



Education within the reach of all
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Syllabus

Course Title

LINEAR ALGEBRA

I. Objective:

Get the necessary math background for Data Science and Computer Graphics

II. Pre-requisite: Must already take at least Calculus I

III. Materials: Online references only.

IV. Outline:

1. Linear algebra

1.1 Introduction and systems of linear equations

1.2 Matrix operations

- Row reduction and echelon forms

- Inverse

1.3 Vector spaces

- Linear dependence and independence

- Subspaces and bases and dimensions

1.4 Determinants and eigenvalues and eigenvectors

1.5 Gram-Schmidt process

2. Linear transformations

3. Probability

- Random variable
- Probability distributions

4. Linear regression

- Introduction and examples problems
- 5 (or 6) assumptions
- Development of the theory

1. Implications

- Example solutions
- Linear models and least-squares problems

5. Applications and project ideas

- Intro to Python
- Statsmodel package
- Scikit-Learn package

6. Create linear regression lesson with Jupyter