

What We will Learn

3 main Important things

1. Linear Algebra
2. Statistics -> Basic to Advance -> Applications of all these topics in Data Science.
3. Differential Calculus.

1. Linear Algebra -> Scalars Vectors, Operations Vectors, Matrices, Matrix Operations.
Functions, Linear Transformations, Inverse functions, Eigen Values and Eigen vectors.
Neural Networks -> Forward propagation -> Matrices operations

|
Applications In Data Science

2. Statistics -> ML, Deep learning -> Models -> Huge Dataset

|
|
-----> Tools to learn from the Data

|
Descriptive

- 1 measure of central tendency
- 2 Measure of dispersion
- 3 Histogram, Box plot
- 4 Types of distribution of data
- 5 PDF, PMF, Normal distribution,
Log normal distribution

|
Inferential

- 1 Hypothesis Testing
- 2 Z test, T - test
- 3 Chi square test
- 4 Anova test



Conclusions about population data. No work of all data, we work with sample data from the all data.

3. Differential Calculus

1. Derivatives, slope -> Visual diagram -> deriving equations
2. Tangent lines
3. Polynomial Expressions [Derivative of these expressions]
4. Trigonometric expression
5. Chain rule of derivative
6. Composite Function



Applications of linear Algebra, Stats, Differential In Data Science

- 1 Simple Linear Regression, Multiple Linear Regression.
- 2 Dimensionality Reduction [Principal Component Analysis] -> Eigen Values Eigen Vector
- 3 Neural Network is Trained -> ANN (Artificial Neural Network) -> Multi layered Neural Network