

PLACEMENT BROCHURE

Department of Statistics, University of Delhi

Batch 2016-2017



Students of the Department of Statistics (Batch 2016-17)

CONTENTS	
	Page
1. From the Head of Department's desk	4
2. About Us	5
3. Infrastructure	7
4. Our Faculty	8
5. Life at the Department	10
6. Course Structure	12
7. Course Highlights	13
8. Why Statistics?	15
9. Why Hire us?	16
10. Past Recruiters	18
11. Students' Profile	19
12.Contact Us	



FROM THE HEAD OF DEPARTMENT'S DESK



Dear Recruiter,

It gives me immense pleasure to express my appreciation of the manner in which the Department of Statistics has been conducting activities. In particular I would like to record the value that has been generated by M.A/M.Sc. Statistics Post Graduate Program. Needless to say, this program has stood the test of time and has been accorded its due place by corporate world as well as the academia. Through this brochure it is attempted to present a sketch of the Department and its activities. Further the curriculum taught has a wide range applications in the industry. The Department respectfully invites you to consider the M.A. / M.Sc final year students for employment in your esteemed organization. You are requested to visit our campus to explore new avenues, to build and nurture a fruitful and lasting relationship. We look forward to an affirmative and a positively responsive mutually rewarding alliance.

Prof. Jadgish Saran Head, Department of Statistics University of Delhi

ABOUT US



UNIVERSITY OF DELHI : A LEGACY

"Nistha Dhriti Satyam." - Dedicated to the Truth

Founded in 1922, University of Delhi ranked 5 in National University Rankings in 2016

Established with the above motto, the University of Delhi is often considered as the nation's best multidisciplinary school. Founded in 1922, it is one of the few top institutes in the country that is not focused on technical degrees but offers multifaceted education in 86 departments. It is currently ranked 46th in the BRICS rankings and 91st in Asia. Located across two campuses north and south of the city of Delhi, the University of Delhi enrolls over 2 lakhs students.

THE DEPARTMENT OF STATISTICS : A PURSUIT OF EXCELLENCE

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. Ever since its inception, a strong commitment to excellence in teaching and research along with its practical approach towards education has attracted the most talented students who have later gone on to make important contributions to their society. In 1971, the scope of post-graduate course in Mathematical Statistics was extended leading to M.Sc. degree in Mathematical Statistics. Furthermore, the M.Phil. course in Mathematical Statistics was introduced in 1977 with a view to preparing research background of the students and the same has been continually updated covering most of the topical areas of Theoretical and Applied Statistics at the specialization level.

The Department currently offers the post-graduate (M.A./M.Sc.), M.Phil. and Ph.D. Programmes in Statistics. The Master's program offers rigorous training in statistical methods coupled with specializations and exposure to latest state-of-the-art programming languages and computer softwares which aim to provide students with a profile suited for both the industry and the academia. The selection procedure for the post graduate programme consists of an entrance examination for external students and a choice of marks based or entrance based admissions for DU undergraduates. The selection procedure tests statistical fundamentals along with basic mathematical understanding.

INFRASTRUCTURE

The Faculty of Mathematical Sciences boasts of a sprawling campus with modern infrastructure.



The **Computer Labs** of our department have the latest equipment installed to meet both present and future needs. The well equipped computing resources and extremely competent faculty provides 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 the industries today.

The **Central Science Library's** extensive resources are invaluable aid to both students and faculty. It houses more than two lakh titles and subscribes to over 500 nationally and internationally acclaimed magazines, periodicals and generals with archives of over two



decades. The department also has its own library and internet facility that provides connectivity to the latest technical material through networked workstations.



Seminar rooms are made available to enable group work, encourage discussion and other collaborative learning projects. These rooms are equipped with modern audiovisual facilities including LCD projectors and microphone sets for an enriched experience.

FACULTY PROFILE

The Department of Statistics has a highly specialized teaching staff, who are masters in their respective fields. Ranging from publishing and reviewing journals nationally and internationally to being members of Society of Statistics, Indian Science Congress Associations, American Mathematical Society(U.S.A.), U.N.D.P. and chairing conferences at Indian Society for Medical Statistics, International Association for Statistical Computing(Honk Kong), IASRI (Pusa), they exhibit their expertise in every field of Statistics.



Jagdish Saran (H.O.D.) Professor

Qualification: Ph. D. University of Delhi

Field: Order Statistics, Fluctuation Theory, Random Walk and Combinational Methods in Rank Order Statistics.

Gurprit Grover Associate Professor

Qualification: Ph. D. University of Delhi

Field: Biostatistics, Statistical Quality Control, Demography and Reliability.





Ajit Chaturvedi Associate Professor

Qualification: Ph. D. Lucknow University

Field: Statistical Inference, Bayesian Inference, Sequential Analysis, Reliability and Life Testing.

Poonam Singh Professor

Qualification: Ph. D. University of Delhi

Field: Design of Experiments, Generalized Linear Models, Optimization.



Ranjita Pandey Assistant Professor

Qualification: Ph.D. University of Allahabad

Field: Demography, Inferential Reliability, Econometrics, Time Series Model Analysis, Explanatory Data.

Garima Priyadarshini Assistant Professor

Qualification: M.Sc. Statistics, University of Delhi

Field: Design of Experiments, Cross over designs, C-Lang





Abhishek Kumar Umrawal Assistant Professor

Qualification: M.Sc. Statistics, Indian Institute Of Technology, Kanpur

Field: Time Series Analysis, Econometrics and Data Science, Language – C, Machine Learning

> Taruna Kumari Assistant Professor

Qualification: M. Phil, University of Delhi

Field: Reliability and Life Testing, Order Statistics, Linear Algebra, Language – C

LIFE AT THE DEPARTMENT Opportunities multiply when they are seized



Students at the Department of Statistics are presented with several opportunities to further explore the subject by participating in extra-curricular activities and doing Internships.

ANTARDHWANI:

The department also takes part in "ANTARDHWANI" - the annual cultural festival of the University of Delhi . All efforts are made to showcases its talent in this huge occasion which is meant to bring together the whole university community. Usually case studies and projects are presented-for example, in 2015, the department presented case studies very relevant to the present situation.

• One of these concentrated on factors leading to the deterioration of the air quality in the capital city. They selected 3 major areas of Delhi and did the study to determine a relation between the pollutants and Air Quality Index.

• Another focused on Women Empowerment. A survey was conducted on 90 individuals and the factors responsible for choosing male child over female child were also identified. Also the factors were analysed which enable women to be self-dependent.

• An important proposal was also made to use nightlight imagery to know the income distribution of the people in India.

SUMMER INTERNSHIP:

During Summer Internship students gain first hand experience on how to deal with real life situations by applying the knowledge and techniques they have learnt so far.

LIST OF PAST RECRUITERS FOR INTERNSHIPS

COCA-COLA INDIA & SOUTH- WEST ASIA	ABSOLUT DATA
FRACTAL ANALYTICS	BAJAJ ALLIANCE LIFE INSURANCE
STERLITE TECHNOLOGIES	KARVY ANALYTICS
SWISS RE SHARED SERVICES (India)	ARCELOR MITTAL
PWC	IMRB INTERNATIONAL
BUSINESS BRIO	DELOITTE
HDFC BANK	THE NIELSEN COMPANY
IIM BANGALORE	CRISIL
INDIAN STATISTICAL INSTITUTE	AIRTEL
UNESCO	PUNJAB AND SIND BANK
MOSPI	ZEE MEDIA
	ORIENTAL INSURANCE CO. LTD.
INDIAN METEOROLOGICAL DEPT.	NITEO PARTNERS

COURSE STRUCTURE

SEMESTER 1:

- Analysis
- Probability Theory
- Statistical Methodology
- Survey Sampling

SEMESTER 2:

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

SEMESTER 3:

CORE COURSES:

- Statistical Inference-II
- Multivariate Analysis
- Generalised Linear Models

ELECTIVE COURSES:

- Bio-Statistics
- Operational Research
- Nonparametric Inference
- Actuarial Statistics

SEMESTER 4:

CORE COURSES:

- Econometrics and Time Series Analysis
- Demography, Statistical Quality Control and Reliability

ELECTIVE COURSES:

- Applied Stochastic Processes
- Order Statistics
- Bayesian Inference
- Advanced Survey Sampling Theory
- Advanced Theory of Experimental Designs
- Advanced Statistical Computing and Data Mining

COMPUTER LANGUAGES AND SOFTWARES TAUGHT IN THE CURRICULUM:

- C Language
- R and RStudio Software
- MS Excel
- SPSS: Statistical Package for Social Sciences



COURSE HIGHLIGHTS

DU has always stood for the best in education and pedagogy. The Masters of Statistics program at DU offers a perfect blend of fundamental training in statistical methods coupled with practical aplications to cater to all industry oriented needs. The curriculum is designed to promote deep understanding and learning of the concepts. The following are some major highlights of this course.

THEORETICAL STATISTICS:

Stochastic Processes

- Markov Processes.
- Birth-Death Process .
- Poisson Process.
- Branching Process.
- Brownian Motion.
- Martingales.

Statistical Inference

- Sufficiency, Efficiency and Maximum Likelihood Estimation.
- Testsing: Neyman Pearson Likelihood Ratio, Large Sample Test.
- Interval Estimation.
- SPRT and its properties.
- Non-parametric methods, Rank Order and Linear Rank Statistics.

Bayesian Inference

- Computation of Posterior Distribution.
- Loss and Utility Function.
- Generalized Maximum Likelihood
 Estimation.
- Bayesian Interval Estimation and Bayesian Testing of Hypotheses.

Multivariate Analysis

- Multivariate Distributions.
- Wishart Matrix.
- Hotelling's T2 -statistics.
- Elements of Factor and Cluster Analysis.
- Multivariate Regression.

Design of Experiments

- ANOVA
- Incomplete Block Designs
- Finite Geometry
- Finite and Field Geometry
- Symmetric and Asymmetric Factorial Experiments
- Confounding and Fractional Factorial Experiments

Generalised Linear Models

- Logistic Regression
- Poisson Regression
- Log Linear Models
- Family of GLM
- Power Class Link Functions
- Quasi Likelihood

Order Statistics

- Distribution Theory
- Order Statistics as Markov

Chains

- Asymptotic Distributions of Order Statistics
 - Random Division of an Interval
- Rank Order Statistics related to
 Simple Random Walk

APPLIED STATISTICS:

Bio-Statistics

- Analysis of Epidemiology and Clinical Data
- Type I, Type II and Progressive / Random Censoring
- Competing Risk Theory
- Stochastic Epidemic Model
- Basic Biological concepts in Genetics, Planning and Design of Clinical Trials

Advanced theory of Experimental Designs

- Partially Balanced Incomplete Block
 Design
- Fractional Factorial Plans
- Orthogonal Arrays
- Weighing Designs
- Response Suface Designs
- Mixture Experiments
- Cross-over Designs

Actuarial Sciences

- Principles of Financial Mathematics
- Concept of Insurance ,Annuities, Premiums, Reserves and Claims
- Demography
 - Measures of Mortality
 - Life Tables (Complete and Abridged)
 - Measures of Fertility

Reliability

- Reliability Function & Hazard Rate
- Reliability and Expected Survivability
- Preventive Maintenance Policy
- Coherent Systems

Statistical Quality Control

- Process Control and Product Control
- Control Charts
- AC OC Functions
- CUSUM Charts
- Sampling Plans

Econometrics

- GLM with Stochastic Regressors
- Instrumental Variables
- Bayesian Analysis of GLM
- Distributed Lag Models
- Simultaneous Equations Models

Time Series and Forecasting

- Time Series as Discrete Parameter Stochastic Process
- Moving Average (MA), Auto Regressive(AR), ARMA and ARIMA Models
- Exponential and Adaptive Smoothing Methods

Operational Research

- Linear Programming, Assignment
 and Transportation Problems
- Game Theory and Simulations
- Inventory Theory
- Decision Analysis

Data Mining

- Artificial Neural Network (ANN)
- Clustering and Market Segmentation
- Principal Components Analysis
- Classification & Regression Trees
- Statistical Simulations and Expectation-Maximization (EM) Algorithm

WHY STATISTICS?

Data is the new frontier of the 21st century. Data science—obtaining, analyzing, and reporting data ranging from business metrics to user behavior—is an ultra-buzzy field right now. As a result, our course has applications in multiple dimensions – in fact, in today's world of information mania, there is hardly a field which has no use for statistics.

Statistics turns data into information and information into insight

BUSINESS

Need to make a business decision? Survey the market before launching a brand? Control the quality of your product? You'll need statistics for every one of those moves.

MANAGEMENT AND HUMAN RESOURCES

Are you hiring more than your firm's requirements? Does the growth of your company match its potential? What share of your workforce do you actually retain? HR analytics can help you find the answer and make better decisions.

RISK MANAGEMENT AND FORECASTING

What will the weather be like this time next year? What stocks should you invest on in this fiscal year? What should be the premium on the new insurance scheme you are introducing?

From disaster management to risk assessment, analytics comes in handy in all aspects of decision making.

MEDICINE AND PHARMACEUTICALS

Data mining in diagnosis of diseases. Stochastic modeling in Clinical trials

Study of Genetic Diversity and Genetic Mutation

Biological informatics is a growing industry and Statistics plays a key role in it.

BANKING AND FINANCE

Cuts in interest rates.

Changes in investment policy.

Evaluation of credit limits.

There is a data analyst at work behind all of these banking decisions.

PSYCHOMETRICS AND EDUCATION

Intelligence Testing.

Cognitive pattern recognition.

Study of behavioral patterns and their effect on learning trends.

Informatics is a heavy player in all of these fields.

ARTIFICIAL INTELLIGENCE

User-driven interfaces in e-commerce

Pattern recognition in Defence and Criminology

Cryptography and cloud computing in technology.

Machine Intelligence is taking over slowly but surely and it is Statistics that is helping it do so.

SOCIAL SCIENCES AND PUBLIC ADMINISTRATION

What is the income distribution scenario in today's economy?

What should be the focus of the Annual Budget? How feasible is the new policy on Industrial Planning? These maybe questions on socio-political issues but the answers lie with Statistics.

WHY HIRE US?



Google's chief economist Hal Varian had predicted back in 2009 that Statistics will be THE job of the next decade. Well, the next decade is here and companies everywhere are fast realizing the need to preserve data, manage it and draw insights from it. That's where we come in.

UNDERSTANDING THE BASICS OF THE DATA INDUSTRY

Data analysis might rely heavily on statistics but that's not all it entails. In fact, the art of manipulating data sits at the intersection of statistics, business intelligence, computer science, and communication. You've got to be a numbers whiz, but also an analytical mastermind who can think abstractly. We, at the Department of Statistics, understand what the job requires and our comprehensive program with its practical approach and heavy emphasis on application-oriented learning is tailor made to meet the needs of the industry.

WELL-VERSED CURRICULUM

We have a program that is both challenging and stimulating. Disciplines like probability and measure theory, statistical inference and Linear Algebra set the groundwork for a strong theoretical background while a focus on applied subjects like econometrics, forecasting, design of experiments, actuaries, SQC and Survival Analysis ensures our competence at both the sectors of industry and academia.

WELL-EQUIPPED FACULTY

They say that the key to being a good performer is to get yourself a good

mentor. And at DU, we learn from the very best. Our teachers include recipients of ISAS's best paper award, teacher's fellowship award from the Indian Academy of Sciences Bangalore as well as member of the International Statistical Institute Netherlands and visiting professor to the University of Philippines. Their experience and guidance creates a unique learning atmosphere that both broadens our outlook and teaches us to thrive in a competitive environment.

EXPOSURE TO PROBLEM SOLVING

To make it as an analyst, it is not enough to be a quantification expert. One needs to visualize data creatively and make sense out of seemingly meaningless information. Our curriculum exposes us to real-world problem solving through case studies, projects and field work, and trains us in advanced statistical softwares like R as well as basic coding languages like C to make sure that we have all the tools we need to navigate our way around any statistical problem.

MEETING THE SKILL GAP

The demand for Analytics skill maybe going up steadily but there is a huge deficit on the supply side. An analyst is the most sought after professional in today's job market because without someone to understand it, data is useless. Students in the Department of Statistics are honed to fill this deficit. We understand how the data industry works and we have a skill set to match. Over the years, the field of structured analytics will grow exponentially and we will be here to help companies reap the benefits of these growth spurts. Students here are trained to not just accept challenges but to seek them out, which makes them best equipped to deal with the dynamics of a growing industry. As statisticians all over the world have observed, the big Data revolution is here. And we, at DU, are ready to meet it head on.

WE ANALYZE, FORMULIZE, OPTIMIZE. YOU CAPITALIZE.

WANT AWESOME? GET AWESOME!

PAST RECRUITERS



STUDENTS' PROFILE

1. AADITYA AGGARWAL aaditya.aggarwal.stats@gmail.com Internship: MOSPI

2. AAKASH GUPTA aakash.gupta.stats@gmail.com Internship: UNESCO mgiep

3. ABHINAV KUMAR abhinav.kumar.stats@gmail.com

4.ABHISHEK SHANDHILYA abhishek.shandhilya.stats@gmail.com

5. AISHWARYA GROVER aishwarya.grover.stats@gmail.com Internship: Official Statistics (MOSPI)

6. ANADI VASHIST anadi.vashist.stats@gmail.com Internship: HDFC, Deft Research and Advisory.

7. ANISH GANGULI anish.ganguli.stats@gmail.com Project: University of Calcutta















8. ANKITA GUPTA ankita.gupta.stats@gmail.com Internship: MOSPI

9. ANUBRATA KUNDU anubrata.kundu.stats@gmail.com Internship: MOSPI

10. ASHIMA JAIN ashima.jain.stats@gmail.com Internship: National Accounts, MOSPI

11. ARITRA BISWAS aritra.biswas.stats@gmail.com

12. AYESH ZUHEE NIZAM ayesha.nizam.stats@gmail.com

13. BHAMINI ARORA bhamini.arora.stats@gmail.com Internship: Election Commission of India (MOSPI),ISGEC

14. CHANDRASEKHAR KODURU chandrasekharkoduru.stats@gmail.com















15. DEBADRITA BANERJEE debadrita.banerjee.stats@gmail.com Internship: IMRB International

16. DEBAPRIYA MAJUMDAR debapriya.majumdar.stats@gmail.com Internship: Airtel

17. DEEPAK KUMAR deepak.kumar.stats@gmail.com

18. DILEEP KONKENA dileepkonkena.stats@gmail.com Project: Hyderabad University

19. DIVYA KISHOR divya.kishor.stats@gmail.com Internship: ESC

20. ESHANA BHATTACHARJEE eshana.bhattacharjee.stats@gmail.com

21. HARSHIT YADAV harshit.yadav.stats@gmail.com Internship: MOSPI















22. HIMANI MEHTA

himani.mehta.stats@gmail.com Internship: National Accounts, MOSPI

23. HIMANSHU DHINGRA himanshu.dhingra.stats@gmail.com Internship: Sterlite Technologies Ltd, Surpluss.in , India Institute.

24. IMRAN KHAN imran.khan.stats@gmail.com

25. JAPNEET SAMMY japneet.sammy.stats@gmail.com Internship: ESC India

26. JYOTI NAHATA jyoti.nahata.stats@gmail.com Internship: National Accounts, MOSPI

27. JYOTI RANI jyoti.rani.stats@gmail.com Internship: MOSPI

28. KIRAN GUPTA kiran.gupta.stats@gmail.com















29. KOMAL PRAJAPATI komal.prajapati.stats@gmail.com

30. MAHAK GULATI mahak.gulati.stats@gmail.com Internship: Greenthumbs, PWC

31. MEHAK TUTEJA mehak.tuteja.stats@gmail.com Internship: Jindal Stainless Limited, Indiabulls Housing Finance Limited, MOSPI (Social Statistics)

