GOVERNMENT OF WEST BENGAL

OFFICE OF THE PRINCIPAL

Maulana Azad College

8, RAFI AHMED KIDWAI ROAD, KOLKATA 700013, INDIA

Phone: **033 2249-3737/2226-7814** e-mail: maulanaazadcollegekolkata@gmail.com

Website: https://maulanaazadcollegekolkata.ac.in

Summary Report, Meeting Notice, Meeting Resolution, Course Brochure/Curriculum, Course outcomes, Sample Certificate.

3. Statistical Thinking: From Data Collection to Interpretation

Summary Report of the Course

Department of Statistics
Maulana Azad College
8, Rafi Ahmed Kidwai Road, Kolkata 700013, India
E-mail: statistics@maulanaazadcollegekolkata.ac.in
Website: https://maulanaazadcollegekolkata.ac.in

SUMMARY REPORT OF THE COURSE

COURSE TITLE: STATISTICAL THINKING: FROM DATA COLLECTION TO INTERPRETATION

DURATION: 30 hours

INSTRUCTOR: Partha Pal, Anup Kumar Giri

COURSE OVERVIEW: The "Statistical Thinking: From Data Collection to Interpretation" course, organized by the Department of Statistics, Maulana Azad College, provided B.A. and B.Sc. students with a thorough understanding of statistical methods and their applications, starting from data collection to advanced data interpretation. The course featured interactive lectures, hands-on activities, and real-world case studies, enabling students to gain practical skills in data analysis and interpretation.

PARTICIPANTS: The course attracted B.A. and B.Sc. students from various disciplines, all interested in developing their statistical knowledge and skills. Participants ranged from beginners to those with some statistical background, each bringing their unique perspectives and experiences to the discussions.

CONTENT AND DELIVERY: The course was structured into ten modules, each focusing on different aspects of statistical thinking and data analysis. The modules included interactive lectures, hands-on activities, and real-world case studies, allowing students to develop practical skills and apply statistical methods to real-world problems. This comprehensive approach ensured that students were well-equipped to collect, analyze, and interpret data effectively.

OUTCOMES: By the end of the course, participants will be able to:

- Understand the importance and applications of statistics in various fields.
- Collect, organize, and present data effectively.
- Calculate and interpret summary measures of data.
- Perform exploratory data analysis to identify patterns and outliers.
- Analyze bivariate and multivariate data using correlation and regression techniques.
- Conduct hypothesis testing and interpret results.
- Apply ANOVA and non-parametric tests in practical scenarios.
- Use statistical methods for practical applications and case studies.

The "Statistical Thinking: From Data Collection to Interpretation" course successfully equipped students with practical skills in statistical analysis and data interpretation. The combination of interactive lectures, hands-on activities, and real-world case studies ensured that participants were well-prepared to analyze and interpret data effectively in various contexts. Participants provided positive feedback, highlighting the practical relevance of the course content, the interactive nature of the sessions, and the hands-on activities. They particularly appreciated the real-world case studies, which allowed them to apply statistical concepts to real-world problems effectively.

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Departmental Meeting Resolution

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DEPARTMENTAL MEETING NOTICE

Department of Statistics
Maulana Azad College
8, Rafi Ahmed Kidwai Road, Kolkata 700013, India

NOTICE: 18/08/2018

Departmental Meeting

A departmental meeting will be held on 24th August, 2018 at 5.00 p.m. to discuss the ADD-ON courses for the session 2018-19. All are requested to attend the meeting positively.

Head
Department of Statistics
Maulana Azad College
Govt. of West Bengal

MINUTES OF THE MEETING

Meeting Date: 24th August, 2018   **Time:** 5:00 p.m.   **Venue:** Department of Statistics

Members Present:

1. Nilanjan Chakraborty
2. Partha Pal, Head of Department
3. Anup Kumar Giri
4. Debajit Chatterjee

Agenda:

o Introduction of Add-On Course(s)
o Selection of Course Coordinators
o Syllabus Formation
o Issuance of Certificates
o Additional Suggestions

MINUTES

Introduction:
The meeting commenced at 5:00 p.m. with a welcome address by the Head of the Department, Partha Pal.

