

VALUE ADDED COURSE ON
ADVANCED SPATIAL STATISTICAL TECHNIQUES

Report

Name of the course: Advanced spatial statistical techniques

Course Coordinator: Dr. Sk Mithun

Duration: 10th March, 2022 to 9th May, 2022 Monday to Friday 5 Pm To 6 Pm

Resource person:

1. Dr. Pijush Kanti Tripathi, Haldia Government College
- 2., Prof. Sarbeswar Haldar, Haldia Government College
3. Dr. Sk. Mithun, Haldia Government College
4. Prof. Gopal Chandra Hembram, Haldia Government College

MODULE	CONTENT	HOURS
1	Probability Theory: Probability density functions with respect to Normal, Binominal and their geographical application.	6
2	Multivariate Analysis: Multiple and Partial correlation, Multi-variate regression equation, 2nd degree polynomial curve fitting	6
3	Sampling: Sampling plans for spatial and non-spatial data, sampling distributions, Sampling estimates for large and small sampling tests involving means and proportions.	6
4	Analysis of Variance: Objectives, One Way and Two Way Analysis of Variance	6
5	Hypothesis Testing: Formulation and Rejection rule, One and two tailed test, level of significance, degree of freedom, type-I and II errors, t-test, Chi-square test.	6

Objectives: The main objective of this course is to provide theoretical knowledge of the advanced statistical techniques and application of these techniques in the field of geographical research.

No of participants: 51 students of U.G. 4th semester

Course outcome: After completion of this course the participants will be able to apply advanced spatial statistical techniques in the diverse field of geographical research.

SK Mithun

Signature of the Course Co-ordinator

Assistant Professor, WBES
Department of Geography
Haldia Government College
Debhog-721657

Sirpani

Signature of the Officer in-Charge

Officer-in-charge
Haldia Government College
P.O. Debhog, Dist- Purba Medinipur

VALUE ADDED COURSE

ADVANCED SPATIAL STATISTICAL TECHNIQUES

Post Graduate Department of
Geography
Haldia Government College

Time Scheduled: 10th March, 2022 to 09th May,
2022 (Monday to Friday, 5P.M. to 6P.M.)

Course Duration: 30 hours

Course Coordinator:
Dr. Sk Mithun
Assistant Professor
Department Of Geography

Last date of Enrolment: 7th March, 2022

About the Course:

The Post Graduate department of Geography is going to organize this value added course considering the absolute need of the advanced spatial statistical techniques in the field of geographical research. This course will definitely help the students in future. The main purpose of this course is to improve the theoretical knowledge of advanced statistical techniques and the application of these techniques.

Objectives:

The main objective of this course is to provide theoretical knowledge of the advanced statistical techniques and application of these techniques in the field of geographical research.

Course Outcome:

After completion of this course the participants will be able to apply advanced spatial statistical techniques in the diverse field of geographical research.

Certificate after completion of the course

Registration Details: Registration is mandatory for all the participants. There is no registration fee for the course.

**Eligibility: Undergraduate Student of
Geography**

Resource Persons:

1. Dr. Pinish Kanti Tripathi
Haldia Government College
2. Mr. Sarbeswar Halder
Haldia Government College
3. Dr. Sk Mithun
Haldia Government College
4. Gopal Chandra Haribharm
Haldia Government College

VALUE ADDED COURSE
ON
ADVANCED SPATIAL STATISTICAL TECHNIQUES

ORGANISED BY
POST GRADUATE DEPARTMENT OF GEOGRAPHY
HALDIA GOVERNMENT COLLEGE, DEBHOG, PURBA MEDINIPUR

COURSE CONTENTS

Module-1

6Hrs

Probability Theory: Probability density functions with respect to Normal, Binominal and their geographical application.

Module-2

6Hrs

Multivariate Analysis: Multiple and Partial correlation, Multi variate regression equation, 2nd degree polynomial curve fitting

Module-3

6Hrs

Sampling: Sampling plans for spatial and non-spatial data, sampling distributions, Sampling estimates for large and small sampling tests involving means and proportions.

