



SORBONNE  
UNIVERSITY  
ABU DHABI



# Bachelor in Mathematics, Specialisation in Data Science for Artificial Intelligence

# The Bachelor in Mathematics, Specialisation in Data Science for Artificial Intelligence is a three-year, intensive, high level programme taught in English. The programme aims to address the needs of the fourth industrial revolution to be brought about by Artificial Intelligence (AI).

Artificial intelligence is completely remodelling today's societies, and many argue that AI is fostering a fourth industrial revolution. Advances in Machine Learning are profoundly transforming technology. Based on recent discoveries in Mathematics and Data Science, complex algorithms embedded in modern systems allow us to accomplish more complex tasks (decision-support systems, human-machine interaction and intelligent agents, etc). Today, AI-based applications that require a deep knowledge of Mathematics and Data Science can be found in many fields, ranging from Insurance and Finance, to Health and Medicine, Environmental studies, Space exploration and Digital Humanities.

The aim of this programme is to equip the 21st century graduate with the necessary knowledge and an appropriate skillset to start a career in AI, and contribute to its reshaping, be it as a modern professional or as an accomplished researcher.

The programme, provides students with a comprehensive background and state-of-the-art techniques in Mathematics, Data Science and Machine Learning, and offers a carefully devised blend of traditional lecture/tutorial/lab tuition and more innovative project-based learning. This will produce graduates who are able to apply their sharp competencies, autonomously and critically, in the various fields of A.I.

Graduates of the Programme will obtain a **Bachelor degree in Mathematics from Sorbonne Université** (ranked **#2 in the world** in Mathematics, as per Shanghai subject rankings in 2019) as well as a **Certificate of Specialisation in Data Science for Artificial Intelligence** of the same institution.

The curriculum follows the European ECTS system and the degree is awarded by Sorbonne University in Paris.

## First Year

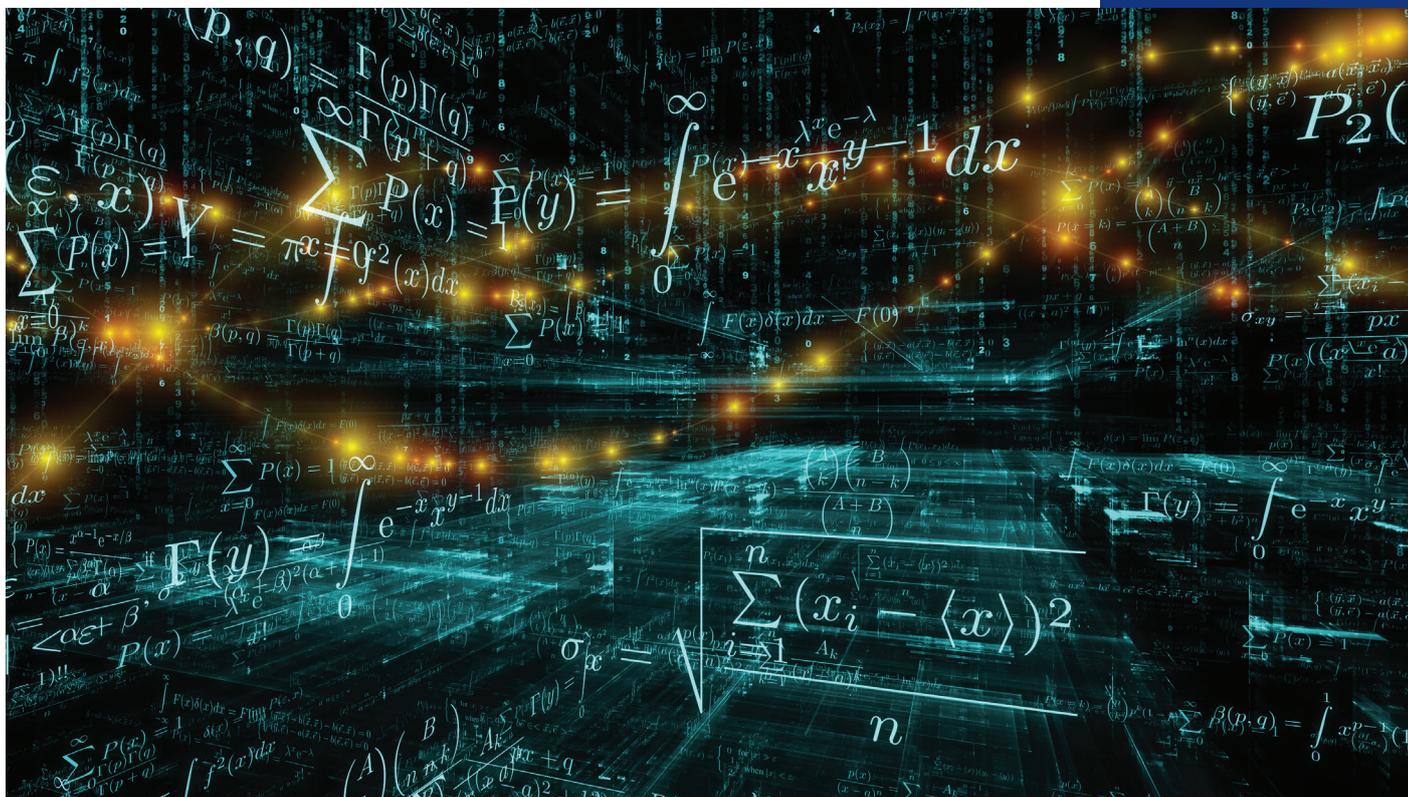
- Mathematics for Sciences 1 (calculus)
- Computer Science (Python)
- Mechanics – Physics
- Philosophy and Ethics of Artificial Intelligence
- Mathematics for Sciences 2 (basic linear Algebra and Probability)
- Complements in Analysis and Linear Algebra
- Introduction to Mathematical Logic
- Descriptive Statistics and introduction to R
- Project in Descriptive Statistics
- Integration to the world of work
- Languages

