



KH1122 Analytical Chemistry

7.5 credits

Analytisk kemi

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 KH1122 valid from Autumn 2015

Grading scale

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

Education cycle

First cycle

Main field of study

Chemistry and Chemical Engineering, Technology

Specific prerequisites

Completed upper secondary education including documented proficiency in Swedish corresponding to Swedish B and English corresponding to English A. For students who received/will receive their final school grades after 31 December 2009, there is an additional entry requirement for mathematics as follows: documented proficiency in mathematics corresponding to Mathematics A.

And the specific requirements of mathematics, physics and chemistry corresponding to Mathematics D, Physics B and Chemistry A, as well as 10 university credits (hp) in chemistry.

Language of instruction

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

Intended learning outcomes

The general aim of this course is to give theoretical and practical knowledge concerning both fundamental analytical chemistry, and modern chemical measurement techniques.

When you have passed the course you will be able to:

- Perform fundamental chemical analyses within the areas of wet chemistry, potentiometry, spectroscopy and gas chromatography and describe how to carry out these methods.
- Describe the fundamental principles for the methods, which problems can appear, and how to handle these problems.
- Explain causes of error in analyses and properly estimate these errors through the process of handling data and using statistics.
- Perform calibrations and calculations that are related to the quantitative chemical analysis.
- Describe the problem of sampling and the contribution of this problem to the final measurement.
- Describe how to process the sample prior to analysis in terms of dissolving and handling of interferences
- Write your own lab reports that describe the analysis, calculations, results and experimental errors
- Describe the techniques used and the analysis performed at different companies or other activities in the community

Course contents

Sampling.

Quantitative analytical chemistry including applications.

Gravimetry.

Titrimetry.

Electrochemical measuring methods.

Chromatographical methods.

Spectrometrical methods.

Course literature

Hart H; Craine L. E.; Hart D. J. ; Haddad C M; Organic Chemistry - A brief course, 13ed. Int. Ed., Brooks/Cole, Cengage Learning, 2012.

Examination

- LAB1 - Lab-Work, 3.0 credits, grading scale: P, F
- TEN1 - Written examination, 4.5 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

Passed examination (TEN1; 4,5 cr.).

Passed lab sessions (LAB1; 3 cr.)

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.