



KD2330 Analytical Separations

7.5 credits

Analytiska separationer

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

Establishment

Course syllabus for KD2330 valid from Fall 2021.

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Chemical Science and Engineering, Chemistry and Chemical Engineering

Specific prerequisites

At least 150 credits from grades 1, 2 and 3 of which at least 110 credits from years 1 and 2, and bachelor's work must be completed, within a programme that includes: 75 university credits (hp) in chemistry or chemical engineering, 20 university credits (hp) in mathematics and 6 university credits (hp) in computer science or corresponding.

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 student will 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.
- Suggest and explain how the method development and the optimization can be accomplished for the different techniques.
- Participate actively in the demonstration laboratory exercises.
- Define and compare the different methods, choose technique/method for specific analysis problems and motivate the choices also with respect to environmental and sustainability aspects.
- Plan, perform and evaluate a laboratory project in a group, present the lab project in a written report and an oral presentation for the other students in the course.

Course contents

The lectures discuss basic principles of different separation techniques and give a summary of a few of the most important methods like capillary gas chromatography, HPLC, capillary electrophoresis and combinations of these with mass spectrometry. In this connection, specific instrumental aspects, sample workup methods, optimizing of separations and problem solving, are discussed. When relevant the different methods, techniques and applications are also discussed regarding environmental and sustainability issues.

The laboratory course includes a group assignment or minor project, which is often related to an ongoing research project or a relevant industrial project.

Examination

- TEN1 - Oral exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 4.5 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.

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

Other requirements for final grade

Final grade for the complete course is based on the grade of TEN1.

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.