



## **Statistical Methods**

### **Duration- 2 Months**

**Introduction**

**Descriptive statistics**

**Classical and axiomatic definitions of Probability and consequences**

**Law of total probability**

**Conditional probability**

**Bayes' theorem and applications.**

**Discrete and continuous random variable**

**Distribution functions and their properties.**

**Standard discrete and continuous probability distributions**

- Bernoulli
- Uniform
- Binomial
- Poisson
- Geometric
- Rectangular
- Exponential
- Normal

**Random vectors**

**Joint and marginal distributions**

**Conditional distributions**

**Distributions of functions of random variables**

**Mathematical expectation and conditional expectation.**

**Central limit theorem**

**Hypothesis testing**

**Estimation and sampling techniques**

**Sampling distributions of sample mean**

**Sample variance**

**t, chi-square**

**F tests of significance based on them**

**Small sample tests**