Module-4

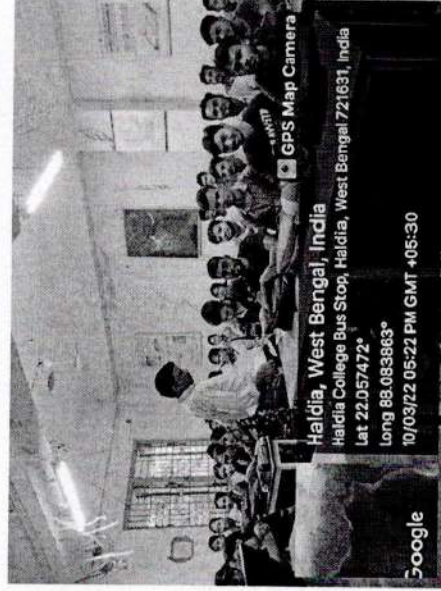
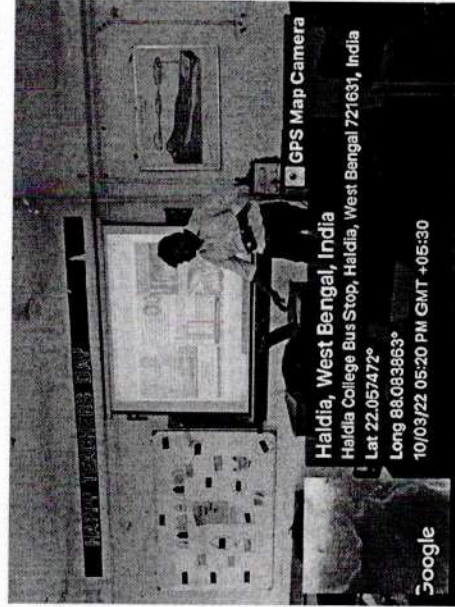
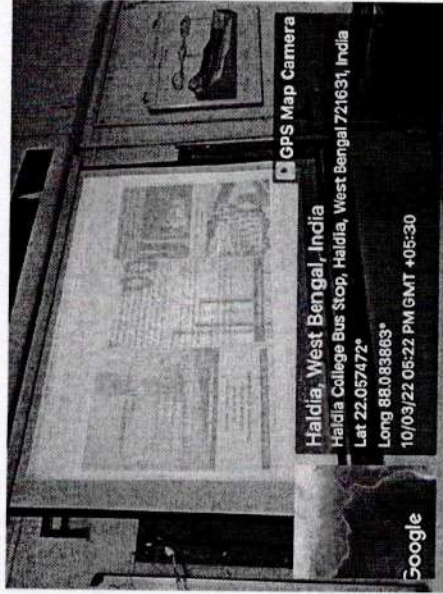
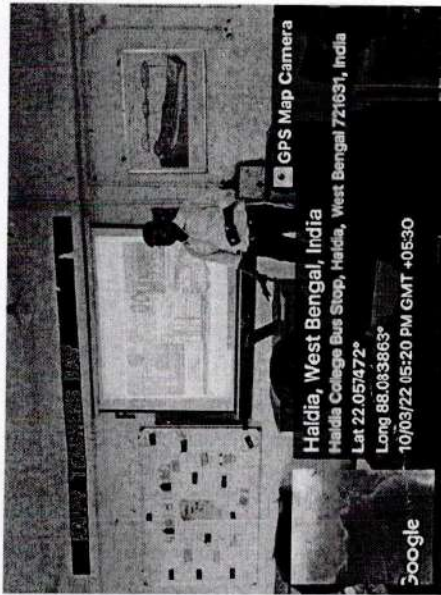
6Hrs

Analysis of Variance: Objectives, One Way and Two Way Analysis of Variance

Module-5

6Hrs

Hypothesis Testing: Formulation and Rejection rule, One and two tailed test, level of significance, degree of freedom, type-I and II errors, t-test, Chi-square test.



