FSK3515 Optimizing Light Microscopy 4.0 credits

Ljusmikroskopi, teori och praktik

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

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

Establishment

Course syllabus for FSK3515 valid from Spring 2018

Grading scale

Education cycle

Third cycle

Specific prerequisites

The student should have been accepted as a PhD student.

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 give the students a deeper understanding of the optical principles underlying different contrast-enhancing techniques used in modern research micro-

scopes.After completing the course the students should be able to use microscope for various studies and make informed choices about using the appropriate contrast technology based on the properties of the sample under investigation and the microscope functionalities which are available.

Course contents

Course content and organization: The following points are highlighted at seminars and exercises: Linearization of Köhler lighting, conjugate plane, condesor, diffraction-limited resolution, aberrations, contrast through oblique lighting, phase contrast, hoffman contrast, polarization micrioscopy, nomaric / DIC, fluorescence and confocal microscopy.

Disposition

Teaching: Seminars (10), accompanied by exercises on microscopes.The exercises are used to practice the different techniques which the seminars provide the theory for.

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.

LAB1) laboratory exercises, 4,0 hp, grading scale: P/F

Other requirements for final grade

The examination is performed through a practical knowledge test in front of the microscope.

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.