

**Bharathiar University: Coimbatore****B.Sc. Microbiology****BIostatistics AND COMPUTER APPLICATIONS - I**

(FIRST SEMESTER)

**UNIT - I-**

Nature and Scope of statistical methods and their limitations. Data collection, classification and tabulation. Primary and Secondary data and their applications in life sciences. Graphical Presentation. Line diagram, bar diagram and Pie chart. Histogram and Ogives.

**UNIT - II**

Measures of location and dispersion. Stem and leaf plots; Box and Whisker Plots. Coefficient of variation.

**UNIT - III**

Concept of Probability. Rules of Probability - addition and multiplication theorem (concepts without derivations). Binomial, Poisson and Normal distributions (applications only).

**UNIT - IV**

Introduction to Computers - Classification - generations - low, medium and high level languages - Software and Hardware - Operating Systems - Compilers and interpreters - Personal, mini, main frame and super computers their characteristics and application, BIT, BYTE, WORD computer memory and types; data representation and storage, binary codes, binary system.

**UNIT - V**

Microsoft Excel - Data entry - graphs - aggregate functions - formulas and functions (students are expected to be familiar with all operations). Different number systems and conversions, input and output devices, secondary storage media. Numerical Problems based on Units I to IV may be worked using Microsoft Excel.

**REFERENCES:**

1. Daniel W.W.(1995) BIostatistics: A foundation for Analysis in health sciences 6<sup>th</sup> edition John Wiley
2. Camphell R.C.(1989): Statistics for Biologists, Cambridge University Press.
3. Snedecor G.W. and Cochran W.G.(1967): Statistical Methods, Oxford Press.
4. R.K. Taxali: PC Hardware and software, Galgolia Publication.

REFERED: UGC model curriculum on MICROBIOLOGY

BIOSTATISTICS AND COMPUTER APPLICATIONS - II  
(SECOND SEMESTER)

UNIT - I

Related variables - Scatter diagram - linear regression and correlation - Coefficient of determination and rank correlation - Curve fitting.

UNIT - II

Concept of Sampling and sampling distribution - standard error - Test of hypothesis for means and proportions. Test based on 't', Chi-square and 'F' distributions

UNIT - III

Need for Sampling - Methods of sampling - Simple Random, Stratified Random, linear systematic and Cluster Sampling - Sampling and non-sampling errors.

UNIT - IV

Principles of scientific experiments - analysis of variance - One way and Two way Classifications - CRD and RBD.

UNIT - V

Non-parametric tests - Run, Median and Sign test. Test for independence of two attributes.

PRACTICALS:

Problems may be taken as relevant to all the units in the syllabi.

REFERENCES:

- 1) Daniel W.W.(1996) BIOSTATISTICS: A foundation for Analysis in health sciences 6<sup>th</sup> edition John Wiley
- 2) Campbell R.C.(1989): Statistics for Biologists, Cambridge University Press.
- 3) Snedecor G.W. and Cochran W.G.(1987): Statistical Methods, Oxford Press.
- 4) R.K. Taxali: PC Hardware and software, Galgotia Publication.

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