



SORBONNE  
UNIVERSITY  
ABU DHABI

# Bachelor in Physics



**The Bachelor in Physics is a degree awarded by Sorbonne University in Paris and delivered by world-class academics in Sorbonne University Abu Dhabi. A specialization certificate in Quantum Technologies will also be awarded to students by Sorbonne University in Paris upon programme completion.**

**It is a three-year international undergraduate programme taught in English. Its goal is to provide a robust background in Physics, with emphasis in the expertise required in Quantum Technologies, preparing graduates for the ground-breaking and global challenges of these emerging fields.**

Quantum Computers, Quantum Simulation, Quantum Information, and Quantum Sensing, along with their associated protocols, are all based on an entirely novel hardware. These rapidly evolving technologies will shape the future of science, industry, and everyday life. Based on intrinsic properties of Quantum Mechanics, such as superposition, entanglement and unclonability, these systems are expected to address the most complex of problems which cannot be dealt with conventional computers. Quantum Simulation will pave the way to extremely efficient modeling of many-body problems faced in Science (quantum, atomic and molecular systems), Finance (banking and investment models), Medicine (drug design, development of medical instruments), Environment (climate change and weather forecast), and many other sectors. Furthermore, Quantum Information processes lead to profoundly fast processing, storage, and transmission of information while offering completely secure protocols due to Quantum Cryptography.

The ultimate goal of this programme is to provide its graduates with a thorough literacy in Physics and especially in Quantum Mechanics and Quantum Information. This expertise establishes an invaluable arsenal towards the deep understanding of the phenomena behind these emerging Quantum Technologies. The hands-on experience, independent projects, and a solid grasp of programming, prepare them to enter the workforce right after graduation, while also being equipped with a solid scientific background, allowing them to pursue graduate studies at prestigious universities worldwide.

Students will follow a programme carefully designed in close collaboration with the Sorbonne University Quantum Information Center (QICS) in Paris, which involves the study of a wide range of fundamental Physics, with special emphasis in Quantum Mechanics, Mathematics, Data Science and Computer Science courses. The programme further covers studies on Information Theory, and Quantum Information, molding our students into becoming future leaders in the various fields of Quantum Technologies.

Graduates of the Programme will earn a **Bachelor degree in Physics from Sorbonne Université (France)** as well as a **Certificate in Quantum Technologies** from the same institution.

The curriculum follows the European ECTS system.

## First Year

- Mechanics-Physics I
- Geometric Optics
- Mechanics-Physics II
- Introduction to Electronics
- Mathematics I and II
- Computer Science
- Active Science
- Chemistry
- Introduction into the World of Work I
- Languages

## Second Year

- Thermodynamics
- Modern Physics
- Experimental Physics I
- Waves
- Electromagnetism
- Special Relativity and Advanced Mechanics
- Numerical Physics
- Experimental Physics II
- Mathematics for Physics I, II and III
- Languages

## Third Year

- Quantum Physics I
- Optics and Electromagnetism
- Experimental Physics III
- Spectroscopy
- Quantum Physics II
- Thermostatistics
- Experimental and Numerical Physics
- Astrophysics
- Quantum Information
- Mathematics for Physics IV
- Introduction to the World of Work II
- Internship
- Languages

# Admission requirements

**Admission to this programme is very selective; the following are the minimal criteria to apply for admission into its foundation year:**

- High-School with a minimum average of 80%; (General Stream); 75% (Advanced stream/ Elite Stream/ Science stream or equivalent)
- Recent EmSAT-English with a Minimum score of 1250 with a validity of 18 months, or valid Academic-IELTS 5.5 with a validity of 2 years, or valid TOEFL-IBT 71 with a validity of 2 years
- Recent EmSAT-Mathematics with a score at or above 1500 or High School in Mathematics at or above 80% and an admission test for the Foundation Year in Sciences administered by the University
- Recent EmSat Physics with score at or above 900 or Physics subject in school with minimum 80% average (or equivalent) and admission test for the Foundation Year in Sciences administered by the university
- All admissions in the Science programmes are conditional on the successful completion of the Foundation Year in Sciences.

Only applicants holding a French Baccalaureate with minimum average of 12 out of 20 are eligible to be considered for direct entry in the programmes. For such applicants the following are minimal criteria to apply for direct entry in the programmes:

- Recent EmSAT-English with a Minimum score of 1250, or valid Academic-IELTS 5.5, or valid TOEFL-IBT 71
- A minimum score of 12 out of 20 in the specialty "Mathématiques Spéciales" and/or the specialty "Mathématiques expertes" or Recent EmSAT-Mathematics with a score at or above 1700 or Admission test for L1 (first year of bachelor) administered by the University
- Physics subject in school with minimum average 12 out of 20 or Recent EmSat Physics with score at or above 900 or Admission test for L1 administered by the university
- Admission is subject to capacity constraints. Applicant might, therefore, be placed on a waiting list.

Other Countries Education's Systems

Conditions apply on other foreign curriculums according to the admission's policy set by Sorbonne University Abu Dhabi. Please contact the Student Recruitment office by email: [admissions@sorbonne.ae](mailto:admissions@sorbonne.ae) for more details.

## 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).
- For non-Emirati students, academic excellence scholarships are offered, covering up to 75% of the tuition fee.

\*Conditions apply

Visit our website for more information.



## Career prospects

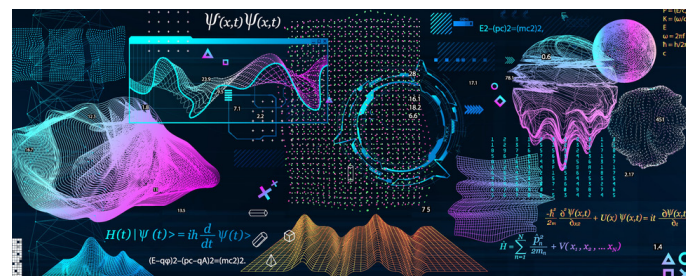
**The Bachelor in Physics provides graduates with an extensive arsenal of skills today, to lead the rapidly changing workforce of tomorrow: Physics, Mathematics, Data Science, Computer Science and Quantum Technologies.**

Example of career paths followed by our graduates:

Cybersecurity Engineer, Associate Software Engineer, Radiation Quality Assurance Technologist, Business Strategy and Development Executive, Data & Insights Manager, Financial Analyst, Data Analyst, Project Management Officer, Product Manager, Quality Assurance Officer, Associate Researcher, Research Assistant, Science Communicator, Event Management Officer, Public Relations Officer, Cognitive Trainer.

Research/Academia: students can pursue Master's and PhD degrees in eminent educational institutions around the world (i.e., as per our graduates, Sorbonne Université, University of Cambridge, Imperial College London, University College London, King's College London, Texas A&M University, University of Amsterdam etc.) in fields related to Physics or double majors, like Engineering, Astrophysics, Material Science, Data Science, AI, Medical Physics, Computer Science, Cybersecurity, Quantum Technologies, i.e Quantum Information, Quantum Computing, Quantum Simulation, Quantum Sensing and Quantum Cryptography.

For more information, please visit the "Career Prospects" links on the Physics Bachelor page.



# 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:

Tel: +971 (0) 2 656 9330/555

Email: [admissions@sorbonne.ae](mailto:admissions@sorbonne.ae)

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