

At a glance

Degree	Master of Science (M.Sc.)
Duration	4 semesters
Language	English
Admission prerequisites	Bachelor in Nanoscience or equivalent degree
Admission quota	none
Start	winter or summer semester
Application period	winter: 15 th May - 1 st Sept. (international students - 15 th July) summer: 1 st Dec. - 1 st March (international students - 15 th Jan.)

Occupational area

Nanoscience is a young, expanding research area in industry and academia. Accordingly, there is a high demand for interdisciplinarily educated scientists. Due to the broad knowledge in physics, chemistry, and biology obtained in the study programme, with practical abilities, research experience, and additional soft skills, a wide range of jobs from fundamental research to industrial applications are possible, e.g. in materials research and engineering, information and communication technology, cosmetics and pharmaceutical industries, biomedicine and other fields. The growing number of companies dedicated to nanotechnology opens a world-wide employment market. The Master degree lays the foundation for a subsequent PhD study.

Contact nanoscience programme

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General information

about studying in Kassel, admission requirements etc.
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International Office

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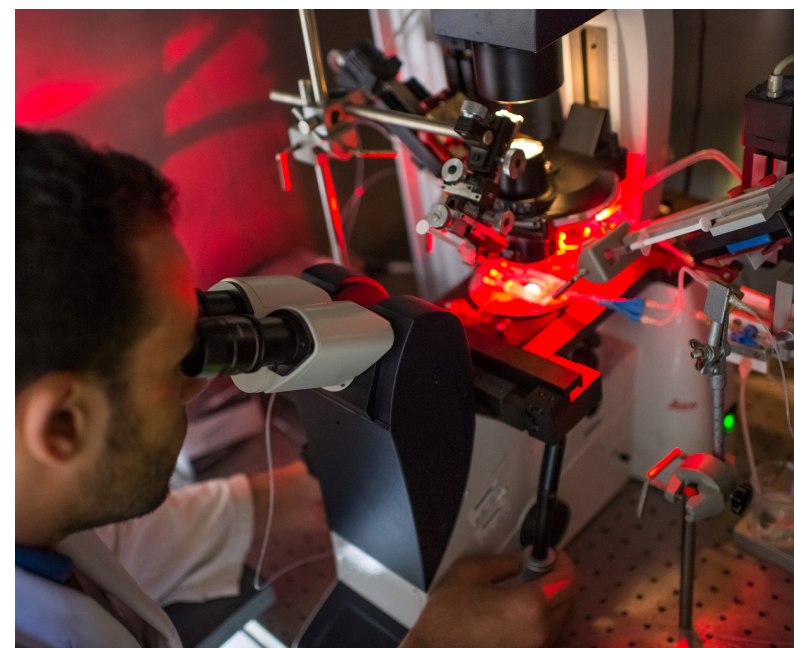
Internet

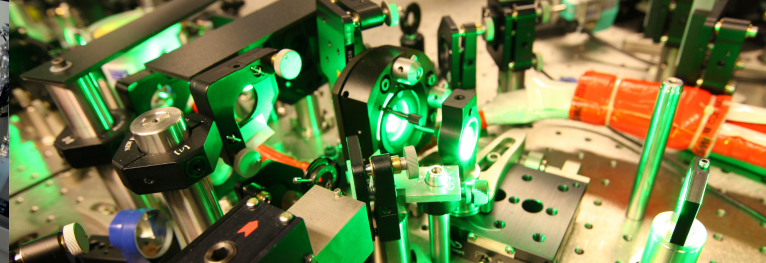
You may find this and more information about the nanoscience programme in Kassel at
www.uni-kassel.de/go/m_nanoscience
or directly on the programme homepage of the faculty at
www.uni-kassel.de/fb10/study/msc/nano.



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Nanoscience Master of Science (M.Sc.)





