



UNIVERSITÀ
DEGLI STUDI
DI MILANO

Bachelor programme in
Artificial intelligence

FACOLTÀ DI
Scienze e Tecnologie

The new Bachelor of Science in Artificial Intelligence is an **international** and **inter-university project** of the Universities of Milano-Bicocca, Milano Statale and Pavia. Taught entirely in English, the programme will have its administrative headquarters in Pavia, but classes will be held on all three campuses.

Applications and admissions

Applicants to the programme must hold an upper secondary school diploma or other qualification obtained abroad and recognized as suitable by the competent University boards.

Other requirements include:

- English language proficiency at a B2 level or higher, in order to understand and participate in training activities;
- Written comprehension, elementary logic, and reasoning skills;
- Knowledge of the fundamentals of mathematics as provided by secondary school, with a focus on first- and second-degree algebraic equations, inequalities and systems, plane analytical geometry, trigonometry and exponential and logarithmic functions.

Limited enrolment programme with admission test (English TOLC-I, CISIA Test OnLine, www.cisiaonline.it/).

For information: www.unimi.it – INFORMAZIONI PER FUTURI STUDENTI.

OFA - Obblighi formativi aggiuntivi (Further training requirements)

Candidates high enough in the ranking may be required to fulfil additional learning requirements (OFA) based on their score in the 'Mathematics' section of the test.

Objectives

The programme trains experts in the theoretical foundations, techniques, methodologies and applications of artificial intelligence, in order to contribute to the diffusion and advancement of knowledge and skills on this subject and its applications, thus promoting technological innovation and fostering the economic and social development of our country. Graduates of the Artificial Intelligence programme will have highly interdisciplinary knowledge and skills.

They will have received solid training in the fundamentals of some areas of computer science, mathematics, physics, statistics and cognitive sciences, with a focus on the theoretical bases and techniques of artificial intelligence. They will also have ethical and legal training as required to understand the constraints that limit a socially acceptable use of these techniques.

In the final phase of training, students will have the opportunity to hone certain subjects at their choice, based on their personal goals, and learn how to apply artificial intelligence to specific areas, such as communication, automation and robotics, cognitive sciences, and physics technologies.

Career prospects

Graduates can find employment in both the private and public sectors in small and medium-sized innovative companies, large industrial players, environment and space monitoring and management institutions, scientific institutes for research, hospitalization and healthcare (IRCCS), hospitals and research centres, R&D departments of ICT industries, manufacturing and service companies, public administrations operating in the industrial, environmental and health sectors.

They can work with consultancy and service firms on the development of artificial intelligence tools in the fields of healthcare, banking and credit, engineering and sensors, marketing, insurance, logistics and transport, telecommunications and media.

Degree syllabus

I year

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|--|------|
| Calculus | 12 |
| Cognitive psychology | 6 |
| Computational logic | 6 |
| Computer programming, algorithms and data structures | 12 |
| Experimental physics for AI | 6 |
| Knowledge representation and reasoning | 12 |
| Theoretical and computational linear algebra | 6 |

II year

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|--|------|
| Ethic, law and AI | 12 |
| Fuzzy systems and evolutionary computing | 6 |
| Machine learning, artificial neural networks and deep learning | 12 |
| Probability and statistical inference | 12 |
| Text mining and natural language processing | 6 |
| Theoretical and quantum Physics for AI | 12 |

III year

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|--------------------------------|------|
| Statistical modelling | 6 |
| Brain modelling | 6 |

During the third year, students can choose **one of the following 4 tracks** containing four courses each:

Track 1 - Data analysis, communication and marketing

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|---|------|
| Data mining and knowledge extraction | 6 |
| Information retrieval and recommender systems | 6 |
| Web and social networks search and analysis | 6 |
| Artificial intelligence for communication and marketing | 6 |

Track 2 - Industrial systems and healthcare

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|---|------|
| Signal and image processing | 6 |
| Process control, industrial automation and robotics | 6 |
| Medical applications and health-care | 6 |
| Human-system interaction | 6 |

Track 3 - Brain, cognition and society

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|---|------|
| Logics for practical reasoning and AI | 6 |
| Brain-inspired neural networks and neural architectures | 6 |
| Human system interaction | 6 |
| AI and society | 6 |

Track 4 - Physics for AI: environment, health and quantum information

| COMPULSORY LEARNING ACTIVITIES | ECTS |
|--|------|
| Experimental physics 2 | 6 |
| Imaging and spectroscopy for environment and health (Lab.) | 6 |
| Materials and platforms for AI | 6 |
| Mathematics for imaging and signal processing | 6 |

Elective activities common to both paths

- 12 ects for elective courses
- 3 ects for stage or laboratories
- 6 ects for Final exam

Among Unimi Master programmes graduates can be admitted to:

- Computer science
- Artificial Intelligence for science and technology

INFO

🎓 **Disciplinary classification:** Computer science (L-31)

🕒 **Duration:** 3 years (180 ects)

📅 **Attendance:** Highly recommended

📍 **Locations:**

- Università degli Studi di Milano
- Università degli Studi di Milano Bicocca
- Università degli Studi di Pavia

🌐 **Contact:**

<https://bai.unipv.it/home-eng/contact/>

🌐 **Website:**

bai.unipv.it

<https://www.unimi.it/it/corsi/laurea-triennale/artificial-intelligence>



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