



FSH3000 Width and Ethics in Physics 7.5 credits

Bredd och etik i fysik

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for FSH3000 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Admitted to the doctoral program in physic.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The aim of the course is to certify that all PhD-students in the program have a common base of knowledge and understanding, skills and abilities, ethical values and attitudes at the profound level required for a PhD degree. In particular, the course shall give the PhD-stu-

dents the skills and abilities to analyse, and in a constructive and critical manner review others work of research. This course, together with the other courses taken by the student, the thesis and its public defense aim at ensuring that the formal requirements as stipulated by regulations ("examensordning" at KTH) are satisfied. By taking this course the student shall be able to:

- demonstrate a wide knowledge in physics and a systematic understanding of the field
- demonstrate the ability of scientific analysis and synthesis, independent critical review and assessment of new issues and situations
- demonstrate intellectual independence, scientific integrity and the ability to make ethical assessments in research
- demonstrate deeper insight in the possibilities and limitations of science, its role in society and human responsibility for its use
- demonstrate the ability to present clear and concise, oral and written presentations and discussion of research and research results
- demonstrate knowledge and awareness of ethical issues in research

Course contents

The course has an umbrella structure containing four modules:

1. Research ethics and role in society
2. Critical review and evaluation
3. Broad knowledge in physics
4. Presentation

Each of these modules can be passed in different ways in order to accommodate the large variety of traditions and academic environments present in the physics program. In order to collect a large part of the course goals into one structure, an annual PhD student physics conference is organized. At this conference, the students will present their work. To fulfil modules 3 and 4, senior students will give invited general talks about a number of front line research topics. The conference will also serve as course introduction.

The content of the course can be broken down to:

- General knowledge of the goal for PhD-studies
- Basics of ethical issues in research
- Research front-line phenomena in physics
- Critical review of others' research
- Organization of and participation in a conference in physics for the PhD-students in the program

Disposition

The course will be given on a continuous basis, meaning that students pass the course when they have fulfilled the examination criteria of the four modules. There are, for most modules, several ways of passing them:

- 1) The research ethics and role in society module can be passed by
 - * Active participation in the module course
- 2) The critical review and evaluation module can be passed by
 - * Regularly participating in a journal club
 - * Acting as pre-opponent for another PhD student
 - * Giving pre-colloquia where a general introduction of a colloquium is presented
- 3) The broad knowledge in physics module can be passed by
 - * Active participation in the physics conference
 - * Active participation in physics colloquia or similar
- 4) The presentation module has two branches (a- scientific and b- popular) and can be passed by
 - * a- Presenting at national or international conferences or workshops
 - * a- Presenting at the physics conference
 - * b- Presenting a general introduction of a front-line research topic at the physics conference
 - * b- Presenting in a popular scientific context (high schools, etc)

Course literature

Course compendium

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

All four modules have been passed

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.