ADD ON COURSE

Conducted by

Department of Microbiology, Hooghly Women's College

COURSE TITLE: DATA HANDLING AND STATISTICAL APPROACH IN MICROBIOLOGICAL STUDY

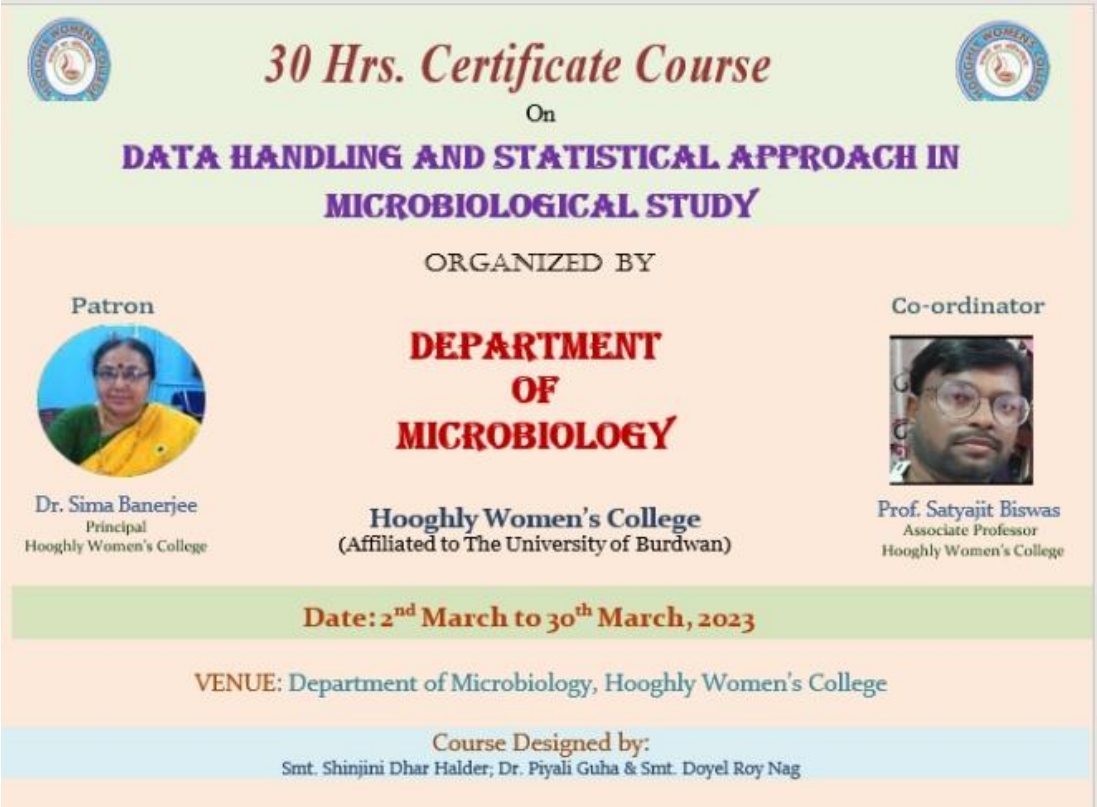
Objective of the course: The course was designed to provide an opportunity to students to study biostatistics and its application in microbiological research field. The course was aimed to help students to develop the practical skills (perform statistical analysis using computer tools and software) which is necessary for their future career.

Mode of teaching: Offline

Total duration of the course: 30 hrs.

Fee: Free

Contact person: Coordinator- Prof. Satyajit Biswas, Contact No.- 7980997022



Course structure: Theory and Practical classes

Course content (Syllabus)

Theory:

Topic	Duration
Data collection and treatment	2 hours
Sampling techniques	2 hours

Diagrammatic representation of data.	2 hours
Graphic representation of data.	2 hours
Measures of central tendency.	6 hours
Measures of dispersion.	2 hours
Concept of probability.	1 hour
Theoretical probability distributions.	1 hour
Correlation and regression.	1 hour
Chi square test.	2 hours
Hypothesis testing, tests of significance.	1 hour
Analysis of variance.	1 hour

Practical:

Diagrammatic representation of data using MS Word /excel. (bar diagram, line diagram, pie chart, histogram etc.)	2 hours
Measures of central tendency using excel.	1 hour
Performing chi square test in excel	1 hour
Performing t -test in excel	1 hour
Performing F test in excel	1 hour
Performing analysis of variance in excel	1 hour

Syllabus:

