2
Nov 8	Diagonalization	Chapter 5 Section 3
Nov 10	Diagonalization	Chapter 5 Section 3
Nov 13	Jordan Canonical Form	Chapter 5 Section 4
Nov 15	Jordan Canonical Form	Chapter 5 Section 4
Nov 17	Jordan Canonical Form	Chapter 5 Section 4
Nov 20	Symmetric matrices	
Nov 22	Symmetric matrices	
Nov 24	No class: Thanksgiving	
Nov 27	Symmetric matrices	
Nov 29	Hermitian matrices	
Dec 1	Skew-Symmetric matrices	
Dec 4	Skew-Symmetric matrices	
Dec 6	Applications	
Dec 8	Applications	