Discussion on Add-On Courses:
The necessity and relevance of the proposed courses were discussed. It was unanimously agreed that the courses would benefit students by enhancing their statistical and data handling skills.

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Selection of Course Coordinators:
Partha Pal and Anup Kumar Giri were proposed and unanimously appointed as coordinators for the respective courses.

Syllabus Formation:
The importance of aligning the syllabus with current industry standards and academic requirements was emphasized.

Issue of Certificates:
The criteria for issuing certificates were discussed. It was agreed that certificates would be awarded based on attendance and performance.

Additional Suggestions:
An orientation session date was decided. Strategies for promoting the courses were discussed.

Conclusion:
The meeting concluded at 6:00 p.m. with a vote of thanks to all members present.

RESOLUTION OF THE MEETING

The department convened to discuss the introduction of two new add-on courses, the selection of course coordinators, syllabus formation, and other relevant matters. All the teachers agreed unanimously for smooth running of the proposed add-on courses to enhance the skills of our students. The following resolutions were passed:

Add-On Courses:
- "Basic Statistics with Excel and Data Handling"
- "Statistical Thinking: From Data Collection to Interpretation"

Selection of Course Coordinators:
After detail discussion, the department has decided that the teachers of this department will act as add-on course coordinator as per following:

Sl. No.	Course	Course Coordinator	Duration (Hours)
1	Statistical Thinking: From Data Collection To Interpretation	Partha Pal	30
2	Basic Statistics with Excel and Data Handling	Anup Kumar Giri	30

Syllabus Formation:
It has been resolved that the respective course coordinator will be responsible for drafting the syllabus for both courses.

Evaluation Process:
It has been resolved that the evaluation process consist of the following.

- Question preparation (Theory + Practical): Full Marks 100
- For practical paper time of examination 2.30 Hours.

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- Evaluation of answer scripts and Tabulation as decided by the coordinator.
- Grade and Marks as per following table:

Grade Scale	Grade	Performance Indicator
90-100	AA	Outstanding
80-89	A+	Excellent
60-79	A	Very Good
40-59	B	Satisfactory
< 40	D	Disqualified

Issue of Certificates:
- Certificates will be issued to students upon successful completion of the courses.
- The design and content of the certificates will be overseen by the course coordinators.

Additional Suggestions:
- Regular feedback will be collected from students to ensure continuous improvement of the courses.
- The coordinator should prepare a brief report of the course after taking feedback from the participants and the difficulties if any for smooth running the course.

NOTICE FOR STUDENTS

Department of Statistics
Maulana Azad College
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Notice

We are pleased to announce the commencement of two new add-on courses:

Sl. No.	Course	Course Coordinator	Duration (Hours)
1	Statistical Thinking: From Data Collection To Interpretation	Partha Pal	30
2	Basic Statistics with Excel and Data Handling	Anup Kumar Giri	30

Course Start Date: April 1, 2019

Eligibility: Open to all BA and BSc students.

Registration: Interested students are requested to register by visiting the department or contacting the course coordinators.

For more information, visit the college website.

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Course Brochure / Curriculum

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COURSE BROCHURE

COURSE TITLE: STATISTICAL THINKING: FROM DATA COLLECTION TO INTERPRETATION

COURSE OVERVIEW: This comprehensive 30-hour course, organized by the Department of Statistics, Maulana Azad College, is designed to provide B.A. and B.Sc. students with a thorough understanding of statistical thinking and its applications. From data collection to interpretation, participants will gain practical skills in analyzing and interpreting data through interactive lectures, hands-on activities, and real-world case studies. Participants will learn fundamental statistical concepts, data analysis techniques, and practical applications of statistics in various fields.

WHO SHOULD ATTEND?

- B.A. and B.Sc. students from various disciplines seeking to enhance their statistical analysis skills.
- Individuals interested in applying statistical methods to real-world data.
- No prior statistical knowledge required, but basic mathematical understanding is beneficial.

