



UNIVERSIDAD  
COMPLUTENSE  
MADRID



Master's Degree  
Faculty of Statistical Studies

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DATA MINING AND  
BUSINESS INTELLIGENCE

# MASTER'S DEGREE DATA MINING AND BUSINESS INTELLIGENCE

Knowledge Branch: **Social and Legal Sciences**  
Responsible Center: **Faculty of Statistical Studies.**  
**Universidad Complutense de Madrid (UCM)**

[estudiosestadisticos.ucm.es/master-mineria](http://estudiosestadisticos.ucm.es/master-mineria)

Orientación: **scientific-academic**  
Credits: **60 ECTS**  
Duration: **1 year (2 semester)**  
Modality: **on-site**  
Nº of seats: **45**

## OBJECTIVES

Training professionals in the area of Data Mining able to gather, refine, process and analyze all the data that a company stores, preferably in the field of marketing and in the business area.

- Apply, analyze and convert the information obtained into knowledge to help in the taking of strategic and operational decisions.
- Build and maintain research, development and consultancy activities in the area of Data Mining as a preamble to research in Applied Statistics.
- Introduce concepts of Business Intelligence and related techniques including Data Warehousing, Data Mining and On Line Transaction Processing (OLTP).
- Explore processes, contents and contexts related to the techniques of marketing decision making. Process improvement derived from business intelligence.

## RECIPIENTS

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

## WHY STUDY THIS MASTER DEGREE?

In this Master methods to identify relevant sources of information are developed, analyzing them and their transformation into knowledge for decision making.

It has an integrating design between Data Mining and Business Intelligence. For one, the first includes a set of techniques aimed at the efficient use of data by extracting actionable knowledge implicit in the databases. Thanks to its knowledge it is possible to solve prediction, classification and segmentation problems. Furthermore, Business Intelligence encompasses understanding the actual operation of a company, anticipating future problems based on the information obtained from Data Mining.

This Master covers a professional side that facilitates access to jobs in areas of great expansion (companies like ICEA, EXPERIAN, OPEN SYSTEMS, SAS INSTITUTE ... actively collaborate in the delivery of the Master) and another researcher side, as it provides fundamental theoretical research tools for data analysis, ensuring the possibility to develop a PhD thesis in the field of finance, risk, business competition or marketing.

## STRUCTURE

The Master is organized following a mixed structure of modules and courses:

- Treatment Techniques and Data Mining Module: 12 ECTS -6 mandatory and 6 optional-
- Applications of Data Mining in Marketing and Business Intelligence Module: 18 ECTS -12 mandatory and 6 optional-

- Methodology Development Module and Master's Thesis: 12 ECTS mandatory -9 Master's Thesis-

Students must take a total of 60 ECTS in two semesters: seven mandatory subjects, two elective, and a Master's Thesis.

There are not training itineraries, so students can choose optional credits amongst the elective subjects offered, depending on their training needs and/or professional interests.

## STUDY PLAN

SUBJECT TYPE	ECTS
Mandatory	39
Elective	12
Master's Thesis	9
<b>Total</b>	<b>60</b>

COMPULSORY SUBJECTS	ECTS	SEMESTER
<b>Treatment Techniques and Data Mining Module</b>		
Data Mining Techniques and Methodology (SEMMA)	6	1º
Management and Use of Data Warehouses	6	2º
Machine Learning Techniques	6	2º
<b>Applications of Data Mining in Marketing and Business Intelligence Module</b>		
Customer Relationship Management (CRM)	6	1º
Business Intelligence and Balanced Scorecard	6	2º
Decision Models in Marketing	6	2º
<b>Methodology and development of the Master's Thesis Module</b>		
Methodology of Research Work	3	1º

ELECTIVE SUBJECTS	ECTS	SEMESTER
<b>Treatment Techniques and Data Mining Module</b>		
Complementary Training in Data Mining Techniques	6	1º
Database Management	6	1º
<b>Applications of Data Mining in Marketing and Business Intelligence Module</b>		
Business Competition and Game Theory	6	1º
Global Risk Management. Credit scoring	6	1º

MASTER'S THESIS	ECTS	SEMESTER
Master's Thesis	9	2º



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