MC2133 STATISTICAL TECHNIQUES 3 0 0 3 Total Contact Hours - 45

PURPOSE

The course is designed to offer knowledge about the application of Statistical techniques for the analysis of biological data. It provides fundamental ideas on the useful of data analysis, interpretation and inference based on experimental data collected from the conduct of biological experiments. The relevance more on the analysis of biological data.

INSTRUCTIONAL OBJECTIVES

1. Data characteristics and form of distribution of Data Structure
2. To understand the exact method of data analysis for the problem under investigation.
3. For drawing valid inferences and to plan for future investigations.

UNIT I – MEASURES OF AVERAGES AND DISPERSION (9hours)
Measures Central Tendency, Dispersion, Skewness and Kurtosis.
UNIT II – BASCIS OF PROBABILITY AND STATISTICAL DISTRIBUTIONS (9 hours)
Basic Probability Theory – Probability density function – Mathematical Expectation – Basic Statistical Distributions (Binomial, Poisson and Normal Distributions).
UNIT III – CORRELATION AND REGRESSION ANALYSIS (9 hours)
Correlation – Simple, Partial and Multiple correlations: Regression – Simple Regression Models and Multiple regression models.
UNIT IV – SAMPLING THEORY AND HYPOTHESIS TESTING (9hours)
Basic Sampling Techniques – Sampling Distribution –Large Sample Tests – Chi-square Distribution – Small Sample Tests.
UNIT V – NON-PARAMETRIC METHODS AND ANALYSIS OF VARIANCE (9 hours)
Non-Parametric Methods – One sample and two sample tests – Analysis of variance – Principles of experimentation and Basic Experimental designs.

REFERENCES

1. S. C. Gupta and V. K. Kapoor, “Fundamentals of Mathematical Statistics” , 8 th Edition, Sultan Chand & Sons, Delhi, 2003.
2. S. C. Gupta and V. K. Kapoor, “Applied Statistics”, 8thEdition, Sultan Chand & Sons, Delhi, 2003.
3. Marcello Pagano and Kimberley Gauvreau, “Principles of Bio-Statistics”, 1st Edition, Duxbury: Thomson Learning, USA, 2000.
4. B. L. Agrawal, “Programmed Statistics” , 2nd Edition, New Age International (P) Ltd., New Delhi, 1996.