Master in Data Science

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Uruguay's Technological University (UTEC) offers a blended learning Professional Master in Data Science, with a strong entrepreneurial component and exclusive academic support from the MIT Institute for Data, Systems, and Society (IDSS)

Next start: April 2021

Plan Ceibal

UTEC Universidad Tecnológica

MIT IDSS

ANII

PROGRAMA EN DataScience

Why completing this Master program?

With it you will become a data science expert, capable of developing new lines of business and leading decision making processes within teams.

The only data science master program with academic support from MIT IDSS

As part of the master you will complete the MicroMaster in Statistics and Data Science from MIT IDSS through edX. This program covers the four pillars of data science: **probability, statistics, machine learning and data analysis.**

In today's world developing knowledge as well as technical and commercial skills in the field of data science and machine learning is key, in order to automate and optimize decision making and take part in the future of work. **Data science intervenes in every research and productive process**; our Master students have developed a range of projects going through autism detection and treatment, 3D printing of tailored products with image clustering, prediction and early detection of secondary school dropout to detecting potential bank clients in regards to their social media behaviour, and more.

IN URUGUAY:

70% of tomorrow's jobs are related to STEM**

800 are the engineering students who graduate per year from all of the public and private local universities

2500 are the amount of jobs that need to be covered in the field every year

The Data Science Master:

- Enables you to study at MIT online
- Offers weekly exclusive recitation sessions with MIT and UTEC instructors
- Focus in Machine Learning and business development in Latin America

Which is our students' profile?

- Economics and finance
- Engineering
- Technology and computing
- Industrial area
- Chemistry and sciences

** World Economic Forum's Global Competitiveness Report 2017-2018

Our partnership with IDSS

The MITx MicroMasters Program in Statistics and Data Science, the backbone of our master's degree, was developed by interdisciplinary faculty from the MIT Institute for Data, Systems, and Society (IDSS). IDSS trains thinkers who use the tools of data science to bring new insights to society's most pressing challenges, and builds education partnerships around the globe to empower learners with data science skills.

In June 2020, the UTEC Program in Data Science established a strategic partnership with MIT IDSS, with the aim of offering exclusive support to our master's students throughout the almost two years of the program. This support includes weekly interactive online recitations, where IDSS TA's reinforce student learning through synchronous videoconferences. Experts from across MIT also participate in face-to-face workshops.

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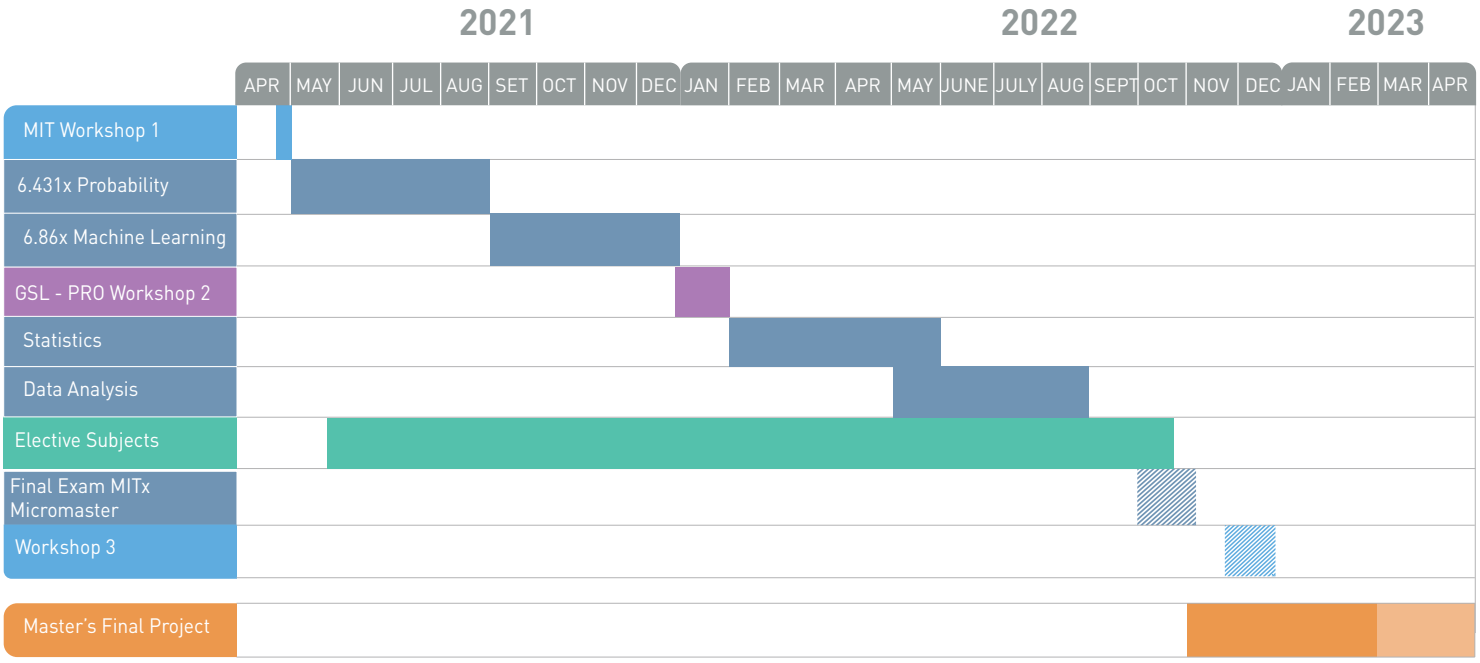
2021 - 2023 | Academic Calendar



