

# **St Xavier's University Kolkata**

## **Faculty of Arts & Social Studies**

### **Department of Economics**

#### **Value-Added Course**

**Course Name: Data Analysis with R**

**Course Coordinator(s): Subhanil Chowdhury & Chayanika Mitra**

**Credit: 2**

**No of Hours: 30**

#### **Course Outcomes (CO):**

CO1: This course is designed to expose the students to the basic data analysis by using the software R.

CO2: Students will learn to think like data analysts

CO3: Students will learn how to use statistical concepts to analyse real-life situations.

CO4: Students will learn regression techniques using R

#### **COURSE CONTENT**

<b>Module No.</b>	<b>Module Name</b>	<b>Topic</b>	<b>No. of Lecture/Practical Hours allotted</b>	<b>Marks Allotted</b>	<b>Associated CO</b>
I	Introduction to R	Basics of R. Loading R and RStudio. Introducing R programming. Data types in R—Data structures in R—vectors, matrix, dataframe, table, etc. Mathematical and logical operations with R Conditional statements. Introduction to R graphics—ggplot2.	5	16.5%	CO1, CO2

		<p>Writing your own functions</p> <p>Generate automated reports giving detailed descriptive statistics and graphical analysis.</p> <p>.</p>			
II	Data management with R	<p>Learn how to load data, import data, code editing. Extraction of economic and financial data from RBI, IMF, World Bank, etc</p> <p>Reading data in R (file formats like csv, xlsx, dat, sas etc.</p> <p>Dplyr/tidyr package to manipulate and clean data. Exploratory data analysis and data visualization</p>	5	16.5%	CO2, CO3
III	Basic Statistics & Regression Analysis with R	<p>Simple analysis and create and manage statistical analysis projects.</p> <p>Descriptive statistics—mean, median, variance, skewness, kurtosis etc.</p> <p>Summarizing large data into basic descriptive statistics.</p> <p>Data simulations with R.</p> <p>Regression analysis with R—Simple and multiple regression—basic idea of OLS with R packages. Lmtest and other packages to</p>	20	67%	CO3, CO4

		understand regression results. Logit/probit regression with R			
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### Suggested Readings:

Braun, W. J., & Murdoch, D. J. (2021). *A First Course in Statistical Programming with R*. Cambridge University Press.

Gardener, M. (2012). *Beginning R: The Statistical Programming Language*. John Wiley & Sons.

Grolemund, G., & Wickham, H. (2017). *R for Data Science: Import, Tidy, Transform, Visualize and Model Data*. O'Reilly Media.

Hothorn, T., & Everitt, B. S. (2014). *A Handbook Of Statistical Analyses Using R*. CRC press.

### Teaching Pedagogy:

S. No.	Description	Used (Yes/No)
1	Lecture	Yes
2	Practical	Yes
3	Case Study	
4	Test/Assignment	
5	Student Seminars/Presentation	

### Evaluation Plan:

S. No.	Evaluation Components	Mode (Individual/Group)	Marks	Remarks
1	Practical	Individual	Practical	
2				
	<b>Total Marks</b>		100	

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Course Coordinator(s)

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Head  
Department of  
Economics

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Dean  
Faculty of Arts & Social Studies

