

PHYSICS

The Master in Physics aims at forming students with skills in different areas of physics, based on a solid interdisciplinary scientific background.

At the end of the course, students will:

- have a deep understanding of Physics in its theoretical, experimental and applied aspects
- know advanced tools for describing and modelling physical systems
- master the scientific method and techniques for the resolution of problems.

Graduates in Physics are appreciated for their openminded, multi-disciplinary attitude and their ability to apply scientific approach to the analysis of complex problems.

They can continue their education in Doctoral Schools, and career opportunities in public agencies or private companies for:

- research and development
- applications and technological innovation
- scientific outreach and teaching.

PHYSICS

MASTER'S DEGREE IN PHYSICS

SECOND CYCLE DEGREE PROGRAMME/MASTER
UNIVERSITY OF BOLOGNA

Web-page:
<https://corsi.unibo.it/2cycle/Physics>

PROGRAMME DIRECTOR:
Prof. Nico Lanconelli
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TUITION FEE: about € 3,000.00 / year

PHYSICS



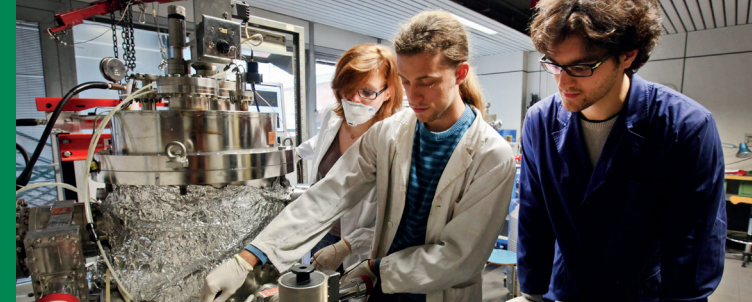
ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
SCHOOL OF SCIENCE

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PHYSICS

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Entry Requirements

Admission to the 2nd cycle degree Programme in Physics is open to candidates with:

- a First Cycle Degree obtained in Italy or equivalent qualification obtained abroad, in class L-30 - Physics Sciences and Technology;
- knowledge of English to level B2.

To profitably attend the Programme, students must possess fundamental skills in mathematics and a good understanding of classical and modern physics, including fundamentals of micro-physics applied to particle physics and condensed matter. Also, they should have been introduced to laboratory experiences including the use of basic instruments and elaboration of measurement data also by means of computer-assisted techniques.

Physics Programme

The Degree Programme offers four curricula entirely taught in English and one in Italian, enabling students to orient their choices with reference to the objectives and learning paths most in line with their own interests.

During the first year students attend classes to acquire a solid background in different areas of physics. During the second year students develop cross cutting skills in project writing, innovation, scientific communication and outreach.

At the end of the course students must write and defend orally an original research project, developed within a research group of the Department of Physics and Astronomy, possibly in collaboration with other public science agencies or private companies in Italy or abroad.

Theoretical Physics curriculum

Students will acquire a solid background in all areas of theoretical physics, with emphasis on quantum field theoretical techniques applied to particles and strings, general relativity and cosmology, quantum mechanics and statistical physics. They also will:

- have a deep understanding of contemporary physics in its theoretical and fundamental aspects;
- know advanced mathematical and numerical tools for describing and modelling physical systems.

For more info: elisa.ercolessi@unibo.it
corsi.unibo.it/2cycle/Physics/tp-curriculum

Materials Physics and Nanoscience (MANO) curriculum

Students will acquire a solid background in all areas of condensed matter physics, with emphasis on the properties of nanostructures.

They also will:

- have a deep understanding of condensed matter Physics in all its experimental and theoretical aspects;
- manage experimental and modelling tools for the analyses of materials and nanostructures.

For more info: daniela.cavalcoli@unibo.it
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Applied Physics curriculum

Students will acquire a solid knowledge in topics of interest of applied Physics, particularly with emphasis on experimental aspects. The absence of compulsory course allows students to plan their tailor-made curriculum. Depending on the chosen ECTS, students develop advanced skills in Medical Physics, Biophysics, Complex Systems, Computing or Statistical Techniques for Data Analysis.

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Nuclear and Subnuclear Physics curriculum

Students will acquire a solid knowledge in nuclear and subnuclear physics, with emphasis on experimental aspects. The Programme is enriched by courses covering the basic principles of theoretical physics. Students can also develop advanced skills in electronics, computing or statistical techniques. They also will:

- acquire advanced skills aimed at the deep understanding of phenomena related to the state-of-the-art experimental research fields;
- be able to discuss the applications of nuclear and subnuclear physics in modern society.

For more info: sylvie.braibanti@unibo.it
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Didattica e Storia della Fisica curriculum (in Italian)

Students will master areas such as Physics education, history and philosophy of Physics. They will broaden their knowledge on applied Physics, theoretical, nuclear and sub-nuclear Physics, Physics of matter, astrophysics and Physics of the Earth, and on other scientific areas (mathematics, biology, chemistry, information technology).

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