MSc in Social Data Science

A multidisciplinary master's degree that equips students with state-of-the-art social and technical expertise to analyse and interpret social data and generate insights on human behaviour and society.

MSc main aims

Social scientists are progressively gaining access to large and complex data sets. Technological innovations have made the collection of that data - by private and public sectors – an everyday norm. Advances in computer science, statistics, and artificial intelligence enable us to perform sophisticated real-time analyses in several fields, which are increasingly in demand in the job market.

Social Data Science (SDS) is a two-year master's course taught in English that combines social sciences and computer science, in which articulates the analysis of Big Data and the use of Artificial Intelligence algorithms with social scientific theory.

This program welcomes a diversity of students, those new to computational methods, as well as those new to social sciences. SDS provides a solid foundation in Data Science for students with a social science degree. The main emphasis of the course is computational science within a robust framework of social science applications and research design principles. Students will gain a critical overview of the current opportunities and reach of computational social science.

Students with a social science background will be trained to use data to answer exciting social science questions. Students are assumed to have taken an introductory course in quantitative methods or applied statistics at a basic level, although this is not a formal requirement.

For student new to computational methods, this is a chance to develop competencies already in demand in the job market, learning state-of-the-art skills so they can thrive in a changing, data-driven workplace. This is also an opportunity for students new to the social sciences to see where computational and statistical skills can go with innovative applications to issues of great societal concern.

The main goal of the master's program is to illustrate the scope of computational social sciences introducing its main applications. In particular, it will illustrate how information can be gained by studying the huge digital imprint left by today's social interactions, what the world of machine learning is all about, including the basic concepts behind this current driver of much of the computational landscape. Finally, attention will be placed on the power of social networks and, on explaining how computer simulation helps us untangle some of the major contemporary social challenges. The multidisciplinary content of the master's program will empower students to better address societal challenges in the digital age.

Course structure

Students will acquire 120 CFUs over a two-year period, in remote mode.

The program is structured as follows: In the first year, training is provided in the main aspects of applied data science, computation and programming, and quantitative methods, building a foundation for their application on the analysis of topics covered in the second year.

This cross-disciplinary introduction to sociology, social research methodologies, computer science, statistics and linguistics will build a strong foundation for their application and analyses in the second year. By then students will be able to examine the history and current challenges faced by social science through the digital revolution, configure a machine to create a database that can be used for analysis, discuss what is artificial intelligence (AI) and train a machine and discover how social networks and human dynamics create social systems and recognizable patterns.

Teachers in this master's program will comprise of experts across the domains covered, ensuring depth and innovation across the planned areas of study.

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First year

Semester 1 (Autumn)	Fundamental of social science research design (6 CFU)	Element of statistics, probabilistic reasoning, and R (6 CFU)
	Computer programming (Python) (6 CFU)	Digital Sociology (6 CFU)
	Notions of Database Management Systems (4 CFU)	Basic Social Network Analysis (2 CFU)
Semester 2 (Spring)	Linguistic theories and computational linguistics (6 CFU)	Non-relational Database Management Systems (4 CFU)
	Logic and causal reasoning (2 CFU)	AI Introduction (4 CFU)
	AI Algorithms (ML, NLP, GAI) (6 CFU)	AI Algorithms for Social Science (4 CFU)
	Seminar (4 CFU)	

Second year

Semester 3 (Autumn)	Techno-social Data Theory (4 CFU)	Data Visualization (4 CFU)
	Law, ethics and data governance (6 CFU)	Data, Power and Society (4 CFU)
	Seminar (2 CFU)	
Semester 4 (Spring)	Big Data and AI: Social and Evaluation research (6 CFU)	BD analytics and Social Network Analysis (4 CFU)
	Digital methods (6 CFU)	Seminar (4 CFU)
	Stage (6 CFU)	
	Thesis (14 CFU)	