

MATH 215: Introduction to Linear Algebra With Applications in Statistics, part 1

This is a first course in linear algebra, aimed at students with diverse backgrounds. It covers the content of a standard textbook: linear systems, vectors and matrices, dimensions and bases of vector spaces, eigenvalues and eigenvectors, singular value decomposition. It is also dedicated to explain applications of these linear algebra concepts in classic analysis methods as well as state-of-the-art statistical inference and machine learning approaches -- in this applications portion of the course we will strive to tailor the content to the interests and research needs of the students.

This is the first part of a two-part course. Registration is required separately for each part of the course.

Learning Objectives

- Understand systems linear equations and their matrix representation
- Learn the concept of vector spaces, subspaces, and linear dependence
- Learn spectral methods for analyzing matrices
- Understand statistical methods based on linear models

Credits: 2

Class Type: Graduate Course

Prerequisites:

One semester of analytic geometry or calculus is recommended, but not required. Basic knowledge of vectors, cartesian coordinates, and algebra is required.

Program: Bioinformatics and Data Science