

ST. ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY: CHIRALA
DEPARTMENT OF COMPUTERS SCIENCE & ENGINEERING
LESSON PLAN

Subject: STATISTICS WITH R PROGRAMMING

Academic Year: 2019-20

Name: Dr. S. INDRANEEL

Year & Sem/Section: II-I SEM 'A'

No. of Lectures per week : 4+1* (Tutorial)

S.No.	Sub Topic Names	No. of Classes required
I	Introduction, How to run R, R Sessions and Functions, Basic Math, Variables, Data Types, Vectors, Conclusion, Advanced Data Structures, Data Frames, Lists, Matrices, Arrays, Classes.	9
II	R Programming Structures, Control Statements, Loops, - Looping Over Nonvector Sets,- If-Else, Arithmetic and Boolean Operators and values, Default Values for Argument, Return Values, Deciding Whether to explicitly call return- Returning Complex Objects, Functions are Objective, No Pointers in R, Recursion, A Quicksort Implementation-Extended Extended Example: A Binary Search Tree.	8
III	Doing Math and Simulation in R, Math Function, Extended Example Calculating Probability- Cumulative Sums and Products-Minima and Maxima-Calculus, Functions for Statistical Distribution, Sorting, Linear Algebra Operation on Vectors and Matrices, Extended Example: Vector cross Product- Extended Example: Finding Stationary Distribution of Markov Chains, Set Operation, Input /out put, Accessing the Keyboard and Monitor, Reading and writer Files.	10
IV	Graphics, Creating Graphs, The Workhorse of R Base Graphics, the plot() Function – Customizing Graphs, Saving Graphs to Files.	7
V	Probability Distributions, Normal Distribution- Binomial Distribution- Poisson Distributions Other Distribution, Basic Statistics, Correlation and Covariance, T-Tests,-ANOVA.	8
VI	Linear Models, Simple Linear Regression, -Multiple Regression Generalized Linear Models, Logistic Regression, - Poisson Regression- other Generalized Linear Models-Survival Analysis, Nonlinear Models, Splines- Decision-Random Forests,	7
Total No. of hours		49

Text Books

1	1) The Art of R Programming, A K Verma, Cengage Learning.
2	2) R for Everyone Lander, Pearson
3	3) The Art of R Programming, Norman Matloff, No starch Press.

References

1	R Cookbook, Paul Teetor, Oreilly.
2	R in Action, Rob Kabacoff, Manning

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