



KD2330 Analytical Separations

7.5 credits

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 KD2330 valid from Spring 2011

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

Admission requirements for independent students:

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. Documented proficiency in English corresponding to English B.

Admission requirements for programme students at KTH:

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 completing the course the student should be able to

- explain the basic principles for gas chromatography, liquid chromatography, capillary electrophoresis and mass spectrometry etc
- describe the different methods, which are used in each technique respectively and the instrumental variants that exist e.g. concerning injection and detection
- define and compare the different methods
- choose technique/method for specific analysis problems and motivate the choices
- describe different sample treatment techniques and decide when and how these should be utilised
- suggest and explain how the method development and the optimisation can be accomplished for the techniques discussed during the course
- use the above mentioned knowledge to plan, perform and evaluate a laboration 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.

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

Course literature

Quantitative Chemical Analysis, D.C. Harris, 7ed, ISBN 9780716776949

or

Quantitative Chemical Analysis, D.C. Harris, 8ed ISBN: 978-1-4292-1815-3

Examination

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

Other requirements for final grade

Laboratory Work, presentation of project work (LAB1; 4.5 hp)
Written examination (TEN1; 3.0 hp)

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.