1. Data collection and treatment:
   a. Types of statistical data, tools of data collection, methods of data collection.
   b. Classification and tabulation of data
2. Sampling techniques:

   a. Size of sample, methods of sampling, choice of sampling methods.

   b. Sampling and non-sampling errors
3. Diagrammatic representation of data:

   a. Line diagram, bar diagram, two dimensional diagrams, pie diagrams, three dimensional diagrams.

   b. Significance of diagrammatic representation.

   c. Limitations of diagrammatic representation.

   d. Illustrative problems

4. Graphic representation of data:

a. Histogram, frequency polygon, frequency curve, cumulative frequency curve.

b. Significance of graphical representation.

c. Limitations of graphical representation.

d. Illustrative problems.

5. Measures of central tendency:

a. Arithmetic means, calculation of simple arithmetic mean (in a series of individual observation, in a discrete series, in a continuous series, in series having open end classes), Merits and demerits of Arithmetic mean, Weighted Arithmetic meal. Illustrative problems of mean

b. Median: Calculation of median (in a series of individual observation, in a discrete series, in a continuous series, in un-equal class interval, in open end classes, graphic location of median, Merits and demerits of median.

c. Mode: calculation of Mode (in a series of individual observation) in a discrete series, in a continuous series, unequal class interval, graphic location of mode. Illustrative problems of Mode.

d. Geometric mean and harmonic mean (calculation, merits demerits)

6. Measures of dispersion:

a. dispersion, methods of measuring dispersion – range, mean deviation, variance, standard deviation, coefficient of variance.

b. Illustrative problems

7. Concept of probability: basic terminologies, theorems of probability (addition rule, multiplication rule, probability application.

8. Theoretical probability distributions: binomial distribution, Poisson distribution, Normal distribution.

9. Correlation and regression:

a. Analysis, general uses application;

b Difference between correlation and regression

10. Chi square test (definition, levels of significance, degree of freedom, application, illustrative problems.

11. Hypothesis testing, tests of significance (large sample, small samples); Illustrative problems

12. Analysis of variance:

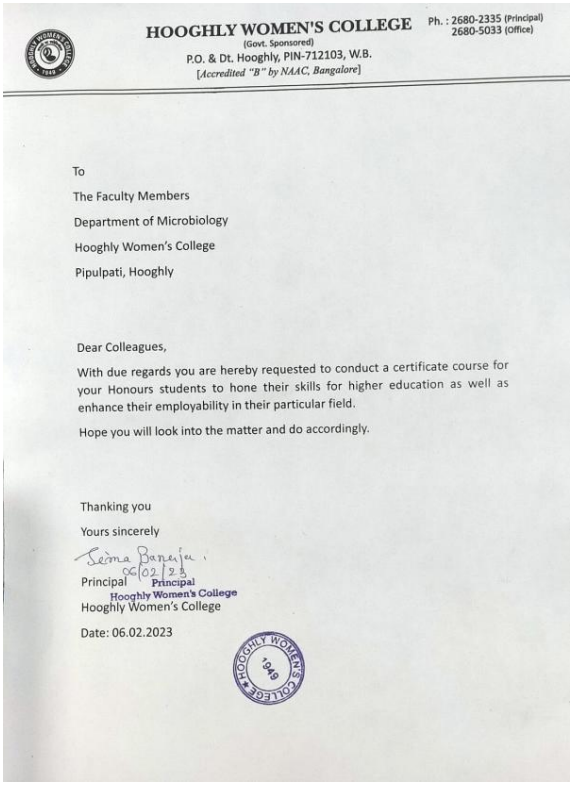
a. Assumption, techniques.

b. One factor analysis; two factor analysis.

c. Illustrative problem

No. of student registered in the course: 33

Letter from Principal to organize a certificate course



HOOGHLY WOMEN'S COLLEGE
(Govt. Sponsored)
P.O. & Dt. Hooghly, PIN-712103, W.B.
[Accredited "B" by NAAC, Bangalore]
Ph. : 2680-2335 (Principal)
2680-5033 (Office)

To
The Faculty Members
Department of Microbiology
Hooghly Women's College
Pipulpati, Hooghly

Dear Colleagues,

With due regards you are hereby requested to conduct a certificate course for your Honours students to hone their skills for higher education as well as enhance their employability in their particular field.

Hope you will look into the matter and do accordingly.

