

# Syllabus

for course in education at postgraduate level

**Komplexa frågeställningar i medicinsk strålningsfysik**

**10 Högskolepoäng**

**Complex topics in medical radiation physics**

**10 ECTS credits**

**Course Code:** FK40004  
**Valid from:** VT 2018  
**Established:** 2017-12-14  
**Department:** Fysikum

**Subject:** Medical radiation physics

## Decision

Denna kursplan är fastställd av Fysikums styrelse 2017-12-14.

## Prerequisites and special admittance requirements

Admitted to graduate level education

## Course objective

The course aims to broaden the doctoral student's research area: medical radiation physics.

## Content

The course deals with complex questions in medical radiation physics, including the interaction of ionizing radiation with matter, radiation dosimetry and radiation biology applied to radiotherapy, diagnostic radiology and nuclear medicine. Ethical aspects of clinical relevance to each question are also discussed. Central steps are the planning, implementation and reporting of a scientific investigation. Furthermore, literature search, writing a scientific report and practice in oral reporting of research results in the form of seminars are practiced.

## Learning outcome

After completing the course, the student is expected to be able to:

- demonstrate a broad knowledge base in their research area (medical radiation physics)
- read and understand scientific articles in the subject area and be able to use the necessary theory for the implementation of a scientific project
- demonstrate scientific skill by being able to compile and write a scientific report in English and be able to orally report and present research results
- demonstrate knowledge of scientific theoretical concepts and historical reasoning

## **Forms of instruction**

The course coordinator and PhD supervisors at MSF prepare lists of complex projects that are presented to the students. Each project consists of a central part which is divided into a number of sub-projects (between two and four dependent on the number of doctoral students). The students are divided into groups that work on a specific project. Within each group, the students conduct self-studies and work individually on each sub-project. The students within each group participate in an active learning exercise with the aim of imparting and acquiring knowledge from the other group members. This will provide all students within a group with knowledge of the larger main project that the group has been assigned.

The course is taught in English.

## **Forms of examination**

The course is examined in the following way:

- a) The examination will be based on a report written as a group work by the students in each group. An individual oral presentation must also be carried out where each student describes their own sub-project. This is followed by a discussion between the student and the grading committee, which consists of the course coordinator and the doctoral supervisors.  
Examination takes place in English.
- b) Grading according to a two-point grading scale: Pass or Fail.
- c) The course's grading criteria are distributed at the start of the course.
- d) Students who fail the regular exam have the right to undergo additional exams as long as the course is given.

The number of test occasions is not limited. With exams, other compulsory course parts are also included.

## **Transitional provisions**

Students can request that the examination be carried out according to this syllabus even after it has ceased to apply, however, no more than three times during a two-year period after teaching on the course has ended. This should be requested to the institution's board. The provision also applies when revising the syllabus.

## **Course literature**

The course coordinator and the PhD supervisors at MSF will select and propose the background literature for the work to be carried out in the various projects, e.g. books, book chapters, review articles and research articles.