

DEPARTMENT OF STATISTICS UNIVERSITY OF DELHI

PLACEMENT BROCHURE

BATCH OF

Two - Year Post Graduation Programme in Statistics



From the Head's Desk 01

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FROM THE HEAD'S DESK



Prof. Ranjita Pandey

Dear Reader,

Welcome to the Department of Statistics at University of Delhi. We started our journey in the year 1973. Over the past four decades, we have grown our expertise and competence in the core Statistics curriculum and research. Needless to say, this programme has stood the test of time and has been accorded its due place in the corporate world as well as academic. Through this brochure, we attempt to present a sketch of the Department and its activities. Further, the curriculum taught has a wide range of applications in the industry. The primary focus of our curriculum is designed to impart technical know-how to the students, promote their problem solving skills and make them ready to implement the theory. The curriculum is designed to provide a wide spectrum of options to the students to pursue their interests both in applied and theoretical aspects of the subject. The course contents are periodically updated for introducing newer subjects and technical developments in the subject. Our department looks forward to contribute in providing analytical solutions to industry and society related diverse issues.

Thank you for visiting us. Prof. Ranjita Pandey Head of the Department, Department of Statistics

ABOUT US



The University of Delhi is a premier university in the country with a venerable legacy and international acclaim for the highest academic standards, diverse educational programmers, distinguished faculty, illustrious alumni, varied co-curricular activities, and modem infrastructure. It was established in 1922 and has sustained the highest global standards and best practices in higher education. It offers courses in 86 departments, spreads across two campuses in Delhi, and enrolls over 7 lakh students. The University has been ranked at the 7th position in the country as per the Centre for World University Ranking (CWUR) and is 11th in the National Institutional Ranking Framework. In the QS India University Rankings 2022, the university occupies the 9th position. The University of Delhi has been ranked at 6th position among the top 25 Central Universities and 3rd among the top 100 universities by Outlook ICARE India University Rankings 2021. The rankings are based on indicators like academic and employer reputation, research and internationalization.

Department of Statistics

The Department of Mathematical Statistics was established in August 1973, though the teaching of M.A. in Mathematical Statistics had been introduced as early as in July 1957 at the initiative of Professor Ram Behari as part of a development programme adopted by the Department of Mathematics. Professor H.C. Gupta was the first head of the Department.

In 1971, the scope of post-graduate courses in Mathematical Statistics was extended leading to M.Sc. degree in Statistics and in 1987, the Department of Mathematical Statistics was re-named as the Department of Statistics The Department currently offers post-graduate (M.A./M.Sc.), M.Phil. and Ph.D. programmes in Statistics. The Department takes pride in the fact that students get suitable placements in Research Institutes/Industries/Govt. Departments and a significant number of students are selected in the prestigious Indian Statistical Services (ISS) each year.

University of Delhi



FACULTY PROFILE



HEAD OF THE DEPARTMENT Prof. Ranjita Pandey

Qualification: D.Phil. University of Allahabad, Uttar Pradesh, India Field: Event Modelling, Bayesian Inference, Demography



Prof. Poonam Singh Assistant Professor

Qualification: Ph.D., University of Delhi, India **Field:** Design of Experiments,

Generalized Linear Models, Optimization, Statistical Quality Control and Operations Research



Dr. Zuber Akhter Assistant Professor

Qualification: M.Phil., Ph.D. Aligarh Muslim University, Aligarh, Uttar Pradesh, India **Field:** Order Statistics, Records, Generalised Order Statistics, Statistical Inference



Dr. Sumit Kumar

Assistant Professor Qualification:

Field: Statistical Quality Control, Applied Statistics, Bayesian Inference



Dr. Dreamlee Sharma

Assistant Professor Qualification:

Field: Quantile Function Based Statistical Modelling, Regression Analysis, Distribution Theory



Dr . Suman Jaiswal Assistant Professor Qualification: M.phil, Ph.D., Ch. Charan Singh, University, Meerut. India. Field: Reliability modeling, Applied Statistics, Probability Theory.



Dr. Manoj Kumar Assistant Professor

Qualification: M.Phil., Ph.D. Banaras Hindu University, Varanasi, India.

Field: Quantile Function Based Statistical Modelling, Regression Analysis, Distribution Theory

CREDENCE: THE PLACEMENT CELL

The Placement Cell was formed in 1990 and it was named Credence in 2016 under the guidance of Prof. Poonam Singh. Credence comprises students who form the corporate interface of the Department, i.e., they act as a liaison between the corporate world and the student community.

The primary responsibility of Credence is to facilitate the Summer Internship and Final Placement process held at the Department. Mentoring the students through mock aptitude tests providing them with the Companies' recruitment criteria, managing the profile database of the students, and pushing for industry-student interactions through webinars and presentations are tasks that the Placement Cell is concerned with.

