

MSc in Artificial Intelligence

Teaching plan

The teaching plan has been structured so that in order to successfully finish their studies and obtain their respective degrees, the students **will need to obtain 60 ECTS** credits, distributed in the following way:

- **35 credits**, relative to **optional six-month modules** (5 credits each),
- **10 credits** relative to **seminars**
- **15 credits** associated with the **Master's final project**.

Therefore, **the student shall successfully complete seven modules** (all of them optional) and **five seminars**, as well as defending in a satisfactory way before a panel their Master's final project.

The **languages used** throughout the education process are Spanish and English. A **foreign English-speaking student will be able to study the MSc course in English in its entirety**, as 10 modules and 14 seminars are taught in English.

Every module is taught in the **first semester**, allowing for the **seminars and the Master's final project** to be done in the **second semester**. The curriculum is structured with **nine taught subjects** (S) in total. Each one of them is comprised of a set of **modules (M) and seminars**, as follows:

S1. Fundamentals of Research

Seminar 1: Research methodology (offered in English)

S2. Decision Analysis

Seminar 2: Decision analysis (offered in English)

M1: Decision support systems

M2: Satisficing-based methods for group decision making and negotiation (offered in english)

S3. Data Mining

Seminar 3: Data mining (offered in English)

M3: Bayesian networks (offered in English)

M4: Machine Learning (offered in English)

S4. Natural Computing

Seminar 4: Natural computing (offered in English)

M5: Metaheuristic-based intelligent search

M6: Evolutionary computation

M7: Non conventional computing: bio molecular and quantum computing (offered in english)

S5. Logic Computing

Seminar 5: Logic computing (offered in English)

A8: Logic programming (offered in English)

A9: Extensions to logic programming (offered in English)

S6. Knowledge Representation and Reasoning

Seminar 6: Knowledge representation and reasoning (offered in English)

M10: Intelligent agents and multi-agent systems (offered in English)

M11: Ontological engineering (offered in English)

M12: Commonsense reasoning (offered in English)

Seminar 7: Fuzzy logic

S7. Robotics and Computational Perception

Seminar 8: Robotics and Computational Perception (offered in English)

M13: Computer vision

M14: Autonomous robots

Seminar 9: Evolutionary robotics

S8. Application Areas

M15: Biomedical Informatics (offered in English)

Seminar 10: Applications of Artificial Intelligence (offered in English)

Seminar 11: Language engineering

Seminar 12: Automated planning (offered in English)

S9. 3 seminars by visiting professors (offered in English)

The student is free to choose seven **modules** that he would like to be taught from the 15 offered covering several subjects.

Important: To ensure that students achieve all of the competences set out by the degree, in case they do not enrol in any module in subjects S2 to S7, then they must attend the seminar whose name matches that of the subject/s.

Furthermore, the student must attend five **seminars**. The 15 seminars offered in the Master's degree course are all optional, except *Seminar 1: Research Methodology*, which is mandatory. All seminars are organised into three categories:

- *Seminars whose name match the subject to which they belong* (Seminars 2, 3, 4, 5, 6 and 8). If the student decides not to be taught any module belonging to S2 to S7, then the student must take this seminar. In these seminars the student will acquire general knowledge about the respective subject.
- *Seminars that complement modules* (Seminars 7, 9, 10, 11 and 12). These are aimed at covering some disciplines of Artificial Intelligence (AI) which are not studied in the modules.
- *Seminars by visiting professors* (Seminars 13, 14 and 15), in which the student acquires advanced or specialised knowledge about any of the subjects taught within the course.

The Master's degree suits **two student profiles**:

- Those students interested in **specialising** in one or more concrete disciplines of AI. They must study every module and seminar in the chosen subject area. In order to cover all the competencies of the degree, in the remaining subjects in which there is a seminar whose name matches the subject name, the student must take it.
- Those students who seek a **broader perspective and want to** obtain an extensive knowledge about the whole of AI. They must study modules covering all subjects. In those subjects in which the student does not choose any modules, the student must take the seminar whose name matches the subject name.