

BIOSTATISTICS

Sem	Sub Code	Category	Lecture		Theory		Practical		Credit
			Per week	Per sem.	Per week	Per sem.	Per week	Per sem.	
V	21CBC5D	Elective	3	45	3	45	-	-	3

COURSE OBJECTIVE:

To enable the students to acquire skills in data collection and data management and apply appropriate statistical methods for analyzing variables and Interpret statistical results effectively in context.

COURSE OUTCOMES:

On the successful completion of the course, students will be able to -

CO. Number	CO statement	Knowledge level (K1-K4)
CO1	Describe the basic principles, the role biostatistics serves in biomedical research and assess data sources and data quality for the purpose of selecting appropriate data.	K3
CO2	Identify, differentiate, determine the value and the relationship between the mean, the median, and the mode of data.	K3
CO3	Understand hypothesis testing, verify the conditions and explain the meaning of significance level in context.	K2
CO4	Describe basic principles and the practical importance of key concepts from probability	K1
CO5	Students will have developed problem solving abilities in biostatistics, characterised by flexibility of approach.	K3

*CO – course Outcomes Knowledge Level: K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze.

MAPPING WITH PROGRAMME OUTCOMES:

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	S	S	S
CO2	S	M	S	S	M	M
CO3	M	M	M	L	S	M
CO4	M	S	L	M	S	L
CO5	L	L	M	M	M	L

(S- Strong; M-Medium; L-Low)

UNIT I:

Nature and Scope of Statistics

8 Hours

Nature and scope of statistical methods and their limitation. Data –definition, primary and secondary data, Collection of data - choice of methods, Questionnaire method- framing a questionnaire, classification of data, Tabulation of Statistical data. Diagrammatic and graphical representation of data.

UNIT II:

Measures of Central Tendency

10 Hours

Measures of central Tendency – Definition, Types of Averages – Mean, Median, Mode, Arithmetic mean, Geometric mean. Measures of dispersion. Need and definition, Range, Mean deviation, Quartile Deviation, Decile range, Standard deviation.

UNIT III:

Sampling Design

10 Hours

Introduction – Hypothesis , Null Hypothesis. Sampling – Necessity of sampling , Law of Statistical Regularity, Law of Inertia of Large numbers. Merit and demerits of sampling. Methods of sampling (Random, Deliberate sampling).

UNIT IV:

Probability

10 hours

Probability – Concepts, Events, Type and distribution patterns, Binominal and Normal distribution, Test of Significance of Larger Sample, Sampler Sample (t-Test) and Chisquare test for independent attributes.

UNIT V:

Correlation and Regression

7 Hours

Bivariate frequency table and its uses – Correlation Analysis, Scatter Diagram – Karl Pearson's Correlation Coefficient – Spearman's Rank correlation – Regression Analysis, Regression lines – Fitting of straight line using method of least squares.

DISTRIBUTION OF MARKS: Theory - 75% and Problems – 25%

TEACHING METHODOLOGY

- Lectures and demonstration by audio visual aids
- Classical chalk and board
- Learning through group discussions
- Tutorials
- Assignments
- Students seminars
- Interactive learning
- Self-study

TEXT BOOKS:

S. NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	P.R.Vital	Business Mathematics and Statistics	Margham Publications	2013

REFERENCE BOOKS:

S. NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	S.C.Gupta and V.K.Kapoor	Fundamental of Mathematical Statistics	Sultan Chand & Sons	2000
2.	Snedecor G.W. and Cochran W.G.	Statistical methods	Oxford and IBH Publishing Co.,	1967

3.	Rohatgi, V.K.andSaleh, A.K.	An Introduction to Probability and Statistics	John Wiley & Sons.	2001
4.	S.P.Gupta	Practical Statistics	Sultan Chand & sons	1979
5.	Gurumani N	An Introduction to Biostatistics	MJP Publishers.	2005

WEB SOURCES:

- www.scribd.com/doc/234328874/Business-Mathematics-and-Statistics-pdf
- www.scimagojr.com/journalrank.php?category=2613
- www.math.louisville.edu/~pksaho01/teaching/Math662TB-09S.pdf

SYLLABUS DESIGNER:

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