

## **ELECTIVE 1V**

### **BIOSTATISTICS**

<b>Semester</b>	<b>Subject code</b>	<b>Categor y</b>	<b>Lecture</b>		<b>Theory</b>		<b>Practical</b>		<b>Credi t</b>
			<b>Tota l hrs</b>	<b>Hrs/ wee k</b>	<b>Tota l hrs</b>	<b>Hrs / wee k</b>	<b>Tot al hrs</b>	<b>Hrs/ wee k</b>	
IV		Elective	90	6	90	6	0	0	3

#### **COURSE OBJECTIVES**

To enable the students to understand Biostatistics

#### **COURSE OUTCOMES**

On the successful completion of the course, students will be able to understand the key things about Biostatistics

<b>CO Number</b>	<b>CO Statement</b>	<b>Knowledge level (K1-K4)</b>
<b>CO1</b>	To acquire the skills in data collection and data management, including database design, quality control procedures and the ethical handling of data	<b>K2</b>
<b>CO2</b>	To develop problem solving abilities in biostatistics, characterized by flexibility of approach	<b>K2</b>
<b>CO3</b>	To acquired the technical skills to be able to read methodological papers in the biostatistical literature and apply the methods described there in to practical problems	<b>K3</b>
<b>CO4</b>	To acquire skills in complex statistical analyses to handle a variety of practical problems using modern statistical techniques and software	<b>K3</b>

<b>CO5</b>	To develop skills to identify the relevant statistical issues in practical problems in medical or analysis methodology	<b>K3</b>
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#### **MAPPING WITH PROGRAMME OUTCOMES:**

<b>COS</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>
<b>CO1</b>	S	S	S	S	S	S
<b>CO2</b>	M	S	M	S	S	S
<b>CO3</b>	S	S	S	S	S	S
<b>CO4</b>	S	M	M	S	S	S
<b>CO5</b>	S	M	M	S	S	S

**S- Strong;**

**M- Medium;**

**L- Low**

#### **Unit-I: Introduction to Biostatistics**

**18 hrs**

Basic definitions and applications. Data collection and presentation: Types of data, methods of collection of primary and secondary data, methods of data presentation, graphical representation by histogram, polygon, ogive curves and pie diagram.

#### **Unit- II: Measures of Central Tendency**

**18 hrs**

Frequency distribution, Arithmetic mean, Mode, Median and Percentiles. Measures of variability: Range, mean deviation. standard deviation and co-efficient of variation. Quartiles-QD, percentiles

#### **Unit- III: Analysis of Variance**

**18 hrs**

Correlation and regression: Positive and negative correlation and calculation of Karl-Pearson's co-efficient of correlation, spearman rank correlation, regression equation and regression analysis.

**Unit-IV: Probability & its Distributions****18 hrs**

Probability: types of event, sample space, definition, conditional probability, addition and multiplication rules of probability and some simple problems. Probability distributions- Binomial, Poisson and a few simple problems.

**Unit-V: Hypothesis Testing Methods****18 hrs**

Testing of hypothesis: basic concepts and definitions, types of errors. Tests based on Normal, student's t, chi-square and F distributions, ANOVA, Non Parametric Methods

**DISTRIBUTION OF MARKS:** Theory - 100% and Problems – Nil

**TEACHING METHODOLOGY:**

- ❖ Lectures
- ❖ Power point presentation
- ❖ Charts
- ❖ Models
- ❖ Group discussion
- ❖ Group assignments
- ❖ Seminars

**TEXT BOOKS:**

S.No	Authours	Title	Publishers	Year Of Publication
1.	S.P.Gupta	Statistical Methods	Sultan and chand sons	2015
2.	N.Gurumani	Introduction to Biostatistics	MJP Publishers	2015
3.	Bailey Norman T.J	Statistical methods in biology	Cambridge university press	2010
4.	N.Ramakrishnan	Biostatistics	Saras publications	2011

**REFERENCES BOOKS:**

S.No	Authours	Title	Publishers	Year Of Publication
1.	Daniel.G	Biostatistics	Panima Publishing Corporation	1999
2.	Khan.H	Fundamentals of Biostatistics	Panima Publishing Corporation	1999
3.	Wardlaw, A.C.	Practical Statistics for Experimental Biologists	Wiley Blackwell	2000
4.	Bazin M.J	Mathematics in Microbiology	Saras publications	1983
5.	.Green, R.H	Sampling design & Statistical methods for environmental Biologists	Wiley Int. N.Y.	1979
6.	Campbell, R.C.	Statistics for Biologists	Cambridge Univ. Press, Cambridge	1974
7.	Bliss, C.I.K.	Statistics in Biology	Mc Graw Hill, New York.	1967

**WEB REFERENCES:**

[http:// www.math.uorku.ca/scs/stat](http://www.math.uorku.ca/scs/stat) Resource. html#lienca1

[http:// www.biostat.havard](http://www.biostat.havard). Edn/links/.

[http:// www.ped .med. Utah edu/ genpedscrr/Epibin.html](http://www.ped.med.Utah.edu/genpedscrr/Epibin.html).

[http:// www.sunmed.org/basicbios](http://www.sunmed.org/basicbios). html.

[http:// www.bettyjung.net/statisites.html](http://www.bettyjung.net/statisites.html).

**SYLLABUS DESIGNER:**

1. Mrs. S.Arunadevi Assistant Professor
2. Dr. A.Vidhya HOD &Assistant Professor

