

# REPORT ON THE TWO-DAYS WORKSHOP

ON

## ANALYSIS OF STATISTICAL DATA AND USE OF R-CODE

*Funded by SERB, DST, Govt. of India, Organised by Department of Statistics, Bidhannagar College*

**Date:** 17-18 November, 2022

**Location:** Department of Statistics, Bidhannagar College, Kolkata

**Facilitator:** Guest Faculties & Present Faculties of Department of Statistics, Bidhannagar College, Kolkata

**Attendees:** In total 25 registered participants who are faculty members of different science disciplines other than Statistics in different colleges and universities

**Funding:** Scientific Social Responsibility (SSR) scheme attached to the Core Research Grant given by Science and Engineering Research Board (SERB), DST, Govt. of India

**Executive Summary:** The workshop on the analysis of statistical data using R programming was conducted successfully. The workshop aimed to provide attendees with practical skills and knowledge in utilizing statistical analysis through R programming. Throughout the session, participants engaged in theoretical and interactive classes, hands-on activities, exercises, and discussions, enabling them to grasp fundamental concepts and apply them to real-world datasets.

### **Key Objectives:**

1. Introduce participants to the basics of R programming.
2. Familiarize participants with statistical analysis techniques.
3. Provide hands-on experience in data manipulation and visualization using R.
4. Enable participants to apply statistical methods to analyze datasets effectively.

**Workshop Content:** The workshop was structured into several topics (see Annexure B) covering the following for each of the topics:

1. **Introduction to R Programming:** Participants were introduced to the R environment, its syntax, data types, and basic operations. They learned how to install packages and navigate the RStudio interface.
2. **Data Import and Manipulation:** This module focused on importing data into R from various sources such as CSV files, Excel spreadsheets, and databases. Participants learned how to manipulate data frames, perform data cleaning, and handle missing values.

3. **Statistical Analysis Techniques:** Participants were introduced to a range of statistical analysis techniques, including descriptive statistics, hypothesis testing, regression analysis, and ANOVA. They learned how to implement these techniques using R packages such as stats, ggplot2, and dplyr.
4. **Data Visualization:** The workshop covered principles of data visualization and demonstrated how to create informative plots and charts using R's ggplot2 package. Participants learned how to customize visualizations to effectively communicate insights from data.
5. **Practical Exercises:** Throughout the workshop, participants engaged in practical exercises and case studies, allowing them to apply the concepts learned to real-world datasets. They worked collaboratively to solve problems and explore different approaches to data analysis.

**Outcomes and Feedback:** Overall, participants found the workshop to be highly informative and beneficial for their research work as well as understanding the modern tools of data analysis. They appreciated the hands-on approach and felt more confident in their ability to use R for statistical analysis. Feedback from attendees highlighted the clarity of instruction, the relevance of content, and the practical nature of the exercises.

**Conclusion:** The workshop on the analysis of statistical data using R programming was a resounding success, providing participants with valuable skills and knowledge that they can apply in their academic and professional pursuits. Continued support and resources will be provided to attendees to further enhance their proficiency in R programming and statistical analysis.

**Recommendations:** Based on feedback from participants, future workshops could explore advanced topics such as machine learning algorithms in R, time series analysis, or spatial data analysis. Additionally, offering follow-up sessions or online resources to reinforce learning and provide ongoing support would be beneficial.

**Acknowledgments:** We extend our gratitude to Dr. Rahul Bhattacharya, Professor, Department of Statistics, University of Calcutta, and Dr. Sanghamitra Pal, Assistant Professor, Department of Statistics, West Bengal State University for delivering their valuable lectures that helped the participants to understand the respective matters. We also like to thank our beloved Principal, Dr. Saurabh Chakraborti for leading the workshop and all the participants for their active engagement and enthusiasm. Special thanks to our students who acted as volunteers to help the event to be completed successfully.

**Report Prepared By:** Department of Statistics, Bidhannagar College, Kolkata

## Annexure A: Flyer of the program:

**MORE INFORMATION**

**TOPICS TO BE COVERED...**

- Basic Descriptive Analysis & Graphics
- Linear & Logistic Regression
- Statistical Hypothesis Testing
- Sampling Techniques
- Multivariate Data Analysis
- Time Series Analysis

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write"  
- H. G. Wells


**ABOUT THE WORKSHOP**

In the proposed workshop the members of the faculties of Social and Biological Sciences are intended to be given the basic knowledge required for Statistical Analysis of Data collected from the field of research. Along with this introduction of R-code for data analysis may also be offered to the interested persons.

**CONTACT US**

✉ events.bncstat@gmail.com

📍 EB 2, Sector 1, Salt Lake, Kolkata-700064, West Bengal




- Seats are limited & Free of cost !
- Registration window will be open until seats are available
- Each successfully registered candidate will be intimated about the status of his/her application
- Please bring your laptop for hands-on practice !
- Certificates will be provided to the participants

**BIDHANNAGAR COLLEGE, KOLKATA**  
DEPARTMENT OF STATISTICS

IN ASSOCIATION WITH  
INTERNAL QUALITY ASSURANCE CELL

present

**TWO-DAYS WORKSHOP ON**  
**ANALYSIS OF STATISTICAL DATA AND USE OF R-CODE**  
for College Teachers  
NOVEMBER 17-18, 2022



Funded by Science and Engineering Research Board (SERB), DST, Govt. of India under their Scientific Social Responsibility (SSR) Policy

## Annexure B: Program details date-wise:

### Program Details on 17<sup>th</sup> November 2022 (Thursday)

Time	Topic	Resource Person
10:30-10:45 a.m.	Registration	
10:45 a.m.	Presidential Address	Dr. Saurav Chakraborti, Principal, Bidhannagar College
10:55 a.m.	Welcome Address	Dr. Debesh Roy, Professor & HoD, Department of Statistics, Bidhannagar College, Kolkata
11:05 a.m.	Coffee Break	
11:15 a.m. – 1 p.m.	Basic Descriptive Analysis, Graphics & Introduction to R	Dr. Kiranmoy Chatterjee, Assistant Professor, Department of Statistics, Bidhannagar College, Kolkata
1 p.m. – 2 p.m.	Lunch Break	
2 p.m. – 3:30 p.m.	Sampling Techniques	Dr. Sanghamitra Pal, Assistant Professor, Department of Statistics, West Bengal State University, Barasat
3:30 p.m. – 3:45 p.m.	Tea Break	
3:45 p.m. – 4:30 p.m.	Statistical Hypothesis	Dr. Suryasish Chatterjee, Assistant Professor, Department of Statistics,

	Testing	Bidhannagar College, Kolkata
--	---------	------------------------------

### Program Details on 18<sup>th</sup> November 2022 (Friday)

Time	Topic	Resource Person
11 a.m. – 1 p.m.	Linear and Logistic Regression	Sri Soumyadeep Das, Assistant Professor, Department of Statistics, Bidhannagar College, Kolkata
1 p.m. – 2 p.m.	Lunch Break	
2 p.m. – 3:30 p.m.	Multivariate Data Analysis	Dr. Rahul Bhattacharya, Professor, Department of Statistics, University of Calcutta
3:30 p.m. – 3:45 p.m.	Coffee Break	
3:45 p.m. – 4:45 p.m.	Time Series Analysis	Dr. Kiranmoy Chatterjee, Department of Statistics, Bidhannagar College, Kolkata
4:45 p.m.	Vote of Thanks	

### Annexure C: Organising Committee:

**President:** Dr. Saurav Chakraborti, Principal, Bidhannagar College

**Organizing Secretary:** Dr. Debesh Roy, Professor & HoD, Department of Statistics, Bidhannagar College

**Advisors:** 1. Dr. Amaresh Mondal, Associate Professor & Co-ordinator of IQAC,  
2. Arup Kumar Hait, Associate Professor, Department of Statistics, Bidhannagar College

**Convener:** Dr. Kiranmoy Chatterjee, Assistant Professor, Department of Statistics, Bidhannagar College

**Co-conveners:** 1. Soumyadeep Das, Assistant Professor, Department of Statistics, Bidhannagar College  
2. Suryasish Chatterjee, Assistant Professor, Department of Statistics, Bidhannagar College



