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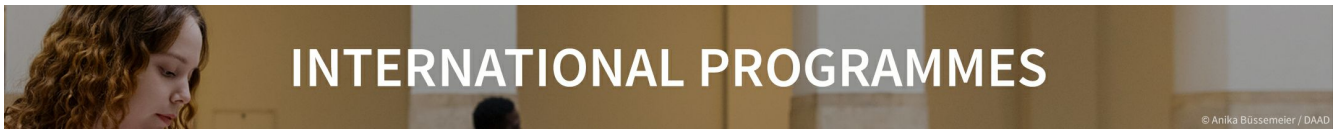

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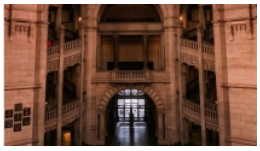
Master's degree

Master of Physics

Leibniz University Hannover • Hannover







Overview

Degree	Master of Science
Course location	Hannover
Teaching language	• English
Languages	Students can choose to study courses either in English or in German.
Programme duration	4 semesters
Beginning	Winter and summer semester
Application deadline	**Application from students from non-EU countries (VPD from uni-assist is required)** • 15 April to 31 May of the year for the winter semester • 15 October to 30 November of the previous year for the summer semester **Application from students from Germany and the EU** • 1 June to 15 July of the year for the winter semester • 1 December to 15 January of the year for the summer semester Prospective students applying from outside the EU must request a**Preliminary Examination Documentation** (VPD) from uni-assist before applying to the Master's programme. The processing time for the VPD takes **up to eight weeks**. Therefore, please allow enough time before applying for the programme. More information about applying for the VPD can be found on the central application pages.
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	The Master of Science in Physics is awarded after the completion of a research-oriented study

programme, which introduces students to the frontier of research in physics. The main goal of this programme is to develop the ability to work efficiently and independently at the forefront of research and technology development in the academic world and the business sector. This requires both an introduction to the general practice of scientific work and a professional specialisation in a field of physics.

Students are taught knowledge and skills in several areas of physics and are trained in independent scientific work. In particular, they acquire in-depth knowledge in three basic research areas (solid state physics, quantum optics, and gravitational physics) and carry out a research project in one of these areas.
Six experimental groups and four theory oriented groups work in quantum optics, covering a broad spectrum of topics, including: atom optics and quantum sensors, ultra-cold quantum gases, optomechanics, quantum dynamics in external light fields, ultrafast laser optics, quantum computing, quantum metrology, applied laser physics, trapped-ion quantum engineering, and optical clocks.

Four experimental groups and three theoretical groups work in solid-state physics. The research topics include low-dimensional solids (graphene, atomic wires, thin films), nanostructures (quantum dots), solar energy, strongly correlated electrons, exactly solvable quantum systems, and quantum transport.

Several experimental and theoretical groups conduct research related to gravitational physics at our faculty and at the associated Max Planck Institute for Gravitational Physics (Albert Einstein Institute). The research topics include laser interferometry and gravitational wave astronomy on ground, and in space, quantum control, string theory, general relativity, cosmology.

Additional research fields for Master's theses are radioecology and quantum information theory.

In addition, a Master's research project can be carried out in several collaborating research centres such as the Laser Zentrum Hannover e.V.

Course Details

Course organisation	The Master's programme is divided into a one-year specialisation phase and a one-year research phase. In the first year, students acquire the basic knowledge and skills which are necessary for independent research work in physics as well as advanced knowledge in the three major research fields of our faculty: solid state physics, quantum optics, and gravitation physics. The study programme is rounded off by an elective course from another scientific field (e.g. mathematics, chemistry, electrical engineering, philosophy, computer science, etc.). The central element of the research phase (second year) is the Master's thesis. This is based on an independent research project on a current issue of modern physics. It is intended to last six months and is preceded by a preparatory research training of six months. The study programme is divided into modules. To earn the Master's degree, students must complete all required modules. Each module covers a thematic subject area. It can therefore include more than one course and extend over more than one semester. To each module, credit points are assigned, according to the expected workload. To earn credits for a module, students must complete various coursework (homework, labs, seminars) and pass an examination. Coursework may be repeated several times and does not have an impact on the final grade. Some credit points can also be earned by doing an industry internship. The official examination regulations list the required modules, the coursework, the forms of examinations, and the possible elective courses.
A Diploma supplement will be issued	Yes
Course-specific, integrated	Yes

