" ज्ञान विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसार" प. पू. शिक्षणमहर्षि डॉ. बापुजी साळुंखे

Vivekanand College Kolhapur (Autonomous) Department of Statistics Notice

Date: - 09/01/2020

All students of the department of statistics are hereby informed that there will be a workshop on "R- Programming", held on 11th January 2020 to 18th January 2020 from 08.00 am to 10.00 am onwards at Statistics Lab.

Note: The attendance of students is compulsory.

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Ms. V.V. Pawar

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DEPARTMENTIONSSATISTICS
VIVEKANAND COLLEGE, KOLHAPUI
(AUTONOMOUS)

"ज्ञान विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसाद" -श्रिक्षणमहर्षी डॉ. ब्रापूजी साळूंखे

Vivekanand College, Kolhapur Department of Statistics

Title: Workshop on R-Programming

Time Table

Day	Day & Date	Topic Name	Lecturer	Time
1	Saturday 11/01/2020	Unit 1, 2 and 3.	Mr. S. M. Patil	8.00 am -10.00am
2	Sunday 12/01/2020	Wif. S. Wi. Fatti		8.00 am -10.00am
3	Monday 13/01/2020			8.00 am -10.00am
4	Tuesday 14/01/2020	Unit 4, 5, 6 and 7.	Mr. M. S. Barale	8.00 am -10.00am
5	Wednesday 1 5/01/2020	ž *;		8.00 am -10.00am
6	Thursday 16/01/2020	Unit 8, 9 and 10.	Dr. S. S. Sutar	8.00 am -10.00am
7	Friday 17/01/2020	onit o, 7 and 10.	Di. 3. 3. Sular	8.00 am -10.00am
8	Saturday 18/01/2020	Practical Session	-	8.00 am -10.00am

Ms V.V Pawar

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Syllabus

Introduction to R

Units:

- 1. Installation and introduction to R, History.
- 2. Data Input/ Output and Operators

Assignment Operators in R: Leftwards assignment (<-, <<-, =), Rightwards assignment (->, ->>)

- -Creation of vector using commands: Combine (c), scan, cbind, rbind, seq, rep, edit, sort, length, which, order.
- -Relation operators: Less than, Greater than, Less than or equal to, Greater than or equal to. Equal to, Not equal to.
- -Logical Operators: Logical NOT, Element-wise logical AND, Logical AND, Element-wise logical OR, Logical OR
- 3. Operations on data
- -Operations on vectors: sum, prod, sort, rank, multiplication, division, exponent, modulus. integer division, max, min, summary.
- Object identification: is.na, is.numeric, is.character, is.matrix, is.vector, is.null, is.factor. as. Functions.
- 4. Matrix manipulation:
- -Creation of Matrix, Transpose, Addition, Subtraction, Multiplication, Determinant, Inverse of matrix, rank of matrix, diagonal matrix, zero matrix, common matrix.
- 5. Creation of data frame using commands: data.frame, dimension of data frame, extracton of elements of data frame, rbind, cbind functions, rowSums, colSums, rowMeans, colMeans, subset, attach, detach, apply functions.
- 6. Import and export data: read table, read.csv, file.choose, write.table, write.csv.
- 7. Data visualization: r plot, Scatter Plot, hist, boxplot.
 - Diagrammatic representation of data: simple bar diagram, Sub divided simple bar diagram, pie diagram.
 - Graphical representation of data: Histogram, frequency polygon, Ogive curves.
- 8. For loop, while loop, if else statement, break statement.
- 9. Exploratory data analysis: mean, variance, quantiles, pdf, cdf, random numbers, correlation, summary.
- 10. Statistical tools: prop.test, t.test, wilcox.test, ks.test, chisq.test, cor.test, linear regression. Installation of packages.

Vivekanand College, Kolhapur Department of Statistics

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Vivekanand College, Kolhapur Department of Statistics



"Education for Knowledge, Science and Culture"

-Shikshanmaharshi Dr. Bapuji Salunkhe

Vivekanand College, Kolhapur (Autonomous)

Internal Quality Assurance Cell



Report on One week workshop on "R- Programming"

- 1. Name of the Department: Statistics
- **2. Aim:** To introduce students to R-programming.
- 3. Objectives-
 - 1. To learn basic statistical analysis using Excel.
 - 2. To learn various commands, operations & loops needed to write programs in R.
- **4. Date-** 11/01/2020 to 18/01/2020
- 5. Venue- Statistics Computer lab, Vivekanand college, Kolhapur
- 6. Resource people:
- 1. Dr. Santosh Sutar, Director, YCSRD, Shivaji University, Kolhapur,
- 2. Mr. M. S. Barale, Asst. Prof., Dept. of Statistics, Shivaji University, Kolhapur
- 3. Mr. Sachin Patil, Asst. Prof., Dept. of Statistics, Shivaji University, Kolhapur
- 7. No. of beneficiaries- 42 students





8. Brief Description:

The department of Statistics, Vivekanand College, Kolhapur conducted a "Workshop on R" from 11th January 2020 to 18th January 2020. Around 42 students from BSc III and MSc I participated in the workshop. At the inauguration of workshop chief guest Mr. Suchit Wanjare, District Planning Officer, Ratnagiri elaborated importance of R and its use in statistical computing.

In the first session, Mr. Sachin Patil explained – 'What is R?', 'How to download and install it'. He covered basic commands regarding data input-output, creation of vectors, operators like logical, assignment. He also explained creation of matrix and operations on matrix through examples.

In the next session, Mr. Mahesh Barale covered data visualization techniques. He discussed and demonstrated installation of various packages. He also covered various tests used in testing of hypotheses, design of experiments etc. Dr. Santosh Sutar taught various looping statements, which required in program writing.

At the valedictory function students shared their opinions about the workshop and mentioned its usefulness. The vote of thanks was presented by Mr. A. B. Bhosale.

9. Outcomes-

After the completion of the workshop

- Students were able to download and install R.
- They learned to install and load add-in packages
- They understood R data structures, import external data into R for data processing and statistical analysis.



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