



PRESIDENCY UNIVERSITY
KOLKATA

[HINDOO COLLEGE (1817-1855),
PRESIDENCY COLLEGE (1855-
2010)]



PLACEMENT BROCHURE

PRESIDENCY UNIVERSITY
DEPARTMENT OF STATISTICS

TWO-YEARS POST GRADUATE PROGRAM
SESSION 2017-2019

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ABOUT US

DEPARTMENT OF STATISTICS

The Department of Statistics of the erstwhile Presidency College, now University, is one of the oldest departments in the country and perhaps also in Asia. The undergraduate course of the department started way back in 1944, under the command of the great P.C.Mahalanobis, also hailed as one of the greatest statisticians in the world. This was at a time when Statistics as a distinct course was quite unknown in many American universities. Since then the department has produced illustrious scholars, academicians and statisticians who have achieved enormous fame in India and abroad. Among them mention should be made of the illustrious trio of statistical education in India – Prof. A.M.Gun, Prof. M.Gupta and Prof. B.Dasgupta

Before Presidency College achieved the status of University in 2010, the department catered to only undergraduate teaching in Statistics under the auspices of the University of Calcutta and soon the department was successful enough to have a special entity in the University with its outstanding performance over the years.

From 2011, the department has been conducting both under-graduate and post-graduate semester-based programs in Statistics under Presidency University.

It is a proud privilege to mention that a good number of students of the department have gone abroad for furtherance of their academic career and others are doing jobs in the areas of Analytics & Business Intelligence, Banking & Finance, Actuarial & Insurance, Bio-Statistics etc.

FROM THE HEAD OF THE DEPARTMENT'S DESK

“

It is indeed a privilege to me to mention a few points regarding the Department of Statistics, Presidency University, Kolkata.

Since the inception, the Department is catering training in Statistics at the best level in India. The alumni are spread over



the globe and have placed themselves in amicable positions both in academic and professional fields. The B.Sc. course is being taught from the very beginning and the M.Sc. course was introduced in 2011.

This brochure describes the curriculum, the courses taught and the activities of the Department. The details of the course topics and specialized topics are described herein. The University courteously invites you to consider our M.Sc. Statistics students for placement in your esteemed organization. This is broadly a two-way venture that bridges your organization and our Department of the Presidency University.

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**Biswajit Roy
Head, Department of Statistics,
Presidency University, Kolkata**



Prof. Biswajit Roy (Head of The Department)

Specialization: Design of Experiments, Survey Sampling, Operation Research.

Faculty Profiles



Dr. Radhakanta Das

Area of interest: Statistical Inference, Bayesian Data Modelling, Clinical Trials, Directional Data, Functional Data Analysis.



Dr. Saurav De

Area of interest: Survival Analysis, Reliability, Clinical Trials, Sequential Design.



Dr. Prasenjit Ghosh

Area of interest: Simultaneous Inference, Multiple Hypothesis Testing, High Dimensional Inference under Sparsity, Bayesian Statistics, Asymptotic Theory of Inference.



Suman Guha

Area of interest:

Time Series Analysis, Random Matrix Theory, Spatio-temporal data analysis, Bayesian Computing.



N V Krishna Chaitanya Yerroju

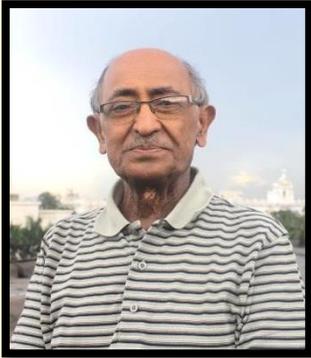
Area of interest:

Financial Statistics, Regression Analysis, Generalized Linear Models, Statistical Quality Control, Demography.

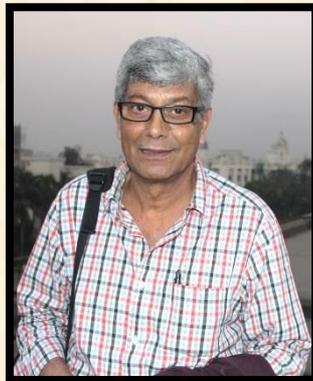


Atanu Kumar Ghosh

Research interests: Regression Analysis, Applied Multivariate Analysis, Statistical Computing, Data Mining.



Gour Mohan Saha
Retired Professor, Statistics and Mathematics Unit,
Indian Statistical Institute,
Kolkata



Alok Goswami
Professor, Statistics and
Mathematics Unit,
Indian Statistical Institute,
Kolkata



Uttam Bandyopadhyay
Retired Professor, Department of Statistics,
University of Calcutta,
Kolkata

Some Special Lectures Offered By:



Sumitra Purkayastha
Professor, Applied
Statistics Unit, Indian
Statistical Institute,
Kolkata

ACTIVITIES OF THE DEPARTMENT

1. **National-Workshop on “STATISTICS AND ITS APPLICATIONS”**
(Celebrating Bi-Centenary Year Of Presidency) on Jan 29th – Jan 31st, 2018.