RECRUITMENT PROCEDURE





Prof. Ranjita Pandey

Co-ordinator Credence: The Placement Cell



Dr. Zuber Akhter

Co-Coordinator Credence: The Placement Cell

COURSE STRUCTURE



COURSE STRUCTURE

Theory:

Analysis Probability Theory Statistical Methodology Survey Sampling

SEMESTER

SEMESTER

Practicals: Data Analysis - I(using Excel) Statistical Computing - I (using C)



Theory: Core: Statistical Inference - II Multivariate Analysis Generalised Linear Models **Electives: Bio - Statistics Operational Research** Non - Parametric Inference **Financial Statistics**

Practicals:

Statistical Computing - II (Using R software) Problem Solving using SPSS - I



Theory:

Linear Algebra Stochastic Processes Statistical Inference - I **Design of Experiments**

Practicals:

Data Analysis - II (using Excel) Problem Solving using C language

Theory:

Econometrics and Time Series Analysis

Demography, Statistical Quality Control and Reliability **Electives:**

Applied Stochastic Processes

Order Statistics

Bayesian Inference

Advanced Survey Sampling Theory

Advanced Theory of Experimental Designs

Advanced Statistical Computing and Data Mining

Practicals:

Problem Solving using R software - II Problem Solving using SPSS - II

THEORETICAL STATISTICS

The University of Delhi has always stood for the best in education and pedagogy. The M.Sc. Statistics programme 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 a deep understanding of the concepts.

 Stochastic process Birth - death process Brownian motion Branching process Martingales 	 Bayesian Juference Posterior Analysis Prior Elicitation and loss function Point and Interval Estimation Hypothesis Testing Predictive Inference 	 Order Statistics Distribution theory Order statistics as Markov chain Asymptotic distribution Random division of an interval Rank order statistics related to simple random walk 	 Design of Experiments Linear estimation ANOVA Incomplete Block Design Finite field and finite geometry Factorial experiments Confounding Fractional factorial experiments
 Generalised Juncar Models Logistic regression Poisson regression Log - linear models Family of GLM Power class link functions Quasi likelihood 	 Statistical Inference Sufficiency, efficiency and MLE NP lemma, LR test, large sample tests Interval estimation SPRT and its properties Non - parametric methods Rank order and linear rank statistics 	 Multivariate distribution Multivariate distribution Wishart matrix Hotelling's T2 - statistics Factor and cluster analysis Multivariate regression 	 Probability b and on variables Probability distributions Law of large numbers Concept of independence Modes of convergence

APPLIED STATISTICS

Theory of
Experimental DesignsOperational
Research

 Partially Balanced Incomplete Block design Fractional Factorial plans Orthogonal arrays Weighing designs Response surface designs Mixture experiments Cross - over designs 	 Linear programming Transportation problems Game theory & Simulations Inventory theory Decision Analysis 	 Time Series as a discrete parameter Stochastic process Moving average, Auto regressive, ARMA & ARIMA models Exponential & adaptive smoothing methods 	•
 Demography Measures of mortality and fertility Construction of different life tables Relationships between life tables functions Population growth models Population projection 	 Data Mining Artificial Neural network Clustering and Market segmentation Principal Component Analysis Classification & Regression trees Statistical simulations Expectation - Maximisation algorithm 	 Bio-statistics Analysis of Epidemiology & Clinical data Censoring Survival time distributions Competing Risk theory Sensitivity, Specificity,& ROC Estimation of Odd's Ratio and Relative Risk Planning & design of Clinical trials 	R •

Time Series &

Forecasting

Statistical Quality Control

- Process control & product control charts CUSUM charts
- V mask & decision
- interval technique Economic design of X-
- bar chart
- Sampling inspection plans

Reliability

- Reliability & expected longevity of different types of systems with applications.
- Estimation of reliability and expected survival time for censored failure time data
- Preventive maintenance policy

Financial Statistics

- Stochastic calculus
- Derivatives, pricing & hedging
- Random walk, CRR model
- Black Scholes PDE, Martingales
- Options, Forward rates modelling

Econometrics

- GLM with stochastic regressors
- Instrumental variables
- Bayesian analysis of GLM
- Distributed Lag models
- Simultaneous equations model

FOCUS AREAS



INSIGHTS & ANALYTICS

The course offers a perfect blend of fundamental training in Statistical Methods and the students have been continuously involved in upskilling themselves in various related areas, the major focus areas being:

ACTUARIAL ANALYTICS

Helps organizations mitigate risk by providing services that focus on risk management. Services are designed to help organizations be proactive in managing risk, ensuring that they are better prepared to face potential challenges.