Workshop in Uruguay (1 week)

Online courses MicroMaster

Elective subjects

Workshop in Uruguay (3 weeks)

Master's Final Project

Leveling courses

Apart from the workshops and curricular subjects, leveling courses on Pyhton and R will be offered as needed.

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The MicroMaster's of Statistics and Data Science subjects

PROBABILITY: THE SCIENCE OF UNCERTAINTY AND DATA

Based on MIT's Introduction to Probability course, which has been taught for over two decades, this course takes on the basic concepts of probability: multiple discreet or continuous random variables, conditional expectations and distributions, law of large numbers, Bayesian inference methods and an introduction to random processes (Poisson processes and Markov chains). The demanding coursework is aligned with the quality of the probabilistic theory tools that the student will acquire and then apply to concrete real-life scenarios.

STATISTICS COMPUTATION AND APPLICATIONS

Hands-on analysis of data demonstrates the interplay between statistics and computation. Includes four modules, each centered on a specific data set, and introduced by a domain expert.

Provides instruction in specific, relevant analysis methods and corresponding algorithmic aspects. Potential modules may include medical data, gene regulation, social networks, finance data (time series), traffic, transportation, weather forecasting, policy, or industrial web applications. Projects address a large-scale data analysis question.

MACHINE LEARNING USING PYTHON: FORM LINEAL MODELS TO DEEP LEARNING

Machine learning methods are commonly used across engineering and sciences, from computer systems to physics. Moreover, commercial sites such as search engines, recommender systems (e.g., Netflix, Amazon), advertisers, and financial institutions employ machine learning algorithms for content recommendation, predicting customer behavior, compliance, or risk.

As a discipline, machine learning tries to design and understand computer programs that learn from experience for the purpose of prediction or control. In this course, students will learn about principles and algorithms for turning training data into effective automated predictions. We will cover: representation, over-fitting, regularization, generalization, VC dimension; clustering, classification, recommender problems, probabilistic modeling, reinforcement learning; on-line algorithms, support vector machines, and neural networks/deep learning.
Students will implement and experiment with the algorithms in several Python projects designed for different practical applications.

FUNDAMENTS OF STATISTICS

Statistics is the science of converting data into perspectives and, ultimately, decisions. Behind every recent breakthrough in machine learning, data science and artificial intelligence, the fundamental principles of statistics are applied. The purpose of this course is to develop and expand the comprehension of these ideas, basing it on solid mathematical foundations by means of constructing estimators and proofs, as well as the analysis of its asymptotic development. The students will learn to build estimators using the method of moments and maximum likelihood estimation; quantify uncertainty with trust intervals and hypothesis proofs; selecting models using the goodness of fit test; make predictions based on linear, nonlinear and generalized models and using Principal Component Analysis (PCA) for dimensional reduction.

Elective subjects

Students will have the chance to choose between courses that vary between entrepreneurship, multivariate analysis, non supervised learning, among other, offered by UTEC, MITx and UdelaR.

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The workshops

Workshop in Uruguay
(1 week)

Workshop 1 | Opening workshop with specialists from MIT

In this workshop students will attend the launch of the program, including presentation of Program goals, structure and role of the different institutions supporting it. The sessions will focus on the relevance of data science, machine learning and entrepreneurship in the region and the world. There will be extensive explanation and exploration of the online platform supporting the Program, which will be used to access extra material, to interact with MIT facilitators, and to build a data science community amongst participants. Students will be guided through the beginning of the first course in the MITx MicroMasters in Data Science and Statistics - Introduction to Probability – The Science of Uncertainty.

Workshop in Uruguay
(3 weeks)

Workshop 2 | Global Startup Labs-Pro from MIT (Misti)

During this workshop's four intense weeks, this essential component of our Program on Data Science focuses on applying machine learning and data analysis to the resolution of national and international challenges. The MIT (Misti) instructors will lead the participants through the experience of discovering the commercial potential of data science and machine learning projects. The technical curriculum is complemented by meetings with special guests and on the last day a pitch contest will be held, so that the students can shape and propel their ideas.

Workshop in Uruguay
(1 week)

Workshop 3 | Closing workshop with specialists from MIT

During one week, a team of MIT facilitators will create a space that will foster the exchange of results of the projects that were developed throughout the Program. Also, this workshop will be the last onsite gathering for students to consolidate the social capital developed throughout the Master.

youtube.com/datascienceuy

Learn more about our Master in Data Science at our YouTube channel. Access our channel to have access to students testimonials, workshops overviews and more.

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