



## DEPARTMENT OF PHYSICS

### **FYM295 Experimental methods in modern physics, 3 credits**

Experimentella metoder inom modern fysik, 3 högskolepoäng

*Second Cycle*

---

#### **Confirmation**

This course syllabus was confirmed by Department of Physics on 2019-03-11 to be valid from 2019-03-11, spring semester of 2019.

*Field of education:* Science 100%

*Department:* Department of Physics

#### **Position in the educational system**

The course is part of the master program in physics.

The course can be part of the following programmes: 1) Complex Adaptive Systems, Master's Programme (N2CAS) and 2) Physics, Master's Programme (N2PHY)

*Main field of studies*

Physics

*Specialization*

A1N, Second cycle, has only first-cycle course/s as entry requirements

#### **Entry requirements**

Bachelors degree in Physics or the equivalent.

Applicants must prove their knowledge of English: English 6/English B from Swedish Upper Secondary School or the equivalent level of an internationally recognized test, for example TOEFL, IELTS.

#### **Learning outcomes**

The purpose of this course is to introduce the students to a variety of experimental concepts used in modern physics research, and to give them an opportunity to work on a well defined experimental project of their own choice. The projects span over a wide range of disciplines, from biophysics and materials physics to nanooptics and surface

physics, and will be carried out in research groups working in state-of-the-art laboratories at the Department of Physics. The students will work in groups of two or three, and the projects will be presented both in writing and as an oral presentation in a seminar. As a general introduction to the topic, the course will start with several lectures on the physics behind the projects that the students may choose from.

On successful completion of the course the student will be able to:

After this course the students should have a general knowledge of experimental methods in modern physics. The students should be able to write a scientific report based on their own experimental work, and to give an oral presentation describing the used method and the obtained results.

### **Course content**

The course starts with a number of lectures on the physics behind the different experimental projects that the students may choose from. The projects are then carried out in groups of two or three students. Finally, the students write a report and give an oral presentation.

### **Form of teaching**

Lectures, an experimental project, report writing, oral presentation.

*Language of instruction:* English

### **Assessment**

The students carry out an experimental project, and hand in a written report on their work. The report is presented orally in a seminar.

If a student, who has failed the same examined element on two occasions, wishes to change examiner before the next examination session, such a request is to be submitted to the department in writing and granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

In the event that a course has ceased or undergone major changes, students are to be guaranteed at least three examination sessions (including the ordinary examination session) over a period of at least one year, though at most two years after the course has ceased/been changed. The same applies to work experience and VFU, although this is restricted to just one additional examination session.

**Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

**Course evaluation**

The results of and possible changes to the course will be shared with students who participated in the evaluation and students who are starting the course.