DS805   **STATISTICAL INFERENCE FOR DATA SCIENCE I**   **3-0-0-3**

Unit-I: Probability Theory

Probability measure, conditional probability, random variable, independence, joint distribution, conditional distribution, expectation, variance, conditional expectation, convergence of random variables, law of large numbers, central limit theorem.

Unit-II: Survey Sampling

Simple random sampling, stratified sampling, population parameters, statistical experiment, observation units, inference based on resampling, p-values, confidence intervals.

Unit-III: Parameter Estimation

Method of moments, maximum likelihood method, large-sample theory for maximum likelihood, unbiased estimate, minimum variance estimate, Bayesian approach to estimation.

Text Books/ References:

J. Rice, "Mathematical Statistics and Data Analysis", Cengage Learning, 3rd Edition, 2006