Programme overview

Do you want to understand the inner workings of nature from a theoretical viewpoint? At the Department of Astronomy and Theoretical Physics, together with the Department of Physics in Lund, we offer a broad programme covering a wide range of topics in theoretical and mathematical physics. You can choose from studying the smallest constituents of matter and their interactions within theoretical high energy physics, as well as nuclear and solid state physics within mathematical physics. In all cases you will get a solid basis of theoretical knowledge needed to develop new models and to better understand how nature works.

As a Master’s student you will become part of a vibrant research community engaged in cutting-edge theoretical studies. You begin your studies by taking a number of courses, some of them general, some more specialised and you have a lot of freedom to tailor your own studies. The programme concludes with a Master’s project within one of the research groups.

Programme modules/courses

The programme offers a wide range of courses. You can choose from more specialised courses such as Advanced Quantum Mechanics, Astroparticle Physics and Cosmology, Quantum Field Theory, Quantum Chaos, Solid State Theory and Theoretical Nuclear Physics as well as more general courses such as Chaos for Science and Technology, Classical Mechanics, Computational Physics, Electromagnetism, General Relativity, Mathematical Methods of Physics and Statistical Mechanics.

At the end of the programme you complete an individual Master’s degree project (30 or 60 ECTS credits). For information on specialisations and elective courses, see www.fysik.lu.se/english/education/start-studying/masters-programme.

Career prospects

The Master of Science in Theoretical Physics will give you ample opportunities for pursuing a wide variety of careers depending on your specialisation. Whereas many students go on to do a PhD in theoretical physics and related subjects it is also possible to find suitable careers outside academia, for example in the fields of information and communication technology or energy production, where advanced programming and modelling skills are needed.

Two international research facilities create opportunities for theoretical physics graduates in Lund – MAX IV, a synchrotron radiation laboratory that opened in June 2016, and ESS, the European Spallation Source, that is currently under construction.

Entry requirements and how to apply

ENTRY REQUIREMENTS

A BA/BSc in physics, mathematics or similar, with 90 ECTS in physics and/or mathematics, including basic knowledge of quantum mechanics. English Level 6 (equivalent to IELTS 6.5, TOEFL 90). See www.lunduniversity.lu.se for details on English proficiency levels.

HOW TO APPLY

1. Apply online: Go to www.lunduniversity.lu.se/theoretical-physics. Click on “Apply” and follow the instructions for the online application at www.universityadmissions.se, the Swedish national application website. 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,

“We have a lot of group work here, which is a big difference compared to studying in Greece. I think it takes you to another level since you learn how to communicate with others and how to work together to reach the same goal. It prepares you for your future work.”

Asimina Papoulia, from Greece
proof of English, passport) and how you need to submit them at www.universityadmissions.se.

- **Programme-specific supporting documents:** When applying for this programme, you must submit a statement of purpose and letters of recommendation with your application. We also encourage you to fill in our Summary Sheet that can be found on the programme web page.

3. **Pay the application fee** (when applicable).

### SELECTION CRITERIA/ADDITIONAL INFORMATION

Selection of students is based on previous university/college studies and other merits such as letters of recommendation and statement of purpose.

### 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. For details on tuition, see www.lunduniversity.lu.se.

### About the Department of Astronomy and Theoretical Physics

The Department of Astronomy and Theoretical Physics spans a very large range of research activities; theoretical particle physics, computational biology and biological physics, theoretical astrophysics, observational astronomy, research on atomic data, as well as instrument development. We have vibrant and active research groups in all areas. Of special relevance for the Master’s programme in astrophysics is the research, e.g., on black holes, X-ray binaries, Milky Way astronomy, the Gaia satellite, planet formation and studies of evolved giant stars.

### About the Department of Physics

The departments has over 300 researchers, teachers, technicians and administrators. We work to extend the understanding of physics and its applications, and to communicate our findings, and those of others, to new generations.

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**About Lund University**

Lund University was founded in 1666 and is repeatedly ranked among the world’s top 100 universities. The University has 42 000 students and 7 400 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 programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. The compact university campus encourages networking and creates the conditions for scientific breakthroughs and innovations. The University has a distinct international profile, with partner universities in over 70 countries.

Lund University has an annual turnover of SEK 8 billion, of which two-thirds go to research. Our research is characterised by both breadth and strength and, according to independent evaluations, over 30 of our research fields are world-leading.

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, which was inaugurated in June 2016, 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](http://www.lunduniversity.lu.se)

Ask questions and follow news at [facebook.com/lunduniversity](https://facebook.com/lunduniversity)

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**CONTACT**

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Disclaimer: Changes may have been made since the printing of this fact sheet. Please see www.lunduniversity.lu.se for any updates.