Department of Liberal Education
Era University, Lucknow
Course Outline
Effective From: 2023-24

Name of the Program	**B.A. / B.Sc. (LIBERAL EDUCATION)**			**Year/ Semester:**	**1st / 1st**
Course Name	**Descriptive Statistics**	**Course Code:**	**ST101**	**Type:**	**Theory**
Credits	**05**			**Total Sessions Hours:**	**75 Hours**
Evaluation Spread	**Internal Continuous Assessment:**	**50 Marks**		**End Term Exam:**	**50 Marks**
Type of Course	○ Compulsory	◉ Core		○ Creative	○ Life Skill
Course Objectives	Statistics provide individuals with innumerable skills that are indispensable in problem-solving and decision making in the field of modern science, technology and industry. 1. This course attempts to teach students a few simple statistical tools that will enhance their ability to deal with more complex, real-world problems. 2. It will teach students to review the fundamental knowledge and understanding of the principles and nature of statistics, identify the usage of statistics in everyday life, and summarize statistical information effectively. 3. This paper will cover concepts such as Descriptive Statistics, Data Visualization, Correlations and their applications in real life.				

Course Outcomes (CO): *After the successful course completion, learners will develop following attributes:*

Course Outcome (CO)	**Attributes**
CO1	Students will be able to understand the meaning and importance of statistics, identify statistical populations and variables, design questionnaires for primary data collection, and effectively utilize secondary data.
CO2	Students will be able to classify and tabulate data, represent grouped data graphically using histograms, frequency polygons, ogives, and box plots, and interpret frequency distributions and cumulative frequency distributions.
CO3	Students will be able to calculate and interpret measures of central tendency (mean, median, and mode) and measures of dispersion (range, inter-quartile range, standard deviation, and quartile deviation), understand their properties, and assess their merits and demerits. They will also gain proficiency in using software tools like Excel, R, or SPSS to compute these measures.
CO4	Students will be able to comprehend the concept of bivariate data, different types of correlations and their application in real life problem. Student will learn about the basic difference between Pearson and Spearman correlation keeping in mind their applied usage.
Pedagogy	Interactive, discussion-bases, student-centered, presentation.
Internal Evaluation Mode	Mid-term Examination: 20 Marks Activity: 10 Marks Class test: 05 Marks Online Test/Objective Test: 05 Marks Assignments/Presentation: 05 Marks Attendance: 05 Marks

Session	**Topic**	**Hours**	**Mapped**

Details			CO
Unit 1	Introduction to Statistics, Meaning of Statistics, Importance and scope of Statistics. Concept of Statistical population, Attributes and Variables (Discrete and Continuous), Different types of scales, Primary data –designing a questionnaire, collection of primary data, checking their consistency, Secondary data.	15	CO1
Activity (Unit-1)	Chart model of Primary and Secondary data.		
Unit 2	Presentation of data : Classification, Tabulation, Graphical Representation of Grouped data, Frequency distributions, Cumulative frequency distributions and their graphical representations, Histogram, Frequency polygon, Ogives and Box Plot.	20	CO2
Activity (Unit-2)	Drawing Histogram, Frequency polygons, frequency curves and Ogives on Chart Paper.		
Unit 3	Measures of Central tendency (Mean, Median and Mode) and Measures of Dispersion (Range, Inter-quartile range, Standard deviation, Quartile deviation). Properties of the Measures of Central tendency and Measures of Dispersion, Merits and Demerits of these Measures, Skewness and Kurtosis.	20	CO3
Activity (Unit-3)	Finding Measures of Central Tendency and Dispersion on excel/R /SPSS.		
Unit 4	Bivariate data, Construction of Bivariate frequency table, Meaning of Correlation, Karl-Pearson's Correlation Coefficient and its properties. Rank correlation and its coefficient (Spearman), Rank Correlation for tied Ranks, Scatter plot.	20	CO4
Activity (Unit-4)	To construct scatter plot and compute correlation coefficient between BMI and Systolic BP using primary data in excel.		

CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2			3	3	2			1		3	3		
CO2		2							2		3	3		
CO3			2			3					2	2		
CO4	2	3				2	1		2	2	3		1	

Strong contribution-3, Average contribution-2 , Low contribution-1,

Suggested Readings:

Text- Books

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2013). Fundamental of Statistics, Vol I, World Press, Kolkata.
2. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2011). Fundamental of Statistics, Vol II, World Press, Kolkata.
3. Mood, A.M. Graybill, F.A. and Boes, D.C. (2011). Introduction to the Theory of Statistics, 3rd Edn., Tata McGraw-Hill Pub. Co. Ltd.

Reference Books

1. Gupta, S.C. and Kapoor, V.K. (2000). Fundamentals of Mathematical Statistics (10th ed.), Sultan Chand and Sons.
2. Weatherburn, C.E. (1961). A First Course in Mathematical Statistics, The English Lang. Book Society and Cambridge Univ. Press.

Para Text	**Unit 1:** https://www.youtube.com/watch?v=kj-49hK6zD8 https://www.youtube.com/watch?v=7r8D-jg7Kh0 **Unit 2:** https://www.youtube.com/watch?v=gJDSEfOdFqE https://www.youtube.com/watch?v=dyEYxAbtSpE **Unit 3:** https://www.youtube.com/watch?v=ahm56xn5kQg https://www.youtube.com/watch?v=sRVNudeEPbA **Unit 4:** https://www.youtube.com/watch?v=XV_W1w4Nwoc https://www.youtube.com/watch?v=jFNSVZIneg4

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester	20	**Section A:** Contains **10** MCQs/Fill in the blanks/One Word Answer/ True-False type of questions. Each question carries **0.5 mark.** **Section B:** Contains **07** descriptive questions out of which **05** questions are to be attempted. Each question carries **03 marks**.
Activity	10	Will be decided by subject teacher
Class Test	05	Contains **05 descriptive questions.** Each question carries **01** mark.
Online Test/ Objective Test	05	Contains **10 multiple choice questions.** Each question carries **0.5** mark.
Assignment/ Presentation	05	Assignment to be made on topics and instruction given by subject teacher
Attendance	05	As per policy
Total Marks	**50**	

Course created by: **Dr. Abdul Quddoos**
Dr. Nazia Naqvi

Signature:

Approved by: Prof. Shashi Bhushan

Signature: Shashi Bhushan