SPORTS ANALYTICS

Helps teams make strategic decisions that give them a competitive edge. Provides organizations with a competitive advantage through informed decisionmaking, helping them achieve success and stand out in their game.

DATA SCIENCE

Unifies statistics, analysis, and related methods to transform data into actionable insights, empowering clients to make informed decisions. Leverages advanced techniques to analyze data and understand actual phenomena, helping clients increase profits and achieve targets.

RISK ANALYTICS

Helps to develop risk models that protect against unforeseen risks while optimizing profitability. Develop models that mitigate risk and protect the organization's products or services against potential harm. Cleanses, transforms, and models data such that valuable insights can be unlocked, leading to informed decision-making with confidence. Enables the discovery of useful information and informative conclusions, providing a solid foundation for strategic decision-making.

BUSINESS ANALYTICS

Involves valuable insights to optimize business processes. Utilizes datadriven approaches to unlock insights that help optimize business processes and drive growth.



DATA ANALYSIS

DOMAIN EXPERTISE

MARKET RESEARCH

Provides important information that helps to identify and analyze the needs of the market, market size, and competition. It also provides information that helps businesses understand their market by analyzing market needs, size, and competition.

FINANCIAL STATISTICS

Uses past behavior and future forecasts to Involves translating data into meaningful provide a comprehensive financial analysis of information to make logical and beneficial securities and markets. Utilizes statistical public health decisions. Translates data into analysis to provide insights into financial data, actionable insights, enabling public health enabling clients to understand their financial decision-makers to make informed decisions. performance.

OPERATIONAL RESEARCH

Quantifies relevant factors and uses mathematical techniques to arrive at an optimal decision, helping to solve complex problems. Utilizes mathematical techniques to solve complex problems under uncertainty.

DEMOGRAPHY

Delves into demographic processes to gain a deeper understanding of population dynamics. Seeks to understand population dynamics by analyzing demographic processes and trends.

Paves the way for making suitable changes and analyzing business problems to find solutions that help the business thrive. Analyzes business problems and provides possible ways to deal with them, helping to make necessary changes for success.

BIO-STATISTICS

CONSULTING

WHY HIRE US?



CORE COMPETENCIES

We, the students of statistics, play a crucial role in today's world where a vast amount of data is being generated. We can apply technical and academic understanding to provide sound advice based on statistics. At the Department of Statistics, the focus is not only on academic understanding but on the overall development of the subject. We have been nurtured to inculcate and develop the aptitude for a wide range of statistical and analytical skills, including problem-solving and soft skills, to enable students to take prominent roles in a wide spectrum of employment and research.



WHY HIRE US?



Comprehensive Training:

- Our department regularly conducts webinars on a wide range of statistical topics to ensure that our students are up-to-date with the latest skills and techniques in the industry.
- We also offer training sessions that include mock tests to assess their skills and knowledge. This ensures that our students are well-versed in various statistical software and modeling techniques, allowing them to easily tackle complex projects.



Expertise in Languages and Software:

- We are familiar with various languages such as R, Python, SQL, and software like Excel. SPSS and tools like Tableau and PowerBl.
- Our students are proficient in using these programming languages, tools, and software, making it easier for us to analyze the data.



Practical Projects:

- We also undertake projects to analyze data and provide insights into real-world business problems.
- These projects provide hands-on experience and an opportunity to apply statistical concepts and techniques learned in webinars and training to solve practical problems.
- This practical experience enables our students to be better equipped to apply their knowledge in real-world corporate projects.



Strong Communication Skills:

- In addition to technical skills, our students possess excellent communication skills, both written and verbal.
- We know how to communicate complex statistical concepts in a clear and concise manner, making it easier to understand and act on the insights.



Holistic Development:

- We offer extracurricular activities that encourage teamwork and collaboration, boost morale, and foster personal growth, all of which improve students' satisfaction, retention, and productivity.
- These activities not only improve our students' technical skills but also their soft skills, including leadership, communication, and problem-solving.

BATCH STATISTICS



Graduates from top colleges like Hindu, KMC, LSR, Venky, Presidency, etc.

747 Graduated with a major in Statistics.



AREAS OF EXPERTISE

PLACEMENT DETAILS



PLACEMENT RECORDS





GROSS PACKAGE ₹10.82 CR

% OF STUDENTS **PLACED** 95%

SUMMER INTERNSHIPS

Our students participate in various internships offered by reputed companies, during summer vacations, both on and off-campus. They get a glimpse into a professional workspace and gain experience dealing with real-life problems.



PAST RECRUITERS



PAST RECRUITERS



SELUME The Math Company dunhumby



ΤΛΤΛ

SERVICES

tcs

CONSULTANCY







WNS

TATA POWER

















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