The M.Sc. Nanoscience programme

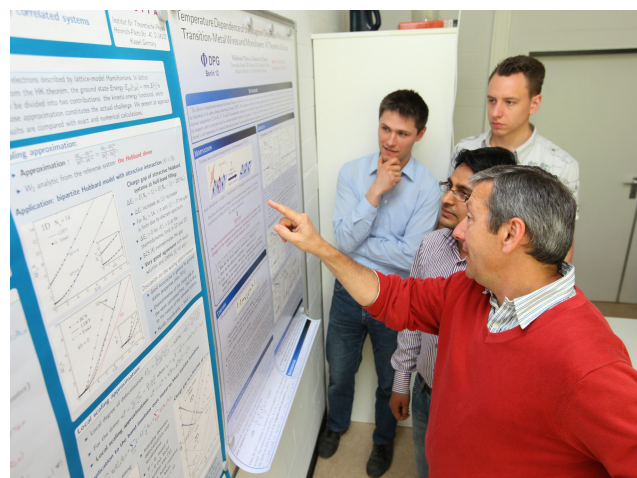
The consecutive study programme Nanoscience expands the knowledge and skills obtained in a corresponding Bachelor degree programme towards deeper theoretical understanding and practical applications of nanoscale phenomena. Embedded in state-of-the-art research, students apply interdisciplinary approaches based on physics, chemistry, and biology to special research areas of nanoscience such as materials chemistry, nanoelectronics and -photonics or advanced molecular biology. By planning and conducting experiments, and presenting their results in written and oral form, students develop their skills in scientific practice. They obtain competencies highly beneficial for employment in an interdisciplinary environment in industry or public service. These include not only subject-specific knowledge but also soft skills such as scientific communication and time management.

In addition to lectures and laboratory work in at least two of the natural sciences with special emphasis on the nanoscale, individual specialization is possible in a large number of elective courses. Some of the courses may also be taken abroad in a partner university or institution. The two-year programme concludes with a Master's thesis on a special research topic in nanoscience. Upon successful completion of the programme, the academic title "Master of Science" will be awarded.

Research in Kassel

On a high international level, researchers from the University of Kassel work on the understanding and application of nanosystems. In the "Center for Interdisciplinary Nanostructure Science and Technology" (CINSaT), research teams from biology, chemistry, physics, and engineering

find a joint platform for discussing their ideas and work together on interdisciplinary projects. The participating "Institute of Nanostructure Technologies and Analytics" (INA) operates 400 sqm of cleanroom facilities and advanced preparation equipment for nanoelectronic and photonic devices. Current focus areas of CINSaT are, amongst others, three-dimensional nanostructures, biosensors, photonics, and chiral systems. Spin-off companies, e.g. in biosensorics, connect the research in Kassel to industrial applications.



Admission requirements

In order to obtain admission to the Master's programme in Nanoscience, applicants must have a Bachelor degree of at least 180 credits (ECTS) in nanoscience or a related equivalent degree. Advanced knowledge including practical skills in at least two of the disciplines biology, chemistry, and physics have to be documented. Since most of

the courses are taught in English, English language communication on level B2 of the Common European Framework of Reference has to be demonstrated. The examination committee may demand a hearing for assessing the fulfilment of the admission requirements and/or may stipulate additional obligations in the form of up to 30 credits.

The programme

Students may enter into the two-year programme in the winter or summer semester (i.e. October or April). In order to complete the programme, a total number of 120 credits have to be obtained, including the Master's thesis.

The modules are divided into compulsory modules, focus modules, and elective modules.

Compulsory modules are "Methods of Nanostructure Analysis", a "Preparatory Project" before starting with the Master's thesis, and the "Master's degree module" with the thesis itself.

In the focus modules, students are required to select two of the modules "Nanochemistry", "Nanophysics" or "Nanobiology". In these modules, advanced principles of colloid, polymer, and supramolecular chemistry (Nanochemistry), nanoelectronics, nanophotonics, and nanotechnology (Nanophysics) and advanced molecular and cell biology (Nanobiology) are instructed, respectively.

Elective modules can be chosen from a variety of 61 modules, including 28 research internships in different groups. Examples of course-like modules are "Aromatic Building Blocks for Organic Nanostructures", "Nanoscale Quantum Optics", "Molecular Mechanisms of Biochemical Processes", "Semiconductor Devices: Theory and Modelling", and many others.

A detailed description can be found in the "Modulhandbuch" on our websites.