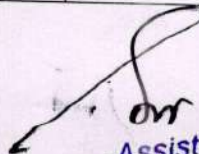
Add-on/ Value Added Course
On
ADVANCED SPATIAL STATISTICAL TECHNIQUES

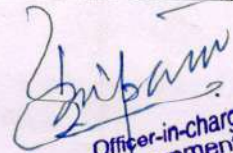
Organized by:
Department of Geography
Haldia Government College
Academic Session: 2020-22

2020-2022

List of Participants

Sl. No.	Name	College ID	Regn. No.	Signature	
1	Uma Sharma	HGC/GEOH/20/077	1160534	Uma Sharma	77
2	Sumita Kamila	HGC/GEOH/20/043	1160525	Sumita Kamila	43
3	Sharmistha Das	HGC/GEOH/20/041	1160487	Sharmistha Das	41
4	Reya Singha	HGC/GEOH/20/062	1160466	Reya Singha	62
5	Sharmistha Bera	HGC/GEOH/20/007	1160486	Sharmistha Bera	07
6	Khukumoni Hazra	HGC/GEOH/20/034	1160428	Khukumoni Hazra	34
7	Lipika Samanta	HGC/GEOH/20/075	1160434	Lipika Samanta	75
8	Jharna Biri	HGC/GEOH/20/054	1160426	Jharna Biri	54
9	Arpita Bhunia	HGC/GEOH/20/067	1160408	Arpita Bhunia	67
10	Soma Patra	HGC/GEOH/20/032	1160499	Soma Patra	32
11	Koyel Kandan	HGC/GEOH/20/022	1160430	Koyel Kandan	22
12	Arpita Bag.	HGC/GEOH/20/008	1160407	Arpita Bag	08
13	Ayantika Patra	HGC/GEOH/20/055	1160413	Ayantika Patra	55
14	Sumana Pramanik	HGC/GEOH/20/066	1160523	Sumana Pramanik	66
15	Monorama Samanta	HGC/GEOH/20/035	1160439	Monorama Samanta	35
16	Arpita Laiya	HGC/GEOH/20/024	1160410	Arpita Laiya	24
17	Soumitra pradhan.	HGC/GEOH/20/036	1160505	Soumitra pradhan.	36
18	Riya Santra	HGC/GEOH/20/017	1160465	Riya Santra	17
19	Brahmananda Bisai	HGC/GEOH/20/065	1160419	Brahmananda Bisai	65


Assistant Professor
Department of Geography
Haldia Government College
Debhog, Purba Medinipur-721657


Officer-in-charge
Haldia Government College
P.O. Debhog, Dist- Purba Medinipur

Student Enrollment Form

Add-on/ Value Added Course

On

ADVANCED SPATIAL STATISTICAL TECHNIQUES

Organized by:

Department of Geography
Haldia Government College
Academic Session: 2021-22

1. Name (Block Letters): BRAHMANANDA BISAI
2. College ID: HGE/GEOH/201065
3. University Registration No. with year: 1160419 of 2020-2021
4. Department: GEOGRAPHY
5. Semester: (IV)
6. Address: VILL - KOPTIPUR, P.S - SABANG, PIN - 721467
7. Contact No. (Whatsapp No.): 9749719557
8. Email id: brahmananda655@gmail.com

Brahmananda Bisai
Signature of the applicant

For Department Use Only

✓
Approved / Not approved

[Signature]
08-13-22
Course Coordinator
Assistant Professor
Department of Geography
Haldia Government College
Debhog, Purba Medinipur-721657

