



FCK3318 Advanced Surface- and Colloid Chemistry 15.0 credits

Avancerad yt- och kolloidkemi

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 FCK3318 valid from Spring 2020

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Eligible for studies at the third-cycle level.

Classical thermodynamics and basic surface and colloidal chemistry knowledge.

Language of instruction

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

Intended learning outcomes

After completing the course the student should be able to:

- Explain from a macroscopic and molecular perspective key underlying concepts in surface and colloidal chemistry.
- Quantitatively estimate electrostatic and non-electrostatic interactions in colloidal systems
- Provide qualitative molecular interpretations of properties and phenomena in complex surface chemical applications.
- Communicate and critically discuss recent advances in the surface chemistry and colloidal fields.

Course contents

- Solutes and Solvent, Self-assembly of amphiphiles
- Surface Chemistry and Monolayers
- Electrostatic interactions in Colloidal Systems
- Structure and Properties of Micelles
- Forces in Colloidal Systems
- Bilayer Systems
- Polymers in Colloidal Systems
- Colloidal Stability
- Colloidal Sols
- Phase Equilibria and Phase Diagrams
- Micro and Macroemulsions

Examination

- INL1 - Hand in exercises, 12.0 credits, grading scale: P, F
- TEN1 - Oral exam-presentation, 3.0 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.

To approve the course the doctoral student will need to

1. successfully present and discuss the selected scientific publication in the examination seminar
2. submit all assigned exercises

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.