## Second Year

- Sequences and series of functions
- Topology and Analysis 1
- Linear and Bilinear Algebra 1
- Discrete Probability, Combinatorics and Graphs
- Introduction to Probability models
- Lebesgue Integration Theory and complements in Probability Theory
- Linear and Bilinear Algebra 2
- Multivariate Data Analysis
- Languages

## Third Year

- Measure and Integration Theory
- Topology and Analysis 2
- Numerical Analysis and Optimization
- Statistical Inference
- Advanced Probability Theory
- Functional Analysis
- Data Science and Machine Learning
- Integration to the world of work
- Languages



## Admission requirements

**Admission to the programme is very selective; the following are minimal criteria to apply for admission into the Foundation Year:**

- High school with a minimum average of 80% (General stream); 75% (Advanced stream/Elite stream/Science stream or equivalent)
- Recent Emsat-Math with a minimum score of 800 (Following MOE regulations, the EmsAT exam is required for specific applicants; please refer to the following [link](#) for more details)
- Recent Emsat-English with a Minimum score of 1250, or valid Academic-IELTS 5.5, or valid TOEFL-IBT 71

All candidates will be required to sit for a placement exam administered by the University before being considered for a conditional admission in the Science programmes.

All admissions in the Science programmes are conditional on the successful completion of the Foundation Year in Sciences.

Only applicants holding a French Baccalaureate are eligible, provided they meet specific requirements, to be considered for direct entry in the programmes. Such applicants might be required to sit a specifically designed placement test.

Admission is subject to capacity constraints. Applicants might, therefore, be placed on waiting list.

## Career prospects

**This degree provides graduates with key competencies for the job-market of tomorrow: mathematics, data science and artificial intelligence.**

- Example career paths: Data Analyst/Scientist/Engineer, Machine Learning Engineer, Statistician, Quantitative Analyst (in insurance and finance), Software Developer in Machine Learning/AI, Computational Linguist/NLP Engineer, Human-centred Machine Learning Engineer, Business Intelligence Analyst, Business Analyst, Systems Analyst and Marketing/Operations Analyst.
- Research/Academia: students can pursue master's and PhD degrees in fields related to mathematics, data science and artificial intelligence in renowned research institutions around the world.

### Tuition Fees

(Including admin. fees - over 3 years)

**AED 215,100** (approximately US\$ 58,615)

### Scholarship options:

- Emirati citizens receive the H.H. Sheikh Mohamed bin Zayed Al Nahyan scholarship grant covering tuition fees for the programme and a foundation year (if any).
- Other students may apply for an Academic Excellence Scholarship that can cover up to 75% of the tuition fees.

# Why Sorbonne University Abu Dhabi?

In today's fast-paced and globalised economies, knowledge and languages both serve an important role in creating progressive and vibrant societies. The French education system is known for its high level of rigorous critical thinking and debating skills, which play a significant role in developing future pioneers and leaders.

Sorbonne Abu Dhabi is a globally recognised education institution that serves as a bridge between civilisations by offering a multicultural environment, which promotes and develops a strong culture of tolerance, curiosity, harmony and cultural awareness for today's modern economy. Students have access to internationally acclaimed faculty, world-class facilities and internationally certified degrees, which places them firmly on the right path in preparation for a successful career.

This degree is officially accredited by the UAE Commission for Academic Accreditation ([www.caa.ae](http://www.caa.ae))

## For more information, please contact:

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