Deutscher Akademischer Austauschdienst
German Academic Exchange Service

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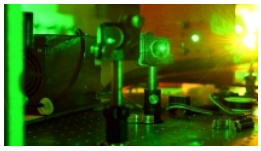
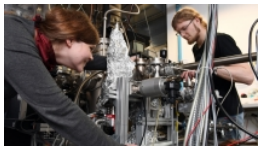
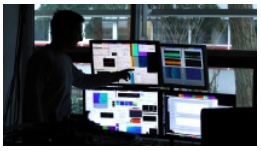
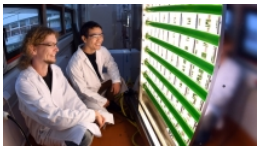
Master's degree

Master of Science in Physics

Freie Universität Berlin • Berlin

Overview

Degree	Master of Science (MSc)
Teaching language	• English
Languages	English (100%)
Full-time / part-time	• full-time
Mode of study	Less than 50% online
Programme duration	4 semesters
Beginning	Winter and summer semester
Application deadline	**Regular application times** • Application deadline for the following summer semester is 15 January • Application deadline for the following winter semester is 15 August Applicants who hold a Bachelor's degree from outside Germany should apply**six weeks before these dates** in order to allow for processing of their applications by uni-assist.
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	**Free the Scientist Inside of You** The aim of this English-language graduate programme is to prepare students for international careers in advanced research and research-heavy industries in which a broad and deep understanding of modern physics is a prerequisite. As a Master's student of physics, you will be

involved in running projects and will be a part of our diverse scientific community.

Students gain specialised knowledge in diverse fields of physics, deepen their understanding of scientific methods and strengthen their expertise in theoretical and experimental physics.

Key Facts about the Master's Programme

- consecutive and research-oriented
- two years (four semesters, 120 credit points)
- provides entry into doctoral programmes

Become a Part of an Excellent Scientific Community

- well-equipped laboratories and sophisticated technology
- access to a strong international network of physicists
- mentoring programme to support new students and caring academic community

Master's programme in Physics

Benefit: German-French Double Master's Degree

Our Master's students can earn a double degree in Physics with the Institute Polytechnique de Paris.

Double degree programme

75 Years of Fundamental Physics at Freie Universität Berlin

Physics research and training have been part of Freie Universität Berlin's academic programme for 75 years. Initially, physicists were housed in the buildings of the former Kaiser Wilhelm Institute for Physics, where Max Planck and Albert Einstein used to work. Nowadays, the physicists of the Freie Universität Berlin engage in their studies and research within their own department, fostering a diverse community and an environment that promotes forward-thinking minds, innovation, and sustainability.

Research for the world and future: our department is home to several collaborative research centres and scientific consortia. Here, physicists work closely together in large international and interdisciplinary teams. We are currently focusing on biophysics, quantum physics, ultrafast physics, nanophysics and surface science as well as physics education. Our scientists' publications in renowned journals such as "Nature", "Science", "Physical Review", etc. provide essential fundamentals for innovation in science, the development of new technologies and applications of the future.

Course Details

Course organisation

The **Master's programme** in physics consists of two phases.

Advanced phase: semesters 1 & 2

During the advanced phase, our students deepen and broaden their knowledge of physics and related disciplines. Module content is closely linked to the research activities of our working groups, integrating the latest research topics and research methods into the courses. Some modules are mandatory, while others can be chosen and combined according to personal interests and career goals.

Research phase: semesters 3 & 4

In the **research phase**, students join one of the research groups of our department and are trained to become experts in a specific field of physics. They gain access to new areas, learn the methodology and write their Master's theses in this field. During the entire research phase, each student is assigned to a professor in the department, who serves as a research adviser.

In the first half-year of the research phase, the two mandatory modules Professional Specialisation and Methodological Skills and Project Planning are to be completed.

During a six-month Master's project, students conduct their research and present it in the form of a Master's thesis. The research phase is accompanied by a seminar.