List of Resource Persons:

Professor Shyama Prasad Mukherjee (Retired Professor, Department of Statistics, University of Calcutta, Kolkata)

Professor Probal Chaudhuri (Stat-Math Unit, ISI, Kolkata)

Professor Saibal Chatterjee (Director, Indian Institute of Management Kolkata)

Professor Alok Goswami (Stat-Math Unit, ISI, Kolkata)

Professor Sugata Sen Roy (Department of Statistics, University of Calcutta, Kolkata)

Professor Debasis Sengupta (Applied Statistics Unit, ISI, Kolkata)

2. **Lecture on “Non-Parametric Inference” by Professor Uttam Bandyopadhyay, Ex-Professor, Department of Statistics, University of Calcutta on 27th February, 2018**
3. **Lecture on “Regression And Smoothing” by Professor Prabal Chaudhuri, ISI, Kolkata on 27th March, 2018**
4. **Lecture on “Journey of Statistics in Clinical Research : Past ,Present & Future” by Dr. Jayanti Gupta ,Founder, Parinita & Statistical Consultant, NishKash on 3rd April, 2018**
5. **Lecture on “Non - Parametric Estimation” by Professor Gaurangadeb Chattopadhyay, Department of Statistics, Calcutta University on 10th April, 2018**
6. **Lecture on “Hierarchical Bayesian Inference : It’s utility in Extracting Information” by Professor Partha Lahiri, Maryland Population Research Center, USA on 13th April, 2018**

- 7. Lecture on “Application of Statistical Models in Clinical Trials” by Dr. Sourish Saha, Bio-statistical Consultant on 23rd February, 2018**
- 8. Various Intra-Departmental competitions like Quiz contests, chess competitions & outdoor games are organized throughout the year.**
- 9. Socio-cultural events and other co-curricular activities are carried out by the students of the department.**

SEMESTER I

- Real Analysis & Probability Theory -I
- Sample Survey and Linear Models
- Sampling Distributions , Inference- I(Estimation)
- Sample Survey and Regression Diagnostics
- Statistical computing-I

SEMESTER III

- Elective Paper : Bayesian Analysis and Decision Theory
- Elective Paper : Stochastic Process and Time-Series Analysis
- Elements of Research Methodology : Applied Multivariate Analysis & Resampling
- Statistical Computing- Based on the above topics

COURSE STRUCTURE

SEMESTER II

- Probability Theory -II, Advanced Regression Analysis and Missing Data Analysis
- Inference -II (Hypothesis Testing) & Asymptotic Theory
- Design of Experiments & Advanced Multivariate Analysis
- Statistical Computing - II

SEMESTER IV

- Special Paper *
- Special Paper*
- Research Project : Non-Parametric Inferences and Sequential Analysis
- Project
- Statistical Computing - Based on the above topics

*LIST OF SPECIAL PAPERS

- 1) Data Mining
- 2) Survival Analysis
- 3) Clinical Trials
- 4) Econometrics
- 5) Statistics in Finance
- 6) Astro-statistics
- 7) Advanced Design
- 8) Reliability Theory
- 9) Functional Data Analysis
- 10) Operations Research

COURSE HIGHLIGHTS

The Masters of Statistics program at Presidency University offers a perfect blend of fundamental training in statistical methods coupled with practical applications to cater to all industry oriented needs. The curriculum is designed to promote deep understanding and learning of the concepts. The syllabus has been updated on the years 2013 and 2016. In the ensuing academic session the department is going to start the UGC proposed CBCS (Choice Based Credit System) for the undergraduate program.

<p><u>Regression Diagnostics</u></p> <ul style="list-style-type: none"> • Building a Regression Model, Transformations • Detection of Outliers and Influential observations • Checking for Normality • Departures from the Gauss-Markov set-up 	<p><u>Advanced Regression Analysis</u></p> <ul style="list-style-type: none"> • Generalized Linear Models • Logistic Regression & Poisson Regression • Binary data and Count data • Models with constant coefficient of variation • Joint modeling of mean and variance • Generalized Additive Models 	<p><u>Data Mining</u></p> <ul style="list-style-type: none"> • Kernel Regression, Splines • LASSO, Ridge Regression, GAM • Least Angle Regression(LAR) • Classification And Regression Trees(CART) • Ensemble Learning • Support Vector Machine (SVM). • Independent Component Analysis(ICA) • Applications in R for all of the above topics.
<p><u>Multivariate Analysis</u></p> <ul style="list-style-type: none"> • Principle component analysis(PCA) • Canonical component analysis(CCA) • Multivariate linear model and MANOVA • Discriminate analysis & classification • Factor analysis • K-means Clustering • Linear Discriminant Analysis (LDA) • <u>Resampling Techniques</u> <ul style="list-style-type: none"> - Jackknife Method - Bootstrap Method 	<p><u>Time Series Analysis</u></p> <ul style="list-style-type: none"> • Stationary Time Series(MA,AR,ARMA,ARIMA) • Spectral Analysis • Forecasting techniques • ARCH, GARCH models • Regression Models in Time Series 	<p><u>Computer Courses</u></p> <ul style="list-style-type: none"> • Advanced C language • R-Environment