Thanking you
Yours sincerely
Seema Banerjee
06/02/23
Principal
Principal
Hooghly Women's College
Hooghly Women's College
Date: 06.02.2023

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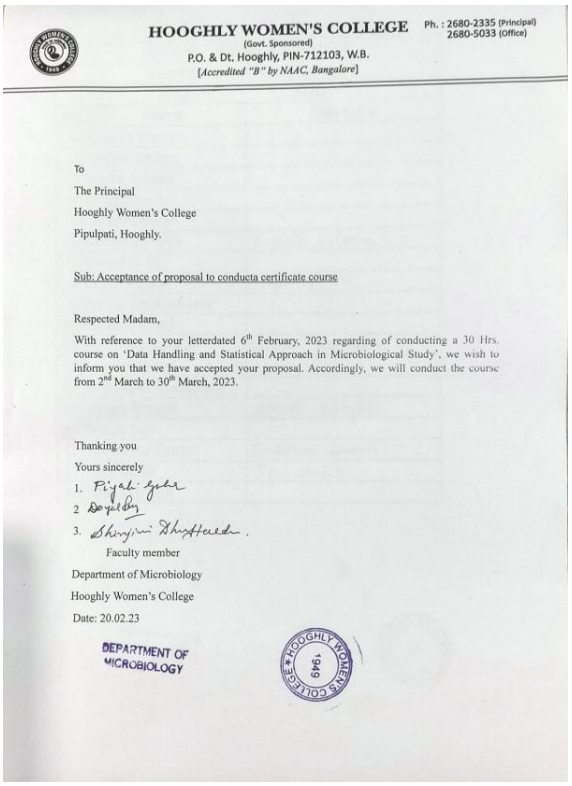
Acceptance of Principal's proposal



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To
The Principal
Hooghly Women's College
Pipulpati, Hooghly.

Sub: Acceptance of proposal to conducta certificate course

Respected Madam,

With reference to your letterdated 6th February, 2023 regarding of conducting a 30 Hrs. course on 'Data Handling and Statistical Approach in Microbiological Study', we wish to inform you that we have accepted your proposal. Accordingly, we will conduct the course from 2nd March to 30th March, 2023.

Thanking you
Yours sincerely
1. Piyali Guha
2 Doyel Roy
3. Shinjini Dhar Halder
Faculty member
Department of Microbiology
Hooghly Women's College
Date: 20.02.23

DEPARTMENT OF MICROBIOLOGY

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Notice to intimate students about the course

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Notice

This is to notify to the students of the Department of Microbiology that they are hereby requested to register their names in the 30 Hrs. workshop on 'Data Handling and Statistical Approach in Microbiological Study' which will be held in between 2nd March to 30th March, 2023.

1. Piyali Guha
2. Doyel
3. Shinjini Dhar Halder

Faculty Members
Microbiology Dept.
College

Course Co-ordinator

Seema Banerjee
24/02/23
Principal
Principal
Hooghly Women's College
Hooghly Women's

Date: 24.02.23

DEPARTMENT OF MICROBIOLOGY

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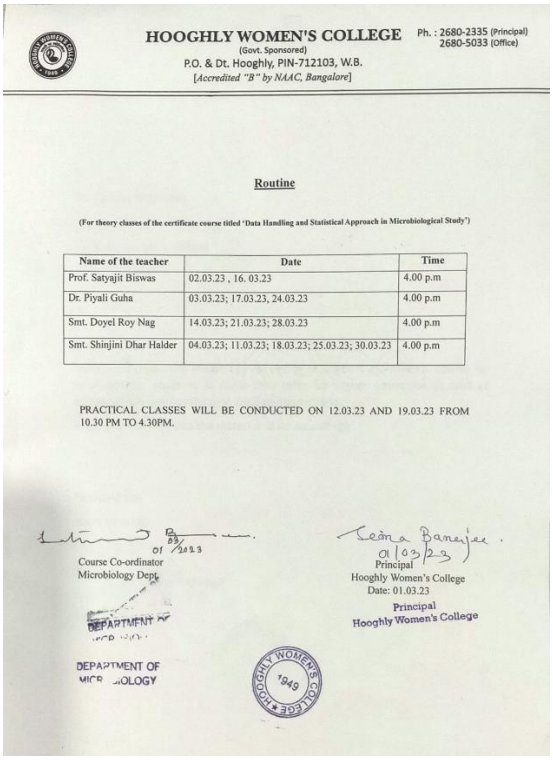
Routine



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Routine

(For theory classes of the certificate course titled 'Data Handling and Statistical Approach in Microbiological Study')

Name of the teacher	Date	Time
Prof. Satyajit Biswas	02.03.23 , 16. 03.23	4.00 p.m
Dr. Piyali Guha	03.03.23; 17.03.23, 24.03.23	4.00 p.m
Smt. Doyel Roy Nag	14.03.23; 21.03.23; 28.03.23	4.00 p.m
Smt. Shinjini Dhar Halder	04.03.23; 11.03.23; 18.03.23; 25.03.23; 30.03.23	4.00 p.m

PRACTICAL CLASSES WILL BE CONDUCTED ON 12.03.23 AND 19.03.23 FROM 10.30 PM TO 4.30PM.

