

# Bachelor's degree in Artificial Intelligence

The bachelor's degree in **Artificial Intelligence** aims to produce graduates who have the ability to identify how artificial intelligence (AI) techniques can provide innovative solutions to information technology problems in businesses and organisations and to apply these solutions in a way that brings added value.

This new degree covers a range of areas in AI, such as knowledge representation, automated reasoning, machine learning, natural language processing (text and speech), autonomous agents, cognitive robotics and computer vision. All graduates will have acquired cross-disciplinary skills in ethics and social impact.

The UPC is the first university in Spain to offer official courses of higher education in AI at all levels, that is, bachelor's, master's and doctoral degrees.

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## GENERAL DETAILS

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### Duration

4 years

### Study load

240 ECTS credits (including the bachelor's thesis). One credit is equivalent to a study load of 25-30 hours.

### Delivery

Face-to-face

### Language of instruction

Check the language of instruction for each subject (and timetable) in the course guide in the curriculum.

Information on [language use in the classroom and students' language rights](#).

### Fees and grants

Approximate fees per academic year: €1,107 (€2,553 for non-EU residents). [Consult the public fees system based on income \(grants and payment options\)](#).

### Location

[Barcelona School of Informatics \(FIB\)](#)

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## ADMISSION

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### Places

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### Registration and enrolment

[What are the requirements to enrol in a bachelor's degree course?](#)

### Legalisation of foreign documents

All documents issued in non-EU countries must be [legalised and bear the corresponding apostille](#).

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## PROFESSIONAL OPPORTUNITIES

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### Professional opportunities

- Design and development of solutions for natural language processing: machine translators, assistants, interfaces, etc.
- Design virtual and augmented reality applications.
- Design of interfaces for robots, advanced programming and collaborative robotics.
- Construction of intelligent systems in sectors such as finance, health and bioinformatics.

- Optimisation of production processes in industry, trade and distribution.
- Entrepreneurship: creation and management of innovative companies in the whole area of intelligent systems.
- Applications and research in medicine, automobiles, social networks, marketing, trade, etc.

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## ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

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### Academic calendar

[General academic calendar for bachelor's, master's and doctoral degrees courses](#)

### Academic regulations

[Academic regulations for bachelor's degree courses at the UPC](#)

### Language certification and credit recognition

Queries about [language courses and certification](#)

Barcelona School of Informatics (FIB)

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## CURRICULUM

Subjects	ECTS credits	Type
<b>FIRST SEMESTER</b>		
Algebra	6	Compulsory
Fundamentals of Computers	6	Compulsory
Fundamentals of Mathematics	6	Compulsory
Knowledge and Automatic Reasoning	6	Compulsory
Programming and Algorithms I	6	Compulsory
<b>SECOND SEMESTER</b>		
Calculus	6	Compulsory
Introduction to Robotics	6	Compulsory
Introduction to Statistics	6	Compulsory
Programming and Algorithms II	6	Compulsory
Systems Modeling and Simulation	6	Compulsory
<b>THIRD SEMESTER</b>		
Basic Algorithms of Artificial Intelligence	6	Compulsory
Introduction to Databases	6	Compulsory
Introduction to Machine Learning	6	Compulsory
Parallelism and Distributed Systems	6	Compulsory
Statistical Modeling	6	Compulsory
<b>FOURTH SEMESTER</b>		
Advanced Programming and Algorithms	6	Compulsory
Human Language Processing	6	Compulsory
Neural Networks and Deep Learning	6	Compulsory
Optimization	6	Compulsory

Subjects	ECTS credits	Type
Preprocessing and Advanced Models of Data Analysis	6	Compulsory
<b>FIFTH SEMESTER</b>		
Computer Vision	6	Compulsory
High Performance Computing	6	Compulsory
Knowledge-Based Systems	6	Compulsory
Unsupervised and Reinforcement Learning	6	Compulsory
Voice and Dialog Processing	6	Compulsory
<b>SIXTH SEMESTER</b>		
Advanced Databases	6	Compulsory
Advanced Robotics	6	Compulsory
Ethical and Social Aspects of Artificial Intelligence	6	Compulsory
Integrated Project of Artificial Intelligence	6	Compulsory
Processes of Intelligent Data Analysis	6	Compulsory
<b>EIGHTH SEMESTER</b>		
Bachelor's Thesis	18	Project