

Linear Algebra Math 247 Section 1; MW 2-3:15

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Course web site: <http://www.csulb.edu/~fnewberg/247.html>.

Office hours (held in my office: FO3-218): Feel free to stop by, email or call to schedule an appointment or ask a question!

Mondays and Wednesdays: 3:15pm – 4:15pm

Description: Mathematics is the study of numbers and space, communicated through the precise use of language. This course focuses on linear algebra, which is a fundamental tool in all areas of mathematics as well as in any science that deals with data analysis.

Topics: Matrix algebra, solution of systems of equations, determinants, vector spaces, inner product spaces, linear transformations, eigenvalues, eigenvectors, quadratic forms and applications. Prerequisites: MATH 224

Goals: The goals of this course are to introduce the students to the techniques and applications of linear algebra, as well as to indicate the type of abstract thinking required in higher mathematics and computer science. Students should learn the technical skills required to answer abstract algebraic questions as well as address applications. Also students should develop the geometric intuition required to visualize and hence internalize the abstract concepts of this subject.

Text: Linear Algebra and Its Applications, Third Edition, by David Lay.

There is a study guide for this text. It is not required but would provide an excellent resource to those who would read it.

We will cover most of these sections of the text.

Linear Equations in Linear Algebra (1.1 - 1.9)

Matrix Algebra (2.1 - 2.4, 2.7, 2.8)

Determinants (3.1 - 3.3)

Vector Spaces (4.1 - 4.6)

Eigenvalues (5.1 - 5.6)

Orthogonality and Least Squares (6.1 - 6.6)

Symmetric Matrices and Quadratic Forms (7.1, 7.2, 7.4)

Assignments:

Homework. You are encouraged to discuss homework problems with your classmates, but your written work must be in your own words and your own writing. I will accept homework until I leave for the day on the day it is due; usually this is 7:00pm.

Assigned each day due the following class:

True-False: (3 points per part; usually 10-12 parts) If the statement is true, you may simply write "True." If it is false you must either explain what is wrong with it, or change it so that it is correct. These problems require thought, and tend to be time consuming; make sure you leave yourself enough time to do them.

Ungraded homework: I will assign computational problems that will let you know which concepts to focus on to practice for exams and quizzes. These will be odd numbered problems so that you may check yourself with the answers in the book and they will not be collected. Quizzes will consist of problems similar to these questions.

Assigned each day, due Monday:

Graded homework: (5-20 points per problem.) These problems will generally involve explanations (in words) rather than computations. Some of them will be from the text and some will be questions I ask you.

Each Wednesday:

Quizzes: At the beginning of class on Wednesdays you will have a quiz. These problems will be similar to those problems assigned in the ungraded homework. I want you to do the ungraded homework; the only way to learn these techniques is to practice doing them! This is my way of checking that you have understood it.

Assigned each day due the following class:

Exams:

Wednesday, February 26	Midterm 1
Wednesday, April 9	Midterm 2
Wednesday, May 19 (12:30-2:30)	Cumulative Final Exam

Grade Distributions:

True/False	10%
Homework	20%
Quizzes	10%
Midterm 1	15%
Midterm 2	15%
Final Exam	30%