

संख्याशास्त्र विभाग

विवेकानंद कॉलेज,
कोल्हापूर (स्वायत्त)
दि. ११/०३/२०२२

प्रति,
मा. प्राचार्य,
विवेकानंद कॉलेज,
कोल्हापूर(स्वायत्त)

विषय :- R-Programming चे वर्कशॉप घेण्याकरीता
परवानगी व त्यासाठी लागणाऱ्या खर्चास मंजूरी
मिळणेबाबत...

महोदय,

उशील विषयी विनंती अर्ज करतो की, संख्याशास्त्र
विभागातील सी.एस्सी भाग तीन मधील विद्यार्थ्यांसाठी R-
Programming चे ज्ञात दिवसांचे वर्कशॉप दि.१४.०३.२०२२ ते
दि.२०.०३.२०२२ या कालावधीमध्ये घेण्यास परवानगी मिळावी तसेच
या वर्कशॉपसाठी अंदाजे खर्च रु.६००००येणार आहे. तर सदर
खर्चास मंजूरी मिळावी ही नम्र विनंती.

कळावे,

~~मंजूरी देणेसहकृत नाही~~

आपला विश्वासू

11/3/2022

11/3/22

संख्याशास्त्र विभागप्रमुख

Head
Department of Statistics
Vivekanand College Kolhapur

"ज्ञान विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसार"
-शिक्षणमहर्षी डॉ. जापूजी नाळुंबे

Vivekanand College (Autonomous), Kolhapur
Department of Statistics

B.Sc. III

Notice

Date: 12/03/2022

All students of B.Sc. - III are hereby informed that, our department is organizing a "Workshop on R-programming" during 14th march to 20th March, 2022 in Room no. 38.

Day	Day & Date	Topic Name	Lecturer	Time
1	Monday 14/03/2022	Unit 1,2 and 3	Mr. P.S. Chougale	8.00 am - 10.00am
2	Tuesday 15/03/2022			8.00 am - 10.00am
3	Wednesday 16/03/2022	Unit 4, 5, 6 and 7	Mr. Sachin Patil	8.00 am - 10.00am
4	Thursday 17/03/2022			8.00 am - 10.00am
5	Friday 18/03/2022	Unit 8 and 9	Mr. M. S. Barale	8.00 am - 10.00am
6	Saturday 19/03/2022			8.00 am - 10.00am
7	Sunday 20/03/2022	Unit 10	Mr. Krushnat Mali	8.00 am - 10.00am

Ms. V. V. Pawar

Ms. V. V. Pawar

Associate Professor

Head

Department of Statistics
Vivekanand College, Kolhapur

Dr. R. R. Kumbhar

Dr. R. R. Kumbhar

PRINCIPAL
Vivekanand College
Kolhapur

Syllabus

Introduction to R

Units:

1. Installation and introduction to R, History.
2. Data Input/ Output
 - Creation of vector using commands: Combine (c), scan, cbind, rbind, seq, rep, edit, sort, length, which, order.
3. Operations on data
 - Operations on vectors: sum, prod, sort, rank, multiplication, division, exponent, modulus, integer division, max, min, summary.
 - 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
 - Assignment Operators in R: Leftwards assignment (<-, <<-, =), Rightwards assignment (->, ->>)
 - 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.
 - 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.
5. Import and export data: read.table, read.csv, file.choose, write.table, write.csv.
6. 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.
7. For loop, while loop, if else statement, break statement.
8. Exploratory data analysis: mean, variance, quantiles, pdf, cdf, random numbers, correlation, summary.
9. Statistical tools: prop.test, t.test, wilcox.test, ks.test, chisq.test, cor.test, linear regression.
10. Installation of packages.

5, 7, 8, 9, 10



Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer, Dist. Kolhapur-416003
Affiliated to Shivaji University, Kolhapur (M.S.)

NAAC Reaccredited : "A" (CGPA 3.24)

College with Potential for Excellence by U.G.C., New Delhi
"Star College" by D.B.T. Govt. of India
ISO 9001 : 2015



Ph. : 0231-2658612, 2658840 Fax : 0231-2658840 Resi. : 0231-2653962 Website : www.vivekanandcollege.org E-mail : info@vivekanandcollege.org

Founder
Dr. Bapuji Salunkhe
D. Lit.

