

Topics / lectures are arranged in sequence - same - as to be taught in the class. Maintain data related to "Date" in its hard copy.

S. No.	Lecture No	Topic Description	Teaching Pedagogy	Reference Material	Remarks, if any
1	1	Introduction to R Programming, Comparison of Python Vs R Programming Getting R, R Version, 32-bit versus 64-bit	Board + PPT	T1	
2	2	The R Environment, Command Line Interface, RStudio, Revolution Analytics RPE Packages	Board + PPT	T1	
3	3	Installing Packages, Loading Packages, Building a Package	Board + PPT	T1	
4	4	R Basics: Basic Math, Variables, Data Types, Vectors used in R	Board + PPT	T1	
5	5	Calling Functions, Function Documentation, Missing Data	Board + PPT	T1	
6	6	Advanced Data Structures: data frames	Board + PPT	T1	
7	7	Lists, Matrices, Arrays	Board + PPT	T1	
8	8	Revision Class	Board + PPT	T1, T2	
9	9	Reading Data into R: Reading CSVs	Board + PPT	T1	
10	10	Reading Excel Data , Reading from Databases	Board + PPT	T1	
11	11	Reading Data from Other Statistical Tools R Binary Files	Board + PPT		
12	12	Data Included with R,	Board + PPT	T1	
13	13	Extract Data from Web Sites	Board + PPT	T1	
14	14	Statistical Graphics: Base Graphics , ggplot2	Board + PPT	T1	
15	15	Revision Class/Class Test	Board + PPT	T1	
16	16	Values	Board + PPT	T1	
17	17	do.call Control Statements: if and else,	Board + PPT	T1	
18	18	switch, if else	Board + PPT	T1	
19	19	Compound Tests Loops: for Loops, while Loops, Controlling Loops	Board + PPT	T1	
20	20	Controlling Loops	Board + PPT	T1	
21	21	Revision Class/Class Test	Board + PPT	T1	
22	22	R	Board + PPT	T1	
23	23	aggregate, plyr,	Board + PPT	T1	
24	24	data.table	Board + PPT	T1, T2	
25	25	Data Reshaping: cbind and rbind, Joins,	Board + PPT	T1	
26	26	reshape2	Board + PPT	T1	
27	27	Manipulating Strings: paste, sprint,	Board + PPT	T1	
28	28	Extracting Text, Regular	Board + PPT	T1	
29	29	Revision Class/Class Test	Board + PPT	T1	
30	30	Normal Distribution, Binomial Distribution	Board + PPT	T1	
31	31	Poisson Distribution, Basic Statistics	Board + PPT		
32	32	Summary Statistics, Correlation and	Board + PPT	T1, T2	
33	33	Covariance, T-Test	Board + PPT	T1	
34	34	T-Tests 200 ANOVA	Board + PPT	T1	
35	35	Linear Models: Simple Linear Regression	Board + PPT	T1	
36	36	Multiple Regression	Board + PPT	T1	
37	37	Generalized Linear Models: Logistic Regression	Board + PPT	T1	
38	38	Poisson Regression Model	Board + PPT	T1	
39	39	Diagnostics: Residuals, Comparing Models,	Board + PPT	T1, T2	
40	40	Cross-Validation	Board + PPT	T1, T2	
41	41	Bootstrap, Stepwise Variable Selection	Board + PPT		
42	42	Revision Class/Class Test	Board + PPT	T1	
43	43	Nonlinear Models: Nonlinear Least Squares	Board + PPT	T1	
44	44	Splines Model	Board + PPT	T1	
45	45	Generalized Additive Models	Board + PPT	T1	
46	46	Decision Trees,	Board + PPT	T1	
47	47	Random Forests Clustering:	Board + PPT	T1	

48	48	Class Test	Board + PPT		
49	49	K-means Clustering	Board + PPT	T1	
50	50	PAM, Hierarchical Clustering	Board + PPT	T1, T2	
51	51	Revision Class/Class Test	Board + PPT	T1, T2	
52	52				
53	53				
54	54				

Study Material / Books / Web-resources / Online Courses Links etc.

S. No.	Description
1	Jared P. Lander, "R for Everyone: Advanced Analytics and Graphics", Pearson Edu. Inc.
2	Christian Heumann, Michael Schomaker and Shalabh, "Introduction to Statistics and Data Analysis - With Exercises, Solutions and Applications in R" , Springer, 2016
3	Pierre Lafaye de Micheaux, Rémy Drouilhet, Benoit Liquet, "The R Software- Fundamentals of Programming and Statistical Analysis", Springer 2013

