

NAFYK, Master Programme in Physics, 120 credits

Masterprogram i fysik, 120 högskolepoäng

Second cycle degree programme requiring previous university study / *Program med akademiska förkunskapskrav och med slutlig examen på avancerad nivå*

Decision

The programme syllabus was approved by the Board of the Faculty of Science on 7 February 2007, in accordance with the Higher Education Ordinance 1993:100 (amend. 2006:1053). The syllabus comes into effect on 1 July 2007.

Amendment details:

Decision by Pro-dean 31 August 2007. Valid from 1 September 2007.

Education committee 24 October 2007. Valid from 19 January 2008.

Faculty Board 13 June 2018. Valid from 15 September 2018, autumn semester 2019.

Pro-dean 12 October 2018. Valid from 15 October 2018, autumn semester 2019.

Specializations

BIFY Biological Physics and Computational Biology

Biologisk fysik och beräkningsbiologi 120 credits

ALLM General

Allmän inriktning 120 credits

MAVE Materials science

Materialvetenskap 120 credits

NAVE Nanoscience

Nanovetenskap 120 credits

PAFY Particle Physics

Partikelfysik 120 credits

FOTO Photonics

Fotonik 120 credits

TEFY Theoretical Physics

Teoretisk fysik 120 credits

Programme description

The programme for a degree of Master of Science specialising in Physics comprises 120 credits and leads to a degree of Master of Science (120 credits) with a major in Physics.

The programme is based on scholarship and is closely linked to research conducted at the Lund University Faculty of Science. The operations at the faculty uphold academic credibility and good research practice and are arranged to ensure that

high standards are attained in courses and study programmes. Furthermore, the operations promote sustainable development, equality between women and men and understanding of other countries and international circumstances. These aspects are integrated in the degree outcomes of the programme.

Second-cycle courses and study programmes in the main field of Physics are fundamentally based on the knowledge acquired by students during first-cycle courses and study programmes.

Second-cycle courses and study programmes in the main field of Physics involve the acquisition of specialist knowledge, competence and skills in relation to first-cycle courses and study programmes, and in addition to the requirements for first-cycle courses and study programmes shall:

- further develop the ability of students to integrate and make autonomous use of their knowledge,
- develop the students' ability to deal with complex phenomena, issues and situations, and
- develop the students' potential for professional activities that demand considerable autonomy, or for research and development work.

The programme applies a learning perspective, in which students take an active role in the learning process, and consciously and continuously reflect on their learning and development towards the degree outcomes.

The appendix *Achievement of learning outcomes for a degree of Master of Science with a major in Physics at the Faculty of Science* describes the disciplinary foundation and links to research of the programme.

Goals

Knowledge and understanding

For a degree of Master (120 credits) the student shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a degree of Master (120 credits) the student shall

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information,
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work,
- demonstrate the ability in speech and writing both nationally and internationally to clearly report and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

For a degree of Master (120 credits) the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work,
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Independent project (degree project)

A requirement for the award of a degree of Master (120 credits) is completion by the student of an independent project (degree project) for at least 30 credits in the main field of study. The degree project may comprise less than 30 credits, however no less than 15 credits, if the student has already completed an independent project in the second cycle for at least 15 credits in the main field of study or the equivalent from a programme of study outside Sweden.

Course information

The programme comprises 2 years for a degree of Master (120 credits). The appendix *Achievement of learning outcomes for a degree of Master of Science with a major in Physics at the Faculty of Science* describes the courses included.

Degree

Examensbenämningar

Degree of Master of Science (120 credits)

Major: Physics

Major: Physics with specialization in Photonics

Major: Physics with specialization Nanoscience

Naturvetenskaplig Masterexamen

Huvudområde: Fysik

Huvudområde: Fysik med fördjupning i fotonik

Huvudområde: Fysik med fördjupning i nanovetenskap

Requirements and Selection methodRequirements

Specialisation: General Physics

Specialisation: Biological Physics and Computational Biology

Specialisation: Material Physics

Specialisation: Particle Physics

Specialisation: Theoretical Physics

Bachelor's degree of at least 180 credits in physics or the equivalent. The degree must include at least 90 credits in physics.

Proficiency in English equivalent to English 6/B from Swedish upper-secondary school.

Specialisation: Nanoscience and sub-specialisations

Bachelor's degree of at least 180 credits in physics or the equivalent. The degree must include at least 90 credits in physics, or 60 credits in physics and 30 credits in a relevant engineering subject or the equivalent.

Proficiency in English equivalent to English 6/B from Swedish upper-secondary school.

Specialisation: Photonics and sub-specialisations

Bachelor's degree of at least 180 credits in physics or the equivalent. The degree must include at least 90 credits in physics, or 60 credits in physics and 30 credits in a relevant engineering subject or the equivalent.

Proficiency in English equivalent to English 6/B from Swedish upper-secondary school.

Selection Method

The selection will be based on grades awarded for previous academic courses, particularly qualifying courses, and a statement of purpose for the application (from the applicant's "Summary sheet").

Transition rules

The Faculty Board may decide to discontinue a programme or main field, and will in this context also decide on transitional provisions for students who have commenced study on the programmes concerned.

Other information

Rules for grades and assessment are included in the course syllabi approved by the Faculty Board.