(Bachelor of Science in Statistics) (Bachelor of Science)
(B. Sc.) (Statistics) Semester (III)

Course Code	US03SESTA01	Title of the Course	ELEMENTS OF PROBABILITY IN BIOSTATISTICS
Total Credits of the Course	02	Hours per Week	02

Course Objectives:	1. Understand the basic principles of probability theory 2. Understand the basic concepts of probability distributions to learn concepts of testing of hypothesis

Course Content		
Unit	Description	Weightage* (%)
1	Some Basic Probability Concepts: Operations on events and probability, Elementary properties of probability, Calculating the probability of an event, Conditional probability, Bayes' theorem, diagnostic tests – sensitivity and specificity	50
2	Discrete Probability Distributions: Binomial and Poisson and its applications in the field of Biosciences. Continuous Probability distribution: Normal distribution, Definition, Properties (without proof), Area under normal curve, Applications	50

Teaching-Learning Methodology	

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage

1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Apply the concepts of probability distributions applied in the field of bioscience.
2.	Understand and use of Binomial and Poisson distributions in real life.
3.	Understand and use of Normal distribution in real life.

Suggested References:	
Sr. No.	References
1.	Mahajan B.K : Methods in Biostatistics for Medical students and Research workers, Jaypee Brothers Medical Pub.
2.	Sancheti D.C. and Kapoor V.K. : Statistics
3.	Wayne W. Daniel: Biostatistics – A Foundation for Analysis in the Health Sciences, seventh edition, Wiley India edition.
4.	Marcello Pagano: Principles of Biostatistics, Second edition, by Cengage learning, India edition.

On-line resources to be used if available as reference material
On-line Resources

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SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2026-2027

B.Sc.(Any B- Group Subject) (Faculty of Science)
Skill Enhancement Course
Second year Semester (III)

Course Code	US03SESTA02	Title of the Course	STATISTICS PRACTICAL-III
Total Credits of the Course	02	Hours per Week	04

Course Objectives:	To study the basic concepts of probability and apply probability methods for solving statistical problems. To study Bernoulli, Binomial and Poisson probability distributions and apply them for solving problems involving discrete random variables. To study Normal probability distributions and apply them for solving problems involving continuous random variables.

List of Practical

Sr.	Manual
1	Application of Probability Theorems for Two Events.
2	Determination of Union and Intersection Probabilities for Two Events.
3	Calculation of Probability for Mutually Exclusive and Independent Events.
4	Study of Addition and Multiplication Laws of Probability for Two Events.
5	Study of Bernoulli Distribution through Numerical Examples.
6	Study of Binomial Distribution through Numerical Examples.
7	Study of Poisson Distribution through Numerical Examples.
8	Study of Normal Distribution through Numerical Examples.
9	Application of the Normal Distribution Using Areas Under the Normal Curve.

References

Sr. No.	Text Books
1.	Gupta, S. C., & Kapoor, V. K. (2014). *Fundamentals of mathematical statistics*. Tata McGraw-Hill Education.
2.	Gupta, S. P. (2018). *Statistical methods*. Sultan Chand & Sons.
3.	Goon, A. M., Gupta, M. K., & Dasgupta, B. (2016). *Fundamentals of statistics (Vol. 1)*. The World Press
4.	Triola, M. F. (2018). *Elementary statistics*. Pearson Education.
5.	Spiegel, M. R. (2017). *Schaum's outline of statistics*. McGraw-Hill.
6.	Saurabh R. Chaudhari, Dharmesh P. Raykundaliya. (2025). *Statistical Analysis Made Simple Using Microsoft Excel*. Madhuvan S & G Store.

D.P. Raykundaliya 25/06/26