

A7/201



BARASAT COLLEGE

(Affiliated to West Bengal State University)

1, Kalyani Road, P.O. Nabapally,

P.S. Barasat, Kolkata-700126

Phone:033-35564702

E-mail:barasatcollege72@yahoo.com

Website:www.barasatcollege.ac.in

Ref No. BCN/ADD/DEPT_ZOOL/0901/2021

Date: 29th August, 2021

NOTICE

This is to notify that the Department of Zoology will conduct an Add-on Course on Introduction to Biostatistics from 6th to 24th September, 2021 on Google Meet from 6 P.M. to 8 P.M. Interested students should register for the course to the H.O.D, department of Zoology within 5th September, 2021.


Dr. Parthapratim Dasgupta
.M.A, M.Phil, Ph.D
Principal
Barasat College



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30 HOURS ONLINE COURSE

ON

INTRODUCTION TO BIOSTATISTICS

[ORGANISED BY DEPARTMENT OF ZOOLOGY]

PLATFORM - GOOGLE MEET

DATE AND TIME - 6-24 SEPTEMBER, 2021, 6.00 PM-8.00PM

The goal of this course is to help students, especially from the field of biosciences, to become more adept at mathematics and statistics, so they can make better judgments in their professional and personal lives. This course's components have been thoughtfully created to optimise their chances to learn in a motivating and encouraging problem solving ability related to biostatistics. It is an introductory course covering the fundamental ideas of descriptive and inferential statistics. Topics include descriptive and inferential statistics, probability distributions, estimation of parameters, tests of hypotheses, regression and correlation analyses, analysis of variance, chi-square and t-test.

❖ OBJECTIVES OF THIS COURSE:

1. Give a comprehensive introduction to contemporary methods utilised in data analysis and systems biology.
2. Teach students how to apply the many statistical techniques needed to carry out various statistical analyses, from straightforward hypothesis testing to more complex classification or clustering tasks.

❖ COURSE MODULES: The course will be divided into nine modules that will be covered in a total of 15 lectures of two hours each, spanning over five working days in one week.


| MODULE | TOPIC | DAY | TIME |
|--------|-------------------------------------------------------------------------------------------------------------------|-----|---------|
| 1 | 1.1. The meaning of biostatistics 1.2. The use of biostatistics 1.3. Descriptive and inferential statistics | 1 | 6PM-8PM |
| 1 | 2.1. What is data 2.2. Sources of data 2.3. Survey and experiments | 2 | 6PM-8PM |
| 2 | 3.1. Population and sample 3.2. Quantitative and qualitative data. 3.3. Scales of measurement | 3 | 6PM-8PM |

M. Dasgupta
Dr. Parthasarathi Dasgupta
M. Phil, Ph.D
Principal
Barasat College



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|---|-----------------------------------------------------------------------------------------------------------|---|---------|
| 3 | 4.1. Tabular and graphical description 4.2. Numerical measures | 4 | 6PM-8PM |
| 3 | 5.1. Graphical representation 5.2. Construction of Pie chart, Bar diagram, plot using Microsoft Excel. | 5 | 6PM-8PM |
| 4 | 6.1. Hands on practice using given excel worksheet | 6 | 6PM-8PM |
| 5 | 7.1. Basic probability concept 7.2. Binomial and Poisson distribution | 7 | 6PM-8PM |
| 6 | 8.1. Sampling and sampling distribution. | 8 | 6PM-8PM |


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|---|-----------------------------------------------------------------------------|----|---------|
| | 8.2. Estimation of mean, variance and proportion for a single population | | |
| 6 | 9.1. Correlation analysis 9.2. Simple linear regression analysis | 9 | 6PM-8PM |
| 7 | 10.1. Analysis of variance 10.2. One way ANOVA | 10 | 6PM-8PM |
| 7 | 11.1. Hands on practice using given excel worksheet | 11 | 6PM-8PM |
| 8 | 12.1. Introduction to Chi-square test 12.2. Test for goodness of fit | 12 | 6PM-8PM |
| 8 | 13.1. Doubt clearing and problem solving session | 13 | 6PM-8PM |
| 9 | 14.1 Introduction to t test 14.2. Paired and nonpaired t test | 14 | 6PM-8PM |
| 9 | 15.1. Doubt clearing and problem-solving session 15.2. Students Feedback | 15 | 6PM-8PM |

❖ **LEARNING OUTCOMES:**

- Recognize the characteristics of a data set to decide how to summarise and present.
- Select the relevant statistical test and explain their decision-making.
- Compute basic parametric statistical tests to test hypotheses.
- Interpret the results of statistical tests and data software output to draw valid conclusions.
- Communicate results of statistical analyses with clear figures and text.
- At the end of the course, the students will be able to apply appropriate statistical concepts, methodologies in organizing, analysing and interpreting various problems related to biostatistics.

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