

**CENTRAL UNIVERSITY OF KERALA
DEPARTMENT OF COMPUTER SCIENCE
M.Sc. COMPUTER SCIENCE – PROGRAMME STRUCTURE**

AUDITED/VALUE ADDED COURSES*					
COURSE CODE	COURSE TITLE	CONTACT HRS/WEEK			CREDITS
		LEC	LAB	TUT	
CSC5058	R Programming	2	1	1	Nil

This is an audited/value added **employability based skill development course** and the credits will not be added to marklist.

Course Objective:

The main objective of this course is to impart knowledge on programming with R.

By completing this course, students will obtain the following course/learning outcomes:

1. Knowledge gained:
 - (i) State of art programming using R
2. Skill gained:
 - (ii) Designing and modelling applications using R
3. Competency gained:
 - (iii) Solving real life problems using R.

Prerequisites: Nil

Grading:

Lab implementation	– 25%
Participatory based group Project	– 25%
Assignment/Quiz/presentation	– 25%
Individual project	- 25%

CSC5058 – R PROGRAMMING

Module 1

Overview: Feature of R, basic syntax, data types, variables, operators, conditional statements, loops, functions, and strings.

Module 2

Data structures: Vectors, lists, matrices, arrays, factors, data frames, packages. Data handling: CSV files, excel files.

Data Visualizations: Pie charts, bar charts, box plots, histograms, etc.

Module 3

Data Analysis: Mean, median, mode, linear regression, multiple regression, logistic regression, data distribution functions, covariance, decision trees, random forest, chi-square test.

References

1. Hadley Wickham, Garrett Golemud. R for data science: Import, Tidy, Transform, Visualize, And Model Data, O'Reilly; 1st edition, 2017.
2. Peter Dalgaard. Introductory Statistics with R. Springer, 2nd edition, 2008.
3. Brian Everitt and Torsten Hothorn. A Handbook of Statistical Analyses Using R. Chapman & Hall/CRC, Boca Raton, FL, 2006.
4. Benjamin M. Bolker. Ecological Models and Data in R. Princeton University Press, 2008.
5. John Maindonald and John Braun. Data Analysis and Graphics Using R. Cambridge University Press, Cambridge, 2nd edition, 2007.