



**PADMABHUSHAN VASANTRAODADA PATIL
MAHAVIDYALAYA,
KAVATHE MAHANKAL, DIST. SANGLI (M.S.)**

**CAREER ORIENTED COURSE
IN
INTRODUCTION TO R-PROGRAMMING
(Academic year 2023-24)**

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From,
Head,
Department of statistics
P. V. P. College, KavatheMahankal,
Dist. Sangli, Maharashtra 416405
Date: 03-07-2023

To,
The Principal,
PadmabhushanVasatraodadaPatilMahavidyalaya,
KavatheMahankal, Dist. Sangli,
Maharashtra 416405

Subject: Seeking a permission to start the career oriented course in
“Introduction to R programming”.

Respected sir,

As per your guidelines we are going to start a career oriented course in
“Introduction to R programming”in Department of Statistics for our college students.
This course will be of 30 hours and will be completed during July 2023 to October 2023.
The course will be definitely very beneficial for students.

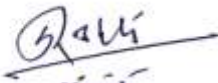
I request you to give permission to start the above course in the Department.

Thanking you.

Yours faithfully,

Permission granted


PRINCIPAL,
Padmabhushan Vasatraodada Patil
Mahavidyalaya, Kavathe Mahankal, Dist-Sangli


Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

Shikshan Prasarak Sanstha's

Padmabhushan Vasantodada Patil Mahavidyalaya, Kavathe Mahankal.

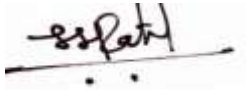
DEPARTMENT OF STATISTICS

Date: 03-07-2023

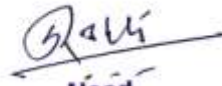
NOTICE

All the students in P. V. P. college, Kavathe Mahankal are informed that, Department of statistics is going to start the career oriented course in "Introduction to R programming". The interested students are requested to enroll up to 29th July, 2023.

Coordinator



Head



Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

BROCHURE

Shikshan Prasarak Sanstha's
Padmabhushan Vasantrodada Patil Mahavidyalaya
Kavathe Mahankal, Sangli
Affiliated to Shivaji University, Kolhapur

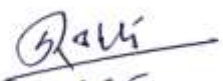
ENROLL NOW

- Free Certificate course
- Well equipped computer lab
- All the basics of R
- Data analysis using R
- Programming with R

Department of Statistics

Starting from: 1st August, 2023

Contact: 9975736168

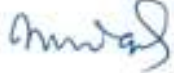
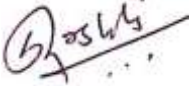

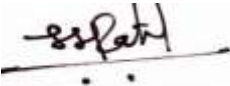
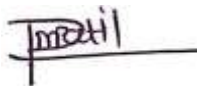

Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

Padmabhushan Vasantodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Introduction to R Programming

Board of Studies

Sr. No.	Name	Designation	Signature
1.	Prof. Dr. M. K. Patil	President	
2.	Asso. Prof. V. V. Koshti	Member	
3.	Mr. G. D. Satpute	Member	
4.	Mrs. S. S. Patil	Member	
5.	Miss. P. M. Patil	Member	

Padmabhushan Vasanttraodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Introduction to R Programming

Objectives:

1. To acquaint students with some basic concepts (elementary knowledge) in R Programming.
2. To handle the data using R software.
3. To compute the statistical measures and construct charts using R Software.
4. To analyse the data using various packages and built in function in R software.
5. To import the external data in R and to export the data in R to external sources.
6. To be eligible to write some simple R programs.

Duration:

The course will be completed in 30 hours (2 months).

Eligibility of the student:

1. The student must have the basic knowledge of computer.
2. Student must have the knowledge of MS- Excel.
3. Student must have passed H. Sc. Examination.

Course outcomes:

By the end of this course students are expected,

1. To handle the data using R software.

2. To compute the statistical measures and construct charts using R Software.
3. To analyse the data using various packages and built in function in R software.
4. To import the external data in R and to export the data in R to external sources.
5. To be eligible to write some simple R programs.

