Faculty of Science and Humanities
B.Sc. (Microbiology) (Semester - 5)
In Effect from Academic Year 2023-24

Branch Name:	B.Sc. Microbiology
Program Code:	SC102
Course Name:	Biostatistics
Course Code:	2SC1020522
Pre-requisite Course:	Basics mathematics

Course Objective:

1. To understand collection ,classification and presentation of data.
2. To get an idea of importance of sampling and know various sampling method.
3. To apply statistics on the data collected.
4. To understand the importance of statistics in reaching to any conclusion.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
2	--	--	2	35	15	--	--	50

Subject Contents:

Unit	Content	Lectures	Weightage
1	**Introduction to Biostatistics** • Introduction to Biostatistics: Definition of statistics and biostatistics, Development of biostatistics, Applications and role of biostatistics • Sources and Presentation of Data: Types of data and Collection of data, Classification and tabulation, Diagram and Graph, Frequency distributions of data. • Sampling: Introduction and Definition, Types of population, Sample, sampling variation and Bias, Listing of population and sample size	13	45%
2	**Tools and Techniques for data-analysis** • Measures of central Tendency: Mean, Median and Mode, Position of averages, Selection of the appropriate measure of central Tendency, Geometric mean and Harmonic mean • Chi-Square Test: The formula for Chi-Square Test, Distribution of Chi-Square Test and degree of freedom, Application of Chi-Square Test • Student t-test: Introduction, Student's t-Distribution, Application of t-Distribution • Analysis of Variance (ANOVA): Principle of ANOVA, Partitioning of ANOVA, Comparison of pairs of Means, Assumption Underlying ANOVA, Application of ANOVA	17	55%

Text books:

1. Textbook of Medical Laboratory Technology by Praful B. Godkar

Reference Books:

1. Baker, F., Silverton, R.R. PallisterC..T. (1998) Baker and Silverton's Introduction to Medical Laboratory Technology. (7th edn.) Butterworths. Heinemann. Oxford. UK

List of Open Source Software/learning website:

1. https://www.youtube.com/watch?v=dvEk5PxZ9Ko

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Learn the basics of data collection and presentation.	1 Remember
CLO2	Basically, understand the factors responsible sampling.	2 Understand 3 Apply
CLO3	Apply the measure of central tendency in taking decisions	3Apply
CLO4	Analyze the data for reaching to a conclusion .	4 Analyze
CLO5	Think critically about and applying various tool for data analysis	5 Evaluate
CLO6	The Student would be able to create a new process by applying the biostatistics tool.	2 Understand 6 Create

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes (POs)									Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CLO1	M	M				M		M				
CLO2	H	H	M		M			L	M			
CLO3	M	M	H					M	M		M	
CLO4	M				M				H	M		
CLO5	M		H		M					H		
CLO6				H		M	H		H		H	M

L= Low M= Medium H= High