Modules

As a **mandatory component** of the programme, the advanced fundamentals of modern experimental and theoretical physics are taught. Within this part, the following modules are to be completed:

- Physics laboratory practical course for Master's students
- "Selected Topics in Physics" seminar

Additionally, students must choose up to two of the following modules:

- Advanced Quantum Mechanics
- Statistical Physics and Thermodynamics
- Advanced Statistical Physics
- Quantum Field Theory and Many-Body Physics

If only one of the above modules is chosen, one of the following modules must also be selected:

- Advanced Solid State Physics
- Advanced Atomic and Molecular Physics
- Advanced Biophysics

In an **elective part** of the studies, students can choose from a broad range of modules on selective topics in physics.

- Theoretical Solid-State Physics
- Advanced Theoretical Biophysics
- Nanophysics
- Ultrafast Spectroscopy and Nonlinear Optics
- Spectroscopy with Synchrotron Radiation
- Photobiophysics and Photosynthesis
- Semiconductor Physics
- General Relativity
- History of Physics
- Advanced Topics in Theoretical Condensed Matter Physics
- Special Topics in Magnetism
- Special Topics in Molecular Physics
- Special Topics in Molecular Biophysics
- Advanced Astronomy and Astrophysics
- Modern Methods in Theoretical Physics
- Modern Methods in Experimental Physics

Flyer Master's programme in Physics

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A Diploma supplement will be issued	Yes
International elements	• International guest lecturers • Specialist literature in other languages • Projects with partners in Germany and abroad • International comparisons and thematic reference to the international context
Integrated internships	No additional internship is necessary.

Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	No

Online learning

Pace of course	Mixed (e.g. fixed exam dates and duration, study content can be studied at any time)
Phase(s) of attendance in Germany (applies to the entire programme)	Yes, compulsory
Types of online learning elements	• Discussion forums and / or groups • Flipped Classroom • Online sessions • Online study material provided by institution • Video learning (Pre-recorded videos, Vlogs, Video-Podcasts) • Wikis

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	In total, the semester contribution amounts to 312.89 EUR. It includes a fee of 198.80 EUR for the transportation ticket contribution. This allows you to use public transportation in Berlin for free. Other costs covered by the semester contribution include a 50 EUR enrolment fee, a 54.09 EUR semester contribution to the student support service ("studierendenWERK Berlin"), and a 10 EUR contribution to the student union.
Costs of living	Compared to other European countries, the cost of living in Germany is quite reasonable. However, the cost of living has also risen somewhat in Germany in recent years. The prices for food, accommodation, clothing, cultural events, etc. are slightly above the EU average. You will need around 950 to 1,200 EUR each month to cover your living expenses. The biggest expense is monthly rent, which is between 400 and 700 EUR in Berlin.
Funding opportunities within the university	No

Requirements / Registration

Academic admission requirements	Academic admission requirements include a professionally qualifying or equivalent degree in physics from a German or non-German university. Your degree must be equivalent to the Bachelor's degree in physics conferred by the Freie Universität Berlin.

Language requirements	Non-native English speakers should document their **language proficiency at or above level B2*** by providing generally recognised language test certificates. Native English speakers as well as applicants who have acquired their qualifying degree at an educational institution at which English is the language of instruction do not need to provide any language proficiency documents. *of the Common European Framework of Reference for Languages (CEFR) Details on language requirements
Application deadline	**Regular application times** • Application deadline for the following summer semester is 15 January • Application deadline for the following winter semester is 15 August Applicants who hold a Bachelor's degree from outside Germany should apply **six weeks before these dates** in order to allow for processing of their applications by uni-assist.
Submit application to	**Application for Master's programme in Physics**

