ST ALOYSIUS COLLEGE (AUTONOMOUS),
MANGALURU – 575 003

Re-accredited by NAAC with 'A' grade with CGPA 3.62/4
Ranked 95 in College Category-2021 under NIRF, Ministry of Education, Government of India
Recognised as Centre for Research Capacity Building under UGC-STRIDE Scheme
Recognised under the DBT – BUILDER Scheme, Government of India
College with "STAR STATUS" conferred by DBT, Government of India
Recognised by UGC as "College with Potential for Excellence"

An Introduction to R

An Online Certificate Course Offered
by
Department of Statistics

- **Course Duration: 30 Hours**
- **Course Fee: Rs 500/-**
- **Commences from: 4th October, 2021**
- **Eligibility:Anyone who is interested in Statistical Analysis.**
- **E-Certificate on successful completion.**

Register at
https://sac-elearning.com/courses/an-introduction-to-r/
Contact:
statisticsdept@staloysius.edu.in

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Principal	Coordinator	HOD, Department of Statistics

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DEPARTMENT OF STATISTICS-2021

Sl. No	Particulars	Details
1.	Title of the Course	An Introduction to R
2.	Objectives	❖ To demonstrate R system installation and configuration of R-Environment and R-Studio. ❖ To explore the usage of R documentation. ❖ To examine R for mathematical operations. ❖ To understand patterns, finding relationships and making useful conclusions. ❖ To visualize the data using R with different types of graphs and charts.
3.	Learning Outcomes	At the end of this course, the learners will be able to: ❖ List motivation for learning R programming language. ❖ Import new function packages into the R workspace using R-Studio. ❖ Import, review and summarize data sets in R. ❖ Create and edit visualizations of R. ❖ Understand the importance of making meaningful conclusions.
4.	Duration/Online lectures/ /assignments/ Tests	Total duration: 20+10 hours Online lectures: 12 hours Assignment: 10 hours Quizzes: 4 hours End of the course test: 4 hours
5.	Course content (Unitized)	**Unit 1: Introduction to R and R-Studio** • Statistical programming and R Programming. • Installation of R and R-Studio. • Why R and R Studio? • Mathematical operations using R. • Shortcut options in R. • Functions in R. • Session management. **Unit 2: Data types in R** • Vectors - Creating a vector, extracting elements from a vector, vector arithmetic, and character vector. • Factors - Creating factors, summary of factors. • Arrays - Creating arrays, sorting of an array. • Lists - Creating a list, adding names to the list, calling an item from the list.

		• Matrices - Constructing matrix objects, accessing matrix elements, naming the rows and columns of a matrix, reading a particular item from the matrix, matrix properties and matrix arithmetic.
		
		• Data frames - Creating a data frame, summary of data frames, various data frames in R, summary for built in data frames.
		
		Unit 3: Correlation analysis and Linear regression
		Performing correlation and regression analysis using R, interpreting results from correlation and regression analysis.
		
		Unit 4: Visualization techniques using R
		• Bar charts
		  • Simple bar chart
		  • Component bar chart
		  • Percentage bar chart
		  • Multiple bar chart
		• Pie charts
		• Histograms
		• Box plots
		• Scatter plots

6.	Testing/Evaluation pattern	Total marks: 100 Assignments: 55 Tests: 20 Final Exam: 25