Name of Teacher	Dr. Shibaji Baghar **(SB)** Dr. Amit Vashishtha **(AV)**	Department	Botany
Course	B.Sc (H) Botany	Semester	V
Paper	Biostatistics	Academic Year	2023-24

Learning Objectives

Understanding of interpreting the scientific data that is generated during scientific experiments.
It is the responsibility of biostatisticians and other experts to consider the variables in subjects to understand them, and to make sense of different sources of variation. In essence, the goal of biostatistics is to disentangle the data received and make valid inferences that can be used to solve problems in public health. Biostatistics uses the application of statistical methods to conduct research in the areas of biology, public health, and medicine. Many times, experts in biostatistics collaborate with other scientists and researchers.

Learning Outcomes

Students will acquire:

> (a) knowledge of Statistics and its scope and importance in various areas such as Medical, Engineering, Agricultural and Social Sciences etc.
> (b) knowledge of various types of data, their organization and evaluation of summary measures such as measures of central tendency and dispersion etc.

- The students will acquire knowledge about Correlation and regression, major similarities and Dissimilarities between them. simple regression equation and fitting prediction.

- Students' will get basic knowledge about important inferential aspects such as point estimation, test of hypotheses and associated concepts, simple hypothesis – student 't' test - chi square test and F-Test.

- This course will acquaint the students (a) with various basic concepts on sampling distributions and large sample tests based on normal distribution, (b) with small sample tests based on chi-square, Student's

- This course will acquaint students with the uses of advance softwares (MS-excel, SPSS, Sigmaplot and R) in modern biostatistics

Lesson Plan	
Week No. with Dates	Theme/ Curriculum
1. 16th Aug-20th Aug	Introduction to statistics, Biostatistics – definition **(SB)** Measures of central tendency - mean, median **(AV)**
2. 21st Aug-27th Aug	statistical methods - basic principles, Introduction to variables **(SB)** Measures of central tendency – mode, merits & demerits of harmonic and geometric mean **(AV)**
3. 28th Aug-3rd Sept.	Variables -measurements, functions **(SB)** Measures of dispersion - range, standard deviation **(AV)**
4. 4th Sept-10th Sept.	Limitations and uses of statistics **(SB)** Measures of dispersion - mean deviation, standard error **(AV)**
5. 11th Sept-17th Sept.	Introduction to Correlation and its types **(SB)** skewness and kurtosis **(AV)**
6. 18th Sept-24th Sept.	methods of correlation-Karl Pearson Coefficient of Correlation **(SB)** Quartile deviation –merits and demerits **(AV)**
7. 25th Sept-1st Oct.	methods of correlation- Spearman Rank methods **(SB)** Co- efficient of variations **(AV)**
8. 2nd Oct.-08th Oct.	Regression, simple regression equation **(SB)** Collection of data: primary and secondary types **(AV)**
9. 9th Oct -15th Oct	Fitting prediction, similarities and dissimilarities of correlation and regression **(SB)** Methods of data collection procedures - merits and demerits **(AV)**
10. 16th Oct-22nd Oct	Statistical inference - hypothesis - simple hypothesis **(SB)** procedures of data collection **(AV)**
11. 23rd Oct.-29th Oct.	Student't' test **(SB)** Merits and demerits of different data collection methods **(AV)**
12. 30th Oct.-5th Nov	Chi square test **(SB)** Classification of data **(AV)**
13. 6th Nov.-12th Nov	F-test **(SB)** Sampling methods **(AV)**
14.13th Nov - 19th Nov	Basic concept of probability, Introduction to bionomial, poisson and Normal distribution **(SB)** Tabulation of data **(AV)**

15. 20th Nov-26th Nov.	Class Test week
16. 27th Nov-3rd Dec	Uses of advance softwares (MS-excel, SPSS) in modern biostatistics **(SB)** Presentation of data **(AV)**
17. 4th Dec-05th Dec.	Uses of advance softwares (Sigma plot and R) in modern biostatistics **(SB)** Presentation of data **(AV)**
18. 6th Dec-12th Dec.	Dispersal of classes, preparation leave and practical examination begin
19. 13th Dec	Commencement of theory examinations

Books	**1.** Zar, J.H. (2012). *Biostatistical Analysis*, 4th edition. London, London: Pearson Publication. **2.** Danniel, W.W. (1987). *Biostatistic.* New York,NY: John Wiley Sons. **3.** Khan, I.A., Khanum, A. (2004). *Fundamentals of Biostatistics*, 5th edition. Hyderabad: Ukaaz publications. **4.** Pandey, M. (2015). *Biostatistics Basic and Advanced.* New Delhi, Delhi: M V Learning. **5.** Rastogi, V.B., (2015). *Biostatistics, 3rd* edition Medtech Science Press
Online Resources (If Any)	**1.** **2** **3** **4**
	Assignment: Collection of Assignment by 20th November 2023. **Class Test:** Class Test Scheduled on 23rd November 2023 for the Semester.