Linear Algebra for Data Science

Description

This course introduces the students to linear algebra and help them understand the different concepts on which most data science and machine learning algorithms are based. The idea is to have a better understanding of the basics of linear algebra especially vectors, matrices, determinants, eigenvalues and eigenvectors which will be used later in different methods of data science.

Learning Objectives and Outcomes

- Understanding vectors and matrices
- Getting the intuition of what is an abstract vector space, a basis and a dimension
- Being able to calculate the determinant of a matrix
- Being able to inverse a matrix
- Being able to find what are the eigenvalues and eigenvectors of a matrix

Course Schedule and Contents

Session #1	▪ Connection between linear algebra and data science ▪ Linear system of equation and linear transformations: intuition of vectors and matrices ▪ Matrix/matrix, vector/vector sum and matrix/vector, scalar/vector, scalar/matrix products
Session #2	▪ Linear combination, linear independence ▪ Vector space ▪ Basis and dimension
Session #3	▪ Determinant: definition and properties ▪ Inversion of matrices
Session #4	▪ Eigenvectors and eigenvalues ▪ Assignment

Grading

Course Project: 100%

Policies

- I expect you to turn-in your reports on time to receive proper credit/grade.
- Any work submitted must be your own.
- I expect everyone to contribute equally to group assignments
- Attendance in every class is expected. Class participation and discussion are strongly encouraged.
- Late work will not be accepted unless prior arrangements have been made directly with me.
- Cases will be decided on an individual basis.

Good Luck!