Evaluation Method:

The examination will be conducted in two parts – theory and practical. Theory examination will consist of 25 multiple choice questions which will be conducted on Google form and Practical examination will be of 25 marks which will be in computer lab at the end of the course.

Padmabhushan Vasantodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Introduction to R Programming

Syllabus

Unit 1:

(15 hours)

1.1 Introduction to R Software: Installation and setup of R software, installing useful packages, variable types, data structures, data import and export, getting help with R, some built in functions, vectors, data frames, matrices and the operations on vectors, data frames and matrices.

1.2 Data visualization and Graphics: Creating box plots, scatter plots, simple bar diagrams, subdivided bar diagrams, multiple bar diagrams, pie diagrams, histogram, ogive curves, frequency polygon and customizing the graphs.

1.3 Statistical Functions: Introducing in built mathematical functions, in built statistical functions, computing pmf/ pdf, cdf, quantiles and random numbers of some probability distributions using R.

Unit 2:

(15 hours)

2.1 Built-In-datasets: accessing built in datasets in R, saving the data in R, extracting variables from the data sets.

2.2: Loops in R: if...else statement, for loop, while loop, syntax, flowchart for each of the loop, examples.

2.3.: Simple programs:

Sum of first n natural numbers, factorial of a number, positive and negative numbers, odd-even number, creating number pyramid, simulation from continuous and discrete probability distributions.

Padmabhushan Vasantodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

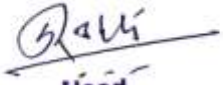
Introduction to R Programming

TIMETABLE

B. SC. III

Day	Lecturer: Mr. G. D. Satpute				
Monday		07-08-2023	14-08-2023	21-08-2023	28-08-2023
Tuesday		***	***	***	***
Wednesday		***	***	***	***
Thursday	03-08-2023	10-08-2023	17-08-2023	24-08-2023	31-08-2023
Friday	04-08-2023	11-08-2023	18-08-2023	25-08-2023	
Saturday	05-08-2023	12-08-2023	***	26-08-2023	

Day	Lecturer: Ms. P. M. Patil				
Monday		04-09-2023	11-09-2023	***	25-09-2023
Tuesday		***	***	***	26-09-2023
Wednesday		***	***	***	27-09-2023
Thursday		07-09-2023	14-09-2023	***	***
Friday	01-09-2023	08-09-2023	15-09-2023	***	29-09-2023
Saturday	02-09-2023	09-09-2023	16-09-2023	***	30-09-2023


Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

Padmabhushan Vasantodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

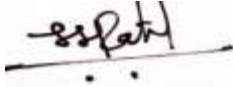
Introduction to R Programming

Date: 30-07-2023

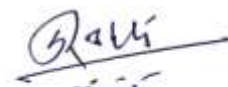
NOTICE

All the enrolled students are informed that, the lectures of the course will be started from 3rd August, 2023 as per timetable. All the lectures will be conducted in computer laboratory of department of statistics.

Coordinator



Head



Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

Padmabhushan Vasantrodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Introduction to R Programming

Attendance

Sr. No.	Name																				
1.	Bandagar Vishal Annaso	Bandagar	Bandagar	Bandagar	Bandagar					Bandagar	Bandagar				Bandagar	Bandagar					
2.	Bhosale Sushmita Abaso	Bhosale	Bhosale	Bhosale						Bhosale	Bhosale	Bhosale	Bhosale	Bhosale	Bhosale	Bhosale	Bhosale	Bhosale	Bhosale	Bhosale	Bhosale
3.	Chavan Swati Deepak	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan
4.	Choudhary Geeta Dayaram	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta	Geeta
5.	Chougule Yashoda Nathaji	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule	Chougule
6.	Devarshi Rahul Pargonda	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul	Rahul
7.	Gheji Bhagyashri Ramanna	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG	GRG
8.	Jadhav Aarti Tanaji	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav	Aadhav

