



FCK3114 Atomic Force Microscopy (AFM) for Polymer- and Forest-based materials 5.0 credits

Atomkraftsmikroskopi (AFM) av polymer- och skogsbaserade material

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 FCK3114 valid from Spring 2022

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Eligible for studies at the third-cycle level.

Language of instruction

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

Intended learning outcomes

After completion of the course the doctoral student should have the knowledge and ability to

- Describe the working principles and the components of the atomic force microscopy (AFM)
- Explain and differentiate between the various AFM operation modes
- Interpret, process and discuss results obtained by AFM
- Critically interpret AFM data both own and in literature with relation to polymer and forest-based materials
- Prepare samples suitable for AFM experiments

Course contents

This course is designed to provide the background, fundamental concepts, and practical knowledge of atomic force microscopy (AFM) in its relation to polymer- and forest-based materials. The course will consist of:

- The working principles and the components of atomic force microscopy (AFM)
- What information and results that can be obtained with AFM in relation to polymer- and forest-based materials
- How AFM can be utilized in applied research and/or industrial settings
- Be able to recognize common artifacts, analyze surface force measurements, interpret results with relation to surface interactions
- Design AFM experiments with relevance to own research

Examination

- LAB1 - Laboratory work, 2.0 credits, grading scale: P, F
- PRO1 - Project, 1.0 credits, grading scale: P, F
- SEM1 - Seminars, 2.0 credits, grading scale: P, F

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.

The examination will consist of three modules:

SEM1: attending lectures and seminars throughout the course (minimum 90% attendance on the lectures and 100% attendance on the seminars)

LAB1: participation in the laboratory lessons

PRO1: completing a project which consist of a written proposal, peer review, and a short presentation of the own proposal.

Other requirements for final grade

Passed grades on all grading modules are required to receive final grade in the course.

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.