01/03/2023
Course Co-ordinator
Microbiology Dept.

Seema Banerjee
01/03/23
Principal
Hooghly Women's College
Date: 01.03.23
Principal
Hooghly Women's College

DEPARTMENT OF MICROBIOLOGY

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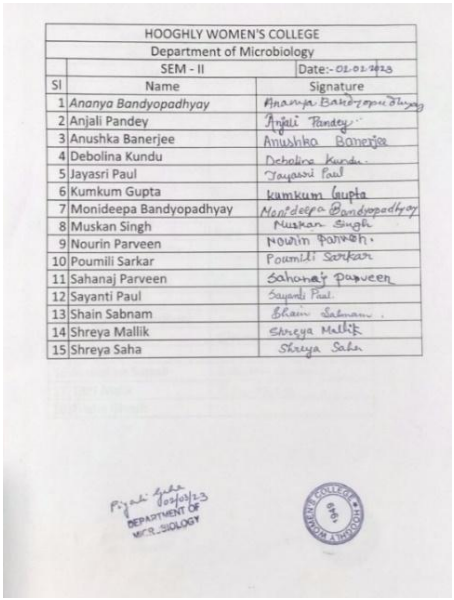
List of registered candidates:

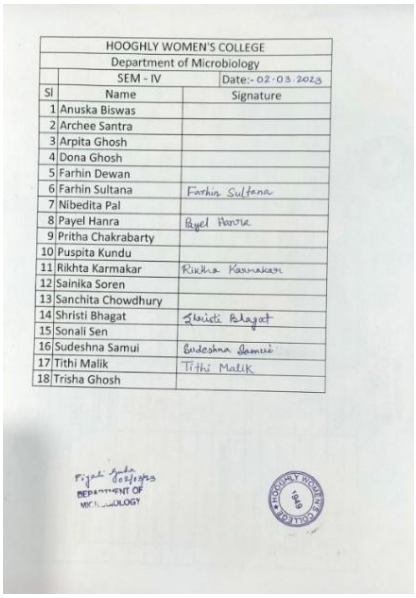
SL. NO.	NAME	SEM	MAIL ID
1	Ananya Bandyopadhyay	II	ananyabandyopadhyay202@gmail.com
2	Anjali Pandey	II	pandeyanjali29741@gmail.com
3	Anushka Banerjee	II	anushka1160@gmail.com
4	Debolina Kundu	II	debolonatuya15@gmail.com
5	Jayasri Paul	II	jayashreepaul2004@gmail.com
6	Kumkum Gupta	II	guptakumkum1909@gmail.com
7	Monideepa Bandyopadhyay	II	monideepabandyopadhyay9@gmail.com
8	Muskan Singh	II	muskansingh0117@gmail.com
9	Nourin Parveen	II	nourinp777@gmail.com
10	Poumili Sarkar	II	poumilisarkar@gmail.com
11	Sahanaj Parveen	II	jyesmin94@gmail.com
12	Sayanti Paul	II	sayantipaul505@gmail.com
13	Shreya Mallik	II	shreyamallik5434@gmail.com
14	Shreya Saha	II	shreya1303s@gmail.com
15	Shristi Bhagat	IV	bhagatshristi2308@gmail.com
16	Shain Sabnam	II	shain06860@gmail.com
17	Anuska Biswas	IV	anuskabiswas2003@gmail.com
18	Archee Santra	IV	archeesantra@gmail.com
19	Arpita Ghosh	IV	arpitayc002@gmail.com
20	Dona Ghosh	IV	ghoshdona70@gmail.com
21	Farhin Dewan	IV	farhindewan786@gmail.com
22	Farhin Sultana	IV	sultanafarhin712149@gmail.com
23	Nibedita Pal	IV	nibeditapal434@gmail.com
24	Payel Hanra	IV	payelhanra38@gmail.com
25	Pritha Chakraborty	IV	pritha712123@gmail.com
26	Pushpita Kundu	IV	pushpitakundu24@gmail.com
27	Riktha Karmakar	IV	rikthakarmakar@gmail.com
28	Sainika Saren	IV	sainikasaren1@gmail.com
29	Sanchita Chowdhury	IV	sanchita2003c@gmail.com
30	Sonali Sen	IV	Ssonali2021@gmail.com
31	Sudeshna Samui	IV	sudeshnasamui6@gmail.com
32	Tithi Malik	IV	tithimalik02@gmail.com
33	Trisha Ghosh	IV	ghoshtrisha406@gmail.com

