

MTH 221

Linear Algebra

Professor Kim

Spring 2015

Text: Linear Algebra plus MyMathLab Getting Started Kit for Linear Algebra and Its Applications, 4/E, David C. Lay, Pearson, 2012
Students must purchase OnLine Homework (MyMathLab) access.

Class Hours: Tu. & Thr. 2:00-3:15 p.m.
at LARTS #218

Office Hours: Tu.: 1-1:50 pm, 3:15-4pm, Thurs.: 11-12 noon, 1-1:50 pm
or by appointment on M. or W. (usually at my office from 1pm to 2pm).

Office: LARTS Room 395A, Phone: 999-8325, e-mail: skim@umassd.edu

Website: <https://my.umassd.edu> -> myCourses -> MTH221:Linear Algebra (2015 Spring)

Course Objectives: This course is a first course in linear algebra for sophomores who have had a Calculus I & II (MTH151/152 or MTH153/154). This subject is the study of solving systems of linear equations. We study this subject from an algebraic viewpoint as well as a geometric viewpoint. One of the objectives is to develop gradually and rigorously the concepts of row echelon form, matrix algebra, matrix factorizations, determinants, linear transformations, matrix representation of linear transformation, vector spaces, linear independence, bases, dimension, rank, nullity, basis change, eigenvalues, eigenvectors, similar matrices, diagonalization, orthogonality, orthonormal bases, orthogonal projections, the Gram-Schmidt process, a least-squares solution, and the Spectral Theorem for symmetric matrices. The approach is computational, geometrical, conceptual, and rigorous. Computations, visualization, geometrical interpretation, concepts and simple proofs are all stressed. We will do focus on linear algebra in \mathbb{R}^n . Concepts developed in \mathbb{R}^n can be easily extended to those in general vector spaces.

Upon completion of this course,

- (1) students are expected to understand and construct the basic abstract concepts in linear algebra, to understand geometry, to carry out calculations, and to solve applied problems and
- (2) students are expected to develop their ability of dealing with computational mathematics, abstract mathematics, and mathematical proofs.

Covering Topics: We cover the core topics recommended by the Linear Algebra Curriculum Study Group (LACSG). For more details it is given in a separate Lecture Schedule.

Homework: Online HW: Student Registration Instruction is given in a separate document.

Prerequisite: MTH 111 & 112

Tutoring: Math and Business Center at LARTS # 010

Attendance Policy: You may miss three classes without excuses.
Absences more than three without excuses can result in failing this course.

Assessment: The course grade will be determined on the following basis:
10% of (on-line HW and Class Participation) +
30% of (Exam 1 or Exam 2) + 30% of Exam 3 + 30% of Exam 4
Exam 1: Thur. Feb. 12; Exam 2: Thur. Mar. 12; Exam 3: Thur. Apr. 16
Exam 4 will be given during Final Exam period (**11:30 am- 1:30 pm, Fri. May 9**).