CK1295 Analytical Chemistry with Statistics 5.5 credits

Analytisk Kemi med statistik

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

Establishment

Course syllabus for CK1295 valid from Autumn 2023

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic eligibility: Upper secondary school before 1 July 2011 and upper secondary adult education before 1 July 2012

Special eligibility: Mathematics E, Physics B and Chemistry A. In each of the subjects, the grade Pass or 3 is required.

Upper secondary school from 1 July 2011 and upper secondary adult education from 1 July 2012 (Gy2011)

Special eligibility: Physics 2, Chemistry 1 and Mathematics 4. In each of the subjects, a minimum grade of pass is required.

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:

- Manage, analyze and evaluate analytical data using statistical methods.
- Describe and apply the techniques of spectroscopy, chromatography, mass spectrometry and electroanalytical methods for chemical analysis.
- Be able to carry out sampling and sample preparation and choose the right analytical methodology for a given problem related to sustainable development, as well as generate, describe and discuss experimental results in a written report.

Course contents

The course focuses on the description and application of fundaments on analytical methodology and reasoning, together with statistics and some instrumental techniques. Lectures aim to build up analytical chemistry knowledge with basic theory. Statistical methods and statistical computer programs are introduced as aids for analysis and data evaluation. In the laboratory sessions, the student gains practical experience in the use and handling of instruments for measurements with potentiometry, spectroscopy, chromatography and mass spectrometry. The content of the course is also applied in an environmental chemistry laboratory project that includes sampling, sample preparation and analysis using various analysis techniques (voltammetry, chromatography and spectroscopy). In the project, aspects of sustainable development will also be discussed. Special emphasis is placed on how experimental data is processed and presented in diagrams and how the results are described linguistically in a technical report.

Examination

- KON1 - Written exam in statistical analysis, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written exam, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project in analytical chemistry, 1.0 credits, grading scale: P, F
- LAB1 - Laborations, 1.0 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.

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

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.