



UNIVERSIDAD
COMPLUTENSE
MADRID



Master's Degree
Faculty of Statistical Studies

DATA SCIENCE AND
BUSINESS INTELLIGENCE

MASTER'S DEGREE DATA SCIENCE AND BUSINESS INTELLIGENCE

Field of Knowledge: **Mathematics and Statistics**
Responsible Center: **Faculty of Statistical Studies.**
Universidad Complutense de Madrid (UCM)

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Orientation: **scientific-academic**
Credits: **60 ECTS**
Duration: **1 year (2 semester)**
Modality: **on-site**

OBJECTIVES

- To train professionals in Data Science capable of gathering, cleaning, transforming, and analyzing all the data a company stores, preferably in the marketing sector and the business area.
- To know and understand the current techniques in the fields of statistics and computer science necessary to develop projects in Data Science, such as data cleaning, machine learning, database management, etc.
- Apply, analyze, and convert the obtained information into knowledge that assists in strategic and operational decision-making.
- Generate and maintain research, development, and consulting activities in Data Science, as a prelude to research activity in Applied Statistics.
- Introduce concepts of Business Intelligence and related techniques including Data Warehousing, Data Mining, and Online Transaction Processing (OLTP).
- Explore processes, contents, and contexts related to decision-making techniques in marketing. Improve processes through business intelligence.

RECIPIENTS

Graduates in Statistics, Computer Science, Engineering, Economics, Marketing, Actuarial Science and related disciplines.

WHY STUDY THIS MASTER DEGREE?

In this Master's program, methods are developed that allow the identification of relevant information sources, their analysis, and their transformation into knowledge to aid in decision-making.

With a technical and applied approach, focused on the statistical and computational treatment of data, it adopts an integrative design between Data Science and Business Intelligence. On the one hand, the former encompasses a set of techniques aimed at the efficient exploitation of data by extracting actionable knowledge implicit in the databases. Thanks to this knowledge, it is possible to solve problems of prediction, classification, and segmentation. On the other hand, Business Intelligence involves understanding the current functioning of the company, anticipating future problems based on the information obtained from Data Science.

This Master's program encompasses a professional aspect that facilitates access to jobs in rapidly expanding areas (companies like ICEX, ICEA, EXPERIAN, OPEN SISTEMAS, SAS INSTITUTE, etc., actively collaborate in delivering the Master's), and a research aspect, as it provides fundamental theoretical tools for data analysis research, ensuring the possibility of developing a doctoral thesis applied to the fields of finance, risk, business competition, or marketing.

STRUCTURE

The Master's program is organized following a mixed structure of modules and subjects:

- Module of Data Processing Techniques and Data Science: 27 mandatory ECTS
- Module of Data Mining Applications in Marketing and Business Intelligence: 18 mandatory ECTS
- Module of Methodology and Development of the Master's Thesis: 15 mandatory ECTS, 9 of which are for the Master's Thesis

Students must complete a total of 60 ECTS in two semesters: 8 mandatory courses and the Master's Thesis.

STUDY PLAN

SUBJECT TYPE	ECTS
Mandatory	51
Master's Thesis	9
Total	60

COMPULSORY SUBJECTS	ECTS	SEMESTER
Module of Data Treatment Techniques and Data Science		
Data Preparation and Predictive Models	6	1°
Programming in Data Science	3	1°
Statistical Techniques in Data Science	6	1°
Machine Learning Techniques	6	2°
Management and Exploitation of Data Warehouses	6	2°
Module of Data Science Applications in Marketing and Business Intelligence		
Customer Relationship Management (CRM)	6	1°
Global Risk Management. Scoring	6	1°
Decision Models in Marketing	6	2°
Module of Methodology and Development of the Master's Thesis		
Research in Data Science	6	2°
MASTER'S THESIS		
Master's Thesis	9	2°



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