



Joint Faculties of Humanities and Theology

ÄFYA04, Physics Education 1, 7.5 credits

Fysikdidaktik 1, 7,5 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by The Education Board of Faculty of Science on 2025-12-10. The syllabus comes into effect 2025-12-10 and is valid from the autumn semester 2026.

General information

The course is part of the subject teacher education programme at Lund University.

Language of instruction: Swedish

Main field of study

Specialisation

Physics

G1N, First cycle, has only upper-secondary level entry requirements

Learning outcomes

The course aims to provide an introduction to theoretical and practice-oriented perspectives on physics education and the subject of physics in lower and upper secondary school, as well as to develop students' ability to plan, analyse, and reflect on physics teaching.

Knowledge and understanding

After completing the course, the student shall be able to:

- account for different justifications for physics and science as school subjects;
- describe and analyse common student conceptions of physical concepts and phenomena, particularly within mechanics and electricity;
- account for several theoretical perspectives relevant to physics education, such as variation theory and cognitive load theory;
- account for and give examples of the role of different teaching activities in physics education.

Competence and skills

After completing the course, the student shall be able to:

- review and analyse teaching materials based on curriculum documents and theoretical perspectives on physics education;
- apply various theoretical perspectives to plan a short teaching sequence using a given teaching method, such as peer instruction.

Judgement and approach

After completing the course, the student shall be able to:

- evaluate their own and others' teaching sequences based on theoretical and methodological perspectives on learning in physics, as well as from an inclusive perspective on physics education;
- evaluate the role of physics as a school subject and its significance for society and the individual;
- reflect on the relationship between physics and physics education, and on their own future role as a physics teacher.

Course content

The course addresses various methodological and theoretical perspectives relevant to the teaching of physics in lower and upper secondary school. It discusses students' conceptions of physical concepts and phenomena, as well as theories significant for physics teaching and learning, such as variation theory, cognitive theories, representations, and multimodality. The course also highlights aspects of inclusive physics education and different arguments for physics as a school subject. Furthermore, it covers teaching materials and curriculum documents, as well as different teaching methods such as Peer Instruction, Think–Pair–Share, group work, and laboratory activities. The course includes a practical assignment in which students apply different theoretical and methodological perspectives to plan a short teaching sequence in physics.

Course design

Teaching consists of lessons, lectures, seminars, written assignments, and project work. Attendance at seminars and the introductory meeting is compulsory. Submission of the project report within the specified deadlines is also mandatory.

Assessment

The intended learning outcomes of the course are assessed through:

- a written examination at the end of the course, corresponding to 5 credits;
- completed compulsory seminars and project work, including oral and written presentations, corresponding to 2.5 credits.

Students who do not achieve a passing grade in the regular examination will be offered an additional examination opportunity shortly thereafter.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Grades

Grading scale includes the grades: Fail, Pass, Pass with distinction

To pass the course, students must achieve a passing grade on the written examination, the project, all written assignments and presentations, and must also attend the compulsory seminars.

Grading

- The project, written assignments, presentations, and seminars are assessed with the grades Fail (U) or Pass (G). These components are not included in the calculation of the final grade.
- The written examination yields a percentage score corresponding to the proportion of points obtained in relation to the total number of possible points. The threshold for Pass (G) is normally 50 %, and for Pass with Distinction (VG) 80 %.
- The final grade for the course is based on the result of the written examination. To receive a Pass (G) for the course, all components must be passed. To receive a Pass with Distinction (VG) for the course, a VG on the written examination is required in addition to passing all other components.

Entry requirements

General requirements and studies equivalent of courses Physics 2, Chemistry 1 and Mathematics 4/D from Swedish Upper Secondary School.

Further information

The course may not be included in a degree together with ÄFYD11 Physics 1: Introductory Physics and Physics Education, 30 credits, or with equivalent earlier courses.