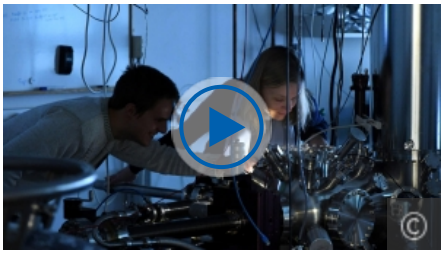
Services

Possibility of finding part-time employment	There are many ways of earning money while you study, for example as waiting staff, academic assistants, or private tutors. Knowledge of German will improve your chances of finding a part-time job, but it isn't necessarily required. However, it is important to be aware of the legal regulations. The student support service at the university, called studierendenWERK Berlin, and the local representative of the "Bundesagentur für Arbeit" (Federal Employment Agency) can provide information about jobs for students. When searching for a job, look at online job boards, ads in local newspapers, and notice boards on campus.
Accommodation	You have the option to stay in a public/private student dormitory or in a private (shared) apartment. Student dormitories are not administrated by the university itself, so Freie Universität Berlin does not have any on-campus housing. However, it works together with "studierendenWERK Berlin" regarding student accommodation. If you do not wish to stay in a student dormitory, you can try to find a room or an apartment on the private housing market. Many students in Berlin live in shared apartments ("WGs"). You can find these offers online (e.g. WG-gesucht or Craigslist) or on notice boards on campus. Available rooms/apartments near the university are rare. Therefore, students mostly commute from other parts of the city. The commute via public transportation usually takes between 30 minutes and an hour, which is considered a normal travel time in Berlin due to the city's size.
Support for international students and doctoral candidates	• Specialist counselling

©FU Berlin Physics

Alexander Goschew
PhD in Physics

Earning a Master's in Physics at the FU Berlin was an interesting yet challenging experience. The course sizes were generally small, and I appreciated the interactions with the instructors and fellow students very much. What I liked most was the work in a research group as part of my Master's project. Studying real physics and applying all that I had learned in the laboratory was very fulfilling.



Physics Master's Programme at Freie Universität Berlin

Professor Dr Katharina Franke and Professor Dr Joachim Heberle explain the advantages of our graduate programme in Physics.

» more: https://medien.cedis.fu-berlin.de/studienberatung_ze_netz/video_fachdarstellungen/master_physics_prof.mp4

Freie Universität Berlin

Department of Physics at Freie Universität Berlin

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Freie Universität Berlin is a leading research institution. It is one of the 13 German universities being funded through the German government's Excellence Strategy and is part of the only University Consortium of Excellence, the Berlin University Alliance, which consists of four partners in Berlin: Freie Universität Berlin, Humboldt-Universität zu Berlin, Technische Universität Berlin, and Charité – Universitätsmedizin Berlin.

You can choose from more than 180 subject areas. No matter which area you are interested in, be it archaeology, physics, Jewish studies, law, or psychology, you will find your subject at Freie Universität Berlin.

As an international university, Freie Universität Berlin has partnerships with numerous universities across the world and maintains offices in Beijing, Cairo, Eastern Europe (Tbilisi, Georgia), New Delhi, Moscow, and São Paulo. About 17 percent of the students come from abroad, as do 38 percent of the doctoral students. At Freie Universität Berlin, you will meet people from all over the world.

Various support services are available for students. In particular, students who are new to a German university and to Berlin will profit from these services, for example, the introduction week, the mentorship programme, or the Student Services Centre. UniSport offers programmes ranging from Aikido to Zumba, which are very popular among students. The many cafeterias and canteens on campus offer food and drinks; this also usually includes fair trade, organic, vegetarian, and vegan options. Environmental protection and sustainability are generally important topics at Freie Universität Berlin, and there are many opportunities to get involved in related activities offered by students and the university.

University location

Freie Universität Berlin is one of the major universities in the capital of Germany. It is located in the green district of Dahlem, in the south-western part of the city. There is no other campus in Berlin that is as green as the campus of Freie Universität Berlin. You can simply step out of the university buildings to enjoy outdoor activities: lunch on one of the many terraces and rooftops, swimming in the nearby lakes, or reading between cherry and apple trees. Dahlem is also home to one of the biggest botanical gardens in Europe. By using public transport, you can easily access the heart of Berlin and enjoy its cultural life and diversity. The U3 subway line connects Dahlem with the popular and central districts of Schöneberg, Kreuzberg, and Friedrichshain; however, all of the other districts can also be easily reached.

Contact

Freie Universität Berlin
Department of Physics

Arnimallee 14
14195 Berlin

masterstudium@physik.fu-berlin.de
Course website: https://www.physik.fu-berlin.de/en/studium/master/doppelmaster

https://www.facebook.com/freieuniversitaetberlin/

https://twitter.com/fu_berlin

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Last update 27.07.2024 06:57:26

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German Academic Exchange Service
Section K23 – Information on Studying in Germany
Kennedyallee 50
D-53175 Bonn
www.daad.de

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Consortium for International Higher Education Marketing
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The publication is funded by the German Federal Ministry of Education and Research and by contributions of the participating German institutions of higher education.