President
Hon. Chandrakant Dada Patil
MLA

Chairman
Prin. Abhaykumar Salunkhe
M.A.

Secretary
Prin. Mrs. Shubhangi Gavade
M.Sc., B.Ed.

Principal
Dr. R. R. Kumbhar
M.Sc. M.Phil. Ph.D.

Ref. No. VCK/

Date :

To
Dr. Mahesh S. Barale,
Assistant Professor
Symbiosis Statistical Institute,
Pune.

Respected Sir,

The department of Statistics, Vivekanand College (Autonomous),
Kolhapur takes pride in inviting you, as a Resource person of a program
"Workshop on R- Programming" for the B. Sc. III students on 19th &
20th March, 2022 from 08.00am to 10.00 am. at department of Statistics.

Kindly accept the invitation.

Thanking you,

Yours faithfully,

R.R. Kumbhar

Dr. R. R. Kumbhar

PRINCIPAL
Vivekanand College
Kolhapure

Dr. Mahesh S. Barale

21/03/2022



Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer, Dist. Kolhapur-416003

Affiliated to Shivaji University, Kolhapur (M.S.)

NAAC Reaccredited : "A" (CGPA 3.24)

College with Potential for Excellence by U.G.C., New Delhi

"Star College" by D.B.T. Govt. of India

ISO 9001 : 2015



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 Fax : 0231-2658840 Resi. : 0231-2653962 Website : www.vivekanandcollege.org E-mail : info@vivekanandcollege.org

Founder
Dr. Babuji Salunkhe
D. Lit.

President
Hon. Chandrakant Dada Patil
MLA

Chairman
Prin. Abhaykumar Salunkhe
M.A.

Secretary
Prin. Mrs. Shubhangi Gavade
M.Sc., B.Ed.

Principal
Dr. R. R. Kumbhar
M.Sc. M.Phil. Ph.D.

Ref. No. VCK/

Date :

To
Dr. Mahesh S. Barale,
Assistant Professor,
Symbiosis Statistical Institute,
Pune.

Sub. : Appreciation Letter

Respected Sir,

The College and Department of Statistics thanks you for sparing your time in delivering valuable information and guidance to the students of Statistics of our college through **“Workshop on R- Programming”** held from 14th to 21st March 2022. The College also wishes you success at every stage of your career and life.

Thanking you,

Yours faithfully,

R.R. Kumbhar

Dr. R. R. Kumbhar

PRINCIPAL
Vivekanand College
Kolhapur

Dr. Mahesh S. Barale
21/03/2022.

Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer, Dist. Kolhapur-416003
Affiliated to Shivaji University, Kolhapur (M.S.)

NAAC Reaccredited : "A" (CGPA 3.24)

College with Potential for Excellence by U.G.C., New Delhi
"Star College" by D.B.T. Govt. of India
ISO 9001 : 2015



Ph. : 0231-2658612, 2658840 Fax : 0231-2658840 Resi. : 0231-2653962 Website : www.vivekanandcollege.org E-mail : info@vivekanandcollege.org

Founder
Dr. Bapuji Salunkhe
D. Lit.

President
Hon. Chandrakant Dada Patil
MLA

Chairman
Prin. Abhaykumar Salunkhe
M.A.

Secretary
Prin. Mrs. Shubhangi Gavade
M.Sc., B.Ed.

Principal
Dr. R. R. Kumbhar
M.Sc. M.Phil. Ph.D.

Ref. No. VCK/

Date :

To

Mr. Krushnath Mali.
Assistant Professor,
Department of Statistics,
Shri Shahaji Chh. Mahavidhyalay
Kolhapur.

Respected Sir,

The department of Statistics, Vivekanand College (Autonomous),
Kolhapur takes pride in inviting you, as a Resource person of a program
"Workshop on R- Programming" for the B. Sc. III students on 19th
March 2022 from 08.00am to 10.00 am. in room no. 38.

Kindly accept the invitation.

Thanking you,

Yours faithfully,

Dr. R. R. Kumbhar

PRINCIPAL
Vivekanand College
Kolhapur

Received
B. R. Patil
19/03/2022

Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer, Dist. Kolhapur-416003

Affiliated to Shivaji University, Kolhapur (M.S.)