20	Belamani Hembram	HGC/GEOH/20/014	1160419	Belamani Hembram	14
21	Sunder Chandra	HGC/GEOH/20/076	1160528	Sunder Chandra	26
22	Ramesh Maji	HGC/GEOH/20/037	1160463	Ramesh Maji	37
23	Subhajit Bera	HGC/GEOH/20/052	1160514	Subhajit Bera	58
24	Krishnakanta Bhunia	HGC/GEOH/20/063	1160432	Krishnakanta Bhunia	63
25	Sandip Manna	HGC/GEOH/20/073	1160973	Sandip Manna	29
26	Surajit Bera	HGC/GEOH/20/053	1160530	Surajit Bera	59
27	Sukumar Tudu	HGC/GEOH/20/005	1160521	Sukumar Tudu	05
28	Debasis Sing	HGC/GEOH/20/006	1160421	Debasis Sing	06
29	Shrabankr. Barman	HGC/GEOH/20/003	1160489	Shrabankr Barman	03
30	Rupam Patra	HGC/GEOH/20/070	1160470	Rupam Patra	70
31	Asutosh Bag	HGC/GEOH/20/040	1160411	Asutosh Bag	40
32	Sumita Barman	HGC/GEOH/20/026	1160524	Sumita Barman	26
33	Sangita Kandar	HGC/GEOH/20/001	1160977	Sangita Kandar	01
34	Rakesh Das	HGC/GEOH/20/005	1160462	Rakesh Das	25
35	Debabash Barik	HGC/GEOH/20/050	1160422	Debabash Barik	50
36	Animesh Samanta.	HGC/GEOH/20/052	1160400	Animesh Samanta.	52
37	Rahul Bera	HGC/GEOH/20/095	1160459	Rahul Bera	45
38	Umasankar Ghosh	HGC/GEOH/20/042	1160535	Umasankar Ghosh	42
39	Rahul Roy	HGC/GEOH/20/072	1160460	Rahul Roy	72
40	Pravesh Mohapatra	HGC/GEOH/20/033	1160456	Pravesh Mohapatra	33
41	Tapabrata Jena	HGC/GEOH/20/028	1160533	Tapabrata Jena	28
42	Sk Tajammul AG	HGC/GEOH/20/011	1160495	Sk Tajammul AG	11
43	Sohan Barman	HGC/GEOH/20/064	1160498	Sohan Barman	64
44	Boymkesh Barman	HGC/GEOH/20/013	1160418	Boymkesh Barman	13
45	Anukita De	HGC/GEOH/20/052	1160402	Anukita De.	52
46	Payel Barman	HGC/GEOH/20/023	1160453	Payel Barman	23
47	Ankita Das	HGC/GEOH/20/002	1160401	Ankita Das	02
48	Poukmi Karshanka	HGC/GEOH/20/056	1160455	Poukmi Karshanka	56

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VALUE ADDED COURSE ON
ADVANCED SPATIAL STATISTICAL TECHNIQUES
(10th March, 2022 to 09th May, 2022)



Invigilator's signature

V.U. Registration no. with year: 1160524 (2020-21)

Semester: 4th Department: Geography Date: 06.5.2022

Full marks: 20

Time: 30 mins.

Instruction:

- Each question contains 1 mark.
- All questions are mandatory.
- Put a tick mark (✓) for the correct option.

1. A numerical value used as a summary measure for a sample, such as a sample mean, is known as a
 - A. Population Parameter
 - B. Sample Parameter
 - ✓ C. Sample Statistic
 - D. Population Mean
2. If the value of chi-square calculated is higher than the value of chi-square critical, what step a statistician should take?
 - ✓ A. Reject null hypothesis
 - B. Fail to reject null hypothesis
 - C. Choose a different sample which has lower chi-square value
 - D. None of the above
3. A random sample of size 225 is drawn from the population of mean μ and standard deviation σ . The sample mean follows the distribution with mean 100 and standard deviation $4/3$. The value of μ and σ are:
 - A. (100, 18)
 - B. (100, 15)
 - C. (100, 24)
 - ✓ D. (100, 20)
4. According to Gaussian statistical analysis, if the confidence level is 0.10, then the values lying outside the confidence level is
 - A. 1 in 5
 - ✓ B. 9 in 10
 - C. 1 in 10
 - D. 8 in 10
5. Which among the following are the measures of Central Tendency or Measures of Location? A. Mean, B. Range, C. Mode, D. Median, and E. Variance Choose the most appropriate answer from the options given below:
 - A. A, B, and C only
 - B. C, D and E only
 - ✓ C. A, C and D only

D. B, C and D only

6. If two regression coefficients are 0.8 and 1.2, which one of the following is the value of coefficient of correlation?

☒ A. 0.97
B. 0.96
C. 1.00
D. 0.80

7. $E(X) = \lambda$ is used for which distribution?

A. Binomial distribution
☒ B. Poisson's distribution
C. Bernoulli's distribution
D. Laplace distribution

8. Find the variance in a Binomial Distribution, if x , y , and z are the probability of getting success, failure, and a number of trials, respectively.

☒ A. xyz
B. x^2yz
C. xy^2z
D. $x^2y^2z^2$

9. If the mean of a frequency distribution is 100 and the coefficient of variation is 45%, then what is the value of the variance?

