



# MAHISHADAL RAJ COLLEGE

(Govt. Sponsored)

NAAC Accredited 'A' Grade College

DST (FIST) Govt. Of India approved College, NSDC Training Partner

Estd. : 1946

Mahishadal : Purba Medinipur

Phone STD 03224 No. 240220

Ref. No.....

Date:

## **Online ADD ON COURSE 2020-21**

**Organised by Department Zoology**

**Topic: Data Analysis and Basic Statistics**

Add on course summary:

### REPORT:

**Name of the course-** Data Analysis and Basic Statistics

**Course coordinator:** *Dr. Shubhamoy Das*, (Associate Professor, HOD, Department of Zoology , Mahishadal Raj College)

**Date of commencement:** 01.09.2020

**Date of completion:** - 18.09.2020

**Number of participant enrolled:** 25

**Total duration day:** 15

**Total duration hour:** 30

**Evaluation method:-** Paper pen MCQ, SAQ and practical work

### RESULT DETAILS:-

**Number of student participate in this program:** 25

**Number of student completes this program:** 22

**Number of student got certificate in this program:** 22

**Name of the course:** Biological data analysis

**Course coordinator:** *Dr. Shubhamoy Das*, (Associate Professor, HOD, Department of Zoology , Mahishadal Raj College)



## Data Analysis and Basic Statistics

### ✚ About the course:

Data analysis is the process of cleaning, manipulating, and processing raw data and extracting conclusive, relevant information that makes informative decisions. It provides useful insights and statistics, often presented in charts, tables, images, and, graphs. In essence, biostatistics is a versatile field that contributes significantly to research and decision-making in the biological and health sciences by providing the tools to analyze and interpret data in a rigorous and meaningful way.

### ✚ Learning outcomes:

A data analysis course typically covers the principles, techniques, and tools used in the process of extracting meaningful insights from raw data. Such courses are designed to equip individuals with the skills required to manipulate, analyze, and visualize data effectively. Job opportunities in biological data analysis may be found in academic institutions, research organizations, healthcare settings, pharmaceutical companies, biotechnology firms, and government agencies. The demand for professionals with expertise in handling and interpreting biological data is likely to continue growing as advancements in technology generate increasingly large and complex datasets in the biological sciences.

### ✚ Target audience:

Any Life science branch students (UG & PG), Scholars, and faculties.

### ✚ Course content overview:

Excel, SPSS, and R- software

### ✚ Schedule: Total 30 hours



DAY	SCHEDULE
Day 1	Introduction to biostatistics. (2 hours)
Day 2	Installation of SPSS, R and R studio software (T + P) (2 hours)
Day 3	Data formatting, data manipulation, descriptive statistics (T + P) (2 hours)
Day 4	One sample T test and Independent T test (T + P) (2 hours)
Day 5	Paired T test and Z test. (T + P) (2 hours)
Day 6	One way ANOVA and two ways ANOVA. (T + P) (2 hours)
Day 7	Repeated measures of ANOVA and ANOVA. (T + P) (2 hours)
Day 8	Data visualization I. (T + P) (2 hours)
Day 9	Data Visualization II (T + P) (2 hours)
Day 10	Correlation and regression (T + P) (2 hours)
Day 11	Multiple regression (T + P) (2 hours)
Day 12	Chi square and Wilcoxon rank test (T + P) (2 hours)
Day 13	kruskalwallis test and Friedman test. (T) (2 hours)
Day 14	Principle component analysis (PCA) (2 hours)
Day 15	Random forest analysis and overall discussion. Overall discussion. Doubts clear and revision (2 hours)



Date	Day	Contents	Time	Duration	Experts	Designation
01.09.2020	1	Introduction to biostatistics	12 to 2pm	2	Dr.Subhamoy Das	HOD, Zoology, MRC
02.09.2020	2	Installation of SPSS, R and R studio software (T + P)	1 to 3 pm	2	Dr.Subhamoy Das	HOD, Zoology, MRC
03.09.2020	3	Data formatting, data manipulation, descriptive statistics (T + P)	3 to 5pm	2	Prof.Manik Das	SACT Mahishadal Raj College
04.09.2020	4	One sample T test and Independent T test, (T + P)	03 to 05pm	2	Prof.Manik Das	SACT Mahishadal Raj College
07.09.2020	5	Paired T test and Z test. (T + P)	02 to 04pm	2	Prof.Manik Das	SACT Mahishadal Raj College
08.09.2020	6	One way ANOVA and two way ANOVA. (T + P)	01 to 03pm	2	Prof.Saheli Maiti	SACT Mahishadal Raj College
09.09.2020	7	Repeated measures of ANOVA and ANCOVA (T + P)	03 to 05pm	2	Prof. Saheli Maiti	SACT Mahishadal Raj College
10.09.2020	8	Data visualization I (T + P)	02 to 04pm	2	Prof. Sagnik Mondal	SACT Mahishadal Raj College
11.09.2020	9	Data Visualization II (T + P)	02 to 04pm	2	Prof. Sagnik Mondal	SACT Mahishadal Raj College
12.09.2020	10	Correlation and regression (T + P)	01 to 03pm	2	Prof. Moumita Jana	SACT Mahishadal Raj College
14.09.2020	11	Multiple regression. (T + P)	02 to 04pm	2	Prof. Moumita Jana	SACT Mahishadal Raj College
15.09.2020	12	Chi square and Wilcoxon rank test. (T + P)	01 to 03pm	2	Dr. Rajkumar Guchhait	SACT Mahishadal Raj College
16.09.2020	13	kruskalwallis test and Friedman test (T+P)	01 to 03pm	2	Dr. Rajkumar Guchhait	SACT Mahishadal Raj College
17.09.2020	14	Principle component analysis (PCA)	01 to 03pm	2	Dr. Rajkumar Guchhait	HOD, Zoology, MRC,
18.09.2020	15	Random forest analysis and overall discussion.	12 to 2 pm	2	Dr. Subhamoy Day, Dr.	HOD & SACT.,



					Rajkumar Guchhait, Prof. Sagnik Manadal, Prof. Manik Das and Prof. Moumita Jana. DR.Asim Kr Bera	Zoology; Principal, MRC
				30 hours		

**✚ Course structure and examination scheme:**

Course name	Theory classes (hr.)	Practical classes (hr.)	Theory marks	Practical marks	Total marks
Data Analysis and Basic Statistics	15	15	20	80	100



## ✚ Participant's Details and attendance:

### Enrolment Details of Students

Sl. No.	Student ID	Roll No.	Name
1.	B.Sc/19/0474	2190474	SANKHAMOY JANA
2.	B.Sc/19/0525	2190525	MOUMITA MAITY
3.	B.Sc/19/0057	2190057	SANCHITA MAITY
4.	B.Sc/19/0058	2190058	ANINDITA SAMANTA
5.	B.Sc/19/0059	2190059	TANMAY KANTI JANA
6.	B.Sc/19/0061	2190061	SAIKAT MAITI
7.	B.Sc/19/0063	2190063	PRADIP MANDI
8.	B.Sc/19/0083	2190083	SNIGDHA BISWAS
9.	B.Sc/19/0153	2190153	SOURAV MONDAL
10.	B.Sc/19/0154	2190154	KRISHNAKANTA TUDU
11.	B.Sc/19/0193	2190193	MAYUKH ROY
12.	B.Sc/19/0194	2190194	TANIYA DAS
13.	B.Sc/19/0239	2190239	JIBUNNESA KHATUN
14.	B.Sc/19/0241	2190241	ABHIJIT MAJI
15.	B.Sc/19/0336	2190336	PALLABI SAMANTA
16.	B.Sc/19/0352	2190352	MRITTIKA SAMANTA
17.	B.Sc/19/0412	2190412	SAINAJ AKTARI
18.	B.Sc/19/0413	2190413	SATHI MALLIK
19.	B.Sc/19/0422	2190422	MANDIRA DEY
20.	B.Sc/19/0445	2190445	SOUMYASHREE DAS
21.	B.Sc/19/0446	2190446	AYAN KUMAR KAR
22.	B.Sc/19/0447	2190447	SANDHYA DAS
23.	B.Sc/19/0448	2190448	SANKET KUILA
24.	B.Sc/19/0476	2190476	NIVEDITA MAITY
25.	B.Sc/19/0478	2190478	SUMAN MANNA
26.	B.Sc/19/0479	2190479	MALLIKA MAITY
27.	B.Sc/19/0480	2190480	ARKAPRAVA DASADHIKARY
28.	B.Sc/19/0482	2190482	SARMI MAITI
29.	B.Sc/19/0483	2190483	PAYEL MANDAL
30.	B.Sc/19/0504	2190504	PURNENDU KUMAR ROY

## ✚ Sample Question of Examination



## UNIT – I

### VARIABLES FOR DATA ANALYTICS

1. Draw the diagram showing the types of Variables with examples.
2. Differentiate between Numerical and Categorical Variables.
3. What are Named variables? Using Ms-Excel, create a list of 10 named variables with the numbers automatically.
4. What is a Ratio Variable? State the importance of Ratio Variable in Data Analysis.
5. Explain Data Table in Excel. Create a One Variable Data Table in Excel.
6. What is a two Variable Data Table? Write steps to create a Two Variable Data Table in Excel.
7. Write steps for analysing a Data Table with Multiple Formulas in Excel.
8. How do you Create, Rename, Recode and Merge Variables in R?
9. Write steps to create Your Name, Age, Class, and College Name in R.
10. Draw a Chart for R- Variables.



✦ **SAMPLE CERTIFICATE OF COURSE COMPLETION**



# CERTIFICATE OF COURSE COMPLETION

THIS IS TO CERTIFY THAT

**SANKHAMOY JANA**

has successfully completed the **Add-on Course** on **Data Analysis and Basic Statistics**  
held during **2020-21** academic year at Mahishadal Raj College.

*Sankhamoy Jana*

**Course Co-ordinator**

*S. Monkerjee*

**IQAC Co-ordinator**

*Jana*

**Principal**





# CERTIFICATE OF COURSE COMPLETION

THIS IS TO CERTIFY THAT

**KRISHNAKANTA TUDU**

has successfully completed the **Add-on Course** on **Data Analysis and Basic Statistics**  
held during **2020-21** academic year at Mahishadal Raj College.

*Subhamoy Das.*

Course Co-ordinator

*S. Monberger*

IQAC Co-ordinator

*[Signature]*

Principal