

General Information

Type: Official Master's Degree

Branch: Economics and Political Science

Structure: 1 year

Credits: 60 ECTS

Orientation: Academic and professional

Attendance: On-campus

Language: English

Campus: Madrid - Puerta de Toledo

Availability: 40 places

Entry profile

This master's degree is aimed at **university graduates in Social and Human Sciences** such as Political Science and Sociology, Demography, Economics, Journalism and Communication, Health Sciences, International Studies, Global Studies, Business Administration and Management, Geography and other related or combined degrees. A quantitative background is not required, although candidates must have demonstrated a proven interest in the intersection of social issues with computational science and data analysis, and previous academic or professional experience in these areas will be positively valued

School of Economics and Political Science

 uc3m.es/master/computational-social-science

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Coordination

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Master in Computational Social Science



Presentation

Digital technology has revolutionized society and the way we study it. Much human interaction is now recorded in the form of a digital footprint, and analyzing this footprint allows us to gain an unprecedented understanding of society and its workings. In this context, the computational social scientist has emerged, combining the standard training of the social scientist with new computational approaches based on predictive modeling, text analysis and network science.

The Master in Computational Social Science offers specialized training in cutting-edge computational and quantitative analysis techniques oriented to the study of the Social Sciences. This program prepares you to take advantage of complex data and advanced computational tools to understand society and human behavior.

This Master is geared towards students with a background in Social Sciences, Economics, Communication and Law. It will prepare candidates to work in the professional and academic fields, as well as to lead and supervise interdisciplinary teams in the field of Computational Social Sciences.

Curriculum

The Master is composed of three main modules. The **Social Sciences Module** has a theoretical component (9 ECTS) where students will learn the foundations and possibilities of Computational Social Sciences, gain familiarity with the main behavioral theories and discuss social and ethical issues of Big Data and Artificial Intelligence; in parallel, the methodological component (12 ECTS) features courses on research design, survey design and social network analysis. The **Statistics Module** (12 ECTS) provides a key quantitative foundation, offering various courses on modelling and causal inference. Finally, the **Computational Module** (18 ECTS) will provide a cutting-edge set of R-based tools for data mining, analysis and visualisation.

The Team

The faculty comprises a multidisciplinary team from IC3JM, IBiDat and various university departments (such as Statistics, Computer Science and Mathematics); researchers from other centres such as the Universitat de Barcelona and CSIC; as well as experienced professionals from companies such as Ryanair, Prodigioso Volcán, Microsoft and Wecity.

60% Internal faculty

40% External faculty

90% PhDs



Half Term					
0	1	2	3	4	
	Foundations of CSS	Behavioural theories in the Social Sciences	Master's Thesis Seminar	Social and ethical issues of Big Data & AI	Social Sciences Module
	Research design for Social Sciences	Survey research methodology I	Survey research methodology II	Social network analysis	
Basic statistics	Statistics and Data Science I	Statistics and Data Science II	Advanced modelling	Causal inference for Social Science	Statistics Module
Introduction to programming with R	Data programming		Data harvesting	Master's Thesis	Computational Module
	Data visualization		Text mining		