

OBE based Teaching Lesson Plan 2019-20

Program: B. Com Analytics

Course Name: Business Statistics with R Programming

Course Code: C5 19 MC 401

Semester: IV

Lecture hours: 60 Hours

Faculty in-charge: Sachin Tripathi

Course Outcome No.	Course Outcomes	T level Indicator
CO1.	Describe a given data set from scratch using descriptive statistics and graphical methods as a first step for more advanced analysis using R software	T2, T3, T4
CO2.	Understand and implement descriptive statistics, measures of central tendency and variability on R platform.	T1, T2, T3
CO3.	Gain the ability to understand fundamental probability concepts, additive rule, conditional probability, probability distributions.	T2, T3, T4
CO4.	Understand statistical inference techniques, levels of significance, types of errors, hypothesis testing.	T2, T3, T4, T5
CO5.	Implementation of Statistical Procedures such as ANOVA, Chi Square, proportion test, etc. test using R.	T2, T3, T5
CO6.	Gain an understanding of correlation, regression, R square, standard errors, variance inflation factor.	T2, T3, T4, T5
CO7.	Implement, encode high quality visuals, graphs and plots with regards to statistics using R.	T1, T2
CO8.	Practically implement statistical methods and techniques, probability techniques. Employ proper statistical tests based on the characteristics of data in hand.	T2, T3, T4, T5
CO9.	Understand and incorporate exploratory data analysis based on different statistical parameters using R.	T1, T2, T3, T4, T6

Module No. & Topics Covered	Course Outcome No.	No. of Lecture Hours	Pre-Class Activity	Instructional techniques	Assessment	T level
Module 1: Introduction to R Programming	1, 7	12	Revision of data imports and functions usability in R IDE.	Referring official documents and help section of R Studio for syntax formulation and functions	Presentation on Factor Data Types	T1, T2, T3, T4
Module 2: Descriptive Statistics	2, 7, 9	12	Revisiting the basics of plotting-histogram to understand mean, median, mode visually	Understanding the mathematics behind a concept along with visual cues is important.	Presentation on Data Measurement Scales	T1, T2, T3, T4, T6
Module 3: Probability, Probability & Sampling Distributions	3, 7, 8	12	Discussion of simple probabilistic problems	Dry running a programmable concept before implementing it in R.	Programming Assignment	T2, T3, T4, T5

Module 4: Statistical Inference and Hypothesis Testing	4, 5, 8	12	Discussio n of simple hypothesis problems and inference basics	Using official R documentatio n and package descriptions for easy implementati on	Programmin g Assignment	T2, T3, T4, T5
Module 5: Correlation and Regression	6, 7, 8	12	Discussio n on line of best fit, why different pairs have slightly different equations for line for best fit.	Give students scenarios and case studies based on correlation and regression.	Programmin g Assignment	T2, T3, T4, T5

Continuous Internal Assessment –

- Power point presentation on the given topic.
- Programming Assignments.
- Class test

Books for Reference:

1. Constantin Colonescu, 2018, *R Guide for Business Statistics*, CreateSpace.
2. Robert Stinerock, 2018, *Statistics with R: A Beginner's Guide*, Sage.
3. K G Srinivasa, G M Siddesh, Chetan Shetty, B J Sowmya, 2017, *Statistical Programming in R*, Oxford University Press.
4. Galit Shmueli, Peter C Bruce, Inbal Yahav, Nitin R Patel, Kenneth C Lichtendahl, 2017, *Data Mining for Business Analytics: Concepts, Techniques and Applications in R*, Wiley.
5. David R Anderson, Thomas A Williams, Dennis J Sweeney, Jeffrey D Camm, James Cochran, 2015, *Statistics for Business and Economics*, Cengage Learning.
6. Mohammed J Zaki, Wagner Meira JR, 2014, *Data Mining and Analysis: Fundamental Concepts and Algorithms*, Cambridge University Press.

Approved by: