



**Department of Mathematics & Statistics**  
**INDIAN INSTITUTE OF TECHNOLOGY KANPUR**

# **PLACEMENT BROCHURE 2024-25**

**BS-Statistics & Data Science**

The Recruiter's Guide  
Students' Placement Office

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Visit us

<https://www.iitk.ac.in/math/bs-sds>



# ■ Welcome Message



**Prof. Mohua Banerjee**  
**Head of The Department**

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The Mathematics and Statistics department shares the vision of the institute of achieving excellence in teaching and research. It has always striven to succeed in this endeavor by fostering an environment that encourages critical thinking, innovative problem-solving, and the pursuit of knowledge.

Our department, established in 1960, has grown to become a leader in mathematical and statistical education and research. We offer a comprehensive range of programs and courses that provide a strong foundation in both theoretical and applied aspects of mathematics and statistics. Our faculty, recognized as leading experts in their fields, are dedicated to mentoring students and advancing the frontiers of knowledge through cutting-edge research.

We are proud of our vibrant academic community, which includes a diverse group of students, faculty, and visiting scholars. Through regular seminars, workshops, and collaborative projects, we maintain an engaging and dynamic atmosphere that encourages intellectual growth and innovation. Our graduates are highly sought after by prestigious institutions and organizations worldwide, reflecting the high standards of education and training provided by our department.

# About the Program

- Departmental compulsory courses of the program focus on three core topics, viz.,
  - (a) Fundamental Statistical and Mathematical Courses,
  - (b) Statistics and Data Science Courses, and
  - (c) Computational Courses
- Courses of the program have been designed to integrate **theoretical and practical aspects** with discussions on data applications and analysis, wherever feasible.
- During the course of the program, students are exposed to various types of **structured and unstructured data** and will work on solving **real world problems**.
- These would include data related to health, biomedicine, bioinformatics and digital health, banking and financial data; speech, signal and image processing data; seismological data; social media and social network analysis; energy sector data, etc.
- Data Science Lab courses and the lab component of Applied Statistics and Data Science courses would focus on **hands-on training with raw data** and **development of open-source software**.
- Additionally, to keep the students acquainted with new challenges of data and cutting edge technology, the Institute invites experienced industry personnel for guest lectures, real data analysis projects, seminar presentations, and possible internships for students.

IITK is ranked 36 best university globally in Data Science and Artificial Intelligence according to QS World University Rankings 2024

Rank	University	Overall Score
=36	 Indian Institute of Technology Kanpur (IITK) Kanpur, India	72



# ■ Courses Offered

## ■ Department Courses

- Statistical & AI Techniques in Data Mining
- Statistical Computing
- Data Structures & Algorithms
- Elementary Stochastic Processes
- Time Series Analysis
- Bayesian Analysis
- Multivariate Analysis
- Real Analysis
- Data Science Labs
- Probability Theory
- Theory of Statistics
- Linear Regression & ANOVA
- Matrix Algebra & Linear Estimation

## ■ Department Electives

- Statistical Pattern Recognition
- Markov Chain Monte Carlo
- ANN/ML Approach for Differential Equations
- Statistical Decision Theory
- Robust Statistical Methods
- Order Statistics
- Econometrics
- Nonlinear Regression
- Sampling Theory
- Statistical Reliability Theory
- Statistical Inference
- Non-Parametric Inference
- Empirical Processes
- Set Theory & Discrete Mathematics
- Ordinary Differential Equations
- Partial Differential Equations
- Measure Theory
- Graph Theory

## ■ Open Electives

- Parallel Computing
- Parallel Programming
- Computer Vision and Image Processing
- Big Data Analysis
- Probabilistic Modelling and Inference
- Introduction to Machine Learning
- Probabilistic Machine Learning
- Statistical Natural Language Processing
- Statistical Signal Processing
- Digital Image Processing
- Convex Optimization in SP/COM
- Detection and Estimation Theory
- Speech Signal Processing
- Computational Intelligence for Machine Vision, Automation and Control
- Neural Networks
- Machine Learning for Signal Processing
- Optimization for Big Data
- Artificial Intelligence, Machine Learning and its Applications
- Advanced Topics in Machine Learning
- Principles of Data Base Systems
- Embedding and Cyber-Physical Systems
- Theory of Computation
- Bayesian Econometrics
- Operating Systems
- Advanced Algorithms
- Randomized Algorithms
- Computer Organisation
- Computer Architecture
- Computer Networks
- Compiler Design
- Software Engineering
- Computational Complexity
- Computational Number Theory
- Modern Cryptology
- Data Mining

# ■ Area of Expertise

## ■ Theory

- Probability Theory
- Real Analysis
- Statistical Inference
- Complex Analysis
- Markov Chains



## ■ Applied computational training (Python and R)

- Regression
- Classification
- Clustering
- Decision Trees
- Stochastic Gradient Descent
- Time Series
- Bayesian models
- Neural Networks
- Monte Carlo
- App Building through Shiny Apps
- Web Scraping



# Distinguished Faculty

The department takes pride in its distinguished faculty, which forms the foundation of our educational excellence. With a total of 51 professors, assistant professors, and associate professors, our faculty's diverse research interests span both pure and applied mathematics and statistics, enriching the academic environment and fostering innovation.

**DR. AMIT MITRA** (PhD IIT Kanpur)  
Professor  
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**DR. ARNAB HAZRA** (PhD NC State University, Raleigh, US)  
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**DR. SHARMISHTHA MITRA** (PhD IIT Kanpur)  
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**DR. NEERAJ MISHRA** (PhD IIT Kanpur)  
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**DR. SUPRIO BHAR** (PhD ISI Bangalore)  
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**DR. SATYA PRAKASH SINGH** (PhD IIT Bombay)  
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**DR. DOOTIKA VATS** (PhD University of Minnesota)  
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**DR. MINERVA MUKHOPADHYAY** (PhD ISI Kolkata)  
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**DR. SUBHRA SANKAR DHAR** (PhD ISI Kolkata)  
Professor  
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## ■ Profiles Offered

Data Scientist

Research  
Scientist

Data Analyst

Quantitative  
Strategist

AI/ML Engineer

Software  
Engineer

Risk Analyst

Statistical  
Consultant

Data Engineer

## ■ Technical Skills



Python



R



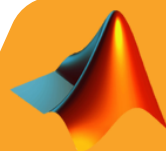
Database



C++



SQL



Matlab

L<sup>A</sup>T<sub>E</sub>X



Github



Excel

## ■ Internship Recruiters

**Goldman Sachs**



**AlphaGrep**

**ATLASSIAN**

**Morgan Stanley**



**Axxela**



## ■ Internship Infographics

4.5 Lakhs

Highest Stipend

1.5 Lakhs

Average Stipend





# Thank You!

Let's Get  
In Touch

## Contact Us

### Student's Placement Office

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### Placement Coordinator

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