NAAC Reaccredited : "A" (CGPA 3.24)

College with Potential for Excellence by U.G.C., New Delhi

"Star College" by D.B.T. Govt. of India

ISO 9001 : 2015



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 Fax : 0231-2658840 Resi. : 0231-2653962 Website : www.vivekanandcollege.org E-mail : info@vivekanandcollege.org

Founder
Dr. Bapuji Salunkhe
D. Lit.

President
Hon. Chandrakant Dada Patil
MLA

Chairman
Prin. Abhaykumar Salunkhe
M.A.

Secretary
Prin. Mrs. Shubhangi Gavade
M.Sc., B.Ed.

Principal
Dr. R. R. Kumbhar
M.Sc. M.Phil. Ph.D.

Ref. No. VCK/

Date :

To,

Mr. Krushnath Mali.

Assistant Professor

Department of Statistics,

Shri Shahaji Chh. Mahavidhyalay Kolhapur.

Sub. : Appreciation Letter

Respected Sir,

The College and Department of Statistics thanks you for sparing your time in delivering valuable information and guidance to the students of Statistics of our college through **“Workshop on R- Programming”** held from 14th to 21st March 2022. The College also wishes you success at every stage of your career and life.

Thanking you,

Yours faithfully,

Dr. R. R. Kumbhar

PRINCIPAL
Vivekanand College
Kolhapur

Received
19/03/2022



**Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)**

2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer. Dist. Kolhapur-416003

Affiliated to Shivaji University, Kolhapur (M.S.)

NAAC Reaccredited : "A" (CGPA 3.24)

College with Potential for Excellence by U.G.C., New Delhi

"Star College" by D.B.T. Govt. of India

ISO 9001 : 2015



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 Fax : 0231-2658840 Resi. : 0231-2653962 Website : www.vivekanandcollege.org E-mail : info@vivekanandcollege.org

Founder
Dr. Bapuji Salunkhe
D. Lit.

President
Hon. Chandrakant Dada Patil
MLA

Chairman
Prin. Abhaykumar Salunkhe
M.A.

Secretary
Prin. Mrs. Shubhangi Gavade
M.Sc., B.Ed.

Principal
Dr. R. R. Kumbhar
M.Sc. M.Phil. Ph.D.

Ref. No. VCK/

Date :

To

Mr. P.S. Chougule
Associate Professor & Head,
Department of Statistics,
Rajarshi Chhtrapati Shahu College,
Kolhapur.


Respected Sir,

The department of Statistics, Vivekanand College Kolhapur, (Autonomous) takes pride in inviting you, as a Chief guest for the Inauguration of **"Workshop on R- Programming"** on 14th March, 2022 at 10.00am .

Kindly accept the invitation.

Thanking you,

Yours faithfully,


Dr. R. R. Kumbhar
PRINCIPAL
Vivekanand College
Kolhapur



Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer, Dist. Kolhapur-416003

Affiliated to Shivaji University, Kolhapur (M.S.)

NAAC Reaccredited : "A" (CGPA 3.24)

College with Potential for Excellence by U.G.C., New Delhi

"Star College" by D.B.T. Govt. of India

ISO 9001 : 2015



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 Fax : 0231-2658840 Resi. : 0231-2653962 Website : www.vivekanandcollege.org E-mail : info@vivekanandcollege.org

Founder
Dr. Bapuji Salunkhe
D. Lit.

President
Hon. Chandrakant Dada Patil
MLA

Chairman
Prin. Abhaykumar Salunkhe
M.A.

Secretary
Prin. Mrs. Shubhangi Gavade
M.Sc., B.Ed.

Principal
Dr. R. R. Kumbhar
M.Sc. M.Phil. Ph.D.

Ref. No. VCK/

Date :

To,

Mr. P.S. Chougule
Associate Professor & Head,
Department of Statistics,
Rajarshi Chhtrapati Shahu College,
Kolhapur.

Sub. : Appreciation Letter

Respected Sir,

The College and Department of Statistics thanks you for sparing your time in delivering valuable information and guidance to the students of Statistics of our college through **“Workshop on R- Programming”** held from 14th to 21st March 2022. The College also wishes you success at every stage of your career and life.

Thanking you,

Yours faithfully,

Dr. R. R. Kumbhar

PRINCIPAL
Vivekanand College
Kolhapur

Workshop on R- Programming
Vivekanand College, Kolhapur (Autonomous)

Sr.No	Student Name	14-Mar-22	15-Mar-22	16-Mar-22	17-Mar-22	18-Mar-22	19-Mar-22	20-Mar-22	21-Mar-22
1	Prernali P. Kelokate	W	W	W	W	Ab	Ab	W	W
2	Rajeta Shiraj Dhere	W	W	W	W	W	W	W	W
3	Supriya Narayan Mane	W	W	W	W	W	W	W	W
4	Sakshi S. Marate	W	W	W	W	W	W	W	W
5	Shweta R. Mudrale	W	W	W	W	W	W	W	W
6	Aakanksha C. Tadkar	W	W	W	W	W	W	W	W
7	Pooja Dhanaji Gaurav	W	W	W	W	W	W	W	W
8	Manohar Parthabhai Pawar	W	W	W	W	W	W	W	W
9	Lalita Ramdas Koli	W	W	W	W	W	W	W	W
10	Rutuja Anant Patil	W	W	W	W	W	W	W	W
11	Jisna Anoop Mathew	W	W	W	W	W	W	W	W
12	Shradha Dinkar Tadhar	W	W	W	W	W	W	W	W
13	Akanksha Nilesh Mungdar	W	W	W	W	W	W	W	W
14	Shivam Nilhanth Josale	W	W	W	W	W	W	W	W
15	Pranav M. Bawade	W	W	W	W	W	W	W	W
16	Pranav More	W	W	W	W	W	W	W	W
17	Amy Tagadali	W	W	W	W	W	W	W	W
18	Veदान्त C. Carhale	W	W	W	W	W	W	W	W
19	Deshmukh Swapnil	W	W	W	W	W	W	W	W
20	Kishor V. Khat	W	W	W	W	W	W	W	W
21	Siraj Y. Shidwarakar	W	W	W	W	W	W	W	W
22	Yogiraj R. Killedar	W	W	W	W	W	W	W	W
23	Uditanshu Prabhavale	W	W	W	W	W	W	W	W
24	Santosh A. Gurav	W	W	W	W	W	W	W	W
25	Kedar Kamathakan	W	W	W	W	W	W	W	W
26	Krushni D. Ramchandani	W	W	W	W	W	W	W	W
27	Ked. P. Shinde	W	W	W	W	W	W	W	W
28	Shrinini M. Karwal	W	W	W	W	W	W	W	W
29	Siddhesh R. Titakar	W	W	W	W	W	W	W	W
30	Siddhesh R. Lohar	W	W	W	W	W	W	W	W
31	Sakshi S. Marate	W	W	W	W	W	W	W	W
32	Sakshi S. Solase	W	W	W	W	W	W	W	W

Sakshi



“Education for Knowledge, Science and Culture”
-Shikshah Maharshi Dr. Bapuji Salunkhe
VIVEKANAND COLLEGE, KOLHAPUR
(AUTONOMOUS)
INTERNAL QUALITY ASSURANCE CELL
2020-21



Report on One week workshop on “Introduction of R”

1. **Name of the Department** – Statistics
2. **Aim** –To make students familiar to R-software.
3. **Objectives** –
 - 1) To write programs for iterative procedures using various loops.
 - 2) To learn data representation technique like graphs and tabulation.
 - 3) To perform statistical computation by using R.
4. **Day and Date** -14/3/2022 to 21/3/2022
5. **Venue**- Room No. 38 and 40
6. **Resource persons** -1) P.S.Chougule 2) Krishnath Mali 3) Poonam Patil
7. **Number of beneficiaries** – 32 students (17 girls +15 boys) + 6 Teachers



8. Brief Description –

On the occasion, the guest Mr. P.S. Chougule, Associate Professor & Head, Department of Statistics, Rajarshi Chhatrapati Shahu College, Kolhapur, enlightened on the concept of diagrammatic and graphical representation using R. Ms P.C. Patil gave short introduction of R and its use. She taught about data types, data structures and how to perform arithmetic operations in R. Mr. Krushnat Mali taught about exploratory data analysis and Loops in R.

9. Outcomes –

- 1) Students got knowledge to write R-program.
- 2) They learned how to represent data graphically using R.
- 3) Students became able to perform statistical computation with the help of R.

P. S. Chougule
HEAD