

Introductory Regular Course

For Session 2022-23

SEMESTER I/ II/ III

INTRODUCTORY STATISTICS

Paper code: IRC (STATISTICS)

Objective: To familiarize the students with various Statistical Data Analysis tools that can be used for effective decision making. Emphasis will be on the application of the concepts learnt.

UNIT I

Introduction: Definition of Statistics, Importance and Scope of Statistics, Limitation of Statistics.
Collection & Representation of Statistical Data: Statistical data, Primary and Secondary data, Methods of collection of data, tables, graphs and charts, summarization of Statistical data, Frequency distribution, Diagrammatic Representation of frequency distribution.

UNIT II

Measures of Central Tendency: Meaning of central tendency, Common measures of central tendency, Relationship among A.M, G.M and H.M, Weighted means, Quartiles, Deciles, and Percentiles.

UNIT III

Measures of Dispersion: Common measures of absolute dispersion, Comparisons of different absolute measures, properties of standard deviation, Measures of relative dispersion.
Moments, Skewness and Kurtosis: Different types of moments and their relationships, Meaning of Skewness and Kurtosis, different measures of skewness and kurtosis.

UNIT IV

Probability Theory: Meaning of Probability, Statement of total probability, compound, independent events, Bayes' theorem (Statement only) Sample problems on probability.

UNIT V

Correlation and Regression: Bivariate data, scatter diagram, simple correlation coefficient, simple regression lines, simple properties of correlation and regression.

UNIT VI

Hypothesis testing: Introduction, hypothesis and hypothesis testing, rationale for hypothesis testing, general procedures for hypothesis testing, errors in hypothesis testing and power of a statistical test.

SUGGESTED READING:

1. Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol. I & II, 8th Edn. The World Press, Kolkata.
2. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
3. Mood, A.M. Graybill, F.A. and Boes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn., (Reprint), Tata McGraw-Hill Pub. Co. Ltd.
4. Fundamentals of Mathematical Statistics, S. C. Gupta & V.K. Kapoor .