9.	Kadam Aniket Mahadev	Am, Kadam
10.	Kodag Dhanashri Dattatray	dela
11.	Kore Pratik Jayant	Pratik
12.	Kute Pranav Kundlik	Pranav
13.	Latthe Rohini Mukesh	Rohini
14.	Mahajan Ashwini Annaso	Ashwini
15.	Mali Priyanka Balu	Priyanka
16.	Mane Laxmi Sahadev	Laxmi
17.	Nagane Akshay Pandurang	Akshay
18.	Olekar Pratik Bandu	Pratik
19.	Patil Akshata Balaso	Akshata

20.	Patil Pratiksha Anandrav	P.A.Patil
21.	Patil Shweta Basagonda	Shweta Patil
22.	Pawar Yogita Anil	Yogita Pawar
23.	Sawant Swapnali Suryakant	Swapnali Sawant
24.	Shinde Ashwini Pandurang	ASPS
25.	Shinde Shailaja Dilip	SDS
26.	Suryawanshi Digvijay Sanjay	DS
27.	Nikam Snehal Suresh	SNM
28.	Shinde Madhuri Nitish	MN

Padmabhushan Vasantodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Introduction to R Programming

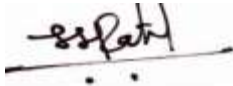
Date: 30-09-2023

NOTICE

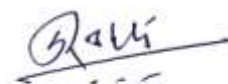
All the enrolled students are informed that, the timetable for theory examination and practical examination of the course in “Data Analysis using MS-Excel” is as below,

Examination	Date	Time
Theory	04-10-2023	(10.30 a.m. to 11.30 a.m.)
Practical		(11.30 a.m. to 01.00 p.m.)

Coordinator



Head



Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

Padmabhushan Vasantodada Patil Mahavidyalaya, Kavathe Mahankal.
DEPARTMENT OF STATISTICS
Introduction to R Programming
Practical Examination

Duration: 1.30 Hour

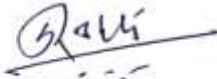
Total Marks: 25

Instructions: 1) All questions are compulsory
2) Each question carries 5 marks.

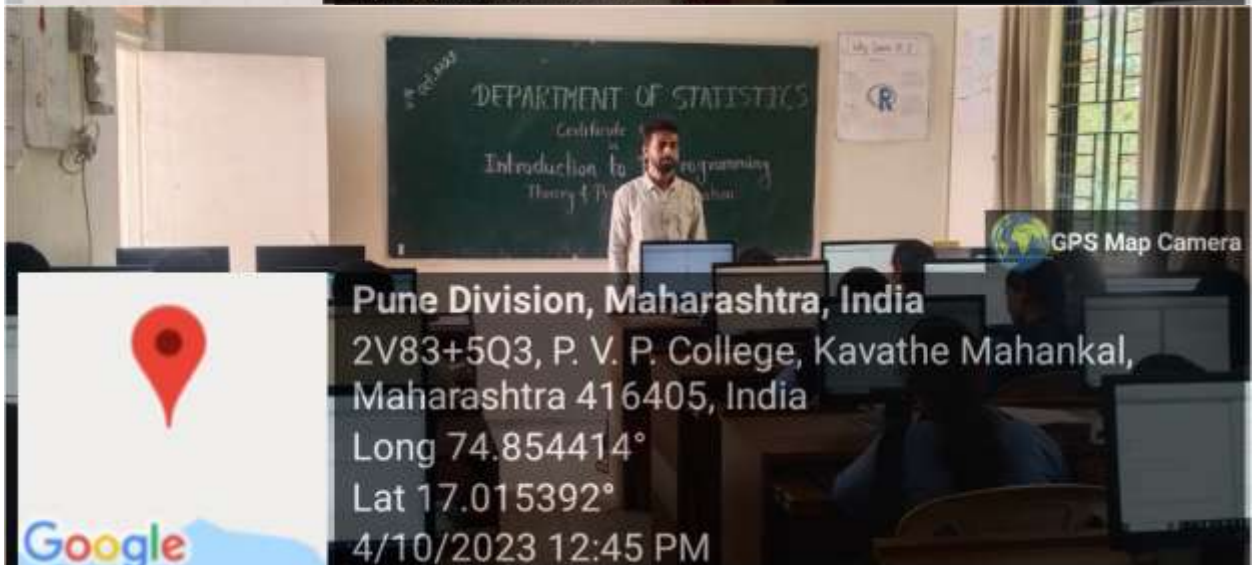
1. Load the iris data in R name it as “data”. Extract variable sepal width; find its mean, variance.
Also export this data to csv file. Name this file as “exported data”.
2. Using R, construct, multiple bar diagram and subdivided bar diagram. Give title and colours to the graphs.

