

II M.Sc BIOCHEMISTRY

SEM	Course Code	CORE PAPER - X RESEARCH METHODOLOGY AND BIOSTATISTICS	Total Marks: 100		Hours Per Week	Credits
			CIA:25	ESE:75	5	
III	17PBFCT301					4

Objective(s):

- To enable the student to understand the concept of the methods used in scientific research
- To emphasize on the importance of statistical concepts
- To provides guidelines on accessing scientific literature and preparing scientific papers and presentation

Course Outcome:

On successful completion of the course, Students will able to

- CO1 - Propose and distinguish appropriate research designs and methodologies to apply to a specific research project
- CO2 - Understand Data presentation techniques and research report writing
- CO3 - Know about averages in detail and interpret Correlation and Regression
- CO4 - Understand the concept of large samples with applications.
- CO5 - Know and apply test for small samples

UNIT I**Research and Research Design**

Research: Objectives of Research, Types & Significance of Research. Criteria for good Research, Selecting & defining a Research problem - Limitations in Research - Qualities of a Good Research Worker

Research Design

Need for Research design, Features of good Research design, Classifications of Research Design Hypothesis testing, Errors in Research Design.

UNIT II**Report Writing and Presentation of Data**

Report Writing: Significance of Report writing, different steps in Report writing, Bibliography, Types of Report, layout of Research paper. Writing research reports for Scientific Journals, Impact factor of Journals, Ethical issues related to publishing, Plagiarism and Self-Plagiarism, Shodhganga- Digital repository of Thesis, Intellectual Property Rights (IPR).

Presentation of Data: Graphical presentation - Tabular, Chart, Diagrammatic presentation.

UNIT III

Measures of Averages: Arithmetic Mean - Median - Quartiles and Deciles - Mode - Related problems.

Measures of Dispersion: Range - Quartile Deviation - Standard Deviation - Coefficient of Variation

Sample Correlation – Rank Correlation - Properties - Limitations.

Regression - Regression lines - Properties.

UNIT IV

Large Samples: Characteristic of a Sampling Distribution - Standard Error of the mean - Test of hypothesis - Significance Level - Test for a specified mean - Test for equality of two means - Test for specified proportion.

UNIT V

Small Samples t Test: Introduction - Uses of t Test - Properties of the sample distribution of t - Test for a specified mean - Test for equality of two means - t Test for paired observations. Analysis of Variance: One way and Two way classification - Chi Square test - Test of independent of attributes: SPSS packages.

Text Books

1. C.R.Kothari, “Research Methodology: Methods and Techniques”, New Age International Publication, 4th Edition, 2014.
2. P.R.Vittal, “Mathematical Statistics”, Margam Publications Chennai 2002.

Reference Books

1. R.S.N.Pillai & Bagavathi, “Statistics”, S.Chand and Company LTD, 7th Revised Edition 2008.
2. Danien, “Biostatistics – A foundation for analysis in health science” 6th edition, 1995.
3. Jerrold H.Zar, “Biostatistical analysis”- Pearson Education, 4th Edition, 1999.
4. S.Prasad, “Elements of Biostatistics”, Rastogi publications 2005, Meerut.
5. P.Raja, “Mathematics and Biostatistics”, Subash Publications 1999.
6. S.P.Gupta, “Statistical Methods” 28th edition, Sultan Chand & Sons (P) Ltd.

SECTION – A	SECTION – B	SECTION – C
10x1=10 Marks (Multiple choice, Four options) Two questions from each unit	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	3x10 = 30 Marks (Answer any three questions) One question from each unit