Attendance sheet of candidates



HOOGHLY WOMEN'S COLLEGE
Department of Microbiology
SEM - II Date:- 02.02.2023

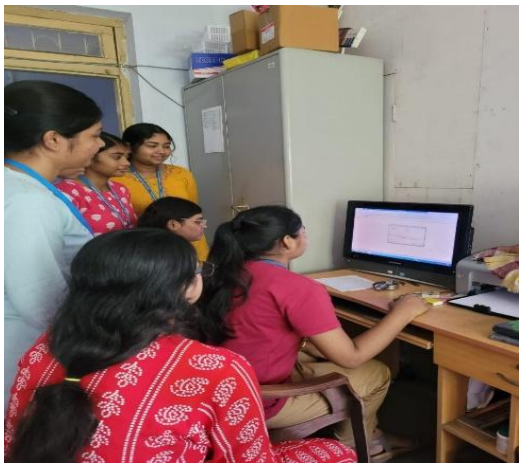
Sl	Name	Signature
1	Ananya Bandyopadhyay	Ananya Bandyopadhyay
2	Anjali Pandey	Anjali Pandey
3	Anushka Banerjee	Anushka Banerjee
4	Debolina Kundu	Debolina Kundu
5	Jayasri Paul	Jayasri Paul
6	Kumkum Gupta	kumkum Gupta
7	Monideepa Bandyopadhyay	Monideepa Bandyopadhyay
8	Muskan Singh	Muskan Singh
9	Nourin Parveen	Nourin Parveen
10	Poumili Sarkar	Poumili Sarkar
11	Sahanaj Parveen	Sahanaj Parveen
12	Sayanti Paul	Sayanti Paul
13	Shain Sabnam	Shain Sabnam
14	Shreya Mallik	Shreya Mallik
15	Shreya Saha	Shreya Saha



HOOGHLY WOMEN'S COLLEGE
Department of Microbiology
SEM - IV Date:- 02.03.2023

Sl	Name	Signature
1	Anuska Biswas	
2	Archee Santra	
3	Arpita Ghosh	
4	Dona Ghosh	
5	Farhin Dewan	
6	Farhin Sultana	Farhin Sultana
7	Nibedita Pal	
8	Payel Hanra	Payel Hanra
9	Pritha Chakrabarty	
10	Puspita Kundu	
11	Rikhta Karmakar	Rikhta Karmakar
12	Sainika Soren	
13	Sanchita Chowdhury	
14	Shristi Bhagat	Shristi Bhagat
15	Sonali Sen	
16	Sudeshna Samui	Sudeshna Samui
17	Tithi Malik	Tithi Malik
18	Trisha Ghosh	

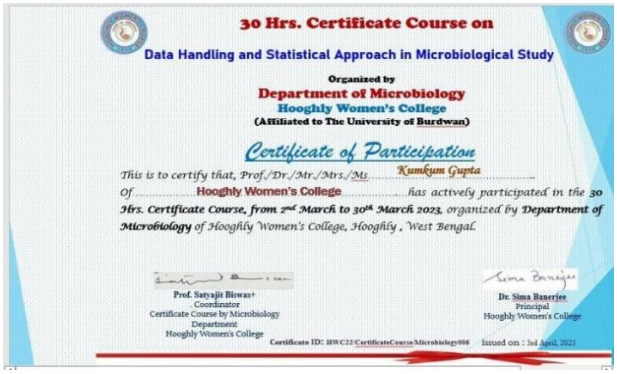
Photos of Students attending classes and performing practical:



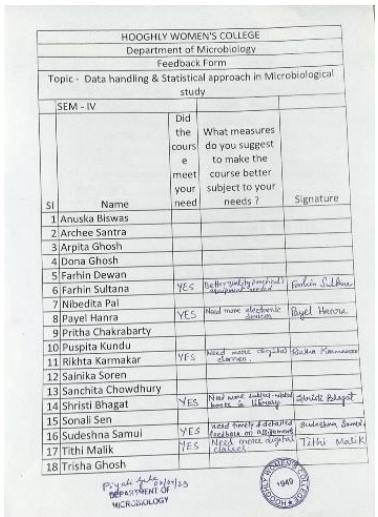
Course outcome:

21 out of the **33** registered students has successfully completed the course. Certificates were distributed to the successful candidates.