Subjects	Statistics	Mathematics	Physics	Chemistry
Marks of A	95	85	90	80
Marks of B	90	70	60	80

3. Write the program to compute the factorial of number 7. Write your own function to compute factorial of n.
4. Write the syntax and output of the following. If $X \sim \text{Normal}(\text{mean} = 12, \text{standard deviation} = 2)$, then find $P(X > 12)$, $P(X \leq 10)$, 0.25th quantile, $f(13)$, 10 random numbers.
5. You have given the following data. 21.5, 24.5, 18.5, 17.2, 14.5, 23.2, 22.1, 20.5, 19.4, 18.1, 24.1, 18.5. Test whether the population mean is 20 or not by using t test. Interpret the results.


Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

Photos:



Padmabhushan Vasantrodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Introduction to R Programming

Result

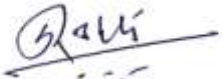
Sr. No.	Name	Class	Marks			Remark
			Theory	Practical	Total	
1.	Bandagar Vishal Annaso	B. Sc. III	19	15	34	A
2.	Bhosale Sushmita Abaso	B. Sc. III	23	21	44	A+
3.	Chavan Swati Deepak	B. Sc. III	20	22	42	A+
4.	Choudhary Geeta Dayaram	B. Sc. III	22	21	43	A+
5.	Chougule Yashoda Nathaji	B. Sc. III	16	16	32	A
6.	Devarshi Rahul Pargonda	B. Sc. III	15	19	34	A
7.	Ghejji Bhagyashri Ramanna	B. Sc. III	22	21	43	A+
8.	Jadhav Aarti Tanaji	B. Sc. III	22	19	41	A+
9.	Kadam Aniket Mahadev	B. Sc. III	21	18	39	A+
10.	Kodag Dhanashri Dattatray	B. Sc. III	23	20	43	A+
11.	Kore Pratik Jayant	B. Sc. III	17	19	36	A+
12.	Kute Pranav Kundlik	B. Sc. III	25	23	48	O
13.	Latthe Rohini Mukesh	B. Sc. III	18	21	39	A+

14.	Mahajan Ashwini Annaso	B. Sc. III	13	20	33	A
15.	Mali Priyanka Balu	B. Sc. III	21	21	42	A+
16.	Mane Laxmi Sahadev	B. Sc. III	23	23	46	O
17.	Nagane Akshay Pandurang	B. Sc. III	22	21	43	A+
18.	Olekar Pratik Bandu	B. Sc. III	18	20	38	A+
19.	Patil Akshata Balaso	B. Sc. III	20	22	42	A+
20.	Patil Pratiksha Anandrav	B. Sc. III	17	20	37	A+
21.	Patil Shweta Basagonda	B. Sc. III	23	21	44	A+
22.	Pawar Yogita Anil	B. Sc. III	13	19	32	A
23.	Sawant Swapnali Suryakant	B. Sc. III	24	20	44	A+
24.	Shinde Ashwini Pandurang	B. Sc. III	17	18	35	A
25.	Shinde Shailaja Dilip	B. Sc. III	17	20	37	A+
26.	Suryawanshi Digvijay Sanjay	B. Sc. III	16	18	34	A
27.	Nikam Snehal Suresh	B. Sc. III	20	18	38	A+
28.	Shinde Madhuri Nitish	B. Sc. III	17	16	33	A

