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:	3rd /6th
Course Name	Statistical Computing and Introduction to Statistical Software	Course Code:	ST305P	Type:	Practical
Credits	01			Total Practical Hours:	30 Hours
Evaluation Spread	Internal Continuous Assessment:	10 Marks		End Term Exam:	15 Marks
Type of Course	◯ Compulsory	◉ Core		◯ Creative	◯ Life Skill
Course Objectives	1. It attempts to make students familiar with statistical software like R and SPSS. 2. It will teach students to review their fundamental knowledge and understanding of the application of statistics, identify the techniques to be used under a given situation and employ packages and command in R and SPSS to find a solution to a practical example dealt in numbers. 3. This paper will cover concepts such as Correlation and Regression, parametric and non-parametric testing through and their practical implementation in the software induced environment.				

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

Course Outcome (CO)	Attributes
CO1	To understand fundamentals of R and SPSS basic environment and packages related to manipulation of data.
CO2	To be able to visualize the imported data through graphs and charts expressing its summary/descriptive statistics.
CO3	To have the ability to estimate unknown parameters and to perform testing of hypothesis to solve specific problems.
CO4	To be able to run correlation and regression analysis to predict the degree and form of relationship between variables based on data related to everyday life.
Pedagogy	Interactive, discussion-based, student-centered. program outputs.
Internal Evaluation Mode	Experiment-Writing and Conductance File Maintenance/ Laboratory Record Continuous Attendance and Participation

Practical No.	Experiments	Contact Hours	Mapped CO
1.	• Problems related to exporting data and data description in SPSS and R. • Problems related to cleaning of data and manipulation of data in SPSS and R.	4	CO1
2.	• Problems related to visualization of different types of data in R and SPSS	6	CO2

3.	• Problems related to construction/ coding of new variables in R and SPSS. • Problems related to estimation of parameters from sample in SPSS and R.	6	CO1, CO3
4.	• Problems related to parametric testing of hypothesis in R and SPSS. • Problems based on non-parametric tests in SPSS and R.	6	CO3
5.	• Problems related to computing of correlation coefficient in R and SPSS. • Problems based on regression analysis in R and SPSS.	8	CO3, CO4

CO-PO and PSO Mapping

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

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

Suggested Readings:

Reference Books	1. Chambers, J. (2008). Software for Data Analysis: Programming with R, Springer. 2. Margan G A: SPSS for Introductory Statistics; Uses and Interpretation.
E-Resources	1. http://heecontent.upsdc.gov.in/SearchContent.aspx 2. https://swayam.gov.in/explorer?searchText=statistics 3. https://nptel.ac.in/course.html 4. https://www.edx.org/search?q=statistics

Internal Practical Evaluation:

Component	Marks
Experiment-Writing and Conductance	5
File Maintenance/ Laboratory Record	2
Continuous Attendance and Participation	1
Viva-Voce	2
Total Marks	10

Course created by: Dr. Nazia Naqvi **Dr. Abdul Quddoos** **Signature:**	**Approved by: Prof. Shashi Bhushan** *Shashi Bhushan* **Signature:**