With the advent of modern computing facilities and databases, the way decisions are made in many fields, from medicine to marketing to scientific research is changed forever. Dramatic growth in the scale and complexity of data that can be collected and analyzed is affecting all aspects of work and society ranging from business practices, public safety to scientific discoveries and public policy. Understanding effective and ethical ways of using vast amounts of data is a significant challenge to science and to society as a whole, and developing scalable techniques for data analysis and decision making requires interdisciplinary research in many areas, including machine learning, algorithms, statistics, operations research, databases, complexity analysis, visualization, and privacy and security.



Why Hire Us?

Presidency University's postgraduate program in Statistics is designed to train students to become tomorrow's leaders in this rapidly growing area. Through a unique combination of contemporary coursework and cutting-edge research, the program enables students to apply techniques and tools of statistics for applications drawing on appropriate and relevant concepts and models from the engineering, natural or social sciences. Students are uniquely trained to pioneer new developments in this field, and to be leaders in industry, the public sector, and academia.

- The objective of the curriculum is to develop skills of translating scientific questions into statistical problems, develop and assess solutions to those problems, and translate the statistical solutions back into scientific answers. Students are well versed with the techniques of data exploration, model development, model fitting and checking, and interpretation that they began in earlier classes, but also practice working with subject-area scientists, collaborative research, and both written and oral scientific communication.
- **Planning and Designing of Experiments:** We can help to determine: How large a sample would be required for the study to detect its effect of interest? What should the study include and what should be the appropriate sampling strategies?
- **Expertise in Statistical Computing:** Statistical Computing has become an integral part of all modern applications. Mere executing a piece of code is not at all sufficient but we need to comprehend the underlying principles and algorithms on which they work. The postgraduate curriculum contains two extensive courses on computing using R and C and also lab sessions of every statistical methodologies using contemporary packages.
- **Data Management:** We can give advice on how to manage data properly which would save tons of time and labour at the later stage of data analysis. Ensuring that the study variables of interest are all captured and coded in the correct fashion is crucial for the success of any study. The use of R and SQL makes data manipulation easy, clean and quick.
- **Taking decisions on the face of uncertainty:** Instead of taking decisions in ad hoc or purposive way, we bet on randomness which helps to weigh the advantages and disadvantages of various possible plans and then finally coming to a conclusion with proper measure of error.

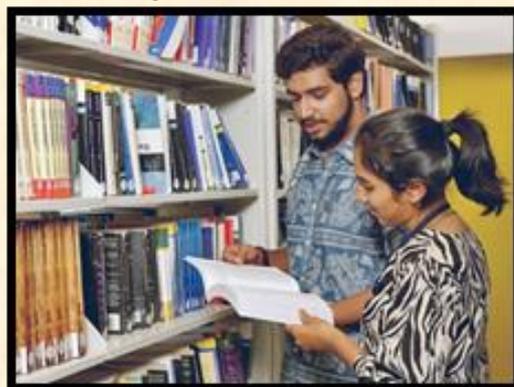
Seminar Room



Professor Anil Kumar Bhattacharya memorial seminar room is available to encourage discussion, enable group work and other collaborative learning projects. The room is equipped with modern audiovisual facilities including LCD projectors and microphone. This sets for an enriched experience of an e-classroom.

Infrastructure

Library



The department also runs a library over a long period of time. At present the library possesses a rich collection of both text and reference books which are regularly circulated among the students. The Central Library has a very unique and rich collection of books, periodicals and manuscripts as well as multimedia resources built over nearly two hundred years. This includes some of the rarest reference materials along with thousands of important documents and journals.

Computer Laboratories



The department has two computer laboratories each equipped with modern computing resources. All the computers have all latest statistical packages installed which provide a thorough hands-on experience of data handling and statistical problem solving. Students are trained in a variety of computer languages and statistical packages adopted by most of the industries today.

PAST RECRUITERS



GENPACT



dunnhumby



citibank



Deloitte.

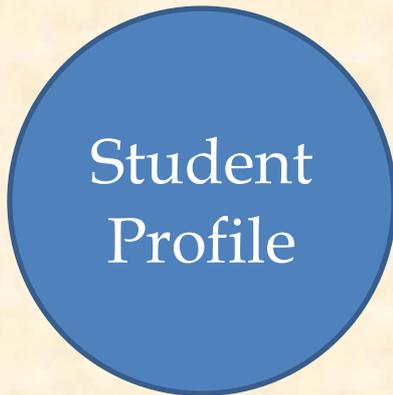


IBM





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