FCK3303 Organic and Biochemical Analytical Separations 7.5 credits

Organiska och biokemiska analytiska separationer

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 FCK3303 valid from Spring 2020

Grading scale

P, F

Education cycle

Third cycle

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 the basic principles for gas chromatography, liquid chromatography, capillary electrophoresis and mass spectrometry, describe the different methods, which are used in each technique respectively, and the instrumental variants that exist, e.g. concerning injection and detection
- suggest and explain how the method development and the optimisation can be accomplished for the different techniques
- participate actively in the demonstration laboratory exercises and at the company visit
- define and compare the different methods, choose technique/method for specific analysis problems and motivate the choices
- use the above listed knowledge to plan, perform and evaluate a laboratory project within the subject area, individually or in group, including to perform a smaller literature study, and present the laboratory project in a written report and an oral presentation for the other students in the course, and perform an opposition on another laboratory project in the course

Course contents

The course comprises approximately 200 full-time study hours, whereof 48 hours lectures and tutorials, 36 hours laboratory project, in addition to self-studies. The lectures include basic principles of chromatography and electrophoresis, and a survey of a number of the most important techniques like gas chromatography, liquid chromatography, capillary electrophoresis, and mass spectrometry. In this context specific instrumental aspects, sample preparation, separation optimization and problem solving will also be discussed.

Specific prerequisites

Eligible for studies at the third-cycle level.

Examination

- LAB1 - Laboratory project, 4.5 credits, grading scale: P, F
- TEN1 - Exam, 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.

The student should be able to fulfil all parts of the objectives on both a general and basic level, and on a detailed level, and with both width and depth. The student should also be able to use this knowledge to solve and discuss new separation problems, and relate this to own research. The literature study should also be related to the students own research.

Other requirements for final grade

Approved exam (TEN1; 3 ECTS), and approved written and oral presentation of the literature study (LIT1; 3 ECTS)

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.