



LUND
UNIVERSITY

MSc in Nanoscience

LUND UNIVERSITY, SWEDEN

- Master of Science in Nanoscience
- 2 years, full-time, 120 ECTS credits
- Faculty of Engineering
- Lund campus
- Application deadline: January 2021
- Programme start: August 2021

Programme overview

On the nanometre scale, concepts and tools of physics are relevant also in chemistry and biology, and the different disciplines can interact closely. Nanoscience is therefore characterized by a large degree of interdisciplinarity. The Nanoscience programme at Lund University has its scientific base in a physics description of nanoscale phenomena, but in addition to nanophysics you can, depending on your background and interests, choose to specialise in fields such as nanoelectronics, materials science or biophysics. The programme is part of NanoLund, one of the world's leading nanoscience research centres. You will interact with cutting-edge research throughout the programme, starting in the first semester and building up to the Master's project. Moreover, by taking advantage of the wealth of courses offered by Lund University, you will be able to explore the cross-disciplinary nature of nanoscience.

As an introduction to the programme, the first semester consists of four compulsory courses, chosen to define the core of the programme and to give a platform for the following courses and thesis work. The compulsory courses include processing and analysis methods relevant for nanostructures as well as semiconductor physics and a quantum mechanical based description of nanoscale physics phenomena. The second and third semesters consists of elective courses which the students, in dialogue with the programme coordinator, combine into an individual profile according to interest and background. The programme is concluded with a Master thesis project, where the student is part of a research group and carries out an independent project. The Master thesis may also be performed in collaboration with industry.

After being awarded the Master degree, you should have the knowledge, understanding and independence to be able to contribute to the development of nanoscience and nanotechnology in academic and industrial research and development. Further, you have the knowledge and understanding needed to be able to evaluate and incorporate nanoscience into products and applications of more traditional fields.

Programme modules/courses

COMPULSORY COURSES AND NUMBER OF ECTS CREDITS:

Semiconductor Physics (7.5), Processing and Device Technology (7.5), Materials Analysis at the Nanoscale (7.5), The Physics of Low-Dimensional Structures and Quantum Devices (7.5), Master's degree project (30).

ELECTIVES: Choose elective courses for specialisations in, for example, nanophysics, materials science or biosensors.

Career prospects

There is an increasing demand worldwide for people knowledgeable in nanotechnology. Nanoscientists are not only needed in specialised nanotechnology companies but also in more traditional industries, with more and more nanotechnology being incorporated into products. Due to the close connection to world-class research, the Master's programme also provides excellent preparation for doctoral studies and an academic career.

Entry requirements and how to apply

ENTRY REQUIREMENTS

A Bachelor's degree in science or engineering. Completed courses of at least 40 credits/ECTS in physics, and 30 credits/ECTS in mathematics, covering quantum mechanics, electromagnetism, solid-state physics, multi-dimensional calculus, linear algebra and Fourier analysis. English Level 6 (equivalent to IELTS 6.5, TOEFL 90). See www.lunduniversity.lu.se for details on English proficiency levels.



“The programme is highly interdisciplinary. Depending on what field you decide to focus on within this Master's, you can pursue what you really want to do in your future career, which is great.”

Sudhakar Sivakumar from India





HOW TO APPLY

- 1. Apply online:** Go to www.lunduniversity.lu.se/nanoscience. Click on "Apply" and follow the instructions for the online application at the Swedish national application website www.universityadmissions.se. Rank the chosen programmes in order of preference.
- 2. Submit your supporting documents:**
 - **General supporting documents:** Check what documents you need to submit (i.e. official transcripts, degree diploma/proof of expected graduation, translations, proof of English, passport) and how you need to submit them at www.universityadmissions.se
 - **Programme-specific supporting documents:** For information on programme-specific documentation, please check the programme webpage.
- 3. Pay the application fee** (when applicable).

SELECTION CRITERIA/ADDITIONAL INFO

The selection is based on academic qualifications.

TUITION FEES

There are no tuition fees for EU/EEA citizens. For non-EU/EEA citizens, the tuition fee for this programme is SEK 145 000 per year. See www.lunduniversity.lu.se for details on tuition fees.

About the Faculty of Engineering

The Faculty of Engineering, LTH, is as a place for dreams and discoveries. We inspire creative development of technology, architecture and design and teach some of Sweden's most attractive Master's programmes, all built on a broad research base. LTH is among the leading engineering faculties in Europe with close to 10 000 undergraduate students. Over 1 000 researchers at LTH work hard to improve the quality of life for people and promote a more careful use of the Earth's resources. Our vision is: Together we explore and create – for the benefit of the world. A world record in 5G technology, solar celldriven water purification, early cancer diagnosis, nanotechnology for more efficient solar panels, and a health-promoting oat drink are some of the innovations developed at LTH.

About Lund University

Lund University was founded in 1666 and is repeatedly ranked among the world's top 100 universities. The University has 40 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

Lund is the most popular study location in Sweden. The University offers one of the broadest ranges of degree programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. Because of its wide disciplinary range, interdisciplinary collaborations and engagement with wider society, Lund University is particularly well equipped to meet complex societal challenges. With partner universities in around 70 countries, the University's profile is distinctly international.

Lund University has an annual turnover of more than EUR 830 million, of which two-thirds go to research in our nine faculties, enabling us to offer one of the strongest and broadest ranges of research in Scandinavia.

The establishment of the world-leading facilities MAX IV and ESS will have a major impact on future scientific and industrial development in both materials science and life science. MAX IV is the leading synchrotron radiation facility in the world, while the European research facility ESS will be the world's most powerful neutron source when it opens for research in 2023. Adjacent to these facilities, Science Village Scandinavia is also being developed into a meeting place and testing environment for research, education and entrepreneurship.

Learn more at www.lunduniversity.lu.se

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CONTACT

Programme webpage

www.lunduniversity.lu.se/nanoscience

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