☒ A. 2025
B. 450
C. 45
D. 4.5

10. Failing to reject the null hypothesis when it is false is:

A. alpha
B. Type I error
C. beta d.
☒ D. Type II error

11. Given IQ scores are approximately normally distributed with a mean of 100 and standard deviation of 15, the proportion of people with IQs above 130 is:

A. 95%
B. 68%
C. 5%
☒ D. 2.5%

12. A parameter is:

A. a sample characteristic
☒ B. a population characteristic
C. unknown
D. normal normally distributed

13. Which one of these statistics is unaffected by outliers?

A. Mean
☒ B. Interquartile range
C. Standard deviation
D. Range

14. When asked questions concerning personal hygiene, people commonly lie. This is an example of:

- A. sampling bias
- B. confounding
- C. non-response bias
- ☒ D. response bias

15. When the correlation coefficient, r , is close to one:

- A. there is no relationship between the two variables
- ☒ B. there is a strong linear relationship between the two variables
- C. it is impossible to tell if there is a relationship between the two variables
- D. the slope of the regression line will be close to one

16. Which of the following is not a parametric test:

- A. F-test
- ☒ B. t-test
- ☒ C. Chi-square test
- D. Z-test

17. The intercept in linear regression represents:

- A. the strength of the relationship between x and y
- B. the expected x value when y is zero
- ☒ C. the expected y value when x is zero
- D. a population parameter

18. The relationship between the measure of central tendency- mean, median and mode for a moderately skewed distribution is given as:

- ☒ A. mode = 3 median - 2 mean
- B. mode = median - 2 mean
- C. mode = 2 median - 3 mean
- D. mode = median - mean

19. One use of a regression line is:

- A. to determine if any x -values are outliers.
- B. to determine if any y -values are outliers.
- C. to determine if a change in x causes a change in y .
- ☒ D. to estimate the change in y for a one-unit change in x .

20. What is the effect of an outlier on the value of a correlation coefficient?

- A. An outlier will always decrease a correlation coefficient.
- B. An outlier will always increase a correlation coefficient.
- ☒ C. An outlier might either decrease or increase a correlation coefficient, depending on where it is in relation to the other points.
- D. An outlier will have no effect on a correlation coefficient.

Add-on/ Value Added Course
on
ADVANCED SPATIAL STATISTICAL TECHNIQUES
Organized by:
Department of Geography
Haldia Government College
Academic Session: 2021-22
Grade sheet

Sl. No.	Name	V.U. Registration. No.	Year of registration	Grade
1	ANGSHUMAN MANNA	1160399	2020-2021	B+
2	ANIMESH SAMANTA	1160400	2020-2021	A
3	ANKITA DAS	1160401	2020-2021	A
4	ANKITA DE	1160402	2020-2021	A
5	APURBA MANNA	1160405	2020-2021	A
6	ARPITA BAG	1160407	2020-2021	A
7	ARPITA BHUNIA	1160408	2020-2021	A
8	ARPITA LAIYA	1160410	2020-2021	A
9	ASHUTOSH BAG	1160411	2020-2021	A
10	AYANTIKA PATRA	1160413	2020-2021	B+
11	BOYMKESH BARMAN	1160418	2020-2021	A
12	BRAHAMANANDA BISAI	1160419	2020-2021	A
13	DEBASIS SINGH	1160421	2020-2021	B+
14	DEBOTOSH BARIK	1160422	2020-2021	A
15	KHUKUMANI HAZRA	1160428	2020-2021	B+
16	KOYEL KANDAR	1160430	2020-2021	A
17	KRISHNAKANTA BHUNIA	1160432	2020-2021	A
18	LIPIKA SAMANTA	1160434	2020-2021	A
19	MONOROMA SAMANTA	1160399	2020-2021	A
20	NIBARAN SAREN	1160446	2020-2021	A
21	PAYEL BARMAN	1160453	2020-2021	A
22	POULAMI KARSHARMA	1160455	2020-2021	A
23	PRAJESH MOHAPATRA	1160456	2020-2021	A
24	RAHUL BERA	1160459	2020-2021	A
25	RAHUL ROY	1160460	2020-2021	A
26	RAKESH DAS	1160462	2020-2021	

Officer-in-charge
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P.O. Debhog, Dist- Purba Medinipur

Professor, WBES
Department of Geography
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Debhog-721657

