



W M O Arts & Science College, Muttil

Department of Statistics

CERTIFICATE COURSE

On Advanced Programming in R

No. of Hours: 30

Course Co-ordinator: Madhusoodhanan Kizhakkeyppath

Course Description:

This course is designed to help students to understand more about probability, sampling methods, inferential statistics and data analytics. The course includes activities related to various topics from probability theory, sampling methods, hypothesis tests and linear regression including problem-solving strategies. The course is useful to develop skill in programming in R.

Course objectives:

On successful completion of the course, students will achieve the following

- Have confidence in their ability to explain probability

- Understand sampling methods
- Develop skills in Inferential statistics
- Understand exploratory data analytic techniques

Syllabus

Module 1

- 1.1 Introduction to probability and data with R
- 1.2 Sampling methods : Simple Random Sampling(SRS), Systematic Sampling, Stratified sampling and Cluster sampling.
- 1.3 Basic Probability theory and Bayes Theorem
- 1.4 Exploratory data analytics techniques: Numeric summary statistics data visualization -lattice system and gg-plot

Module 2

- 2.1 Inferential Statistics
Hypothesis tests, formulate an analysis plan and set the criteria for decision
- 2.2 Interpretation p-value and finalizing the reports

Module 3

- 3.1 Linear regression and modeling
Simple and multiple linear regression models

3.2 Fitting of linear regression

3.3 Utilization of regression models

Course outcomes:

- Students will learn skills in programming with R
 - Students will be acquainted with the concepts of probability theory
 - Students will be able to make out the basics of sampling methods. ●
- Creative thinking and logical reasoning will be developed ● Students learn to familiarize data analytics

Course Coordinator : Madhusoodhanan Kizhakkeyppath

Assistant Professor

Department of Statistics