(*A – Satisfactory

**A+ - Excellent

***O – Outstanding)


Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

CERTIFICATE




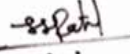
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Padmabhushan Vasantaoada Patil Mahavidyalaya, Kavathe Mahankal
Affiliated to Shivaji University, Kolhapur

DEPARTMENT OF STATISTICS C E R T I F I C A T E

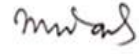
This is to certify that Miss. Bhosale Sushmita Abaso of Class B. Sc. III has successfully completed the Short Term Career Oriented Certificate Course entitled 'Introduction to R Programming', and secured grade A+ during the academic year 2022-23.

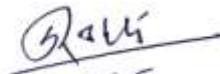

Ms. P. M. Patil


Mr. G. D. Satpute


Mrs. S. S. Patil


Asso. Prof. V. V. Koshti
Head


Prof. (Dr.) M. K. Patil
Principal


Head
Department of Statistics
P.V.P. Mahavidyalaya,
Kavathe Mahankal, Dist.-Sangli.

Padmabhushan Vasantrodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Report on Career Oriented Course in “Introduction to R Programming”

Title	Career Oriented Course in “Introduction to R Programming”
Duration	3 rd August, 2023 to 30 th September, 2023
Organizer	Department of Statistics, P.V.P. Mahavidyalaya Kavathe Mahankal
Funding	--
BOS / Faculty	Prof. Dr. M. K. Patil Mr. V. V. Koshti Mr. G. D. Satpute Mrs. S. S. Patil Ms. P. M. Patil
Coordinator	Mrs. S. S. Patil
Background	Nowadays analysis of data has high importance. For that, students must have some knowledge of software like MS- Excel, R, etc. R-software is free to use and highly used in the field of data science and data analytics.
Objective	<ol style="list-style-type: none">1. To acquaint students with some basic concepts (elementary knowledge) in R Programming.2. To handle the data using R software.3. To compute the statistical measures and construct charts using R Software.4. To analyse the data using various packages and built in function in R software.5. To import the external data in R and to export the data in R to external sources.6. To be eligible to write some simple R programs.
Outcomes	<ol style="list-style-type: none">1. To handle the data using R software.2. To compute the statistical measures and construct charts using R Software.3. To analyse the data using various packages and built in function in R software.4. To import the external data in R and to export the data in R to external sources.5. To be eligible to write some simple R programs

Conclusion	Students got sufficient knowledge about R and they are very excited to study such software in future. The course creates interest in students for analyzing data using R software. Thus this course is fruitful and motivational for participated students.
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PRINCIPAL,
Padmabhushan Vasantaoada Patil
Mahavidyalaya, K. Mahankal, Dist-Sangli

Padmabhushan Vasantrodada Patil Mahavidyalaya, Kavathe Mahankal.

DEPARTMENT OF STATISTICS

Career Oriented Course in “Introduction to R Programming”

Brief Summary

Sr. No.	Organizing department	Department of Statistics		
1	Type of Activity	Career Oriented Course in “Introduction to R Programming”		
2	Duration of Activity	3 rd August, 2023 to 30 th September, 2023		
3	Venue	Computer Lab, Department of Statistics		
4	Participation			
	Students	Male	Female	Total
	B. Sc. III	20	8	28
5	Result	A-Grade	A+-Grade	O-Grade
	B. Sc. III	8	18	2
6	Total Students	28		


PRINCIPAL,
Padmabhushan Vasantrodada Patil
Mahavidyalaya, Kavathe Mahankal, Dist-Sangli