32. NIKHIL SAXENA nikhil.saxena.stats@gmail.com

33. PRABODH NARANG prabodh.narang.stats@gmail.com Internship:MOSPI

34. PRARTHANA TRIVEDI prarthna.trivedi.stats@gmail.com Internship: The Nielsen Company

35. PRAVEEN AGARWAL praveen.agarwal.stats@gmail.com















36. PRIYANJANA MAJUMDER priyanjana.majumder.stats@gmail.com Internship: Sterlite technologies Ltd.

37. PRIYANKA GUPTA

priyanka.gupta.stats @gmail.com Internship: BCCL, India Institute, NSSO-MOSPI

38. PRIYASMITA GHOSH priyasmita.ghosh.stats@gmail.com Internship: Sterlite Technologies Ltd.

39. PUNEET MEWARA puneet.mewara.stats@gmail.com Internship: NSSO-MOSPI

40. RABIA BRAR rabia.brar.stats@gmail.com Internship: Skymet weather services

41. RADHIKA CHATTERJEE radhika.chatterjee.stats@gmail.com Internship: Fractal Analytics

42. RANJANA SAINI ranjana.saini.stats@gmail.com Internship: (National Accounts) MOSPI















43. RATAN THAKUR ratan.thakur.stats@gmail.com

44. REETIKA SARKAR

reetika.sarkar.stats@gmail.com Job experience: Oriental Insurance Co. Ltd., Ministry of Women & Child Development

45. RENU INSAN renu.insan.stats@gmail.com

46. RIDHI BANERJEE ridhi.banerjee.stats@gmail.com Internship: MOSPI

47. RISITA CHAKRABORTY risita.chakraborty.stats@gmail.com

48. RIYA GWASKOTI riya.gwaskoti.stats@gmail.com Internship: IMRB International

49. RUKSHAR KHAN rukshar.khan.stats@gmail.com















50. SAGAR sagar.stats1426@gmail.com Internship: NSSO-MOSPI

51. SAHELI RAY saheli.ray.stats@gmail.com Internship: SMC GLOBAL SECURITIES LTD.

52.SAKSHI ANUPAM sakshi.anupam.stat<mark>s@gmail.com</mark>

53. SAKSHI SONI sakshi.soni.stats@gmail.com Internship: IMRB International

54. SAUKAURYA DUTTA saukaurya.dutta.stats@gmail.com Internship: Niteo Partners Pvt. Ltd.

55. SAYANTAN BANERJEE sayantan.banerjee.stats@gmail.com Project: University of Calcutta

56. SHAONI GUPTA shaoni.gupta.stats@gmail.com Internship: PwC















57. SHEETAL ANNS PHILIP philip.sheetal@gmail.com Internship: Tatras Data, Karvy Analytics Limited



58. SHIFALI SACHDEVA shifali.sachdeva.stats@gmail.com Internship: TERI(The Energy and Research Institute), MOSPI



59. SHIVANI TANWAR shivani.tanwar.stats@gmail.com Internship: ESC India, Ministry Of Communications and Information Technology



60. SHRUTI BANSAL shruti.bansal.stats@gmail.com Internship: MOSPI



61. SIDDHANT SHANDILYA siddhant.shandilya.stats@gmail.com Internship: Absolutdata , Arcelor Mittal

62. SIMRAN SAHNI simran.sahni.stats@gmail.com Internship: Punjab and Sind Bank , Ministry of health and family welfare

63. SUDESHNA PORWAL sudeshana.porwal.stats@gmail.com Internship: The Financial Doctors

64. SUKANYA PAUL sukanya.paul.stats@gmail.com Internship: MOSPI









65. SUNIL KUMAR sunil.kumar.stats@gmail.com



66. TAHSEEN FATIMA tahseen.fatima.stats@gmail.com Internship: Reckitt Benckiser-Veet, MOSPI (Economic Statistics)

67. TANIA SADHUKHAN tania.sadhukhan.stats@gmail.com

68. UTTAM KUMAR uttam.kumar.stats@gmail.com Internship: Vastada Consulting, Absolutdata, Samajik Parivartan Sansthan







CONTACT US

PLACEMENT CELL COMMITTEE

Faculty Coordinator:

Dr. (Mrs.) Poonam Singh (Phone: +91-9810009768(M), +91-11-27666671 ; Ext. 305 (O))

Coordinators

Anadi Vashist (Phone: +91-9871433080) Mahak Gulati (Phone: +91-9560621589) Priyanjana Majumder (Phone: +91-9874612018) Priyasmita Ghosh (Phone: +91-9650134436) Sheetal Anns Philip (Phone: +91-9654375433)

Treasurer Ridhi Banerjee

Co-coordinators Harshit Yadav Tahseen Fatima

Counsellor Reetika Sarkar

Mail us at mscstatisticsdu@gmail.com



Placement Cell Members