27	RAMESH MAJHI	1160463	2020-2021	A
28	RIYA SANTRA	1160465	2020-2021	A
29	RIYA SINGHA	1160466	2020-2021	A
30	RUPAM PATRA	1160470	2020-2021	A
31	SANDIP MANNA	1160473	2020-2021	A
32	SANGITA KANDAR	1160477	2020-2021	A
33	SHARMISHTA BERA	1160486	2020-2021	A
34	SHARMISHTA DAS	1160487	2020-2021	A
35	SHRABAN KUMAR BARMAN	1160489	2020-2021	A
36	SK TAJAMMUL ALI	1160495	2020-2021	A
37	SOHAN BARMAN	1160498	2020-2021	A
38	SOMA PATRA	1160499	2020-2021	A
39	SOUMITRA PRADHAN	1160505	2020-2021	A
40	SUBHAJIT BERA	1160514	2020-2021	A
41	SUDIP MONDAL	1160518	2020-2021	A
42	SUDIPTA SANDHAKI	1160520	2020-2021	A
43	SUKUMAR TUDU	1160521	2020-2021	B+
44	SUMANA PRAMANIK	1160523	2020-2021	A
45	SUMITA BARMAN	1160524	2020-2021	A
46	SUMITA KAMILYA	1160525	2020-2021	A
47	SUNDAR CHAKRABORTY	1160528	2020-2021	A
48	SURAJIT BERA	1160530	2020-2021	A
49	TAPABRATA JANA	1160533	2020-2021	A
50	UMA DHARA	1160534	2020-2021	A
51	UMASHANKAR DHARA	1160535	2020-2021	A

Sripa

Officer-in-charge
Haldia Government College
P.O. Debnag, Dist- Purba Medinipur

SK Mishra

Signature of course coordinator
Assistant Professor, WBES
Department of Geography
Haldia Government College
Debnag, Dist- Purba Medinipur



DEPARTMENT OF GEOGRAPHY
HALDIA GOVERNMENT COLLEGE
VALUE ADDED COURSE ON
ADVANCED SPATIAL STATISTICAL TECHNIQUES

CERTIFICATE OF COMPLETION

This is to certify that **ANKAN TUDU** 4th semester student of Department of Geography has successfully completed the 30 hours Value Added Course on **ADVANCED SPATIAL STATISTICAL TECHNIQUES** organized by Department of Geography, Haldia Government College in the academic session 2021-22. He/ She has secured Grade **B+** in this course.

Prof. Sk. Mithun
COURSE COORDINATOR
DEPARTMENT OF GEOGRAPHY

Prof. Sarbeswar Haldar
HEAD OF THE DEPARTMENT
DEPARTMENT OF GEOGRAPHY

Dr. Pijush Kanti Tripathi
OFFICER-IN-CHARGE
HALDIA GOVERNMENT COLLEGE

Add-on/ Value Added Course
On
ADVANCED SPATIAL STATISTICAL TECHNIQUES

Organized by:
 Department of Geography
 Haldia Government College
 Academic Session: 2021-22

RESOURCE PERSON: Dr. SK Mithun

DATE: 10-03-2022

TIME: 5pm - 6pm

Attendance Sheet

Sl. No.	Name	Signature
1	Uma Dhara	Uma Dhara
2	Sumita Kamila	Sumita Kamila
3	Arpita Bhunia	Arpita Bhunia
4	Charonistha Das	Charonistha Das
5	Sumitra Pradhan	Sumitra Pradhan
6	Arpita Laiya	Arpita Laiya
7	Monoroma Samanta	Monoroma Samanta
8	Ayantika Patra	Ayantika Patra
9	Sumana Pramanik	Sumana Pramanik
10	Jharna Biri	Jharna Biri
11	Ankita Das	Ankita Das
12	Lipika Samanta	Lipika Samanta
13	Soma Patra	Soma Patra
14	Poulami Keshikuma	Poulami Keshikuma
15	Arpita Bag	Arpita Bag
16	Koyel Kanda	Koyel Kanda
17	Payel Basman	Payel Basman
18	Ankita De.	Ankita De.
19	Sk Tajammul Ali	Sk Tajammul Ali
20	Ujjayit Bera	Ujjayit Bera
21	Debasis Sing	Debasis Sing
22	Sukumar Tudu	Sukumar Tudu