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

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	Approx. 400 EUR semester fee ("Semesterbeitrag") The semester fee includes the following: • Contribution to the "Studentenwerk Hannover" (student services organisation) • Contribution to the student government (Student Union, AStA) • Semester ticket • Contribution to administrative costs for the Federal State of Lower Saxony http://go.lu-h.de/study-costs
Costs of living	Compared with other European countries, the cost of living in Germany is quite reasonable. The prices for food, accommodation, clothing, cultural events, etc. are basically in line with the EU average. You will need around 850 EUR a month to cover your living expenses. The largest expense will be your monthly rent. In Hanover, the rent amounts to between 300 and 500 EUR per month. Cost of studying at Leibniz University Hannover: http://go.lu-h.de/study-costs General information on the cost of studying in Germany: https://www.study-in.de/en/plan-your-stay/money-and-costs/cost-of-living_28220.php
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	Although tuition fees no longer exist in Lower Saxony, costs are indeed incurred at university, such as the semester fee, accommodation and living costs, and costs for learning materials. Here you will find possibilities to help you finance your studies: www.uni-hannover.de/en/studium/finanzierung-foerderung Deutschlandstipendium: go.lu-h.de/deutschlandstipendium Niedersachsenstipendium: go.lu-h.de/niedersachsenstipendium

Requirements / Registration

Academic admission requirements	Bachelor's degree (or equivalent) in Physics
Language requirements	Applicants must provide proof of their English or German skills. English language requirement: TOEFL iBT (87), IELTS (6.0), Cambridge Certificate, FCE Grade A, or equivalent

	German language requirement: TestDaF (4 x TDN 4), DSH2, or equivalent Students who do not fulfil the German language requirements can take basic German language courses as part of their coursework.
Application deadline	**Application from students from non-EU countries (VPD from uni-assist is required)** • 15 April to 31 May of the year for the winter semester • 15 October to 30 November of the previous year for the summer semester **Application from students from Germany and the EU** • 1 June to 15 July of the year for the winter semester • 1 December to 15 January of the year for the summer semester Prospective students applying from outside the EU must request a**Preliminary Examination Documentation** (VPD) from uni-assist before applying to the Master's programme. The processing time for the VPD takes **up to eight weeks**. Therefore, please allow enough time before applying for the programme. More information about applying for the VPD can be found on the central application pages.
Submit application to	Applicants from **non-EU countries** can only apply with a**preliminary review documentation** (VPD) from uni-assist. You must apply for this at uni-assist at least eight weeks before the application deadline for the study programme expires - take this into account when planning your application! For more information, please visit our website.

Services

Possibility of finding part-time employment	There are many job opportunities for students on campus (in the different departments, the central administration, etc.) and off campus. About two-thirds of our students work at part-time jobs while pursuing their studies. Internal job postings: https://www.uni-hannover.de/en/universitaet/stellenangebote-arbeit-an-der-uni/jobboerse Student jobs outside of the university: jobbico Uni Hannover
Accommodation	Links on housing in Hanover (including a video about housing in Hanover for international students)
Support for international students and doctoral candidates	• Welcome event • Buddy programme

Main building of the Leibniz University Hannover

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Leibniz University Hannover: Shaping the future with knowledge

As one of the nine leading institutes of technology in Germany, Leibniz University Hannover is aware of its responsibility in seeking sustainable, peaceful, and responsible solutions to the key issues of tomorrow. Our expertise for this stems from the broad spectrum of subjects, ranging from engineering and natural sciences to architecture and environmental planning, and from law and economics to social sciences and humanities.

The main building of the university is the Royal Welfenschloss (Palace of the Guelphs) at Welfengarten Park. In 1879, the Higher Vocational School, originally founded in 1831, moved into the palace. Later, it became the Königliche Technische Hochschule (Royal College of Technology). Only 64 pupils attended the vocational school at first, **but now there are almost 30,000 students enrolled in the nine faculties of Leibniz University Hannover and some 3,100 researchers are working in more than 180 institutes**.

Our key research areas

Leibniz University Hannover is among the world's leading institutions in its**key research areas: biomedical research and engineering, quantum optics and gravitational physics, production engineering, and interdisciplinary studies of science and academia**. These give us our innovative strength in developing precision measurement methods, optical technologies, novel materials, intelligent implants, and innovations in information technology or in the field of Industry 4.0.

The broad range of subjects at Leibniz University Hannover is entirely compatible with the overall university strategy of raising its profile, in particular in teaching and research, including the establishment and enhancement of research priority areas originating in the humanities and social sciences. Cooperation agreements with national and international partners strengthen our scientific expertise – our most important partner is Hannover Medical School.

By adopting the name of the polymath**Gottfried Wilhelm Leibniz** in 2006, the university committed itself to unity in diversity.

University location

Leibniz University Hannover is very influential in shaping the image of the state capital of Lower Saxony. Not only structures like the “Welfenschloss”, the university's main building, but especially people contribute to this: approximately 30,000 students are currently enrolled. They have chosen one of the largest universities in Germany that is known for its international excellence in teaching and research. With nine faculties and a comprehensive range of study programmes, Leibniz University Hannover virtually covers the entire academic spectrum.

Find us here on Google Maps.

Contact

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Fakultät für Mathematik und Physik

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Studyguides

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