Certificate of Participation:



Feed back from the student about the course:



HOOGHLY WOMEN'S COLLEGE
Department of Microbiology
Feedback Form
Topic - Data handling & Statistical approach in Microbiological study

SEM - IV

Sl	Name	Did the course meet your need	What measures do you suggest to make the course better subject to your needs ?	Signature
1	Anuska Biswas			
2	Archee Santra			
3	Arpita Ghosh			
4	Dona Ghosh			
5	Farhin Dewan			
6	Farhin Sultana	YES	Better quality projector required	Farhin Sultana
7	Nibedita Pal	YES	Need more electronic devices	Payel Hanra
8	Payel Hanra			
9	Pritha Chakrabarty			
10	Puspita Kundu			
11	Rikhta Karmakar	YES	Need more digital classes	Rikha Karmakar
12	Sainika Soren			
13	Sanchita Chowdhury			
14	Shristi Bhagat	YES	Need more subject related books in library	Shristi Bhagat
15	Sonali Sen			
16	Sudeshna Samui	YES	Need timely academic teachers as absentees	Sudeshna Samui
17	Tithi Malik	YES	Need more digital classes	Tithi Malik
18	Trisha Ghosh			

Piyali Guha 03/04/23
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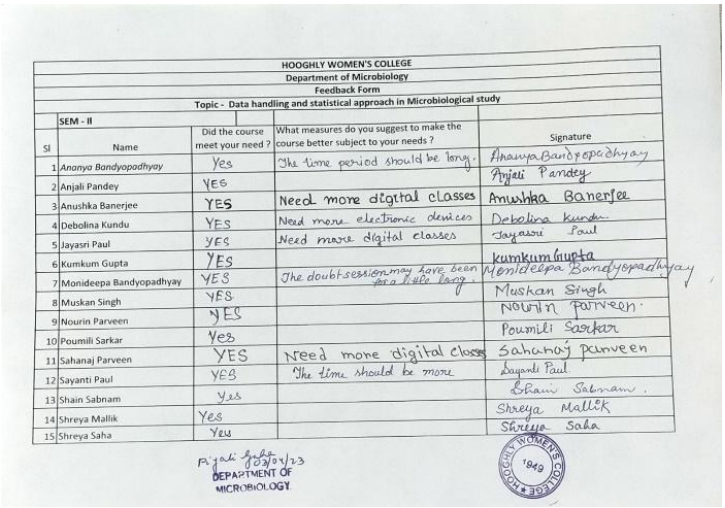

HOOGHLY WOMEN'S COLLEGE
Department of Microbiology
Feedback Form
Topic - Data handling and statistical approach in Microbiological study

SEM - II

Sl	Name	Did the course meet your need ?	What measures do you suggest to make the course better subject to your needs ?	Signature
1	Ananya Bandyopadhyay	Yes	The time period should be long.	Ananya Bandyopadhyay
2	Anjali Pandey	YES		Anjali Pandey
3	Anushka Banerjee	YES	Need more digital classes	Anushka Banerjee
4	Debolina Kundu	YES	Need more electronic devices	Debolina Kundu
5	Jayasri Paul	YES	Need more digital classes	Jayasri Paul
6	Kumkum Gupta	YES		kumkum Gupta
7	Monideepa Bandyopadhyay	YES	The doubt-session may have been for a little long	Monideepa Bandyopadhyay
8	Muskan Singh	YES		Muskan Singh
9	Nourin Parveen	YES		Nourin Parveen
10	Poumili Sarkar	Yes		Poumili Sarkar
11	Sahanaj Parveen	YES	Need more digital class	Sahanaj Parveen
12	Sayanti Paul	YES	The time should be more	Sayanti Paul
13	Shain Sabnam	Yes		Shain Sabnam
14	Shreya Mallik	Yes		Shreya Mallik
15	Shreya Saha	Yes		Shreya Saha

Piyali Guha 03/04/23
DEPARTMENT OF MICROBIOLOGY