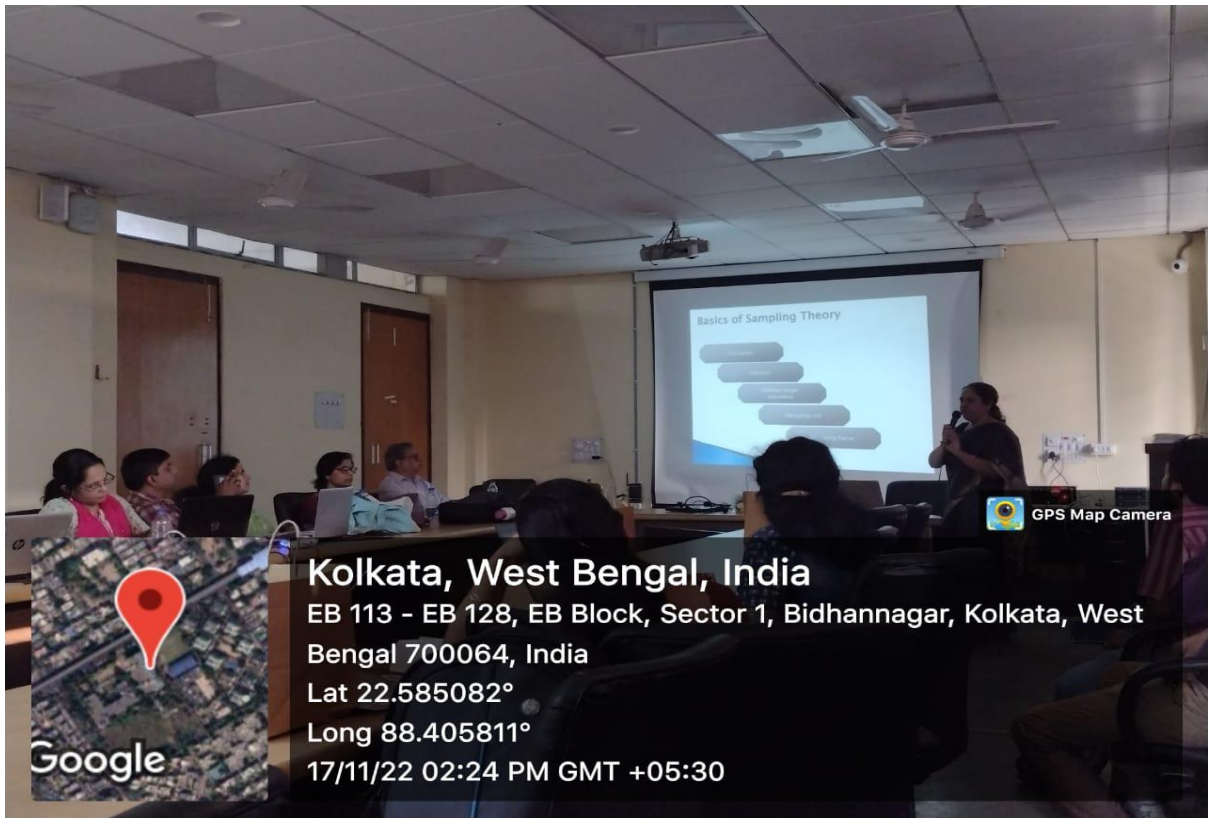
**Annexure D: Gallery:**



Picture 1: Inauguration of the program by our Principal, Dr. Saurabh Chakraborti



Picture 2: Hon'ble Guest Speaker Prof. Rahul Bhattacharya delivering his lectures



Picture 3: Hon'ble Guest Speaker Dr. Sanghamitra Pal delivering her lectures



Picture 4: Dr. Kiranmoy Chatterjee delivering his lectures





Picture 5: Participant faculties from different institutions are listening the lectures in the program



Picture 6: One of the participants receiving his certificate from our program's advisor, Dr. Amaresh Mondal, Bidhannagar College, Kolkata