Massachusetts Institute of Technology

IDSS Data Science Curriculum

From probability and statistics to data analysis and machine learning, master the skills needed to solve complex challenges with data with these offerings from MIT.

Demand for professionals skilled in data, analytics, and machine learning is exploding. A recent report by IBM and Burning Glass states that there will be 364,000+ new job openings in data-driven professions by 2020 in the US alone. Data scientists bring value to organizations across industries because they are able to solve complex challenges with data and drive important decision-making processes.

The MIT Institute for Data, Systems, and Society (IDSS) understands the power of uncovering the true value of your data and has created a variety of online courses and programs to take your data analytics skills to the next level. Whether you are looking to break into the field, seeking career development opportunities, or simply want to provide more valuable insights to your company, these offerings will teach you to harness data in new and innovative ways.

OUR PROFESSIONAL EDUCATION OFFERINGS

Data Science and Big Data Analytics: Making Data Driven Decisions

Delivered by:	MIT xPRO
Summary:	1 online course for professionals
Duration:	7 weeks
Time Commitment:	4-5 hours per week
Learning Format:	Online
Price:	$849
Certification:	Professional Certificate from MIT xPRO and 1.8 Continuing Education Units (CEUs)

MicroMasters Program in Statistics and Data Science

Delivered by:	MITx MicroMasters Program
Summary:	4 online courses + 1 capstone exam
Duration:	14-16 weeks per course
Time Commitment:	10-14 hours per week
Learning Format:	Online
Price:	$300 per course and exam OR $1,350 for the program (10% savings)
Certification:	MITx MicroMasters Credential in Statistics and Data Science which can be applied toward a PhD from MIT or master's at select universities.

MEET YOUR INSTRUCTORS

Devavrat Shah
Director, Statistics and Data Science Center; Professor, Laboratory for Information and Decision Systems, Computer Science and Artificial Intelligence Laboratory and Operations Research Center

Philippe Rigollet
Associate Professor, Mathematics department and Statistics and Data Science Center

Tamara Broderick
(MIT xPRO only)
Assistant Professor, Institute for Data, Systems, and Society, Electrical Engineering and Computer Science Department

Esther Duflo
(MITx MicroMasters Program only)
Abdul Latif Jameel Professor of Poverty Alleviation and Development Economics in the Department of Economics, MIT

MIT Data Science Curriculum

MIT xPRO

DATA SCIENCE AND BIG DATA ANALYTICS: MAKING DATA DRIVEN DECISIONS

Over the course of seven weeks, you will take your data analytics skills to the next level as you learn the theory and practice behind recommendation engines, regressions, network and graphical modeling, anomaly detection, hypothesis testing, machine learning, and big data analytics.

Through in-depth lectures from renowned faculty from across MIT, you'll acquire the theories, strategies, and tools you need to answer questions such as:

- What is clustering and when should I use it?
- What is the best way to design experiments and conduct hypothesis testing using my data?
- How should I do model selection and avoid over-fitting?
- What are the latest trends in machine learning?
- How do graphical models and network models differ?

WHO SHOULD PARTICIPATE

This course is designed for data scientists and data analysts, as well as professionals who wish to turn large volumes of data into actionable insights. Because of the broad nature of the information, the course is well suited for both early career professionals and senior managers.

Faculty strongly recommend participants to have a strong grasp of basic professional statistics and some undergraduate coursework. Some knowledge of Python is not required but strongly recommended.

HOW TO ENROLL

Visit bigdataanalytics.mit.edu to see the latest start date for the course, sign up for updates, and click through to enroll.

Information on group discounts can be found at bigdataanalytics.mit.edu/enterprise.

Any additional questions can be directed to MITxPRO@mit.edu.

MITx MicroMasters Program

STATISTICS AND DATA SCIENCE

This MicroMasters program in Statistics and Data Science is comprised of four online courses and a virtually proctored exam that will provide you with the foundational knowledge essential to understanding the methods and tools used in data science, and hands-on training in data analysis and machine learning. You will dive into the fundamentals of probability and statistics, as well as learn, implement, and experiment with data analysis techniques and machine learning algorithms. This program will prepare you to become an informed and effective practitioner of data science who adds value to an organization and will also accelerate your path towards an MIT IDSS PhD or a Master's at select universities.

Anyone can enroll in this MicroMasters program. It is designed for learners who want to acquire sophisticated and rigorous training in data science without leaving their day job but without compromising quality. There is no application process, but college-level calculus and comfort with mathematical reasoning and Python programming are highly recommended if you want to excel.

All the courses are taught by MIT faculty at a similar pace and level of rigor as an on-campus course at MIT. This program brings MIT's high-quality curricula and hands-on learning approach to learners around the world—at scale.

THE FOUR COURSES IN THE PROGRAM

- Probability: The Science of Uncertainty and Data
- Data Analysis in Social Science: Assessing Your Knowledge
- Fundamentals of Statistics
- Machine Learning with Python: from Linear Models to Deep Learning

WHO SHOULD PARTICIPATE

The four courses in the program are open to anyone, anywhere with an internet connection. There are no prerequisites, undergraduate degrees, or fees required to enroll.

Given that these are graduate-level quantitative courses, faculty suggest you have a grasp of single and multi-variable calculus and linear algebra, as well as being comfortable with mathematical reasoning and Python programming.

In order to complete the credential, you do need to enroll as a verified learner in each of the courses and the capstone exam.

HOW TO ENROLL

Visit micromasters.mit.edu/ds to see the latest start date for each course, learn more, and click through to enroll.

Any additional questions can be directed to micromasters-support@mit.edu.