COURSE MODULES:

1. Introduction to Statistical Thinking
2. Understanding Univariate Data
3. Data Presentation
4. Summary Measures of Data
5. Exploratory Data Analysis
6. Understanding Bivariate Data
7. Bivariate and Multivariate Regression Analysis
8. Statistical Inference: Hypothesis Testing
9. Analysis of Variance (ANOVA) and Non-parametric Tests
10. Practical Applications and Case Studies

LEARNING OUTCOMES: Participants will gain the ability to collect, present, and analyze data using various statistical methods, understand the underlying concepts of hypothesis testing, and apply advanced statistical techniques in practical scenarios.

DURATION: 30 hours

FORMAT: A blend of interactive lectures, hands-on activities, and real-world case studies.

REGISTRATION: Visit *https://maulanaazadcollegekolkata.ac.in/* or contact us at *statistics@maulanaazadcollegekolkata.ac.in* to register for the course.

INSTRUCTOR: Partha Pal, Anup Kumar Giri

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COURSE MODULES

COURSE TITLE: **STATISTICAL THINKING: FROM DATA COLLECTION TO INTERPRETATION**

Module 1: Introduction to Statistical Thinking (3 hours)
- Importance of statistics in everyday life
- Overview of the statistical process: data collection, analysis, and interpretation

Module 2: Understanding Univariate Data (3 hours)
- Concepts of variables, populations, and samples
- Types of data: qualitative and quantitative
- Methods of data collection: primary and secondary data

Module 3: Data Presentation (3 hours)
- Graphical representation of data: histograms, bar charts, pie charts, and box plots
- Tabular representation of data

Module 4: Summary Measures of Data (3 hours)
- Measures of central tendency: mean, median, mode
- Measures of dispersion: range, quartile deviation, standard deviation, coefficient of variation
- Ideas of skewness and kurtosis (through diagrams)

Module 5: Exploratory Data Analysis (3 hours)
- Techniques of exploratory data analysis
- Identifying patterns and outliers in data

Module 6: Understanding Bivariate Data (3 hours)
- Paired data and measures of association
- Pearson's correlation coefficient and Spearman's Rank correlation (no tie)
- Contingency tables and measures of association of attributes

Module 7: Bivariate and Multivariate Regression Analysis (3 hours)
- Introduction to two-variable linear regression
- Basics of multiple (three-variable) linear regression
- Interpretation of regression coefficients (without derivation)

Module 8: Statistical Inference: Hypothesis Testing (3 hours)
- Basic idea of binomial and normal populations (graphical representation)
- Concepts of hypotheses, test statistics, critical value, and p-value
- Standard testing problems: tests for proportion/proportions, single sample mean, two-sample mean

Module 9: Analysis of Variance (ANOVA) and Non-parametric Tests (3 hours)
- One-way and two-way ANOVA (without derivation)
- Applications and interpretation of ANOVA
- Introduction to Kruskal-Wallis test (without derivation)

Module 10: Practical Applications and Case Studies (3 hours)
- Sample size determination and estimation of population mean and variability
- Logistic regression for binary response data
- Case studies and practical applications in various fields

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Permission from HOI

To   Date: 27.08.2018

The Principal

Maulana Azad College, Kolkata

Respected Sir,

This is to convey that the Department of Sociology, Maulana Azad College, has resolved in an online meeting held on 24. 08. 2018 that an add-on courses for the students of Science discipline will be conducted from 01.04.2019 to 31.05.2019 on **'Statistical Thinking: From Data Collection to Interpretation'** and **'Basic Statistics with Excel and Data Handling'**. The details of the proposed course are attached. We Shall remain grateful if you very kindly give permission to pursue the aforesaid course.

With regards,

Yours Faithfully,

**Head
Department of Statistics
Maulana Azad College
Govt. of West Bengal**

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<u>Sample Certificate</u>

Maulana Azad College

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No. ——————

Course Completion Certificate

This is to certify that ——————————————————, bearing Enrollment No. ——————— has actively participated and successfully completed 30 hours add-on course on "Statistical Thinking: From Data Collection to Interpretation" organized by the Department of Statistics in association with IQAC, in the period 1ˢᵗ April, 2019 to 31ˢᵗ May, 2019 and secured grade ——.

Course Coordinator   **IQAC Coordinator**   **Principal**

Principal
Maulana Azad College
Kolkata-13