

Probability and Statistics

Index

Chapter 1: Probability and Random Variables

- 1.1 Classical, Statistical and Axiomatic Definitions
- 1.2 Addition and Multiplication Theorems
- 1.3 Conditional Probability and Bayes Theorem
- 1.4 Discrete Random Variables
- 1.5 Continuous Random Variable
- 1.6 Moment Generating Function (MGF) of a Random Variable and Tchebyshev's Inequality
- 1.7 Exercise Problems

Chapter 2: Probability Distributions

- 2.1 Bernoulli and Binomial Distribution
- 2.2 Poisson Distribution
- 2.3 Normal Distribution

Chapter 3: Descriptive Statistics and Multivariate Analysis

- 3.1 Measures of Central Tendency
- 3.2 Measures of Dispersion
- 3.3 Measures of Skewness
- 3.4 Correlation and Regression Analysis

Chapter 4: Testing of Hypotheses

- 4.1 Inference Concerning Means & Variances
- 4.2 Large Sample Test: Type-I and II
- 4.3 t -Test and Test of Significance Based on t -Distribution
- 4.4 F-Test
- 4.5 Chi-Square (χ^2) Test

Chapter 5: Design of Experiments

5.1 Analysis of Variance (ANOVA)

5.2 Factorial Experiments